UNITED STATES OF AMERICA

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DEPARTMENT OF AGRICULTURE
AND
DEPARTMENT OF HEALTH AND HUMAN SERVICES

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DIETARY GUIDELINES ADVISORY COMMITTEE

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SIXTH MEETING

WEDNESDAY, MAY 12, 2010

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The meeting came to order, at 8:00 a.m., Dr. Linda Van Horn, Chairperson, presiding.

PRESENT:

LINDA V. VAN HORN, PHD, RD, LD, DGAC CHAIR

NAOMI K. FUKAGAWA, MD, PHD, DGAC VICE CHAIR

CHERYL ACHTERBERG, PHD, MEMBER

LAWRENCE J. APPEL, MD, MPH, MEMBER

ROGER A. CLEMENS, DRPH, MEMBER

MIRIAM E. NELSON, PHD, MEMBER

SHARON M. NICKOLS-RICHARDSON, PHD, RD, MEMBER

THOMAS A. PEARSON, MD, PHD, MPH, MEMBER

RAFAEL PEREZ-ESCAMILLA, PHD, MEMBER

F. XAVIER PI-SUNYER, MD, MPH, MEMBER

ERIC B. RIMM, SCD, MEMBER

JOANNE L. SLAVIN, PHD, RD, MEMBER

CHRISTINE L. WILLIAMS, MD, MPH, MEMBER

ALSO PRESENT:

CAROLE DAVIS, MS, RD, CO-EXECUTIVE SECRETARY AND DESIGNATED FEDERAL OFFICER (DFO), U.S. DEPARTMENT OF AGRICULTURE

KATHRYN McMURRY, MS, CO-EXECUTIVE SECRETARY, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

ROBERT POST, PHD, MED, MSC
DEPUTY DIRECTOR, CENTER FOR NUTRITION POLICY AND PROMOTION (CNPP), USDA

WENDY BRAUND, MD, MPH, MSED, ACTING DEPUTY DIRECTOR, OFFICE OF DISEASE PREVENTION AND HEALTH PROMOTION (ODPHP), HHS

KEVIN CONCANNON, MSW, UNDERSECRETARY, FOOD, NUTRITION, AND CONSUMER SERVICES, USDA

WANDA JONES, DRPH, PRINCIPAL DEPUTY ASSISTANT SECRETARY FOR HEALTH, HHS

C-O-N-T-E-N-T-S

C-O-N-T-E-N-T-S (CONTINUED)

C-O-N-T-E-N-T-S (CONTINUED)

C-O-N-T-E-N-T-S (CONTINUED)

C-O-N-T-E-N-T-S (CONTINUED)

P-R-O-C-E-E-D-I-N-G-S

8:01 a.m.

DR. POST: Ladies and gentlemen, good morning from Washington, D.C. Thank you for standing by.

Dr. Rajen Anand, the Executive Director of the Center for Nutrition Policy and Promotion of the United States Department of Agriculture, is on the agenda to present today. However, he is unable to be here.

My name is Robert Post. I am the Deputy Director for the Center. I will be representing USDA as officiating person on his behalf.

Welcome to this webinar of the sixth and final meeting of the 2010 Dietary Guidelines Advisory Committee. We are now on the final stretch of this journey, which began almost two years ago.

I want to express my gratitude to the Dietary Guidelines Advisory Committee members for their ongoing, dedicated service

in evaluating the science for the development of these ever-so-important Dietary Guidelines recommendations.

The Committee's work has never been more critical, as USDA and the Department of Health and Human Services work toward reducing the public health problems of obesity and preventing diet-related chronic diseases.

The Dietary Guidelines for Americans are an important part of improving the health and well-being of Americans of all ages within every community in our country, and they provide the basis for federal nutrition policy and countless nutrition education programs.

The contributions made by this 2010 Dietary Guidelines Committee will undoubtedly rank among the highest of these committees, particularly with regard to the approach taken in reviewing and weighing the evidence.

The continued cooperation between

the Center for Nutrition Policy and Promotion, the Agricultural Research Service within USDA, and our partners, the Department of Health and Human Services, in seeing this 2010 Dietary Guidelines process through has definitely been commendable, not to mention the immeasurable amount of dedication provided and contributions made by each staff member supporting the Committee. My hat goes off to all of you.

For the benefit of the webinar attendees who cannot see us today, I would like to share that, in addition to the Committee members, also at the table here today are:

Ms. Carole Davis, who is the Director of the Nutrition Guidance and Analysis Division at CNPP. Carole is the Designated Federal Officer and a Co-Executive Secretary for the Dietary Guidelines Advisory Committee.

And Dr. Wendy Braund, the Acting

Deputy Director of the Office of Disease Prevention and Health Promotion at HHS, who is representing Rear Admiral Penelope Slade-Sawyer, the Director of that office, who could not be here with us today.

And Ms. Kathryn McMurray, the Senior Nutrition Advisor at the Office of Disease Prevention and Health Promotion of HHS, and also a Co-Executive Secretary for the Dietary Guidelines Advisory Committee.

The Dietary Guidelines Advisory Committee has had a very important charge during the time in which it has served. This included informing the Secretaries of both Departments of changes to the Dietary Guidelines that were warranted, these being based on the preponderance of the most current scientific and medical knowledge; placing its primary focus on the review of scientific evidence published since the last Dietary Guidelines Advisory Committee deliberations; placing its primary emphasis on the

development of food-based recommendations, and preparing and submitting an advisory report of technical recommendations with rationales to the Secretaries of USDA and HHS.

The charge also stated that the Committee responsibilities did not include translating the recommendations into a policy or communications document. That task rests with the federal agencies.

This Committee was governed by the Federal Advisory Committee Act, most commonly referred to as FACA. FACA was established to assure that advisory committees provide advice that is relevant, objective, and open to the public, act promptly to complete their work, and comply with reasonable cost controls and recordkeeping requirements.

To comply with FACA rules, each public meeting was announced in The Federal Register through a public notice and comment process, and the proceedings were open for observation by the public. As I mentioned,

today will be the last of the public meetings, where all of the final deliberations of the Committee will be presented to you.

During the meeting, all public participants will be in a listen-only mode. The public has had opportunities to participate in the process by providing oral testimony at one meeting and written comments throughout the past one-and-a-half years via our online public comments database at www.dietaryguidelines.gov.

I would like to remind the Committee members that, until their advisory report is submitted to the Secretaries of Agriculture and Health and Human Services, they should continue to refer any individuals to the Dietary Guidelines management team, who contact any of the individuals who contact them personally regarding the solicitation of information about their work on the Committee.

To continue to ensure that the Committee's work is transparent to the public,

Committee members are also not able to speak or give presentations to any individuals or outside groups regarding the work of the Committee until after the advisory report has been delivered.

I have the great pleasure at this time of introducing our esteemed guests.

First, I would like to introduce or mention that we have with us Mr. Kevin Concannon, the Under Secretary for Food, Nutrition, and Consumer Services of USDA, and Dr. Wanda Jones, Principal Deputy Assistant Secretary for Health at the Department of Health and Human Services. They have joined us this morning to give us some remarks.

Let me first introduce to you the USDA Under Secretary for Food, Nutrition, and Consumer Services, Kevin Concannon. Under Secretary Concannon was nominated for this position by President Obama and Secretary Vilsack, and was confirmed by the Senate in July of 2009. The Under Secretary comes to

the Department of Agriculture with an impressive resume, having served over 25 years as the Director of State Health and Human Services in three states, Maine, Oregon, and Iowa.

In addition, Under Secretary Concannon has served as the President of the American Welfare Association and the National Association of State Mental Health Directors.

He received his -- (Fire alarm.)

I am sorry, but we have a fire alarm in this building at the moment. So, we are going offline for the moment.

(Whereupon, the foregoing matter went off the record at 8:09 a.m. and resumed at 10:08 a.m.)

DR. POST: Ladies and gentlemen, good morning again from Washington, D.C. Thank you very much for your patience and standing by.

We had to evacuate the building we are meeting in for a real reason, an

electrical short that emptied this building. So, thank you for being patient over the last couple of hours, as we have been, as we got our dose of vitamin D in the nice sunshine today in Washington, D.C. and probably a little potassium along the way for those who got some coffee. So, we like a committee that is committed to improving the health of all Americans, including themselves. So, thank you very much.

We are continuing the program this morning. I will introduce Dr. Wanda Jones in a moment. I wanted to indicate that Under Secretary Kevin Concannon had to meet another obligation and is not here to provide his remarks.

But let me now introduce you to our other esteemed guest.

I would like to now introduce to you Dr. Wanda Jones from the Department of Health and Human Services. Dr. Jones is the Principal Deputy Assistant Secretary for

Health in the Office of Public Health and Science within HHS.

As the Principal Deputy Assistant Secretary for Health, Dr. Jones actively participates in the Department's efforts concerning global health, disaster recovery, Healthy People, and a range of other issues managed within the Office of Public Health and Science.

Dr. Jones has long been recognized for her leadership in the federal and state public health communities, having previously served as the Deputy Assistant Secretary for Women's Health and the Director of the Office on Women's Health.

Prior to joining the Office on Women's Health, she served as the Associate Director for Women's Health at the Centers for Disease Control and Prevention in Atlanta.

She obtained her doctorate in public health laboratory practice from the University of North Carolina.

Please join me in welcoming Principal Assistant Secretary for Health Wanda Jones.

(Applause.)

PRINCIPAL DEPUTY ASSISTANT SECRETARY JONES: Thank you, Robert, and thank you, everyone, for inviting, actually, my boss, Dr. Howard Koh, who had to go to Chicago today, where he is actually helping promote physical activity and other components of the First Lady's anti-obesity efforts on behalf of all the U.S. Government.

And for those of us who walked out the eight flights this morning as well, we also were attending to some of the Physical Activity Guidelines guidance. So, I really salute the Committee. Although it was a couple-hour break this morning, we were able to make it productive time. There was a lot of work being done in the beautiful weather, and then we also got the personal benefits of a few extra steps and that vitamin D that all

seemed to be so important.

It is a real pleasure to be with you this morning and to tell you I have watched off and on as this Dietary Guidelines Advisory Committee has done its work. Many of your names I recognize from the literature, as I have dropped in and out of one nutrition or dietary issue or another. Of course, our colleagues at the Office of Disease Prevention and Health Promotion have briefed us periodically on the Advisory Committee's activities.

So, it is really an honor to be here with you in person to put faces with those names and to give you a very hearty thank you for the work that you have done over this past year and a half or two years. Your contributions are going to make a significant difference to the progress that we are able to make in the next version of Dietary Guidelines for Americans. You have spent countless hours pouring over the literature, developing

evidence-based recommendations for two Departments.

I think that is the other cool thing, this partnership between Health and Human Services and the U.S. Department of Agriculture. We have always worked together on a number of issues. Here, around Dietary Guidelines, the relationship is particularly strong and that shared interest as we both work to create the next version, the 2010 Dietary Guidelines for Americans.

Having these evidence-based recommendations, having the absolutely invaluable contribution that the evidence warehouse -- I will come back to its proper name in just a moment, but to have that as a repository that we can all draw upon, there will just be immeasurable benefits to the time that you have spent. I just can't really say thank you enough.

This process for 2010 has been especially robust because of this Nutrition

Evidence Library that you have worked to develop and the corresponding systematic review process for all the questions that were addressed, as you have met and gone through these processes.

We know that the Dietary Guidelines have a rich, science-based history, but moving up to this new level of scientific authority is going to place the Dietary Guidelines in a new light and a new power, if you will, that they will have to truly influence many different levels of policy and interaction at the federal, state, and local levels, and I would daresay globally as well. We often don't think about the work we do domestically and the way it extends out into the world, but with the media today, the internet, and many other forms of access to what goes on, many around the world will look to these Dietary Guidelines as an invaluable resource for the work that they are doing.

As a scientist myself, I also

appreciate the processes that lead to recommendations based in science to transparency when those recommendations are developed, the strength of evidence that is weighed and assessed, and sometimes hotly debated. But, you know, that is part of the fun part of science. I just wish I had taken a little bit more training in that debate part because, you know, that is some of the most lively discussion as science is constantly evolving.

I like to say science is always evolutionary; it is rarely revolutionary. It is all a process, as we make steps forward. We didn't get to the moon overnight. We didn't get to this day of webinaring overnight. And I think in my lifetime, when we went from no TVs in the home to now the average home has -- what? -- three to five TVs and, basically, a TV in your cell phone. So, this process of scientific development is challenging, interesting, and for something

like Dietary Guidelines, I think both novel, but also absolutely critical.

So, on behalf of HHS, I assure you that the science that you have worked so hard to raise up and to ensure its integrity and its accessibility, these will all be assimilated, the science will be assimilated, not just in your technical report, but in the work that the Dietary Guidelines for Americans will then entail, as your report is made available, which HHS and USDA will jointly release later this year.

So, for all the time, all the thought you have put into this, the hours away from home from your academic or work life, every other sacrifice that you have made, visible and invisible to all of us, we couldn't have done this without you. The product will be just phenomenal. I am absolutely convinced of that, and I know Dr. Koh as well is very excitingly looking forward to these next phases.

So, I thank you all again for all your hard work. I had a delightful conversation with Under Secretary Concannon. I know there are many ways in which HHS and USDA will continue to work on opportunities moving forward, and I hope, indeed, for me personally, that I will have opportunity to interact with many of you at that personal level again.

Thank you all very much. Best wishes for your continued success and good work. Thank you.

(Applause.)

DR. POST: Thank you to Dr. Jones for those remarks, and thank you, too, for Under Secretary Concannon for having made the trip earlier today.

Thank you for sharing those wonderful remarks in support of this Committee's work and the work they have done, as well as providing your overall encouragement in support of evidence-based

nutrition advice to promote general health and reduce chronic disease risk for all Americans.

We look forward to the Committee completing its goal today of achieving consensus and of providing recommendations in a very comprehensive, yet focused, Advisory Committee report to the Secretaries of USDA and HHS.

So, let me now turn the microphone over to Dr. Wendy Braund, the Acting Deputy Director and Lead for the Prevention Science Team in the Office of Disease Prevention and Health Promotion at HHS.

DEPUTY DIRECTOR BRAUND: Good morning.

I am Wendy Braund, Acting Deputy Director of the Office of Disease Prevention and Health Promotion in the U.S. Department of Health and Human Services.

On behalf of HHS, I would like to join Dr. Jones, and also Mr. Concannon and Dr. Post from USDA, in welcoming both the members

of the Committee and the listening members of the public to this meeting.

ODPHP's Director, Rear Admiral Penelope Slade-Sawyer, also asked me to convey her thanks to you and also her regrets that she is unable to be here today.

I would like to convey the Department's deep gratitude for the many hours the Committee has toiled over the past year and a half, with the support of USDA and HHS staff, to ensure that the Dietary Guidelines for Americans reflect the preponderance of current scientific evidence relating to nutrition and health.

The work of the Committee on the 2010 Guidelines comes at a momentous time when it can have a real impact on promoting the health of Americans and reducing risks for major chronic diseases associated with diet and physical activity.

HHS leaders are looking forward to utilizing the technical report discussed today

in developing the official federal policy with our colleagues at USDA. We truly appreciate all the hard work by the Committee and staff members that has gone into this process.

Best wishes for a productive and enjoyable meeting.

DR. POST: Thank you, Wendy.

In speaking about transparency earlier, we are very excited to be broadcasting this meeting live via the World Wide Web again, like we did with the last three meetings, which enables us to reach a more varied and larger audience of interested parties, and has the added benefit of providing for a recording of the meeting, which can be used for future reference. These recordings are easily accessed as an archive at www.dietaryguidelines.gov.

We have individuals that have registered for this meeting from across the nation as well as internationally participating today. We were quite impressed

at the last meeting that we had registered attendees from around the world. For this meeting, not only do we have about 320 registrants, but we have extended the global reach with attendees viewing the presentations from Mexico, Egypt, Canada, Myanmar, Lebanon, and Israel.

I would also like to review a few technical points for public participants who are viewing today. On your screen you will see some relevant information. If you experience technical difficulties, you may contact WebEx Technical Support toll-free at 1-866-229-3239. This information was also emailed at the time you registered. A separate technical assistance number for our international participants was also provided and can also be seen on your screen.

The staff here in the room with us will be monitoring an email line, so to speak, where public participants can send notes of any technical difficulties while the meeting

proceeds. As you see on the screen, this email address is tech_issue@yahoo.com.

Please note that the staff will not respond to these emails. It is simply one of the many ways that we are monitoring the streaming efficiency of the meeting to the public.

We value your feedback on this webinar meeting. So, I will also add that, after the meeting, you will receive a survey from WebEx in order to measure your satisfaction with attending this online meeting.

As in the past, a copy of the webinar will be available online and a transcript and a written summary of this event will be posted to our Dietary Guidelines website as they become available.

Because this meeting is being streamed live to the public, I would like to ask that the Committee members clearly state their name before speaking. This is important

in facilitating clear deliberations to the public who are following the proceedings.

With that, I would like to turn the meeting over to the Chair of the Dietary Guidelines Advisory Committee, Dr. Linda Van Horn.

Linda?

CHAIR VAN HORN: Well, thank you, Rob, and thank you to everyone for your patience as we have experienced sort of an interesting, real-life day so far. I would just like to remember that those who remain flexible don't get bent out of shape.

(Laughter.)

So, I think that is what we are going to practice today.

It is wonderful to be here with our Committee as well as the support staff. We have a very ambitious agenda.

I, too, would like to add my thanks to everyone for their hard work and perseverance in producing this report. I

think it goes without saying that some adjustments will be made to today's agenda, given the delay that we have had, and our group has been efficient and flexible over the last year and a half in all of our deliberations. So, I think today we will rely on everyone to be concise, and, yet, still put the effort into reviewing to the group how much the work has gone forward in terms of the progress.

Over the past year and a half, we have continually been reminded of the relevance of our work to the public health in the United States, especially with the obesity epidemic we are facing today. I can truly say that the advisory report that will be delivered to the Secretaries of USDA and HHS will be one of the strongest, evidence-based reports ever written and will be paramount in assisting the federal government as they develop the 2010 Dietary Guidelines for Americans Policy.

Since our last meeting, held just one month ago, the Committee and our support staff have been working hard to finalize all proposed conclusion statements and support summaries of the evidence, and have been fine-tuning drafts of the chapters for the report.

I would add here that this report is not yet final. There will, in fact, be changes that continue to be made after today's report, especially because of the condensed timeframe that we have to work with today, and our Committee is aware that some additional changes can be made in the report as we conclude with our comments today.

So, the focus of today's meeting will be to present all the questions or families of questions for each Subcommittee which the Committee members posed and provide conclusion statements for at least those that we have developed to this point to answer those questions. An agreement will be reached on all these conclusions.

The agenda for today's meeting will follow the proposed outline, albeit, again, condensed wherever possible. At the end of each family of questions or set of related topic area questions, there will be an opportunity for the Committee to ask questions or raise issues, and adjustments needing to be made can be made at that time and subsequent to today's meeting.

As a reminder for the public, the Committee worked on seven different Subcommittees, each with its own topics listed on the agenda. In addition to the seven Subcommittees, the Science Review Subcommittee provided oversight and guidance related to the technical review of the evidence.

As work within the Subcommittees progressed, a new chapter for the report evolved to address the total diet concept. Key members of the Energy Balance and Weight Management, Carbohydrates and Protein, Nutrient Adequacy, Sodium, Potassium, and

Water Subcommittees worked together to prepare this chapter, while other Committee members actively worked on writing the translation and integration chapter of the report. These two chapters will set the stage for the report and will be discussed before the other Subcommittee chapters today.

In quick summary, I want to tell you how we answered our scientific questions. Most of these were asked using the USDA's Nutrition Evidence Library systematic review process. We commonly refer to that as NEL.

For some questions, it was decided that a formal NEL review was not needed. In some cases, such as when only a brief update was needed, other sources of evidence were used when appropriate, such as the 2005 Dietary Guidelines report, the IOM report or the Physical Activity Advisory Committee report.

For other questions, food pattern modeling was used to understand the

implications of specific recommendations on the total diet. And yet, for others, data analyses were used to answer the questions.

Our total review of the evidence will be summarized in the advisory report. Details of the evidence review will also be available in the electronic database accessible by the public called the USDA Nutrition Evidence Library. All information related to the criteria used in reviewing the evidence will be located here, including inclusions/exclusion criteria, quality ratings, et cetera. The NEL ensures that the details of our scientific review are well-documented, transparent, and reproducible.

In previous meetings, conclusion statements based on a NEL review were presented with numeric grades that indicated the strength of the evidence. However, after reviewing the entire body of conclusion statements for our Subcommittees, the Committee decided to drop the numeric rating

system because it was difficult to apply a common grading system to evidence reviews that varied in their methodology.

Therefore, the 2010 Dietary Guidelines will use standardized vocabulary instead of the numeric rating, and there are several terms that we are actually going to discuss a bit in terms of how those will be conveyed. For further details on these, please refer to the conclusion statement evaluation criteria posted on the Dietary Guidelines website under Meeting 6.

I would also like to mention that close to a thousand public comments were reviewed over the last year and a half. Each Subcommittee looked at these and took them into consideration during their deliberations.

So, at this time, I would like to begin with the Subcommittee presentations. We have a lot to cover today, but we will start with the introduction of "The Total Diet: Combining Nutrients, Consuming Foods" chapter,

which is new to this report.

With that, we will just move right into it. I will be the person presenting a summary of this.

All of the Committee members have had a chance to look at this. But the Total Diet chapter is being included for the first time.

And I am not sure why it is not going. Okay, thank you. It is not advancing.

This is included for the first time. It synthesizes the evidence on dietary components that contribute to excess energy and inadequate nutrient intakes, and the foods that are needed to provide essential nutrients and other health benefits. It provides a brief evidence-based comparison of worldwide eating patterns and describes the USDA food patterns that demonstrate a flexible nutrient-dense total diet.

It is also a catalyst for the total diet approach. The current average

American diet bears very little resemblance to the recommended Dietary Guidelines. We consume too many calories, too much added sugar, solid fats, refined grains, and salt. We also consume too little dietary fiber, vitamin D, calcium, potassium, unsaturated fatty acids, including omega-3, and other nutrients found in vegetables, fruits, whole grains, low-fat dairy products, and seafood.

Overweight and obesity are highly prevalent in the United States in both adults and children. The single most significant adverse health trend among U.S. children in the past 40 years has been the dramatic increase in overweight and obesity. Factors associated with preventing adiposity are incorporated in the total diet described in this chapter.

The definition of total diet is the combination of foods and beverages that provide energy and nutrients and constitute an individual's complete dietary intake on

average over time. As we blend the recommendations into a healthful total diet, we are discussing moderate energy intake, and this is achieving the recommended nutrient intakes within a total diet that meets, but does not exceed energy needs.

People consume too many calories relative to the calories they expend. Diets high in energy, but low in nutrients can leave a person overweight, but undernourished and at risk for chronic disease.

Americans are encouraged to know their energy needs. That means need to know how many calories you need to eat each day. Beverages contribute heavily to overall dietary and energy intake, and calories in these foods need to be considered as well.

Portion control and quantities consumed are also important considerations. We also need to reduce the solid fats and added sugars, commonly referred to as SoFAS, in our diet. SoFAS contribute substantially

to the intake, somewhere around 35 percent of our total caloric intake, which leads to excessive intake of saturated fat and dietary cholesterol and neglects dietary fiber and other essential nutrients. The DGAC focus is on reducing SoFAS rather than discretionary calories.

The sources of solid fats include grain-based desserts such as cakes, cookies, pies, et cetera; cheese; sausage, franks, bacon, ribs; pizza, and white potatoes fried, French fries. The sources of added sugars include sodas, grain-based desserts, fruit drinks, dairy deserts, and candy.

What we eat versus what is recommended is vastly different. We have an illustration of this, recognizing that the calories from solid fats and added sugars should be less than a third of what we currently are consuming.

The nutrient-dense foods include vegetables, fruits, high-fiber whole grains,

seafood, eggs, and nuts, low-fat forms of milk and milk products, lean meats and poultry, when prepared without added SoFAS, starches or sodium. Found in a variety of forms, but ideally minimally-processed, these foods will contribute those nutrients without excessive energy, and they can provide the nutrients that are currently lacking.

We further illustrate in one of the figures the examples of the foods that we are currently eating versus what is recommended and, once again, illustrating the vast disparate nature of our current diet versus what we would want to consume.

We also need to reduce sodium. Excessive sodium raises blood pressure. Current food supply is replete with excess sodium, and about 75 percent of sodium is added during food processing. Food manufacturers and restaurant industries have a critically-important role to play in helping us reduce sodium intake.

Regarding worldwide dietary patterns, there is evidence accumulating that certain dietary patterns are associated with health benefits. The DGAC examined dietary patterns and total mortality, CVD, and blood pressure. This is a new focus in this report because, finally, data on whole patterns and whole eating styles are available for a comparison with health outcomes.

We focused on the DASH-style and the Mediterranean-style eating patterns with considerable evidence available for both. We also examined the traditional Asian diets that represent Japanese and Okinawan research, as well as vegetarian diets.

Then, we looked at the flexibility of trying to apply these types of eating patterns by using the USDA food patterns. Consistent with emerging evidence about dietary approaches to primary disease prevention, these patterns include recommended amounts from the major food groups in

nutrient-dense forms and allow for oils with limits on calories from the SoFAS. They meet the nutrient needs within the energy requirements. They are developed on plant-based, lacto-ovo vegetarian, and vegan variations. And further, the USDA modeling examined the impact of the non-nutrient-dense choices.

So, in summary, good health across the lifespan requires a total diet that is limited in total calories and portion control, focused on nutrient-dense vegetables, fruits, high-fiber whole grains, nonfat and low-fat milk and dairy products, seafood, lean meat and poultry, eggs, soy products, nuts, seeds, and oils, and very low in SoFAS.

We also advocate physical activity. It is important for energy balance and maintaining body weight, but the primary focus should be on reducing excess calorie intake. Physical activity alone will not address the obesity problem in this country.

It must go hand-in-hand with limits on total caloric intake.

Children and adolescents are of particular concern. I can say that the entire Committee is united in its focus on the importance of primary prevention of obesity starting in childhood. The dietary patterns formed during youth set the foundation for the choices and behaviors as adults.

Several distinct dietary patterns are associated with health benefits. A common feature is emphasis on plant foods. Americans have considerable flexibility in selecting a diet that meets these nutrient requirements while reducing preventable diseases and controlling weight.

The challenge will be to promote this population-wide adoption of a healthy dietary pattern in the setting of powerful influences that currently promote unhealthy lifestyle. Yet, we know that, as a group and with combined partnership, we can accomplish

these goals.

This ends the introduction and summary of the Total Diet chapter. Most of the Committee members have had a chance to look at this report, this chapter. Additional modifications are still needed, but, as a group, are there any comments from the Committee?

Larry?

MEMBER APPEL: Yes, this is Larry Appel.

I have several comments, but the one issue that I wanted to have from the Committee, because I wrote a section on dietary patterns, was whether or not to more explicitly include Japanese and Okinawan diets.

The database is just not as rich as for the others, but, on the other hand, we felt that we needed to accommodate or mention other cultures. So, I greatly truncated the section, but I really would also want to make

sure that the Committee feels comfortable with what was written.

CHAIR VAN HORN: Xav?

MEMBER PI-SUNYER: So, I would take it out myself. That is my opinion. I think that there's not enough evidence-based data on that. I think, in a way, it sort of, by putting it in the first chapter, you are kind of giving emphasis to it as, quote, "good diet". I think it is confusing personally. I would take it out.

CHAIR VAN HORN: I think, just to reflect some of the comments that have been made already by Committee members, it is that there is nothing wrong at all with the traditional Japanese and Okinawan diets, but much of the research that was accomplished on those groups was older. It was done back in the fifties and sixties, when even their dietary patterns were different than they are now, as things have evolved and become more Westernized. So, I think we run the risk of

emphasizing a diet that was at one point fairly nutritious that perhaps at this point is less so.

I do think that the data are the data, and the good thing about this particular chapter is that we at least had epidemiologic data on whole dietary patterns which have not previously been available to review in terms of coming up with this chapter. So, while I think that the emphasis on evidence-based data is very apparent throughout this report, and this certainly is evidence-based, I think that, as Xav points out, you sort of run the risk of perhaps overfocusing on a particular eating pattern that has data associated with it, when we know there are other cultures that have nutritious diet patterns as well that we don't have the data on to compare it with.

Other thoughts? Cheryl?

MEMBER ACHTERBERG: I just wanted to add the comment that I think we need to insert into this chapter that there is no

single American diet or, for that matter, Western diet, but many different American diets.

CHAIR VAN HORN: Right, and that is why the USDA modeling offers all those different choices: vegan, vegetarian, use of starchy vegetables as opposed to whole grains, and there's a variety, but to state that. Okay. Yes.

Mim?

MEMBER NELSON: To that end -- this is Mim Nelson -- I am in favor, actually, of removing the Asian and Okinawa section. But sort of following up on Cheryl's comment, I think there could be a paragraph that talks about basically most traditional diets there is evidence that there is health-promoting aspects of most of these traditional diets. You could just like put a string -- even though there's limited, there's not tons of evidence, as much as for DASH and Mediterranean. That would be a way to

highlight the flexible, you know, the heritage, the cultural differences. There may be a way to go into depth with DASH and Mediterranean, and then you have sort of a catchall about the flexibility and the traditional diets generally in their native form are fairly healthy, something in those lines.

MEMBER APPEL: This is Larry Appel again.

One option is to really constrict it even more in the main chapter, and then constrict it a bit more in that appendix. But, still, I think it is worth mentioning, but it is a question of highlighting when you don't have as much evidence.

MEMBER NELSON: Yes, I think that is exactly it. But I think the whole purpose is that you can eat healthfully in a variety of ways. I think that is the purpose of that whole section, and I think you can do it, but not necessarily highlight the older data

there.

VICE CHAIR FUKAGAWA: This is Naomi Fukagawa.

I would concur with the decision to remove it from the main body of the chapter, but, again, do think that it is very important to keep in the appendix, but not in a whittled-down form, because I do think that the facts that you do provide are valuable and important for the community that is reading the appendix to know that we acknowledge this. You might even include some other diets that are culturally different or ethnically different, although there may not be specific data on them.

MEMBER CLEMENS: This is Rog. I am putting on my technology hat.

I appreciate the remarks. I think people are really going to look at the slide that deals with sources of solid fats and that of sugars very carefully. I am glad that these topics are raised in the chapter.

I just want to bring to the surface that, in fact, if you look at fried materials, whether that is French fries, potatoes, or any other things that are fried, today's technology says that restaurants are now using winterized vegetable oil instead of lard with very few exceptions. So, I see that as a caloric issue and not a solid fat issue.

CHAIR VAN HORN: Yes, that is important. Okay. That was very valuable.

Now I think we will just move right along to the Translating and Integrating the Evidence chapter, and Naomi will handle that.

VICE CHAIR FUKAGAWA: Thank you, Linda.

Oh, sorry.

MEMBER APPEL: I don't want to drill down in detail, but I had about four comments that I think are substantive related to the chapter. I think we could just go through them quickly.

One, I just spoke with other members of the Committee. It says, "lower intake of sugar-sweetened beverage". I think it should be "greatly reduced intake of sugar-sweetened beverage". It says, "Less hours of screen time" should be modified "without consuming calorie foods" because it is not just the physical activity component; it is the eating component that is associated with that. So, that should be added.

There's a bit of dissonance about energy balance. It says, "Overweight and obesity could result from excess calorie, inadequate physical activity, or both." Then, we say in a sentence just below that it is mostly caloric. So, there is some wordsmithing just so people don't say, "Oh, it's the physical activity that's our problem."

And I have all of this. Then, in terms of when we list the beverages, it is very confusing. I think we need to put

calories from all the beverages, absolute amounts, rather than percent of calories within beverages -- it is just confusing -- in grams.

I guess those are the main points. And the other thing is that graphic of the pie is actually misleading because it makes it seem as though what we should be eating is more. I know we are not here to talk about graphics, but that is a problem right now.

CHAIR VAN HORN: Well, actually, I think the graphic is very important and I think it is still a work-in-progress.

MEMBER APPEL: Yes.

CHAIR VAN HORN: Personally, I wanted to see a plump version of this that illustrates the obesity problem, and this graphic doesn't quite do justice to that. But I think we are still working on that, if I am not mistaken.

MEMBER APPEL: Okay.

CHAIR VAN HORN: But your other

comments are very well-taken. As I said earlier, it is not only physical activity; it absolutely is a matter of reducing total calories, as this report continues to reiterate over and over again throughout the chapters.

VICE CHAIR FUKAGAWA: So, this is Naomi again.

I would like to emphasize, however, that we not confuse the public by focusing so much on sugar because sugar, in and of itself, is a nutrient and very important. Really, the issue of the story about added sugars is total calories. I think it is very important to do that because at the present time it may seem like we are singling out a particular added component of the diet, and our real problem is not so much that sugar is bad, as much as we argue too much --

MEMBER NELSON: This is Mim.

I think the chapter says, first and foremost, it is calories --

CHAIR VAN HORN: Right.

VICE CHAIR FUKAGAWA: Okay.

MEMBER NELSON: -- and then these are the major contributors to that.

VICE CHAIR FUKAGAWA: Okay, so those changes then were suggested --

MEMBER NELSON: Yes, yes.

CHAIR VAN HORN: And the point I made in my opening remarks I think is also vital. That is, it is time for everyone in this country to know how many calories they need each day and to be able to figure that out, so that they don't exceed them.

As we are right now, people are really clueless about how many calories they eat, how many calories they need, how many calories a child needs versus how many calories an older person needs, those kinds of awarenesses. All the labeling in the world is not going to help somebody if you don't have any idea how many calories you need. So, I think that message of really becoming more

conscious of energy balance is a message that really needs to go out loud and clear.

We currently are doing our own research at the moment with 4- to 10-year-old children, and even they can get their heads wrapped around that concept. So, I think it is time to be able to proceed with this knowledge and help people become more conscientious about energy balance and understanding how that works.

Okay. Other comments?

(No response.)

All right. Now we will move along to the translation. Thank you.

VICE CHAIR FUKAGAWA: Thank you.

This is Naomi Fukagawa.

I think we all agree, or there is no disagreement, that adherence to dietary recommendations over the past 30 years has really been very dismal and disappointingly slow. I do think that our Committee has been unanimous in our desire to try to change this.

So, a small group of four, including Drs. Nelson, Clemens, Perez-Escamilla, and Rimm, got together, together with the rest of the DGAC, to find a way to translate and integrate the evidence that we have accumulated over the past two years.

Next slide, please.

So, to do this, major findings with cross-cutting public health impact were identified through the process with the intent that we would provide guidance on how to implement some of the changes that would be needed to assure effective enhancement of the health and well-being of the population through diet.

So, Dr. Mim Nelson will now take us through the integrated points that we have identified and our recommendations for the successful implementation of this over the next five years.

Mim?

MEMBER NELSON: Thanks, Naomi.

This is Mim Nelson.

Yes, so, as Naomi said, the key is we have answered so many individual questions with very focused intent with the individual questions, that we felt that it was very important to integrate and look at the overarching, following and dovetailing on the Total Diet chapter.

So, we came up with four main bullet points or concepts that we feel really should help to drive what the actual 2010 Dietary Guidelines are. So, this is the first.

"Reduce the incidence and prevalence of overweight and obesity in the U.S. population by reducing overall calorie intake and increasing physical activity."

So, No. 1 is reducing calories and increasing physical activity. The different sort of points under this are to know calorie needs, decrease intake of calories from added sugar, solid fats, and refined grains;

increase intake of a variety of vegetables, fruits, and fiber-rich whole grains; avoid sugar-sweetened beverages. I think this dovetails, Larry, with what you were talking about in the whole diet. Although we couldn't think of, except for pleasure, couldn't think of a reason, a nutritional reason why we should actually say you need to eat or drink sugar-sweetened beverages. So, we had avoid; consume smaller portions; choose lower-calorie options, especially when eating foods away from home, and increase overall physical activity.

Next slide, please.

The second main integrated finding is to "Shift food intake patterns to a more plant-based diet that emphasizes vegetables, dried beans and peas" -- this includes canned beans -- "whole grains, nuts and seeds. Additionally, increase intake of seafood and nonfat/low-fat milk and dairy products and consume only moderate amounts of lean meats,

poultry, and eggs."

This will help to meet nutrient needs, especially shortfall nutrients, while maintaining energy balance, and can be attained through a wide range of food patterns, vegan to omnivore, and can embrace cultural heritage and food preferences. The point here, looking at the Total Diet chapter, this is sort of the synthesis about this pattern of eating, but that there's flexibility.

Next slide.

Third is we did single out, and the third is to "Reduce intake of foods containing added sugars, solid fats, refined grains, and sodium because they contribute few, if any nutrients."

These are the main components of our diet that are overconsumed. They lead to excess calorie intake. What we are talking about, sugars, fats, and grains.

To accomplish this goal, efforts

must go beyond individual behavior change, that we need a comprehensive approach. We will be required to help facilitate change. The food industry, from growers, producers, manufacturers, retailers, must act to enable Americans to achieve these goals.

In the chapter, we talk about we have had the recommendation for vegetables and fruits for a long time. We have had the recommendations around sodium. Nothing has happened. If anything, things have gotten a little worse in some of the areas, that it is way beyond individual behavior change, that we need to actually change the nature of the foods that are available to people, both within grocery stores, where they buy them, retail, and at restaurants. So, this bullet, in particular, is a charge to the food industry as a whole.

Fourth is to "Meet the 2008 Physical Activity for Americans."

Could I go back to the other one?

Sorry.

It is not just the larger food industry. I mean individuals can make a difference here as well. But it is really difficult for individuals to make a difference within the context of the food environment, but they can. So, it is not just solely on the industry.

So, next slide.

Then, fourth, to "Meet the 2008 Physical Activity Guidelines for Americans." We need to improve physical activity participation at home, school, work, and community and reduce sedentary behaviors among children and adolescents. We will get further into that in just a second.

So, these are the four main integrated points that we feel capture the essence of almost all the questions.

Next slide, Kellie.

So, as we mentioned before, there's a lot of focus in the report on

children, and trends for childhood overweight and obesity are alarming. To reverse the trend, we need to improve the food environment for children at home, school, and the community; prevent obesity early, even in utero; prevent maternal obesity before conception and during gestation.

Next slide, please.

Improve foods sold and served in schools; increase nutrition and physical education in schools; develop standard approaches for not only tracking, but we don't have any nationally-standardized language tools for physicians and others that are seeing these children to monitor, track, prevent, and treat overweight and obesity. Similarly, we need some standardized approaches for the healthcare profession that are seeing women who are planning to get pregnant and those that are pregnant. We need standard approaches. We need safe communities and routes to school; remove sugar-sweetened

beverages and high-calorie snacks from schools; promote action around reducing screen time, and since children are gaining the most weight during the summer months, we need to have a much better, improved programming during the summer months.

Okay. Next slide.

We certainly have a lot of challenges, and we acknowledge these. There's population growth, availability of fresh water, arable land constraints. Right now, we are 7.5 million acres shy for vegetable, fruit, and whole grain production. Some of these challenges also are around climate change, current policies, business practices, and the environments do not promote physical activity.

Next slide.

To do this, to create this meaningful, sustainable change, we need to improve nutrition literacy and empower and motivate people to want to change. We feel

that people don't know much about nutrition, let alone cooking anymore.

Create financial incentives for healthy food; improve availability of fresh produce, especially in rural and urban areas; increase environmentally-sustainable production of vegetables, fruits, and whole grains; ensure household food security; expand sustainable, safe aquaculture; encourage the food industry and restaurants to offer health-promoting foods, and we need to implement the National Physical Activity Plan that was released on May 3rd, last week.

So, measuring success. As a Committee, we feel that it is one thing to put the Dietary Guidelines out there, but if we are going to actually implement these and actually see meaningful change, we need to have a systems approach to this, so that we actually implement the changes that we are asking for. Otherwise, there's no reason to have a 2015 Dietary Guidelines Committee

because we are not making any meaningful change in any of these areas.

We think that there needs to be a really focused strategic plan that brings multiple stakeholders together who are all vested in this and have a role to play. I think that some of this is happening with sodium, not so much with vegetables and fruits, reducing added sugars, reducing solid fats.

The Foresight Group in the UK has been doing a lot of work in this area. Other countries have been doing some large-scale strategic planning with some success. So, I think this is a really important point. There is no reason to keep going on otherwise.

And we encourage all stakeholders to take action, so that every choice available to all Americans is a healthy choice, and that success can be measured through evidence that meaningful changes occurred when the 2015 DGAC convenes.

So, I am going to stop there, and I think we are happy to take questions or comments, suggestions.

MEMBER PEREZ-ESCAMILLA: Thank you, Naomi and Mim, for a wonderful presentation.

My comment is related to the slide that has the focus on children, and it is the third bullet that reads, "Prevent maternal obesity before conception." I think we should add an excessive postpartum weight retention --

MEMBER NELSON: Yes.

MEMBER PEREZ-ESCAMILLA: -- because both are very important issues.

Then, I wouldn't state it as preventing obesity during gestation, but, rather, preventing excessive gestational weight gain, so that we don't imply we are advocating for dieting, intentional dieting, during pregnancy.

MEMBER NELSON: Right. Yes. Got

it. Thanks. Yes, very good.

Tom?

MEMBER PEARSON: This is Tom Pearson.

Thank you for that. I think the call to action, considering the lack of changes in many areas over the last 15 or 20 years, obviously, brings this all to even more of a crisis mode.

One issue that arose two weeks ago at the second U.S. Dietary Summit, Nutrition Summit, here in Washington, was this issue of education in food safety. I wonder if, on line 179 of the document, there could be some changes.

There's been two body blows to food safety. One has been the total eradication of it from school curricula, and the second has been the withdrawal of funding from Extension Services and local education nutrition, things that could do the nutrition education outside the school curriculum. So,

our safety net for prevention of food-borne illnesses, et cetera, has gotten thinner and thinner and thinner.

So, I just wonder if the comprehensive health nutrition and physical education programs could include not just food preparation, cooking, et cetera --

MEMBER NELSON: Right. Yes.

MEMBER PEARSON: -- but really the provision --

MEMBER NELSON: Definitely, food safety.

MEMBER PEARSON: -- of food safety specifically stated.

MEMBER NELSON: Yes. Absolutely. Yes, duly noted.

Yes, Rog? Oh, sorry, Cheryl.

MEMBER ACHTERBERG: I would like to go back on the integrated findings, the third slide.

MEMBER NELSON: The third point or the third slide?

MEMBER ACHTERBERG: The third point.

MEMBER NELSON: Okay.

MEMBER ACHTERBERG: There we go.

MEMBER NELSON: Yes.

MEMBER ACHTERBERG: And while I commend all the work presented here, I do have an issue with the last clause because they contribute few, if any, nutrients. I think some foods containing SoFAAs do, in fact, contain other important nutrients, thinking of breakfast cereals, for example. So, it is the "because" part that I am uncomfortable with. I think there is a different "because" because what they contribute they don't need.

MEMBER NELSON: Right.

MEMBER ACHTERBERG: But it is not because they contribute few, if any, nutrients. Some foods do; some foods don't.

MEMBER NELSON: Is there a sense -- because originally we didn't have that clause, but then some Committee members

wanted it added. I think that we could easily just have reduced intake, you know, end at "sodium", period, and then within the paragraph -- because in the chapter it is a little different than this, but not the headline. In the paragraph that follows, we can talk about exactly your point.

So, I am happy with that if other Committee members are happy with that. I am seeing a nod. Okay. Yes, that is fine. Duly noted.

Naomi, I think for each one of these discussions somebody should take charge. I will take, if it is okay, I will take charge with making these notes, and then make sure they get incorporated in. Does that make sense?

VICE CHAIR FUKAGAWA: Yes, that is fine.

MEMBER NELSON: Okay.

VICE CHAIR FUKAGAWA: But I did want to clarify that one of the issues about

these four points is that we are trying to define them for the group. So, we need to reduce the intake of those components, but those components are part of foods.

MEMBER NELSON: Yes. Like cereals, for example, should have less sugar in them.

VICE CHAIR FUKAGAWA: Yes.

MEMBER NELSON: That is basically what we are saying.

VICE CHAIR FUKAGAWA: And so, it does have fortified grains, and so forth, which is good. But, then, on the other hand, we have to balance that with the fact that oftentimes along comes components that they, themselves, do not provide additional nutrients. So, maybe the wordsmithing needs to make that clear.

MEMBER NELSON: I think in the paragraph below we can make sure that is there.

MEMBER ACHTERBERG: Or you could

just say, "especially those that contribute few, if any, nutrients", or something along that line.

MEMBER NELSON: It is just to maintain accuracy here.

MEMBER CLEMENS: I agree.

This is Rog.

And refined grains, we also should remember that, as we refine grains, one, they are delivery vehicles for a lot of nutrients, that we do fortification in this country as required by law. Also, that refined grains have provided a vehicle for fortification of folic acid in this country since 1996. And thirdly, refined grains have also removed the anti-nutrients in many cases, such as the phytates and oxalates, which inhibit mineral absorption. So, there's some really strong attributes that refined grains bring to the total picture of the nutrition in the United States.

MEMBER NELSON: Except they are

overconsumed, I mean at least from, you know --

MEMBER CLEMENS: Then, it becomes a caloric and consumption level issue and not refined grains per se.

MEMBER NELSON: Right, but, I mean, from the Nutrient Adequacy Subcommittee, they are a component of the diet that is overconsumed.

MEMBER CLEMENS: Indeed, it is the overconsumption because --

MEMBER NELSON: Right. Because this is just reducing --

MEMBER CLEMENS: -- they have to make up some of those areas where we see nutrient inadequacies.

MEMBER NELSON: Right. Right. So, what we are saying is reducing. We are not saying eliminating, yes.

MEMBER SLAVIN: This is Joanne.

I am with Roger there. I think it is really confusing because refined grains are

a big part of food intake, and they kind of are lined up there with components rather than a group. So, just the way that is written creates a problem.

MEMBER NELSON: The bullets are only just sort of --

MEMBER SLAVIN: No, but on the top you see, "added sugars, solid fats, refined grains, and sodium". Those things are not really parallel. They are not really -- nutrients, food groups. So, it puts it in a really strange position, and this is an important chapter. So, I am not comfortable with the way it is said.

And it is the fortification, you know, that is the policy and that is how we are getting nutrients. So, it is a definite concern the way it is there.

MEMBER NELSON: Would you suggest that we keep the "added sugars, solid fats, and sodium" in the same string with the second sentence, you know, "most reduction in refined

grains"?

MEMBER SLAVIN: I am just not sure why we are targeting them where they are.

MEMBER NELSON: It is because of the calories. These are the components that are contributing the most to calories.

MEMBER CLEMENS: There may be a plus and minus with that because, clearly, they contribute a lot of nutrition as well as energy. So, the public needs to understand that balance.

MEMBER PI-SUNYER: So, maybe you should have a "because" again and say, "because they contribute too much calories," so you are clear as to why you are targeting them.

MEMBER NELSON: I think that, isn't that -- I mean the whole point of this, the whole setup of this chapter is really around the energy balance.

But I think there is a way -- I agree there is a difference between the

refined grains and the other three. I mean I think there may be a way to -- and maybe if there is a sense of the Committee, we should separate out the refined grains in the bolded section; we could separate out refined grains. Certainly, in the paragraph that is underneath we can talk about that they bring a whole host of nutrients. So, we are not talking about removing them from the diet. We are talking about a modest reduction in refined grains.

MEMBER CLEMENS: Well, Mim, maybe we should go back to the basics and introduce earlier about the SoFAAs, and refined grain goes away.

MEMBER NELSON: The problem from a calorie standpoint, it is a huge piece. I don't know that I would be comfortable with that because the point here is around calories. Those are the constituents that are really sort of out of order.

But Rafael?

MEMBER PEREZ-ESCAMILLA: This is Rafael Perez-Escamilla.

In Linda's excellent presentation, she is listing as a top source of solid fats grain-based desserts, cakes, cookies, et cetera. It is the second source of added sugars. So, this is a subgroup of products made with refined grains that are contributing very much to the excessive intake.

So, could it be said, "some refined grain products," you know, to qualify a little bit what you mean by refined grains?

MEMBER NELSON: Or "grain-based desserts," which is really what the problem is.

MEMBER ACHTERBERG: I would say snacks and desserts.

MEMBER NELSON: Snacks and desserts, yes.

MEMBER ACHTERBERG: I think I would be happy with that. Yes, I think certain --

MEMBER CLEMENS: I would support that as well. I appreciate Cheryl's remarks, yes.

MEMBER ACHTERBERG: -- grain-based snacks and desserts. I won't do it right now, but I think maybe Naomi and I could go back, fiddle with this, and then send it to the Committee, if that sounds okay to the group.

MEMBER CLEMENS: We might want to take a look at some of the snacks that are coming out there, Mim. Today we have, obviously, snacks that have less calories, snacks with less fat and calories; now we have these bioactives which the Committee did not address. They actually could have a positive impact on the entire health benefits of the United States. We haven't talked about that at all.

MEMBER NELSON: Maybe, but seeing what children do with these smaller packages, they just eat five. So, I think still the debate is out.

MEMBER CLEMENS: Sure, that is energy issue as well.

MEMBER NELSON: But I am happy to separate out the refined grains and talk about certain snacks and dessert-based. Right.

CHAIR VAN HORN: Okay. I think we are ready -- Larry?

MEMBER APPEL: Yes, Larry Appel.

There's one section that was in our 2005 report that is not in either of these two chapters, but I think is important, if we are successful. That is the role of diet and physical activity in reducing health disparities, both for sodium, potassium, dietary pattern, and if we actually deal with the obesity epidemic, you are going to put a dent in disparities.

I am wondering whether we should just -- we can almost pull this section from the 2005 report without a lot of, you know --

MEMBER PI-SUNYER: I would agree with that, and I think we could pull it and

even just quote it, if you want, not different.

MEMBER NELSON: Maybe during a break I can just take a look at that, but what page is it on, Larry?

MEMBER APPEL: It is on page 9 of the blue book.

MEMBER NELSON: Okay. I will take a look, but you think that could be incorporated here or in the total diet?

MEMBER APPEL: I am not sure. I think that if we are successful with implementation, you want to be able to say, well, if this works, we are going to improve the health and we are likely to reduce healthcare disparities.

MEMBER NELSON: Right.

MEMBER APPEL: I think that is the message. So, it could go here.

CHAIR VAN HORN: Yes, it should go here I think then, given that.

MEMBER NELSON: Okay. Yes.

MEMBER CLEMENS: Rog.

I really appreciate the graphic on the challenges ahead. So, I am going to put on my farmer's hat.

And freshwater, land constraints, and climate change, were the top three issues addressed at the summit that was held in Bangkok at the end of last year, that is seriously affecting our agricultural production here in the United States as well as importation of inferior products to the United States.

I think if we can work together with you, Mim, of course, to strengthen the issues on freshwater technology, so how can we reclaim some of the arable land? Salinity is a big issue, of course, and we can't do anything with climate change, but we need to be sensitive; the cultivars that are now imported, as what it is used in agriculture to provide better food for tomorrow.

So, I will be glad to work with

you on those three very strategic areas within agriculture.

MEMBER NELSON: Well, we are not saying anything more than that, that they are challenges.

MEMBER CLEMENS: Significant challenges.

MEMBER NELSON: Yes. I mean I think these are significant challenges. They are beyond our Committee. We are just stating they are significant challenges.

CHAIR VAN HORN: Right.

MEMBER NELSON: We are not really writing much about them because it is not us.

CHAIR VAN HORN: Exactly.

Okay. Anything else on this chapter?

(No response.)

Okay. I would like to move on, but before we launch into the discussion of the Energy Balance and Weight Management chapter, and all of the science-based

chapters, I would like to circle back to what I mentioned earlier in regard to providing the terms used to indicate the strength of the evidence, and the fact that the Committee struggled somewhat with dealing with recognizing this is the first evidence-based report that is being produced, and the volume of the review based on evidence published since 2005 alone took an enormous amount of time, but it did not allow us the opportunity to go back to the 2005 report and review everything prior in that amount of time. And therefore, this report represents a transition between the past and the future, and we wanted very much for those who follow to be able to make sense out of the review that we have conducted because it will set the stage for what happens from now.

I would like to ask Larry Appel to help us a bit as we have abandoned the idea of trying to come up with a number specifically. We have decided to use terminology that not

only represents the volume of studies that have been done, or even what type of studies that they have been, but takes into consideration the considerable interpretation and qualitative reviews that each Committee member has done in preparing this report.

Larry, do you want to just sort of amplify that?

MEMBER APPEL: Sure. Okay, yes. This is Larry Appel.

I know we are pressed for time, but this is really important as we go through each of the chapters.

I think, actually, there is more continuity than sort of like shifting sand on this. So, while dropping the numbers, I think we want to keep terminology that is reasonable.

So, there's been some email traffic on whether to truncate down to just strong, moderate, and limited, which I think many of us felt a bit constrained with, with

just those three, and others I know have agreed to it. But when I looked at the conclusions again last night, I saw still a lot of variability in this. In some sense, it actually makes sense.

So, one issue is whether we can be a little bit more flexible than having those three terms, strong, moderate, and limited, and whether we can go back -- and I can't tell you how far it is back, but I did find an email where we said, oh, strong, convincing, persuasive, and that was Grade I, and then Grade II, fair, moderate, inconsistent, and Grade III, limited. I think we have also used insufficient. So, that is one issue.

Then, I will mention the second issue related to the grading that I think probably many of us feel, which is that there is Grade I or Grade II, but then there is something in between, you know. I actually saw some conclusions this time that said moderately strong, you know.

(Laughter.)

And actually, to tell you the truth, I felt good about that. It actually says, yes, you know, because it is not a home run; it is not reaching first base. It is somewhere around second or third base, you know, for our baseball metaphors here.

So, I think that is the second issue, whether we want to allow some gradation between one and two. I know these came at the last meeting, but I think they will frame -- you know, we really need to decide this before we decide on these conclusions.

So, I will stop there.

CHAIR VAN HORN: Right. And as the Committee knows, as we plow through the rest of these chapters, we just wanted to set the stage for allowing, making allowances for some of these terms to be adjusted accordingly.

So, as we go through the reports and you come up with your conclusion

statements, you know, the Committee as a whole should look at that, especially those that know the literature really well, and be able, if you so choose, to modify somewhat, soften somewhat, moderate somewhat these terms in order to do justice to the totality of the evidence as you know it. Okay?

Xav?

MEMBER PI-SUNYER: So, Larry, I understood your second point, but I didn't understand your first. I have no objection to adding moderately strong between strong and moderate, but you were a little vague on your first one.

MEMBER APPEL: The first one is, hopefully -- well, let me clarify. So, we received an email yesterday that we should use strong, moderate, or limited. Okay? Instead of strong, just strong, have some flexibility with other terms, convincing, persuasive. For Grade II, instead of just moderate, we could use fair.

I would like to hear Rafael. I know you sent an email on this point yesterday. So, there might be a dissenting opinion.

Then, I guess for Grade III there was, again, some email traffic, limited, and then adding the option for insufficient.

CHAIR VAN HORN: I have a feeling as we get going this will become more apparent. At this point, we are talking sort of in generalities, but I think as we get into the report some of this will become apparent.

We just sort of wanted everyone to hang onto this concept that, as we go forward, if adjustments to these conclusion statements would help to further define exactly what the level of science is, people would have the prerogative to modify it. That's all.

MEMBER PI-SUNYER: Okay, but don't we have to decide on what we are going to use at the beginning or else how can we implement it?

CHAIR VAN HORN: That is why we are making these comments now.

MEMBER PI-SUNYER: Oh, okay.

CHAIR VAN HORN: If you decide that the three terms that we were limited to prior to this discussion could be expanded to include modifiers, if you so choose -- you don't have to, but, you know, as a group, we should keep these in mind as we go forward, in the absence of the grading.

Tom?

MEMBER PEARSON: This is Tom Pearson.

So, the plan is, then, to use this table that was just sent around as the key for interpretation of this information that will appear within the document somewhere?

My concern goes back to something that you had started with, and that is the legacy of the 2010 Guidelines. A number of us in the room have been working with the Clinical Guidelines. They have a grade and a

class of evidence. The grade is very similar to the discussions we had before. The class is a little different. A class IA is something that is so established that we are not going to go back and talk about it. The science is done. This is science-based practice, over.

And I want to make sure that these, if you like, at the 2015 Guidelines would have enough granularity and definitiveness so that we will know what not to go back to. There was a lot of new ground at these Guidelines to do the evidence-based with the rigor that was done. That has to be preserved, so we don't do it all over again in five years.

MEMBER NELSON: Linda?

CHAIR VAN HORN: Yes?

MEMBER NELSON: So, this is Mim.

I think one of the most important qualifiers is you could have moderate, but consistent or you could have moderate and

inconsistent. I mean, you know, I think consistent and inconsistent are even -- like those two modifiers that go with the strong, moderate or limited are perhaps equally as important, because if there's moderate, it means there's a few studies, but it is consistent; it is going in the right direction if it is moderate, but inconsistent, it is sort of all over the place. You know, I think that that is a modifier.

But I think we should try to keep with the strong, moderate, and limited, but maybe have qualifiers around those three, if we needed it. You know, as you said, maybe it is moderately strong. At least you know that it is in between, and we try to use those words, but we could have some flexibility within those words. I don't know.

CHAIR VAN HORN: Yes, that's the point, flexibility within the words. That is exactly the point.

MEMBER NELSON: Yes.

CHAIR VAN HORN: Okay. I think it will become more apparent as we go forward, and many of them will not change, but it is just to allow the Committee to have some flexibility if you decide that the term is too strong or needs some modification.

With that, Xav, we would like to go ahead and turn the floor over to you.

MEMBER PI-SUNYER: Okay. So, we are starting now with the Energy Balance and Weight Management. Here you see the members of the Subcommittee: Rafael Perez-Escamilla, Miriam Nelson, Joanne Slavin, Christine Williams, and Linda Van Horn.

And the staff, who were enormously helpful to us: Eve Essery, Kellie O'Connell, Jean Altman, Julie Obbagy, and Rachel Hayes. So, I want to thank them for all the work they have done.

We will start with Dr. Nelson, who is going to talk about, "What effects do the food environment and dietary behaviors have on

body weight?"

Mim?

CHAIR VAN HORN: Before we do that, I am so sorry, I should have allowed Rob to make a comment. We are going to interrupt for one minute to let Rob say something.

DR. POST: Yes, procedurally, I think it is important for the Committee members to write their edits into the draft as they agree upon them and raise them in the draft text, in the chapters, so that we can, in fact, collect them. I think you've got a way to do that, and putting the pages in blue folders we have given you, so that the staff can, in fact, get them and then incorporate the changes. So, remember that as you proceed, as we begin to get into the meat of this.

Thanks.

MEMBER NELSON: Thank you.

It is Mim Nelson here.

So, we did a family of questions

that had not been addressed before in the Dietary Guidelines. This is really because of some emerging evidence around the effect of the food environment. Certainly, most of the dietary behaviors have been addressed before, but not the food environment.

I will just say that, because this is sort of emerging research, we were quite cautious in how we looked at this. So, what we focused on primarily was the use of meta-analyses and systematic reviews. Also, when you are talking about the environment, there's so many different factors, that it is hard to look at just one thing.

So, next slide, please.

Very quickly, an emerging body of science has documented the impact of the food environment on select behaviors of body weight in both children and adults.

This is where I would love to have a qualifier, Larry, because this was that there is consistent, strong evidence. I think

it probably is that it is moderately strong evidence now indicates that the food environment is associated with dietary intake, especially less consumption of vegetables and fruits and higher body weight.

The presence of supermarkets in local neighborhoods and other sources of vegetables and fruits are associated with lower body mass index, especially for low-income Americans, while lack of supermarkets and long distances to supermarkets are associated with higher body mass index.

Finally, there is limited, but consistent evidence that suggests that increased geographic density of fast food restaurants and convenience stores is also related to increased body mass index. This comes up in a different question that we address a little bit later.

Next slide.

So, in terms of behaviors, that was the sort of overall. When we look at

this, there's strong, consistent evidence that indicates that children and adults who eat fast food are at increased risk of weight gain, overweight, and obesity. The strongest documented relationship between fast food and obesity is when one or more fast food meals are consumed per week. There's not enough evidence at this time to similarly evaluate eating out at other types restaurants and risk of weight gain, overweight, and obesity.

This built upon the 2005 Guidelines. There is strong evidence that documents a positive relationship between portion size and body weight.

Strong and consistent evidence in both children and adults shows that screen time is directly associated with increased overweight and obesity. The strongest association is with television screen time.

Then, strong evidence shows that, for adults who need or desire to lose weight or who are maintaining body weight following

weight loss, that self-monitoring of food intake improves outcomes.

Next slide.

There's moderate evidence to suggest that children who don't eat breakfast are at increased risk of overweight and obesity. The evidence is stronger for adolescents. There is inconsistent evidence that adults who skip breakfast are at increased risk for overweight and obesity.

Some of this was snacking and breakfast. A lot is around the definitions of which, I think that is something that needs to be improved, and I think we would have better research to address this question.

And there's limited and inconsistent evidence suggesting that snacking is associated with increased body weight. Most of this, I believe, is because the definitions of snacking were so different, and that was a real problem.

And the evidence is insufficient

to determine whether frequency of eating has an effect on overweight and obesity in children and adults.

Next slide.

Any questions?

And I didn't talk about the implications. I just say globally it was more like with breakfast, you know, you should choose wisely and eat healthy foods for breakfast, and when snacking, choose healthy foods and stay within your calorie limits, and that eating at fast food restaurants was, if you do, choose the lower-calorie options and smaller portions. So, those are just sort some of the global implications.

So, open for questions.

MEMBER CLEMENS: Go ahead, Xav.

MEMBER PI-SUNYER: No, you go ahead.

MEMBER CLEMENS: Oh, okay. This is Rog.

I appreciate the graphics,

particularly the third or fourth one there, Mim, where you talked about energy balance and weight management relative to the availability of the food supply as you look at supermarkets.

We did a study in Los Angeles, a little community out there on the west side of the country, where we brought in fruits and vegetables to communities that were really underserved and in an attempt to provide them with other foods, as you pointed out so nicely. The reality in that study demonstrated that the people didn't want them. For whatever reasons, they would have the citrus, they would have blueberries or blackberries, but they chose not to purchase those foods. As a result, the supermarket said, "I can't afford to keep these foods in our inventory," and therefore, went back to their routine of other kinds of foods.

I think there is a serious challenge there to provide education and

benefits. A variety of cultures, I think Cheryl made a comment about the diversity earlier this morning. Now we tried to embrace the different cultures since there were these fruits and vegetables, the kinds of foods that we were trying to support in these underserved populations in particular, so that they see how important it is relative to their health.

MEMBER PEREZ-ESCAMILLA: This is Rafael.

I just want to mention, you know, a very big barrier, Roger, has been the inability for people to be able to use their Food Stamps, which now is, you know, the SNAP benefits. The EBT system, the technology and the adoption by farmers' markets, and so on, is really still at early stages.

The Federal government is coming up with a national pilot program called HIP, Health Incentive Project, to give a fiscal incentive for individuals who use their Food Stamps to purchase fruits and vegetables.

So, I think there is still a lot that we don't know about, but my interpretation, after working for so many years with low-income communities, is not that they don't want fruits and vegetables. It is an issue of the types of fruits and vegetables, as you mentioned, but it is also an enormous issue of access and affordability.

The WIC program is also moving very rapidly and very actively with disbursement of vouchers that can be exchanged at farmers' markets.

I would say that, in my mind, a big priority is really to try to support more of the research that is needed to better understand how to motivate more low-income families to purchase and prepare in a healthy way fresh fruits and vegetables and other products.

MEMBER PI-SUNYER: So, Mim, maybe that should be under your challenges.

MEMBER NELSON: It is.

MEMBER PI-SUNYER: Yes.

MEMBER NELSON: Sorry. It is at the top line of the Integration chapter, is exactly that. I mean that was the top line.

There are some great successes at bringing in vegetables and fruits into urban areas. There are some not-so-great successes. I think we need to learn about that. I think the price incentive needs to be changed.

But that is the top bullet in the Integrated chapter.

MEMBER PI-SUNYER: Okay, I have a comment on your third slide where you have "There's not enough evidence...." Since we go to what Larry's suggestion is, do you want to change that to sufficient --

MEMBER NELSON: Can you just tell me which topic it is? Sorry.

MEMBER PI-SUNYER: Conclusions, Dietary Behaviors. Oh, you have it insufficient. That is not the way it is in mine. Okay, you have it already.

MEMBER NELSON: Yes, I worked on these slides this morning.

MEMBER PI-SUNYER: Okay.

MEMBER NELSON: So, what you might have in here may be different.

MEMBER APPEL: Larry Appel.

This has been great.

I had just an issue or it is a comment/issue. In the Total Diet chapter, it says, "self-monitoring of calorie intake and physical activity for weight control". Are we recommending that for the general population? Because your slides here really focus on what many of us do, which is among people who are trying to lose weight and sustain weight loss.

Because I think measuring calorie intake is a very big deal and very difficult for people to do. And I'm thinking, well, what about just measuring weight, you know, among people who are not overweight yet, a small population right now, hopefully, getting bigger.

But could you comment on that because I think I have, there is a bit of a disconnect if we --

MEMBER NELSON: Yes. So, I think there is a bit of a disconnect. It is interesting you brought it up.

So, the evidence is certainly the strongest, and we only looked at for this question for people who needed to lose weight or had lost weight and needed to maintain that weight loss. I think that we have certainly stretched the evidence. When we talk about the general population in the Integration chapter, I think that probably we could have a lively debate on whether we think everybody should know what their calorie needs are.

I have to say that there is a part of me not with the people who need to lose weight and monitor after weight loss, but I am concerned that we may be setting the stage for some unintended consequences with knowing your calorie needs. There is some weird stuff that

goes on when people, you know, they exercise, and then if they know exactly how many calories they exercise for, they think they can eat so many more calories. Like there are some tricky parts here that we haven't tested out.

I do think that there is certainly a lot of need for better labeling that is really clear, so people understand calories much better. I don't want to go back, but in terms of the general population and the evidence about knowing their calories, I think they should. I think it is part of nutrition education.

I think we need to figure out how we don't get people obsessed and start having weird stuff going on, but at the same time they need to understand, when they get that package of something, they are actually getting 800 calories, or when they are having that drink, they are getting 800 calories. I think we need to have more of that.

So, I haven't quite answered your question, but it is a really important one.

MEMBER PI-SUNYER: I think we need to have it in there. I think self-monitoring is a pretty broad statement. What it relates to is getting rid of unconscious eating.

MEMBER NELSON: Yes.

MEMBER PI-SUNYER: And I think Americans do an enormous amount of unconscious eating.

MEMBER NELSON: Yes.

MEMBER PI-SUNYER: And given the portion sizes and everything else, people have to be restrained. And the only way they will be restrained is with self-monitoring. So, I don't think there is anything wrong with keeping that in there. I think it is a message we need to get across. We need conscious eating in this country, instead of unconscious eating.

MEMBER NELSON: Yes.

CHAIR VAN HORN: Exactly. If this

group will remember, we had an excellent presentation by Brian Wansink on mindless eating. And mindless eating is what contributes to excessive energy intake. The only way you can combat mindless eating is to put some mind to it. That requires monitoring.

As Xav just pointed out, I think that there is the type of very deliberate monitoring that one would do if they were trying to lose weight and, in fact, really come up with this energy deficit that we know is required in order to lose weight, but there is another monitoring that we are advocating now for the first time, that people everywhere who are all at risk of overweight and obesity do in terms of putting together how many calories they need for the day and how many calories are in that food substance that they are about to purchase or consume.

You can't have one without the other. Just knowing how many calories is in

something and not knowing how many that reduces from your total allotment for the day is meaningless.

So, I think our goal is exactly that. It is both. It is combining the behavior of self-monitoring at various gradations of intensity to help elaborate or explain how energy balance works.

MEMBER NELSON: Larry? Oh, Cheryl?

MEMBER ACHTERBERG: Recognizing, just as you said, Linda -- Cheryl Achterberg -- that taken to the extreme, the person becomes obsessive that this can lead to very serious eating disorder. I think we have to acknowledge extremes can be dangerous to health as well.

MEMBER NELSON: Larry?

MEMBER APPEL: I just want to follow up on what Linda said. I think we really, then, need to make the distinction between calorie monitoring that we advocate in

clinical trials for overweight versus this gradation because it does not come across.

The second thing is --

MEMBER NELSON: Sorry, Larry. Does it not come across in the Integration? This is very focused on people that need to lose weight, this question. But in the Integration chapter, it is more around people need to know their calorie intake and to be able to understand that better. So, there's two different pieces.

MEMBER APPEL: Yes, it is that piece that is actually in the whole diet chapter. But there is actually a big implication to this that I think we might want to add, and I know this is going back.

It is that, if you are going to monitor yourself calories, you have to have the calorie information available. So, this actually is a reason for a statement on making calorie intake available at point of purchase or point of consumption.

MEMBER NELSON: And that is in the integrated chapter. There is a lot on that.

MEMBER APPEL: Okay.

MEMBER NELSON: Point of purchase, whether it is restaurant food, whether it is retail, whatever, we have a lot about better, clear labeling, I think, and the nutrition literacy that goes with understanding that.

Yes?

MEMBER PI-SUNYER: Okay. Can we go on to Rafael?

MEMBER PEREZ-ESCAMILLA: Thank you, Xavier.

And the first question that I am going to address is, "What is the relationship between maternal weight gain during pregnancy and maternal child health?" The conclusions that I am going to present right now are derived from the 2009 Gestational Weight Gain Guidelines IOM report.

The Committee had agreed that, whenever we used authoritative reports as the

main source of evidence, we were not going to grade them. That is why you don't see any of the strong, moderate, limited language in here, but, obviously, this is something I am more than open to discussion.

Maternal weight gain during pregnancy outside the recommended ranges is associated with suboptimal maternal and child health. Women who gain weight excessively during pregnancy retain more weight after delivery, are more likely to undergo a cesarean section and to deliver large-for-gestational-age newborns. And their offspring may be at increased risk of becoming obese later on in life.

Women who gain weight below recommendations are more likely to deliver small-for-gestational-age newborns. These are also more likely to be programmed to develop certain chronic diseases later on in life.

The second question that I am going to address is, what is the relationship

between breastfeeding and maternal postpartum weight change? The conclusion is that a moderate body of consistent evidence shows that breastfeeding may be associated with moderate maternal postpartum weight loss. However, this weight loss is small, transient, and depends on breastfeeding intensity and duration.

MEMBER PI-SUNYER: Okay. Any questions or comments for Rafael?

(No response.)

Okay. Then, we go on to the other ones.

Christine?

MEMBER WILLIAMS: This is a family of questions related to dietary intake associated with childhood adiposity.

Moderately-strong evidence from recent prospective cohort studies that identify plausible reports of energy intake support a positive association between total energy (caloric) intake and adiposity in

children.

Moderately-strong evidence from methodologically-rigorous longitudinal cohort studies of children and adolescents suggests that there is a positive association between dietary energy density and increased adiposity in children.

Moderate evidence from prospective cohort studies suggests that increased intake of dietary fat is associated with greater adiposity in children.

Strong evidence supports the conclusion that greater intake of sugar-sweetened beverages is associated with increased adiposity in children.

Limited and inconsistent evidence suggests that, for most children, intake of 100 percent fruit juice is not associated with increased adiposity when consumed in amounts that are appropriate for age and energy needs of the child. However, intake of 100 percent juice has been prospectively associated with

increased adiposity in children who are overweight or obese.

A limited body of evidence from longitudinal studies suggests that greater intake of fruits and/or vegetables may protect against increased adiposity in children and adolescents.

Limited and inconsistent evidence exists to support the hypothesis that intake of calcium and/or dairy (milk and milk products) may play a role in regulating adiposity in children and adolescents.

And finally, insufficient evidence exists to support the hypothesis that dietary fiber is protective against increased adiposity in children.

If I could go back one, the next one, if I could change the calcium one, it is really limited and inconsistent evidence does not support the hypothesis that intake of calcium and/or dairy (milk and milk products) may play a role in adiposity in children and

adolescents. That wording had gotten changed slightly.

MEMBER NELSON: But, Christine -- this is Mim -- that is the only one that I have a question on. I don't think it is limited. Isn't it pretty -- I mean there's moderate evidence or there's strong evidence that there is no relationship. I don't think it is limited.

MEMBER WILLIAMS: That was the thing, and using that word "limited", it didn't quite fit here. I think it's --

MEMBER NELSON: Because you could have strong evidence that something is not related.

MEMBER WILLIAMS: It is insufficient and it is mixed or inconsistent.

MEMBER NELSON: So, there is not much evidence?

MEMBER WILLIAMS: It's mixed, but on the whole it does not support the hypothesis.

MEMBER NELSON: But it's mixed is one thing. Is there not much research in this area?

MEMBER WILLIAMS: No, there was a fair amount of research. It was about 17 studies, but eight of the 17 showed no association and five of them did show a protective --

MEMBER NELSON: It sounds like it is moderate. To me, it would be there is moderate evidence that there is no association. That is how I would look at that data, but I defer to others.

MEMBER WILLIAMS: It was mixed or eight that showed no and, again, five that did show some protective. So, it was mixed, but leaning towards --

MEMBER NELSON: And the better, there wasn't any difference between the better-designed studies or not?

MEMBER WILLIAMS: Not so much. And then there were three review articles that

didn't feel that the evidence was strong enough to support it.

MEMBER PI-SUNYER: Christine, the question is whether it really is not limited, but you got quite a few articles. You got 18, you said? But it is inconsistent --

MEMBER WILLIAMS: That is the thing. It is not really limited.

MEMBER PI-SUNYER: So, it is inconsistent, but not limited?

MEMBER WILLIAMS: It is more inconsistent.

MEMBER PI-SUNYER: So, maybe you should drop "limited" there and just put "inconsistent evidence".

MEMBER WILLIAMS: That would fit, "inconsistent". "Inconsistent evidence does not support the hypothesis."

MEMBER NELSON: But, then, I think you would say there is moderate evidence to say that there's -- we are wordsmithing, but it is like there is a moderate amount of

evidence, but it is inconsistent. That is probably --

MEMBER WILLIAMS: Yes.

MEMBER PEREZ-ESCAMILLA: This is Rafael Perez-Escamilla.

MEMBER WILLIAMS: But again using that word "moderate", we are saving that for Grade II, which --

MEMBER NELSON: But 17 studies sounds --

MEMBER PEREZ-ESCAMILLA: Yes, Christine, this is Rafael here.

But wouldn't the theory of meta-analysis exactly would predict that? That if there is no relationship and you are doing a number of studies in different samples, some will give you a result in one direction and others in the other; when you take the average, there is no effect, no relationship?

I mean, because it does seem this is a very important distinction because presenting it as insufficient, if I was a

funding agency, I would interpret that as I need to fund more of these studies.

MEMBER WILLIAMS: It is more inconsistent.

MEMBER PEREZ-ESCAMILLA: Right, but it is inconsistent because there is no relationship probably. If the studies are of good quality and on average are telling you there is no relationship, then there is no relationship, even though some individual studies go in one direction and others in the other.

MEMBER WILLIAMS: There were more studies that showed no association than there were that showed a protective association, but there were some on both sides.

MEMBER PEREZ-ESCAMILLA: So, if you take the average, it is probably going to be no association, right?

MEMBER WILLIAMS: A preponderance of evidence --

MEMBER APPEL: Does not show a

relationship.

MEMBER NELSON: That sounds like, the preponderance of the evidence --

MEMBER WILLIAMS: The preponderance of the evidence does not support the hypothesis?

MEMBER NELSON: Yes, does not support the relationship.

Are you writing that down?

MEMBER PI-SUNYER: Yes, go ahead, Eric.

MEMBER RIMM: All right, this is Eric Rimm.

Linda knows I was going to bring this up, but I am still concerned about the very strong hypothesis or the very strong conclusion that you have about fat, dietary fat and obesity in children, because it is exactly opposite to what we are saying among adults. So, I think that if there is to be a message here, it should be a very strong message.

Before Under Secretary Concannon left, he caught me outside during the fire drill, as he caught everybody and said hello to everybody, and he said that our work here is very important and he was going to the Hill to advocate for more money for the WIC program. The way the WIC program is set up and the advice and the food they give is based on the IOM Report and the Dietary Guidelines. I feel pretty strongly about the dietary fat one.

I appreciate the incredible amount of hard work that has been done. And actually, Chris, you were the first person that we put up on the pedestal because the first presentation you made nine months ago was incredibly detailed with a lot of hard work and a lot of reading that went into the fruits and vegetables or the first one you looked at.

But I took the chapter and looked at the 16 studies that showed a positive

association and the 10 studies that didn't. I am quite concerned about the quality of the studies that we are using to support this hypothesis.

One of them was cross-sectional. Three of them, I think, actually, were the same study. The largest study is a study from China, where they actually were not looking at kids gaining weight, but already looking at obese kids. About 8 percent of the study was obese kids and looking at who stayed obese and who didn't. All the other studies were in the range of 40 to about 200 people, and without exception, not a single one of them controlled for sugar-sweetened beverages or fruits and vegetables. The two other points that you made are associated with adiposity. So, I am quite concerned.

Then, I looked at the 10 studies that did not support that hypothesis and I thought that, actually, many of them were much better quality and, to me, would support the

hypothesis that there is not an association between dietary fat and greater adiposity. Because I am worried that, with this conclusion, there will be new WIC guidelines or there will be new school lunches that will focus on low-fat diets. I think in the population of children over the last 30 years we have seen that low-fat diets lead to weight gain.

MEMBER WILLIAMS: Well, I think we are basically recommending that children consume fat within the recommended ranges. We are emphasizing that saturated fat be reduced.

But there were more studies in the dietary fat question than any of the other questions on dietary intake. We were relying on the evidence already presented by the American Dietetic Association for the earlier studies, which we didn't rereview.

So, again, there were --

MEMBER RIMM: There were a lot of studies.

MEMBER WILLIAMS: There were a lot of studies; 16 of them.

MEMBER RIMM: I am worried about the quality of the studies.

MEMBER WILLIAMS: Sixteen of the 27 studies did show positive association. And again, overall, it seemed to support the conclusion. Again, we didn't rereview all the ADA studies. This was combined. We are building on that review.

MEMBER PI-SUNYER: So, Joanne wants to add something here.

(Laughter.)

MEMBER SLAVIN: How could you tell? How could you tell?

Joanne Slavin.

I agree with Eric. I think that fat -- and I just wanted to mention that there's a lot of conflict with this with what we have in our chapter, too. It is going to be difficult to sort that out.

Some of the ones like fiber, you

know, you have a really low grade for fiber, and I know there's very little data. That is inconsistent.

Sugar-sweetened beverages, we have a real inconsistency there. A lot of the studies -- we got rid of cross-sectional studies. So, we come up with a very different conclusion.

And I also think that the calcium and dairy question is also in our chapter, and we get a different conclusion. I think that the calcium and the dairy is very confusing in that.

So, I am concerned about that this chapter and this review is inconsistent with some of the other things. I am sure it is essentially what Eric is talking about in fat, too.

MEMBER PI-SUNYER: Yes, Tom?

MEMBER PEARSON: I think one way to maybe rationalize some of these differences is that we did a lot in the Fatty Acid and

Cholesterol section by very strictly talking about isocaloric changes. So, one of the real questions in those 26 studies -- you have juxtaposed slides here. No one is arguing about total energy intake and adiposity in children. Okay? No one is arguing about that. Okay?

So, above that, the juxtapose of this other slide is, is dietary fat associated with adiposity above that of the recognized calories? I think it has been our position, just to support what Eric was saying, that it is about the calories. It is about the calories.

Now fat is, of course, the most easy way to get calories, but to identify this as the only way out, it is not because, if calories are controlled, particularly with the exchanges that we were talking about in the dietary fat with exchanges for monounsaturated fats and polyunsaturated fats, is a healthier way, even within the fat category, in terms of

metabolic effects.

So, I am wondering if you could look at this in terms of the moderate evidence talking about this control for your previous slide, and that is total dietary energy.

MEMBER RIMM: Yes, I think that the studies that did not find an association found an association for total energy and TV watching. That is the reason why they didn't find an association for fat.

So, that is what I did last night and the day before, is go through these 26 studies, because I really feel that we would do a disservice if institutionalized feeding then went to saying something that was different than what we are feeding adults. This is a pretty strong conclusion. It does say dietary fat is associated with adiposity.

I think the accepted range is whatever, 25 to 35 for children. I think this is implying that dietary fat, I know it leads to calories, but you are saying that dietary

fat, essentially, independent of these other conclusions, leads to adiposity, and I don't think that is the case, based on my --

MEMBER WILLIAMS: But I think we should also remember that a significant proportion of children are above the recommended range. That probably is about a third of children who are above that 35 percent.

MEMBER RIMM: Oh, I agree completely.

MEMBER WILLIAMS: Of course, the saturated fat intake in that group is also very high.

MEMBER RIMM: Right.

MEMBER WILLIAMS: I think, also, we were emphasizing that we want to decrease the SoFAS, and total fat is a big part of that. So, there are a lot of different parts of this, but we do want to address childhood obesity and high caloric intake. Dietary fat is very caloric intake, and --

MEMBER PI-SUNYER: Yes. Well, in the implications, you do say --

MEMBER WILLIAMS: And one-third of our children are consuming too much.

MEMBER PI-SUNYER: In the implications, you do say total fat intake should not exceed the IOM acceptable ranges.

MEMBER WILLIAMS: And at the present time, a third of our children do and are at risk of overconsuming calories. So, I think there's different sides of this.

CHAIR VAN HORN: I have to admit, and I will just weigh-in on this one as well, because I totally appreciate what was said. I do think that the quality of the studies does need to be reviewed accurately and consistently across all these different chapters. We can't single out this particular topic in this particular chapter and talk about the data as not matching up, if we don't consistently do that in every single issue.

I think there's a couple of things

that we need to get very clear. One is that no one is recommending a low-fat diet. Thirty percent of calories from fat is not a low-fat diet. And the idea of having a range between 25 and 35 percent is certainly reasonable. That is what the AMDR is, and that makes total sense.

But we can't, on one hand, talk about reducing the SoFAS, recognizing that 35 percent of the total caloric intake of our children now comes from added sugars and fats, above and beyond what their required nutrient intake is, without making some comment about the need to reduce those foods or those sources of calories that are in excess of what their nutrient needs are.

So, I think we are all in agreement with the emphasis on reducing excessive calories. I think we need to remember that those excessive calories are coming from certain kinds of foods, which we have already identified.

But to be able to do justice to the literature that is currently available that Christine has spent hours and hours evaluating and providing us with this summary statement, I think we just, once again, need to decide whether we need to moderate perhaps the emphasis on it, but the data are the data. So, to be able to come up with a statement that we can agree reflects what the data show, as well as implications, then, for what that means in terms of the translation is what we are about in terms of this discussion today.

Tom?

MEMBER PEARSON: I mean the data being the data, we have strong, consistent evidence in adults that a replacement of saturated fats with carbohydrates is an inferior option to replacing it with monounsaturated and polyunsaturated fats.

CHAIR VAN HORN: We do for lipids, but --

MEMBER PEARSON: Isocalorically.

CHAIR VAN HORN: Okay, isocalorically.

MEMBER PEARSON: No, that is what I said, is that this is the point of my comments: when we wrote something, everything was said upfront; this is all isocaloric substitutions. We are not adding anything. We are substituting things. That has to be really out in front. And this is the concern with these 26 studies.

So, the literature being the literature, we have Grade 1A evidence on the old system, strong, consistent evidence for this isocaloric. So, we, obviously, are pretty much at a loggerhead compared to the 26 studies, 10 of which, obviously, support that it is not the fat; it is the calories, and 16 others. So, that is the problem.

CHAIR VAN HORN: Yes.

MEMBER WILLIAMS: And we are not recommending that this be replaced totally with carbohydrates. We haven't made any

recommendations like that.

MEMBER PI-SUNYER: Yes, the recommendation is not to increase calories by increasing carbohydrates. It is to keep the fat below 35 percent.

MEMBER RIMM: That is not what the conclusion says. The conclusion says that there is evidence out there saying that fat causes obesity. And I would argue that the evidence is weak, and a lot of them are poorly done because the studies are so small, that is all they can do. I understand it is hard to study kids. But if you are comparing this to the evidence we had for milk, I would put this in the same thing. If giving this to an independent person, in looking at this, they would say it is inconsistent; I can't make a conclusion from this because the studies are too small.

MEMBER WILLIAMS: But you said 40 to 200 subjects. I mean that is not exactly small.

MEMBER RIMM: No, I just think that --

MEMBER WILLIAMS: We have our inclusion/exclusion criteria, and we set the number of subjects that --

MEMBER NELSON: This is Mim.

MEMBER RIMM: If you don't control for TV, then --

MEMBER NELSON: Yes, you don't control for calories or TV, I mean all of those. I mean I think there are several questions that we are going to deal with today that need to have in their conclusions a little bit more framing, more than just like the very narrow focus of we looked at this and this is what we saw. Because, yes, we describe it underneath, and you get more into the details, but I think there are several questions where, if we don't frame it, we are contradicting ourselves.

This would be one of those questions where I think that we need a little

bit more text that sort of puts it into context. And therefore, then, it is true to the science, but it also puts it into context. That would just be my suggestion.

From what I am hearing, it sounds like there is more inconsistent evidence because of the nature of the diversity of the studies, but it also might be that it may be more related not to the dietary fat per se, but to excess calorie intake.

MEMBER WILLIAMS: I don't think you can make that conclusion, though. I think like many of the areas where you are looking at the studies, many of the studies are better controlled than others, and many of them did control for physical activity. So, I don't think you can make a blanket statement that they ignored that.

MEMBER SLAVIN: This is Joanne, though.

I agree with Eric that the way that this sorts out is very troubling because

I think the milk, with him, I think that the data is probably equally good, and it comes out really, you know -- and if I look at the calcium and dairy, in our review it is pretty mixed calcium versus dairy.

It is kind of this whole food versus nutrient where we struggle here, that when we ever isolate a nutrient or a group, we tend to make the wrong conclusion because we focus on one thing. When we have these grades here that are really difficult, because I could see, I agree with Eric that somebody would say, okay, well, dietary fat has to go in children, I mean just based on that, as far as obesity. And we don't want that to be interpreted, and we all believe that, but if it is on a piece of paper, it is risky for us.

MEMBER WILLIAMS: But we are not saying that dietary fat has to go in children. We are saying that we recommend that children consume dietary fat within the recommended ranges. And the fact is that a third of the

children do not consume it within the recommended; they are over.

MEMBER PI-SUNYER: Well, maybe instead of having that in the implications, as Mim suggests, you might have that in the conclusion, part of the conclusion, that you want to keep within the IOM guidelines.

MEMBER WILLIAMS: We could expand that to include that.

CHAIR VAN HORN: Yes, that would help, I think, to just provide it within the context. Again, I don't think any of us are disagreeing with what the issue is as much as how to present it in a way that is fair to the literature review, but also consistent within the body of the report.

The only other thing I will say in the case of what you were describing, Tom, as far as the adult literature, one of the things, even in the adult literature, is the avoidance or just plain insufficient documentation of the type of carbohydrate that

was consumed. Often the reports -- and I am familiar with that literature -- totally ignore issues such as complex carbohydrates or dietary fiber.

All carbohydrate is not created equally. So, if you substitute for total fat refined carbohydrates, yes, I can imagine that is going to have some adverse consequences in terms of cardiovascular risk. As far as calories being calories, I think that is pretty well-documented. Frank Sacks' presentation and the POUNDS LOST study I think are a landmark trial as far as that goes.

So, I think all we are trying to do now is be consistent in both the reviews that we are providing and the conclusions that we are stating with the recommendations that we are making on the basis of those that fit within these guidelines that we are trying to develop.

But I don't think you can talk about dietary fat and carbohydrate without

including the qualitative nature of both of those, actually. You know, there is no biologic requirement for saturated fat. Yet, we allow it because people like to eat animal products.

The carbohydrate issue is one that relates, again, as we said, to the complexity of the carbohydrate, the fiber that is involved, but also in our diet the recognition that refined carbohydrates are where the fortification takes place.

So, somehow we are grappling as best we can with all those competing priorities.

Tom?

MEMBER PEARSON: But I think that is a place for our research recommendation. Because as you take the literature, the hypothesis put forward was carbohydrate as a substitution for fat, as a substitution for mono- and polyunsaturated fats. So, that is a further clarification, but not a condemnation

because the science that was put forward tested the hypothesis in a straightforward way. So, these are some issues.

But if you look at the NEL search terms and everything, they said it was straightforwardly identified as the study informing this body. We took that as the evidence as such. And that is Class 1A evidence, right.

MEMBER NELSON: Chris, one quick question: were there any trials where they actually did control calorie intake or they literally kept that constant and they saw that dietary fat contributed to obesity rates?

MEMBER WILLIAMS: Well, these were primarily epidemiological studies and not randomized controls trials, yes. So --

MEMBER RIMM: There was one trial, but by the time they got to the intervention versus the control, there was only 2 percent of energy difference.

MEMBER NELSON: No difference?

MEMBER WILLIAMS: Yes.

MEMBER RIMM: They didn't find any difference, not too surprisingly.

MEMBER NELSON: Yes.

MEMBER WILLIAMS: There was just one trial in the whole thing, you know.

CHAIR VAN HORN: Okay. Well, in the interest of time, we knew going into this day that there would be some topics that still would require some additional discussion. I think at this point we have pretty much fleshed this one out.

I think what we will do is add this to a list that will need to have further attention drawn to it. And again, given our truncated time today, I think this will be one of those topics on the list that we will have to as a group come up with consensus on the way that should be stated. I think we are close, but rather than wordsmithing right now, I think we need to move ahead.

Larry?

MEMBER APPEL: Yes, Larry Appel.

Just to put some teeth to that, I am just wondering process here because I think we would like to leave here with that, I think Mim's qualifier. So, I was just wondering, is somebody going to do that and have some traffic, so we can reach closure today? This is an important one, and we can't let it linger.

CHAIR VAN HORN: Okay. So, maybe Mim and Christine, if you could work together on trying to come up with a --

MEMBER NELSON: I think it should be Eric and Christine personally, just because Eric knows the literature better. I just think it needs to be framed; that's all. And then, I think if you frame it, everybody will be fine, and it is still being true to the science.

MEMBER RIMM: Yes, actually, this is Eric.

I think the implications are

really well-written. It actually does point to exactly the stuff we were talking about.

MEMBER NELSON: So, pull some of that.

MEMBER RIMM: I just worry about the conclusion being pulled out and pulled out of context.

MEMBER NELSON: So, this may be one where you pull a couple of those sentences up --

MEMBER RIMM: Yes.

MEMBER NELSON: -- and then it frames it. That is all I think. Some of them, I think we are going to have to do that.

MEMBER RIMM: Well put, Mim. You're a great leader.

(Laughter.)

MEMBER NELSON: Oh, yes.

CHAIR VAN HORN: So, how about Eric and Christine with Mim as the mediator? How's that?

(Laughter.)

It sounds like a good plan. Okay.

Xav, let's move ahead.

MEMBER PI-SUNYER: Okay. So, we will go on to the next section, which is macronutrient proportion and body weight. And the question that was asked, what is the relationship between macronutrient proportion and body weight in adults?

And the conclusion, next slide, is strong and consistent evidence demonstrates that when overweight/obese persons attempt to lose weight with reduced calorie intake, when calorie intake is controlled, macronutrient proportion of the diet is not related to losing weight.

And secondly, a moderate body of evidence provides no data to suggest that any one macronutrient is more effective than any other for avoiding weight regain in weight-reduced persons.

Next slide, please.

A moderate body of evidence

demonstrates that diets with less than 45 percent of calories as carbohydrates are not more successful for long-term weight loss; that is 12 months' effort. There is also some evidence that they may be less safe. In shorter-term studies, low-calorie, high-protein diets may result in greater weight loss, but these differences are not sustained over time.

A moderate amount of evidence demonstrates that intake of dietary patterns with less than 45 percent calories from carbohydrate or more than 35 percent calories from protein are not more effective than other diets for weight loss or weight maintenance, are difficult to maintain over the long term, and may be less safe.

The next question is, is dietary energy density associated with weight loss, weight maintenance, and type 2 diabetes among adults?

Strong and consistent evidence

indicates that dietary patterns that are relatively low in energy density improve weight loss and weight maintenance among male and female adults.

I guess we could cut out "male and female". There are no others, are there?

(Laughter.)

Consistent, but limited, evidence suggests that lower energy density diets may be associated with lower risk of type 2 diabetes among adults.

So, this is the macronutrient section, and are there any comments?

Mim?

MEMBER NELSON: So, there was no looking at just weight maintenance? It is all around weight loss and weight maintenance --

MEMBER PI-SUNYER: Weight regain, right.

MEMBER NELSON: Okay. Yes. We have that elsewhere.

MEMBER APPEL: Yes, I don't know,

it is just there's a little bit of awkwardness with the wording where the "strong and consistent evidence demonstrates when overweight or obese persons attempt to lose weight with reduced caloric intake, when calorie intake is controlled...." Can that be dropped, the "when calorie intake is controlled"? It sounds like we are in an experiment here.

I think that the reality is that they were trying to reduce their calorie intake. I don't know. It --

MEMBER PI-SUNYER: Yes, I think we could drop that.

MEMBER APPEL: Okay.

MEMBER PI-SUNYER: Sure.

MEMBER SLAVIN: Which one are you on?

MEMBER APPEL: The optimal one.

MEMBER PI-SUNYER: The first one here. It is on your slide deck.

MEMBER SLAVIN: I am worried about

that because it kind of gets back to Tom's issue.

MEMBER APPEL: It says, though, in the sentence before that, when they attempt to lose weight with reduced caloric intake.

MEMBER PI-SUNYER: Well, what I am saying here is that there is no magic to a particular diet, like a protein diet. If the calories are the same in a higher protein diet, a higher carbohydrate diet, or a higher fat diet, you can lose the same amount of weight. It is the same.

MEMBER SLAVIN: Yes, I think that the reason that it is in there is because the point is there's no magical property.

MEMBER PI-SUNYER: Right. Of an individual macronutrient.

MEMBER SLAVIN: Yes, but high protein diets work because, for other reasons, people eat less. There is nothing magical about them. I don't know how else to get that in there.

MEMBER APPEL: This is Larry again.

That doesn't really come across, though, with this fairly technical wording, "when calorie intake is" --

MEMBER PI-SUNYER: Well, if you can come up with better ones, better words, we will put it in. But I think it does make the point that what we are saying is there is nothing magical about a particular macronutrient, that if you control for calories, they all do the same thing.

If everybody takes an 800-calorie diet, and one is high in protein and one is high in fat and one is high in carbohydrates, they all give you the same weight loss over time.

MEMBER APPEL: So, at similar levels of calorie intake, distribution of macronutrients has no impact on weight.

MEMBER PI-SUNYER: Right. Right.

MEMBER APPEL: Because when you

are talking about calorie intake and it is controlled, it is almost like there is somebody controlling.

I guess my duty will be to come up with an alternative.

MEMBER PI-SUNYER: Okay.

CHAIR VAN HORN: Yes, I would say that is going to be the rule for the day. If you are not happy with something, come up with something better. I mean that really is the recommendation here in order to be efficient and move things along.

MEMBER PI-SUNYER: Okay. I am going to go on to older adults.

MEMBER PEREZ-ESCAMILLA: I have a couple of comments.

MEMBER PI-SUNYER: Okay, Rafael.

MEMBER PEREZ-ESCAMILLA: One is a question for Larry and Linda in terms of the total diet story. Just to verify that, in terms of the dietary patterns that you are looking at in terms of Mediterranean and DASH,

in my understanding, all of them have more than 45 percent of calories from carbohydrates, right? You don't have any pattern that is -- okay. Which I think is good because it is consistent with this conclusion.

MEMBER PI-SUNYER: Yes, as long as we don't have the Okinawan diet, which is 80 percent carbohydrates.

MEMBER PEREZ-ESCAMILLA: Okay. Well, that would be true, yes.

And the second comment that I have is related to energy density and type 2 diabetes. It is that the evidence is limited. There are only three studies, two cohort studies and one cross-sectional study. And the two cohort studies control for calories. So, that is an area where it does suggest that dietary quality matters quite a bit.

MEMBER PI-SUNYER: Are you saying you would like to change that second bullet point, Rafael under --

MEMBER PEREZ-ESCAMILLA: No, it is already in the chapter.

MEMBER PI-SUNYER: Okay.

MEMBER PEREZ-ESCAMILLA: That's fine. Yes, fine.

MEMBER PI-SUNYER: Thanks.

Okay. If we go on for older adults, for older adults, what is the effect of weight loss versus weight maintenance on selected health outcomes?

And the conclusion is weight loss in older adults has been associated with an increased risk of mortality, but because most studies have not differentiated between intentional versus unintentional weight loss, recommending intentional weight loss has not been possible. Recently, however, moderate evidence of a reduced risk of mortality with intentional weight loss in older persons has been published. Intentional weight loss, therefore, is recommended.

In addition, with regard to

morbidity, moderate evidence suggests that intentional weight loss in older adults has been associated with reduced development of type 2 diabetes and improved cardiovascular risk factors. There are insufficient data on cancer to come to a conclusion. Weight gain produces increased risk for several health outcomes.

Observational studies of weight loss, especially when intentionality cannot be rigorously established, may be misleading with respect to the effect of weight on mortality. Loss of weight is appropriate advice for elderly overweight/obese persons. Weight gain should be avoided. This is the implication statement.

Any comments? Yes, Mim?

MEMBER NELSON: Xav, this is Mim.

For the first conclusion statement, where at the end it says, "Intentional weight loss, therefore, is recommended," could you add a qualifier that

says, in the conclusion, that says, in overweight or obese that are at risk for chronic disease, or something like that? Because just the way it sounds there, I don't think for ideal body weight people unless they are at risk for hypertension, or they have hypertension, or something like that, or other conditions, it is not across the board for older adults. It is for certain segments.

MEMBER PI-SUNYER: Well, the way we had it, I guess it should say, again, overweight and obese.

MEMBER NELSON: Yes, I would just add that. That is all I meant.

MEMBER PI-SUNYER: Sure. That's fine. That is what we meant. Sorry.

MEMBER NELSON: I figured that is what you meant.

MEMBER PI-SUNYER: Yes.

Okay. The next section is on physical activity. Dr. Nelson will present that.

MEMBER NELSON: Sure. We have presented this before, so I will be very, very fast.

Next slide, please.

So, strong, consistent evidence indicates that physically-active people are at reduced risk of becoming overweight or obese. Furthermore, there is strong evidence that physically-active adults who are overweight or obese experience a variety of health benefits that are generally similar to those observed in people of ideal body weight. Because of the health benefits of physical activity that are independent of body weight classification, people of all body weight classifications gain health and fitness benefits by being habitually physically active.

Next slide.

In addition, strong and consistent evidence based on a wide range of well-documented studies indicates that physically-active people have higher levels of health-

related fitness, lower risk of developing most chronic, disabling medical conditions, and lower rates of various chronic diseases than do people who are inactive.

The health benefits of being habitually active appear to apply to all people regardless of age, sex, race, ethnicity, socioeconomic status, and people with physical or cognitive disabilities.

And all of this comes from the 2008 Physical Activity Guidelines for Americans report.

MEMBER PI-SUNYER: Any comments?

MEMBER RIMM: This is Eric.

I didn't actually get to read this because I knew this was so well-documented.

MEMBER NELSON: Oh-oh.

MEMBER RIMM: Is there anything on strength training versus physically active? What is the --

MEMBER NELSON: Well, in the implications we talk about the goal is to get

people to meet the 2008 Physical Activity Guidelines, which is both aerobic and strength training. We basically are embracing not only the report with the evidence, but also the implication and the guidelines which are in the 2008, which is both. That was two years of work.

CHAIR VAN HORN: Yes, no kidding.

Okay. Xav, is that the end of your report? Okay. That was absolutely excellent.

I think you all deserve a tremendous amount of credit. That is a huge literature to have to review.

We will now take a 15-minute break, and we will reconvene at 12:30.

Thank you.

(Whereupon, the foregoing matter went off the record at 12:15 p.m. and resumed at 12:31 p.m.)

A-F-T-E-R-N-O-O-N S-E-S-S-I-O-N

12:31 p.m.

CHAIR VAN HORN: Welcome back, everyone.

We have now taken our break, and we are going to reconvene with a discussion of the Nutrient Adequacy chapter, and Shelly Nickols-Richardson is going to lead us through that.

Shelly?

MEMBER NICKOLS-RICHARDSON: Thank you, Linda.

The first slide just, again, recognizes the Committee members on the Nutrient Adequacy Subcommittee: Cheryl Achterberg, Naomi Fukagawa, Mim Nelson, and Joanne Slavin.

Our fabulous staff members, including Trish Britten, Eve Essery, Rachel Hayes, Shanthy Bowman, and Patricia MacNeil. Without them, none of this would have been done. So, thank you to the staff.

We have three questions related to dietary components and nutrients: overconsumed, underconsumed, and then the micronutrients. So, we will start with those first.

The first question was: what nutrients and dietary components are overconsumed by the general public?

The conclusion is that estimated intakes of the following nutrients and dietary components are high enough to be of concern, and for adults this includes total energy intake, particularly energy from solid fats and added sugars, which I will refer to as SoFAS; sodium; percentage of total energy from saturated fats; total cholesterol in men, and refined grains.

And for children, energy intake from solid fats and added sugars; sodium; percentage of total energy from saturated fats; total cholesterol, only in boys aged 12 to 19 years, and refined grains.

And I should probably back up just a second and mention that all of the questions that are being presented from this Subcommittee have been discussed at previous meetings, that much of our questions and conclusions are based on dietary intake data from NHANES sources, and just a few that have NEL searches, and I will try to identify those as we go.

So, back to overconsumed components, again, those are our conclusions. The implications, then, are to lower overall energy intakes without compromising nutrient intakes, Americans should reduce consumption of calories from SoFAS. SoFAS generally provide few, if any, micronutrients. Intakes of SoFAS should be kept as low as possible across all age/sex groups, to less than the maximum limits calculated for the USDA Food Patterns.

Concentrated efforts are needed to lower total sodium intakes by all Americans.

Likewise, deliberate public health efforts are warranted to reduce intakes of saturated fats to meet dietary guidelines for optimal health.

Males older than age 12 years also are encouraged to consume less total dietary cholesterol.

Intakes of refined grains are too high and at least half of all refined grains should be replaced with high-fiber whole grains.

The second question is: what food groups and selected dietary components are underconsumed by the general public?

The conclusion is that currently-reported dietary intakes of the following food groups and selected dietary components are low enough to be of concern. For both adults and children, this includes vegetables, fruits, whole grains, fluid milk and milk products, and oils.

The implications, then, are that, despite the evidence that health-promoting

dietary patterns are those that include a variety of foods and combinations of foods from each of the basic food groups, many Americans make food choices that do not meet the characteristics of the healthy dietary patterns. And just as a side note, much of that will be discussed in the Total Diet chapter.

A fundamental premise of the Dietary Guidelines Advisory Committee is that nutrients should come from foods. Often nutrient intake shortfalls are an indicator of low intakes of certain food groups that provide specific nutrients.

Hence, efforts are warranted to promote increased intakes of vegetables, especially subgroups including dark green vegetables, red-orange vegetables, and cooked dried beans and peas, fruits, whole grains, and fat-free or low-fat fluid milk and milk products, including calcium and vitamin D fortified soy milk, among all ages;

substitution of oils for solid fats, regardless of age, and increased intakes of lean, heme-iron-rich meat, poultry, and fish by adult women and adolescent girls.

Further implications are that intakes of nutrient-dense foods -- that is, foods in their leanest or lowest-fat forms and without added fats, sugars, starches, or sodium -- should replace foods in the current American diet that contribute to high intakes of SoFAS and refined grains.

Oils should only be substituted for solid fats rather than added to the diet.

Substitutions and selection of nutrient-dense forms of vegetables, fruits, whole grains, and fluid milk and milk products to replace non-nutrient-dense forms of foods should be done in a manner such that total caloric intake falls within or below daily energy needs.

The third question is: what nutrients are underconsumed by the general

public and present a substantial public health concern?

The conclusions are that reported dietary intakes and associated indices of nutrient status for the following nutrients are of public health concern: for both adults and children, these include vitamin D, calcium, potassium, and dietary fiber.

Implications, then, are that efforts are warranted to promote increased dietary intakes of foods higher in vitamin D, calcium, potassium, and dietary fiber for all Americans, regardless of age. Recommended intakes of these nutrients of concern, in particular, and of all essential nutrients, in general, should be achieved within the context of flexible dietary intake patterns that balance energy intake with energy expenditure.

I will stop here and see if there are any questions, comments, issues related to the first three questions.

MEMBER PEARSON: Well, just from

the fatty acid and cholesterol side, I think we just want to congratulate your group for obviously providing some crosstalk with our recommendations. I think it is very important for these to have a solid front and to reiterate and emphasize several of the things that we are doing.

I think part of our nutrition inadequacy is the overconsumption. I think you can't emphasize that too much.

MEMBER RIMM: Shelly, this is Eric Rimm.

I don't remember when you presented this in the past, but was there anything about omega-3 fatty acids being a shortfall nutrient, since it is something that we have looked at and modeled?

MEMBER NICKOLS-RICHARDSON: No, we did not address omega-3's as a shortfall nutrient.

MEMBER NELSON: Well, you guys did it.

MEMBER NICKOLS-RICHARDSON: Yes.

MEMBER PEARSON: This is Tom again.

I think just one other point is that many of our individual groups did nutrition modeling. I think many of them, I think the conclusion was that certainly for dietary fat and cholesterol that you could construct a diet within the nutrient adequacy to also reduce the overnutrients in our own areas. So, I think all that nutrition modeling we did I think does particularly impact on your section because it confirms the ability to do this within the usual kind of base diet.

CHAIR VAN HORN: I hadn't thought of it until you mentioned that, Tom. Also, in the spirit of trying to provide crosstalk and joint recommendations in each of these chapters, I suppose we could also at this point reiterate the fact that there is no biologic requirement for saturated fat, and

all the essential fatty acids can be, and many of them should be, derived from the unsaturated sources. You know, that would just give further support to what the Fatty Acid chapter talks about because it is saturated fat that remains a big problem, and there is no nutrient requirement for saturated fat.

Good. Anything else for Shelly so far?

(No response.)

Okay. Shelly?

MEMBER NICKOLS-RICHARDSON: Okay. The next set of questions address specific nutrients during various stages of the lifespan, nutrient supplements, and then some behavior questions.

So, our next question is: what is the relationship between folate intake and health outcomes in the U.S. and Canada following mandatory folic acid fortification?

Conclusions are that strong and

consistent evidence demonstrates a large reduction in the incidence of neuro tube defects in the U.S. and Canada following mandatory folic acid fortification. A limited body of evidence suggests stroke mortality has declined in the U.S. and Canadian populations following mandatory folic acid fortification.

And then, a limited body of evidence suggests colorectal cancer incidence has increased in the U.S. and Canadian populations following the mandatory fortification.

Implications, then, are that folic acid fortification --

MEMBER NELSON: We had talked this morning, because we have provided the implications. So, I am not sure we need to go over this implication, if you wanted to --

MEMBER NICKOLS-RICHARDSON: Okay. So, the comment is that we have presented these implications, actually, previously a couple of times. So, anyway, the conclusions

were listed here.

Did I just go backwards.

So, implications are here, and if everyone is agreeable, we can move forward without going thorough into implications. Is that acceptable? Okay. All right. So, again, implications.

The next question, then, related to iron. The question was: is iron a nutrient of special concern for women of reproductive capacity?

The conclusion is that substantial numbers of adolescent girls and women of reproductive capacity have laboratory evidence of iron deficiency, with the implication being that efforts are warranted to increase dietary intake of heme-iron-rich foods and of enhancers of iron absorption by these special populations.

The next question is: are older adults consuming sufficient vitamin B12?

The conclusion is that recent

evaluation of NHANES data shows that individuals older than age 50 years are consuming adequate intakes of vitamin B12, including B12 found naturally in foods and crystalline B12 consumed in fortified foods.

Nonetheless, a substantial proportion of individuals older than age 50 years may have reduced ability to absorb naturally-occurring vitamin B12, but not the crystalline form.

So, implications here include that:

Although individuals older than age 50 appear to be meeting their need for vitamin B12, they should be encouraged or continue to encourage foods fortified with B12, such as fortified cereals or their crystalline form of B12 supplements, when necessary.

Practitioners should assess vitamin B12 status in those older than 65 years of age, and some criteria are listed

here for what is adequate B12 status.

The next question is: can a daily multivitamin/mineral supplement prevent chronic disease?

The conclusion is that, for the general healthy population, there is no evidence to support a recommendation for the use of multivitamin/mineral supplements in the primary prevention of chronic disease.

As well, limited evidence suggests that supplements containing combinations of certain nutrients are beneficial in reversing chronic disease when used by special populations, such as zinc or zinc plus antioxidant supplements in preventing further age-related macular degeneration in individuals with intermediate or advanced disease and EPA and DHA supplements in individuals with coronary heart disease.

However, certain nutrient supplements appear to be harmful in other subgroups, such as beta-carotene or beta-

carotene plus vitamin A supplements in smokers and individuals exposed to asbestos due to documented increases in lung cancer and vitamins A and E in a variety of subgroups due to elevated risk of death.

So, implications here:

Although intake of a variety of multivitamin/mineral supplements increased blood levels of many nutrients, particularly in people who had suboptimal status before supplementation, long-term effects on primary prevention of several chronic diseases are poorly-defined. In the context of an overweight society, the impact of multivitamin and mineral supplement use on obesity-specific endpoints is unexplored.

At present, Americans are encouraged to meet overall nutrient requirements within energy levels that balance daily energy intake with expenditure. This can be accomplished through a variety of food intake patterns that include nutrient-dense

forms of foods.

The last family of questions were related to some behaviors in nutrient intake, the first of which is: what is the relationship between nutrient intake and breakfast consumption, snacking, and eating frequency? The three questions presented here were conducted through NEL searches.

The conclusion related to breakfast is that moderate evidence supports a positive relationship between breakfast consumption and intakes of certain nutrients in children, adolescents, and adults.

A limited body of evidence supports a positive relationship between snacking and increased nutrient intake in children, adolescents, adults, and older adults, and inadequate evidence is available to evaluate the relationship between eating frequency and nutrient intakes.

So, implications here are:

Americans are encouraged to eat

nutrient-dense forms of foods for breakfast while staying within energy needs to facilitate achieving nutrient recommendations.

And likewise, nutrient-dense forms of foods are suggested for any snacks, if energy allowance permits this behavior without incurring weight gain.

Any discussion or questions/issues related to the more specific nutrient needs across lifespan and behavior questions?

Larry?

MEMBER APPEL: Yes, Larry Appel.

Could you go back to that dietary multivitamin/mineral supplementation implication slide? Yes.

That sentence, "In the context of an overweight society, the impact of multivitamin/mineral supplement use on obesity-specific endpoints is unexplored." The way it reads, it is like, well, this is an area of research that we should be jumping on. I must say that I look at that and I go that

is not how I am going to write a grant, you know. So, I am wondering if you could just delete that. I don't think it is necessary, unless there is some other intent. I wasn't sure.

MEMBER NICKOLS-RICHARDSON: No. I think in looking at that, the intent of that was just to address the fact that two-thirds of the population is overweight/obese. In looking at this many, many times, it really doesn't make sense to have that there because I don't know that we are going after micronutrient supplements for helping with weight loss. So, I agree that that can be removed.

CHAIR VAN HORN: If I recall, this topic was addressed when we discussed the paradox of obesity and malnutrition in the same individual. If you eat a third to more of your calories from snacks, desserts, pizza, et cetera, chances are your nutrient adequacy is compromised. So, I think the whole point

was just trying to look at that.

But the recommendations for improving the dietary sources of those nutrients should also accommodate weight control in a preferable way over taking a multivitamin supplement and allowing the continued intake of snacks, desserts, and pizza. I think that was the point.

Xav?

MEMBER PI-SUNYER: The one combination of vitamin and mineral that does seem to help is calcium and vitamin D. So, the question is, are people going to read this as saying they should drop that?

MEMBER NICKOLS-RICHARDSON: No, I don't think so because that is actually more of the text of the chapter. Yes, what we were presenting is just a couple of examples here. So, that is one of the areas where calcium/vitamin D does seem to be beneficial, particularly for bone health, particularly in post-menopausal women. So, I don't think we

have lost that. It is part of the chapter. It is just not reflected here in the conclusion statement.

MEMBER NELSON: But, Xav, it is in the individual conclusion statements of the individual nutrients that we looked at.

VICE CHAIR FUKAGAWA: This is Naomi.

I just wanted to comment briefly about the point made regarding saturated fat and its not being required. But in the spirit of wanting to encourage whole foods in the diet, it is very important for us to realize that saturated fats do have to come along with some of those foods that we are recommending. So, therefore, I think I would urge that we have a balance in our conclusions when we state that.

Thank you.

MEMBER CLEMENS: I appreciate that, Naomi. We also know that 50 percent of the calories in breast milk comes from

saturated fat.

MEMBER ACHTERBERG: And, Shelly, I am sorry I didn't ask this question earlier, but in the spirit of learning, relative to vitamin B12 and absorption at certain ages, and so forth, is there a significant impact for people who chronically take prescriptions for Zantac or Nexium or a whole spectrum of those kinds of drugs in terms of either B12 absorption or other vitamins?

MEMBER NICKOLS-RICHARDSON: It is a great question. This is Shelly again. It is a great question.

I think we didn't address drug/nutrient interaction issues. I think that is probably beyond the scope of what we really were able to answer, but I do think that that is an important question.

But just in terms of dietary intake, dietary guidance, that moves maybe into the realm of people with further disease that really need medical nutrition therapy

versus general healthy dietary guidelines for the healthy American population. So, it is a drug/nutrient interaction question that I think it is very important, but I think it is beyond the scope of what we were trying to answer.

MEMBER CLEMENS: I appreciate that, Shelly, because we know that so many people who are older are on statin drugs, and there is a vitamin D issue associated with that population group. So, I don't know if we allow for it in our commentary here yet, but publicly and from a clinical perspective that needs to be addressed as well.

MEMBER PEREZ-ESCAMILLA: Shelly, this is Rafael Perez-Escamilla.

And thanks again for a wonderful job from your Subcommittee.

Have you had a chance to look at the SoFAS and intakes by ethnicity, race, or income categories? Because I totally agree with the approach suggested by Larry of

illustrating the fact, if these Dietary Guidelines are followed, we can substantially address health disparities in the country, but it is also very important at the same time for policymakers and the public at large to understand the amount of work that is needed and how disproportionately the burden is in certain groups in our society.

MEMBER NICKOLS-RICHARDSON: That is a great question. We weren't able to do it by ethnicity, but I can say that, for the SoFAS intake, that by income the Food and Nutrition Service reports on WIC program participants, on Food Stamp participants, that those included both participants and non-participants, so really getting at the income or economic situation. There were not differences in SoFAS intakes between those that were participants versus non-participants. So, School Lunch, WIC, and Food Stamp participation, it was equivalent. So, I think those reports were very helpful in

answering at least the economic part of that.

CHAIR VAN HORN: Anything else for Shelly and her group? Cheryl?

MEMBER ACHTERBERG: Just one more comment to follow up. Whether it is a note for a future Committee or a footnote we put somewhere, I think in the future we need to define better or more clearly what we mean by healthy Americans because anyone who is in medical practices knows that by age 60 it is hard to find someone who isn't on a prescription. And there are many other variations of this. So, I think in the future this issue has to be dealt with in a different manner. It is probably beyond what we can do now, but somewhere we have to set that out, so that in the future it can be addressed.

CHAIR VAN HORN: Yes, we can recommend that for the future.

Okay. Shelly, thank you very much and to everyone in the subgroup.

We are now ready to talk about

fatty acids, and Tom Pearson's group will report.

MEMBER PEARSON: Very good. Thank you very much.

I want to begin by acknowledging the contributions of a terrific working group of colleagues: Eric Rimm, Roger Clemens, and Naomi Fukagawa.

And staff members Pat Guenther, Molly McGrane, and Thomas Fungewe. I have not forgotten Shirley Blakely, and I want to just single out Shirley. I am going to dearly miss our every Monday calls. We have been meeting every Monday on the telephone for a year and a half.

(Laughter.)

And if there is anything that has kept this wagon of the train on the tracks, it has been Shirley. So, kudos to Shirley and a lot of gratitude.

Okay. So, these have all been, I think, presented and discussed in the past.

So, we are going to move through them quite quickly, and, hopefully, at the end of this we will be back on our original schedule for the day.

And the first question was: what is the effect of saturated fatty acid intake on increased risk of cardiovascular disease or type 2 diabetes, including intermediate markers such as serum lipids and lipoprotein levels?

And the conclusion here, and I might say there's a couple of conclusions that are a little bit different. Given the change in the grading things, they may vary from what you have in the slide handouts in front.

But our conclusion is: strong evidence indicates that dietary saturated fatty acids is positively associated with intermediate markers and endpoint health outcomes for two distinct metabolic pathways, increased total and LDL cholesterol and increased risk of cardiovascular disease, and

two, increased markers of insulin resistance and increased risk for type 2 diabetes.

Conversely, decreased SFA intake improves measures of both CVD and type 2 diabetes risk. The evidence shows that a 5 percent energy decrease in saturated fatty acids, when replaced by MUFA or PUFA, decreases risk of cardiovascular disease and type 2 diabetes in healthy adults. It improves insulin responsiveness in insulin-resistant and type 2 diabetes subjects. And again, the emphasis here is isocaloric substitution rather than addition of or subtraction of the fats and calories.

The implication, there's many implications on all of these, and there's only been a couple -- this implication, which I am not going to read, basically suggests that a 5 percent substitution for MUFAs or PUFAs from saturated fatty acids, down from the 11 to 12 percent of energy from saturated fats currently, to a goal of less than 7, would, in

fact, have a significant public health impact.

This is an old implication, but added to the bottom of it was the additional comment that there is good evidence that atherosclerosis starts in childhood and young adulthood, and the benefits from this would extend down to ranges that we, otherwise, wouldn't have previously appreciated.

I am not going to show you all the implications because most of them haven't changed from what we have presented in the past. We are going to stick mostly with our conclusion.

What is the effective dietary cholesterol intake on risk of cardiovascular disease, including effects of intermediate markers such as serum lipid and lipoprotein levels and inflammation? This is the second question.

Ah, the conclusion is that moderate evidence from epidemiologic studies relates dietary cholesterol intake to clinical

CVD endpoints. Many randomized clinical trials on dietary cholesterol use eggs as the dietary source. Independent of other dietary factors, evidence suggests that consumption of one egg per day is not associated with risk of CHD or stroke in healthy adults, although consumption of more than seven eggs per week has been associated with increased risk. An important distinction is that among individuals with type 2 diabetes increased dietary cholesterol intake is associated with cardiovascular disease risk.

And again, the implications, I think we are talking about a little bit of the issues related to egg consumption is almost a surrogate for cholesterol intake. Obviously, they are not the same, although eggs continue to be the main source, single dietary source of cholesterol.

And the point here is that eggs are also a good source of high-quality protein and numerous micronutrients. So, we

distinguish the type 2 diabetes patients in which there does appear to have negative effects on serum lipids and lipoprotein levels and the risk of CVD, and also the more than seven eggs per week consumption is not recommended for the general public. So, for that group, it is less than 200 milligrams per day for persons with or at high risk for cardiovascular disease and type 2 diabetes.

We did have some modeling of nutrients. So, the next question in this is: what is the impact on food choices and overall nutrient adequacy of limiting cholesterol to less than 200 milligrams per day? This would be particularly relevant to those recently sizable groups that we just mentioned in which this would be a recommendation.

And the conclusion is that the cholesterol levels could be reduced to less than 200 milligrams in the patterns at all calorie levels by limiting eggs to less than

two per week, reducing amounts of meats and poultry, and substituting some oils for solid fats. I think also using nuts and soy protein would be part of those recommendations. And these changes would result in reductions in some nutrients, including protein, choline, vitamin A, vitamin D, EPA, and DHA, and an increase in vitamin E.

I might say that most of those, choline, vitamins A and D, were already below the recommended levels. So, this is a further reduction below those other reductions.

Any comments on the saturated fat and cholesterol?

MEMBER PEREZ-ESCAMILLA: Tom?

MEMBER PEARSON: Yes?

MEMBER PEREZ-ESCAMILLA: This is Rafael Perez-Escamilla.

I guess in terms of the whole conclusion, what is it, what is it that you or your Subcommittee is recommending? Are you recommending changes in the cholesterol intake

levels to the whole population or just for individuals who have had chronic disease?

MEMBER PEARSON: The current recommendation is for less than 300 milligrams per day. So, we are not making those recommendations for individuals, healthy individuals. The current recommendation is for less than 200 mg/day for patients with cardiovascular disease, and I guess we are probably adding an emphasis on the 200 mg/day for patients with diabetes as well. So, it is not a very big change. It is another very high-risk group that is being added to that, but not the general -- there is really no evidence that we could find that there was a risk for the less than 300 mg/day, essentially, the 200 to 300 level for healthy individuals.

MEMBER PEREZ-ESCAMILLA: And in terms of the daily egg findings, I am assuming you are referring to egg equivalents, right? It is not only fresh eggs, but also egg-

containing products have to be taken into account when people decide?

MEMBER PEARSON: I would imagine. I mean, again, the problem is that eggs are changing along with everything else. So, previously, not that many years ago, there was about 38 percent of cholesterol was from the single source eggs. Now I think it is down to something like 24 or 25 percent. So, eggs are changing and the way they are used is changing. So, it is becoming less of an issue just to single this out on eggs.

So, I think we are really talking about, and this is more of the tail wagging the dog in that the literature has dealt with eggs rather than the fine nutrient analyses, what we are really after, and that is the milligrams of cholesterol per day.

So, I don't think there is any evidence to suggest that a milligram of cholesterol from an egg is any different than a milligram of cholesterol from a dairy

product or some of the other sources. So, I think that is really, Rafael, what the issue is, is that eggs become a surrogate for cholesterol consumption, but an increasingly poor surrogate.

MEMBER WILLIAMS: I just wondered, as far as the eggs, for people who don't consume that many eggs or don't consume egg yolks, there maybe should be some distinction. Also, there is such a big difference in size of eggs. Does that make a difference?

MEMBER PEARSON: Yes, I think this was the point in terms of the change; there has been some change in eggs, rather than also in the consumption of eggs over time. I think this is what we were talking about.

But I would point out, as was pointed out I think in the discussion previously, is some of those nutrient inadequacies, the choline, the A and the E are in the yolk. So, that some of those issues of concerns of a reduction in eggs would also

have to do with a reduction in egg yolks, where all the cholesterol is. But we all know that, obviously, egg whites is the standard protein that we use for reference. So, we know that that is an extraordinarily good source of protein. Okay.

MEMBER NELSON: This is Mim.

I just have a very quick -- so, the modeling was really for this lower step-downed version, not for the general population? It was for those that are at risk, the 200?

MEMBER PEARSON: No, it was modeling in the general, the calorie levels, the different calorie levels --

MEMBER NELSON: But it was for two --

MEMBER PEARSON: -- for the general diet.

MEMBER NELSON: Right.

MEMBER PEARSON: The point is that, for individuals with the recommendations

who are going to be at that 200 level --

MEMBER NELSON: Right.

MEMBER PEARSON: -- this is for whom it is relevant.

MEMBER NELSON: Yes, that's what I mean.

MEMBER PEARSON: Right.

MEMBER NELSON: The 200 milligrams was for those people where it is relevant. Okay.

MEMBER PEARSON: But it is still worth doing the modeling because --

MEMBER NELSON: Yes, yes.

MEMBER PEARSON: -- you know, if you counted up the people with a history of cardiovascular --

MEMBER NELSON: Right.

MEMBER PEARSON: -- disease, which is probably 5 to 10 percent, and the people with diabetes, which is another 7 to 10 percent --

MEMBER NELSON: Yes.

MEMBER PEARSON: -- depending on ethnic group, you know, it is a pretty good-sized group.

MEMBER NELSON: Yes.

MEMBER PEARSON: Okay. So, the next slides have to do with some of the other fatty acids. The next question is: what is the effect of dietary intake on monounsaturated fatty acids, MUFAs, when substituted for saturated fatty acids on increased risk for cardiovascular disease and type 2 diabetes, including intermediate markers such as lipid and lipoprotein levels, blood pressure and inflammation? And again, the emphasis here was isocaloric substitution rather than any kind of addition or subtraction.

And the conclusion is strong evidence in the case of dietary MUFA is associated with improved health outcomes related to both cardiovascular disease and type 2 diabetes, when MUFA is a replacement

for dietary saturated fatty acids. The evidence shows a 5 percent energy replacement of saturated fat with MUFA decreases intermediary markers and the risk for cardiovascular disease and type 2 diabetes in healthy adults and improves insulin responsiveness in insulin-resistant and type 2 diabetes subjects.

The next subquestion in here was: what is the effect of replacing a high carbohydrate diet with a high monounsaturated fat diet in persons with type 2 diabetes?

And the conclusion there is that moderate evidence indicates that increased MUFA intake, rather than high carbohydrate intake, may be beneficial for persons with type 2 diabetes. High MUFA intake, when replacing a high carbohydrate diet, again, in an isocaloric fashion, results in improved biomarkers of glucose tolerance and diabetic control.

Next, moving on to polyunsaturated

fatty acids, it is: what is the effect of dietary intake of n-6 polyunsaturated fatty acids on risks of cardiovascular disease and type 2 diabetes, including intermediate markers such as lipid and lipoprotein levels, blood pressure, and inflammation?

And the conclusion, again, very similar to the MUFA recommendation, is that strong and consistent evidence indicates that dietary polyunsaturated fatty acids are associated with improved health outcomes related to cardiovascular disease, in particular, when PUFA is a replacement for dietary saturated fatty acids or trans fatty acids. Evidence shows that energy replacement of saturated fatty acids with PUFA decreases total cholesterol, LDL cholesterol, and triglycerides, as well as numerous markers of inflammation. PUFA intake significantly decreases risk of cardiovascular disease and has also been shown to decrease the risk of type 2 diabetes.

Getting to one of the other fatty acids of interest, stearic acid is: what are effects of dietary stearic acid on LDL cholesterol?

And the conclusion here is that C18 saturated fatty acid, stearic acid: moderate evidence from a systematic review indicates that, when stearic acid is substituted for saturated fatty acids or trans fatty acids, plasma LDL cholesterol levels are decreased; when substituted for carbohydrates, LDL cholesterol levels are unchanged, and when substituted for monounsaturated or polyunsaturated fatty acids, LDL cholesterol levels are increased.

Therefore, the impact of stearic acid replacement of other energy sources is variable regarding LDL cholesterol, and the potential impact of changes in stearic acid intake on cardiovascular disease risk remains unclear.

We did do some modeling, nutrient

modeling, looking at the redefinition of saturated fats into an operationalized definition for this modeling exercise as total saturated fatty acids minus stearic acid. So, in fact, there is an LDL cholesterol-neutral effect of stearic acid, removing it from the group which heretofore had been called cholesterol-raising.

So, the question is: what is the impact on food choices and overall nutrient adequacy of limiting cholesterol-raising fatty acids to: first, less than 7 percent of total calories; and (b), less than 5 percent of total calories, with cholesterol-raising fatty acids operationalized as total saturated fatty acids minus stearic acid?

And the conclusion is that the USDA food patterns have 6.0 to 6.8 percent of calories from cholesterol-raising fatty acids. Parenthetically, stearic acid is generally about 2 to 2.2 percent of energy in the U.S. diet. So, to further reduce levels of

cholesterol-raising fatty acids, all solid fats were removed from the patterns and were isocalorically replaced with oils, resulting in cholesterol-raising fatty acid levels of 5 to 5.5 percent of calories, which would likely be consistent and compatible with the previous less than 7 percent of saturated fat goals from our food modeling exercise.

Another issue with fatty acids looked at trans fatty acids. The question was: what effect does consuming natural or ruminant versus synthetic or industrially-hydrogenated trans fatty acids have on LDL, HDL, and non-HDL cholesterol levels?

And the conclusion is that limited evidence is available to support a substantial biological difference in detrimental effects of industrial trans fatty acids, iTFA, and ruminant trans fatty acids, or rTFA, on health when rTFA is consumed at seven to ten times the normal level of consumption. So, one of the peculiarities of this evidence base is

that the randomized, high-quality studies were all done well above that of trans fatty acid consumption overall.

Then, getting into some of the n-3 fatty acids and issues, it is: what is the relationship between consumption of seafood n-3 fatty acids and risk of cardiovascular disease?

And the conclusion is that moderate evidence shows the consumption of two servings of seafood per week -- that is 4 ounces per serving -- which provide an average of 250 milligrams per day of long-chain n-3 fatty acids, is associated with reduced cardiac mortality from CHD or sudden death in persons both with and without cardiovascular disease.

We did, also, some food modeling in this arena, answering the question: what is the impact on nutrient adequacy of increasing seafood in the USDA food patterns to one of three scenarios? Four ounces per

week of seafood high in n-3 fatty acids; that is EPA and DHA. The second scenario was 8 ounces per week of seafood, including seafood both low and high in n-3 fatty acids in proportion to that currently consumed in the American diet; and three is 12 ounces per week of seafood low in n-3 fatty acids. Those are not the marine seafood sources that have the high n-3 fatty acids.

So, with these three scenarios, then, the conclusion is that the amounts of seafood in the base USDA food patterns could be increased without any negative impact on nutrient adequacy. In the reference 2000-calorie pattern, the three seafood variations resulted in 292 milligrams per day of EPA and DHA in the 4 ounces per week of seafood high in n-3 fatty acids; 253 milligrams per day of EPA and DHA in the 8 ounces per week of the kind of average balance of seafood currently consumed, and 201 milligrams per day of EPA and DHA in the 12 ounces of seafood low in n-3

fatty acids.

So, you can see at least at this reference calorie level that the high n-3 foods at 4 ounces or at the average content of 8 ounces meets the 250-milligram goal and the one with the low n-3 seafood, obviously, falls slightly below that, either requiring more of those sources of seafood to be consumed or to add some of the other high n-3 seafood to that, pursuant to scenario No. 2.

There's also the issue of plant n-3 fatty acids versus the marine sources of fatty acids. So, the question is: what is the relationship between consumption of plant n-3 fatty acids and the risk of cardiovascular disease?

And for this, the conclusion was that alpha-linolenic acid, ALA, intake of .6 to 1.2 percent of total calories will meet current recommendations and may lower cardiovascular disease risk, but new evidence is insufficient to warrant greater intake

beyond this level to assure, obviously, the essential fatty acids are consumed. Limited but supportive evidence suggests that higher intake of n-3 from plant sources may reduce mortality among persons with existing cardiovascular disease. Clearly, this is an area that we have been commenting on with our research recommendations, considering issues of production in the high marine n-3 fatty acids.

A very interesting, and I think relatively new, area with a lot of quite recent data is the issue of maternal dietary intake of n-3s from seafood. The question there, then, is: what are the effects of maternal dietary intake of n-3 fatty acids from seafood on breast milk composition and on health outcomes in infants?

And the conclusion there is that moderate evidence indicates that increased maternal dietary intake of long-chain n-3 PUFAs, in particular, docosahexaenoic acid,

DHA, from at least two servings of seafood per week, during pregnancy and lactation is associated with increased DHA levels in breast milk and improved infant health outcomes, such as visual acuity and cognitive development. And we emphasize it appears that the DHA is really the issue here rather than any of the other n-3 fatty acids.

Finally, we singled out a couple of foods, whole foods, that were traditionally considered high fat sources. Those are nuts and chocolates. So, the first question is: what are the health effects related to consumption of nuts?

And the conclusion is that there's moderate evidence that consumption of unsalted peanuts and tree nuts, specifically walnuts, almonds, and pistachios, in the context of a nutritionally-adequate diet and when total calorie intake is held constant, has a favorable impact on cardiovascular disease risk factors, particularly serum lipid levels.

And the same question: what are the health effects related to consumption of chocolate?

The conclusion is moderate evidence suggests that modest consumption of dark chocolate or cocoa is associated with health benefits in the form of reduced cardiovascular disease risk. Potential health benefits needs to be balanced with caloric intake, again, part of the mantra of the fatty acid group.

And those are our comments, open for discussion.

MEMBER PI-SUNYER: This is Pi-Sunyer.

I have two questions for you, Tom. The first deals with this issue of effect of omega-3's on cognitive function. On page 50 of the draft, you have this figure from Brenna and Lapillone which is kind of stunning in terms of the drop in verbal IQ in relation to not having as much seafood in pregnancy.

So, I think that figure No. 1, the reference is not listed in your list of references. So, I think if you are going to have the figure, you need to have the reference.

Second, I think a lot of women in this country now during pregnancy are worried about methylmercury and won't eat any fish. So, I think the question is how you translate this appropriately to pregnant women, that it might affect cognitive function of their kids.

MEMBER PEARSON: Let's hear from both Roger and Eric on this. This has been discussed extensively, as well as a joint meeting with the Food Safety group and the inclusion in this chapter, I might say, of a figure which talks about the omega-3 sources and the methylmercury levels, which is on page 45.

But I don't know, Roger, do you want to --

MEMBER CLEMENS: No, we'll let

Rafael, who wrote that section. Rafael, do you want to comment on that?

MEMBER PEREZ-ESCAMILLA: Yes, I think the conclusion that is part of the Food Safety Subcommittee presentation, but we may not be able to get into detail into that later on, is that the benefit/risk analyses that have been conducted targeting the U.S. population as well as a couple of European populations, and so on, show that women can safely consume 12 ounces of seafood or even more during pregnancy, lactation, and so on, as long as they choose seafood species that are low in methylmercury, which are many options for them to do so.

In terms of what I think is a most useful study, the benefit/risk analysis done with seafood data from Connecticut showing that, out of 16 species, over half of them not only could be consumed two or three times per week, but they could be consumed daily, over half of these species, without posing a risk

in terms of neurological development or cardiovascular disease. And I won't say we are posing a risk; with the benefit/risk ratio still being very favorable in terms of that behavior.

MEMBER CLEMENS: My general feeling is that obstetricians around the country are scaring pregnant women to death about the absolute --

MEMBER PEREZ-ESCAMILLA: So, a very important research recommendation has to do with risk communication regarding seafood consumption and how to communicate it in a way that is not misinterpreted, as it has been in the past, because the advisory never ever stated women should not eat any seafood during pregnancy. So, your point is very well-taken.

MEMBER ACHTERBERG: A quick clarification, please. Cheryl.

Lake fish, freshwater fish, or only maritime sea fish?

MEMBER PEREZ-ESCAMILLA: Yes, we

are talking about mostly marine fish, but in terms of locally-caught fish, people have to pay attention to local and state advisories. It is very much included, and the point is that the information is out there. How you frame it in a user-friendly way for consumers to be able to do the benefit/risk analysis based on their choices is the next generation of research in this area, I would say.

MEMBER PEARSON: But large predatory, ocean-going fish, which don't include salmon and many of the common things that we do eat.

I want to make sure that Xavier's first question was on page 50, and the specific question, Xavier, you had on that figure?

MEMBER PI-SUNYER: No, I just said I just thought it was very kind of scary.

MEMBER SLAVIN: This is Joanne.

You know, the reference is missing. So, that is one thing. It is not in

the back.

But, also, I think it is a little misleading. It is sitting there and it looks shockingly effective. So, I think it needs to be discussed a little more and put into context. Is it the fish? Is it the polyunsaturated fat? What's causing this relationship? So, I just find it kind of hanging out there. And because it is in a figure, I think it will get too much attention and it needs to be put into context.

MEMBER PEARSON: This was a figure that was added because of its interest and relatively recent. But we do need to -- I wasn't aware that this reference didn't get put in, but it will. It is a relatively-recent paper.

We had, just to answer the question, we had, actually, was it two or three experts in on this discussion? Dr. Brenna was one of them, looking at this. Also, I think Dr. Brenna has chaired a WHO or

maybe it was a European Union group on this issue, which has just published their report recently as well, again, on the same issue.

And the animal and other supportive information looks at this particularly as DHA.

MEMBER SLAVIN: Yes. This is Joanne Slavin again.

I think if you look on the X-axis there, it says it is estimated n-3 fatty acids from seafood in pregnancy. So, I am curious, like Cheryl's point is, how is this data -- you know, because if it comes out just eat fish and your kid is going to be brilliant, it could be misinterpreted.

MEMBER PEARSON: I think this had to do with mainly fish consumption.

MEMBER SLAVIN: Across the board? EPI data?

MEMBER PEARSON: Right, right.

MEMBER SLAVIN: Yes. So, I think that's --

MEMBER PEARSON: Any type of fish.

MEMBER SLAVIN: -- risky, the way it is presented right now.

MEMBER PEARSON: Well, we will get the reference summarized. But I might say it is only part of a much larger literature with other expert testimony, basic science modeling of this in animal models, and a variety of other things. So, this isn't just the only thing that is out there.

MEMBER SLAVIN: And, you know, I think it does -- this is Joanne here again -- supplements, why can't I just supplement? If it is the PUFA, or is it the fish, or what's the point here?

MEMBER PEARSON: All of our literature reviews excluded supplements.

MEMBER SLAVIN: But if you look at the study, if it is n-3 fatty acids from seafood, if I just eat fish oils, right?

MEMBER PEARSON: From seafood. Right.

MEMBER SLAVIN: That is a fish oil. I mean, the way it is read here, it looks like it is an n-3 fatty acid from fish that is causing this shift in IQ. That is the way you read that figure. So, whether I ate it in fish or I took it as fish oil, if that is what is happening, then I should buy fish oil.

MEMBER PEARSON: Our literature review was limited to whole food study.

MEMBER RIMM: Yes, this is Eric Rimm.

Maybe we should consider taking the figure out, either having a really nice paragraph explaining what it is, what contributed to this prediction model because some of this could be from n-3 trials where they just give a supplement, because I know that is the advice that some OB/GYNs give, because women are confused. They say, "Oh, just take a supplement."

But we specifically wanted to

focus just on those studies that looked at seafood because there are some very well-done studies that look at three and four and five years out and do see a pretty strong beneficial effect of children's cognitive function.

MEMBER PEARSON: I will have to go back and look, but I don't think these were supplements. I think these were feeding studies from some countries in which, islands, et cetera, that basically ate almost all of their proteins from fish. "Seyechelles" I know was a University of Rochester study on this topic.

MEMBER NICKOLS-RICHARDSON: This is Shelly.

You do see some benefit from supplements, DHA supplement, and the Brenna article does include a statement about some of that. But, in large part, it really is the fish consumption. So, we do have a little segment on that in the nutrient supplements

part that suggests that DHA supplementation will provide some of those benefits, more so for the cognitive development versus the visual acuity, but then, in the spirit of food intake, we refer back to fish intake as being a way to achieve that same level of DHA.

VICE CHAIR FUKAGAWA: This is Naomi.

I thought that the other purpose of having this figure was to emphasize the intake level because it is very different from the standpoint of what is recommended by AHA, et cetera, for cardiovascular disease. So, it was to differentiate --

MEMBER PI-SUNYER: I have no objection to having the figure, but I think it needs to be put in context.

VICE CHAIR FUKAGAWA: Explained a bit more, right.

MEMBER PI-SUNYER: Much more than it is.

MEMBER PEARSON: I think that is

an excellent point.

VICE CHAIR FUKAGAWA: And I wanted to make one other comment about the fact, about food safety and local food advisories. Since most of our food supply is now global, it becomes extremely important for us to also be aware as to where in the world our fish came from, such that we would know what the potential contents of methylmercury or POPs are.

Thanks.

MEMBER PEARSON: I think the figure on, Naomi, just your point, you know, we had talked about including or not including this figure on page 45, line 1030. Certainly, I pushed to keep it in because it almost is too busy in the integration of some of these, but certainly it does provide many options of kinds of sources of fish-supplied omega-3 with low risk. So, that one isn't left with the housewife saying, well, I have to choose one bad thing versus one good thing. There really

are some opportunities to pick just good things.

Cheryl?

MEMBER ACHTERBERG: This is Cheryl.

Going back to that context piece on the figure 2, I am wondering if that paper can be emailed to each of us because what I would like to look at, actually, it's the IQ portion, so that I have some sense of what level change are we talking about there, and is it truly significant? It is made to look significant here, meaning meaningful.

MEMBER PEARSON: The Y-axis is the percentage in the lowest quartile.

MEMBER ACHTERBERG: Oh, I understand that, but looking at the context, in the context of child's IQ, and specifically what those differences are against the regular standard deviation for IQ I think is important. So, a little bit more on that context, but I am willing to jump in on that

side of things, if I have the paper.

MEMBER PEARSON: Okay. Fair enough.

MEMBER PI-SUNYER: Okay. I have another comment. That has to do with your suggestion of people having more MUFA. I am sympathetic to that, but if you look at the table you have on page 5, how are you going to get more MUFA without getting more saturated fat and more calories? I mean most of the stuff that is bringing you oleic acid is also bringing you saturates. So, I mean, the translation is going to be very difficult here.

MEMBER PEARSON: Yes, I think this was one of the reasons for putting the food tables in, is some of the issues. And your question is, I think, a good one. I think this is an issue that particularly the food manufacturers, in terms of do you really have to have pizza that has a lot of saturated fat when it also has a lot of MUFA, do you really

have to do that? And it has to do, obviously, with the oils that are used, with the things you put on the cheese, the kind of cheese you use. All of those things are optional.

So, part of the issue, I think, for some of these food source tables is a challenge for manufacturers to give us what we can fit within the guidelines.

MEMBER PEARSON: I think your point is well-taken.

MEMBER PI-SUNYER: I think meat, particularly.

MEMBER PEARSON: I think translation is tough here.

MEMBER PI-SUNYER: Yes.

CHAIR VAN HORN: I would also just like to suggest, because I have been going back and forth between this chapter, the fatty acid chapter, and the food safety chapter, in terms of the references and the crosstalk, again, between these two in terms of the methylmercury and the recommendations for

pregnant women. Some of them are inconsistent.

So, you might want to just take a look, and especially in terms of the references, make sure they match up, because there's references in one chapter that aren't repeated. For example, the Ginsberg reference might be appropriate in the other chapter as well, so that you are looking at the same data for both of these issues.

MEMBER PEARSON: Yes, we should do that. We had some joint meetings. So, I can't imagine that there really are any unresolvable issues.

CHAIR VAN HORN: Sure, I'm sure they are.

MEMBER PEARSON: It really has to do with wording and --

CHAIR VAN HORN: Yes, it is just dotting the "i's" and crossing the "t's" on these two, yes.

MEMBER PEARSON: Yes, yes. So, we

worked out all the other issues.

MEMBER SLAVIN: I just wanted to follow up, too, with the nutrient adequacy because it does overlap with that, and we want to make sure of that, because I think things are written in different places, but they will be lost because they are in different chapters, so to make sure there is consistency there.

MEMBER PEARSON: Yes.

MEMBER APPEL: This is Larry Appel.

There are a few points where you lump together lipids, lipoprotein levels, blood pressure, inflammation under intermediate biomarkers and that kind of terminology. I am a little bit concerned. I know the n-6 PUFA field with blood pressure, there really is no relationship. So, you have it in your question, lipids, lipoproteins, blood pressure and inflammation. Then, the conclusion states improved health outcome

without specifying.

I am wondering, quite honestly, I think you might want to specify the lipids rather than just putting in -- you know, because people misinterpret and say, oh, you know, it's good for everything, including blood pressure. And I don't think so.

MEMBER PEARSON: I think we are a bit into the process issues here.

MEMBER APPEL: Yes.

MEMBER PEARSON: Those were the questions that were posed. And generally, a lot of times, nothing was there for things like inflammatory markers and things like that. And other than there wasn't some things, like you said for blood pressure --

MEMBER APPEL: Yes.

MEMBER PEARSON: -- there wasn't any association. There was data, but there wasn't any association. And then, for the lipids and lipoproteins was generally what was shown.

So, I guess, methodologically, we would want some guidance about that because we didn't want to be accused of kind of changing the question to fit the answer, because the searches really did look at a wider swath of things, but the overall conclusions -- also, I think we were a little bit loathe to have a different conclusion for each thing. So, we were looking at general cardiovascular risk status as an overall statement. But I think we could --

MEMBER APPEL: I mean it is late in the game. We had a question. We really can't change it. But I am wondering, in the conclusion, whether you could maybe ignore blood pressure and maybe ignore inflammation and just say with improved lipids or lipid profile, something like that.

MEMBER PEARSON: Or maybe say reduced cardiovascular risk as indicated by --

MEMBER APPEL: By lipids, something like that.

MEMBER PEARSON: Yes.

MEMBER APPEL: Because, otherwise, they will think, oh, it's good for all these things.

MEMBER PEARSON: Yes. Yes, but that's what happened, is that the others were pretty slim, not --

MEMBER APPEL: Well, they had been done, but before 2005.

MEMBER PEARSON: Yes.

MEMBER APPEL: And there was no evidence, and most people won't know --

MEMBER PEARSON: Right. That's not where the issues are.

CHAIR VAN HORN: And this is entirely predictable in the sense that each of us played roles on each other's subcommittees as well. So, the literature, it can't be distinct for each chapter. It does have implications across the board. And only when we come together in a forum like this can we kind of bring those things up to the surface.

So, I think this is a totally appropriate recognition of some of those additional details that still can be resolved.

MEMBER NELSON: So, are we keeping careful track of those changes that need to happen? I mean these people are?

CHAIR VAN HORN: I have Anne Rogers, I am sure, feverishly writing away here. See her. Her arms is just on fire here writing these things down.

(Laughter.)

MEMBER NELSON: Because I do think those kinds of subtleties are really important here.

CHAIR VAN HORN: Yes. Absolutely. And everything is being recorded.

MEMBER PEREZ-ESCAMILLA: This is Rafael Perez-Escamilla.

Tom, I have a question about the unsalted nuts.

MEMBER PEARSON: I'm sorry.

MEMBER PEREZ-ESCAMILLA: Sorry for

interrupting, Tom.

MEMBER PEARSON: Yes.

MEMBER PEREZ-ESCAMILLA: But the question I have is about the unsalted nuts. Is this because the studies were done with unsalted nuts? Is it because you are concerned about not promoting higher sodium intake?

MEMBER PEARSON: This was --

MEMBER PEREZ-ESCAMILLA: Because they are lightly salted, most --

MEMBER PEARSON: This was a blatant attempt to escape Larry Appel's wrath.

(Laughter.)

MEMBER PEREZ-ESCAMILLA: Okay.

MEMBER PEARSON: Well, I think we were talking about in the implications frequently these are consumed as snack foods with the salted form. Also, in other forms, like peanut butter, there is tremendous opportunities to go with less salt, which oftentimes are not taken by the manufacturers.

So, what we wanted to do in terms of, in the same way that we are talking about isocaloric, where calorie health issues are not what we are talking about, we don't want to be dragged into talking about the sodium issue because that is really another working group. We are talking about the fats and the content of this food unadulterated by other things that you could do to them. Really, just talking about the risk associated with the fatty acid constituents. So, that is what we put.

So, it does kind of clutter up things in terms of, you know -- but I think the emphasis was that these could be an unneeded source of sodium. So, now we will get some good words from Larry because we did good.

MEMBER APPEL: Yes, you did great, but it might be that the evidence focused on nuts without specifying salt. So, you could say, you know, you could drop "salted" and

say, "In the context of other recommendations, these should be unsalted versions," you know, something like that --

MEMBER PEARSON: Yes.

MEMBER APPEL: -- which might be technically more correct, you know.

MEMBER PEARSON: I think the research was all over the board. I mean I think there were all sorts of different -- I mean there was just all the studies together and some did and some didn't, and it really wasn't -- but the idea for the recommendation and conclusion was that this is what we are talking about here. So, someone wouldn't say, well, then, you can eat all the salted nuts you want. That's not what we are talking about.

MEMBER SLAVIN: This is Joanne, and I want to just chime in here to kind of take the heat off me later.

We had a lot of these whole food questions, too, and they are really difficult

because, when those studies are done, you are counting servings of food, and it is as people reported them as eaten. So, they're not unsalted. You know, that's the reality.

So, I agree with Larry that technically the answer is, in response to the question, which the dietary recommendation won't be to have salt all over the nuts, but the studies as done in whole foods, that is the way they are consumed, and that is just part of the problem in doing these kinds of whole food questions, that we kind of don't like our answer, but when that's our question, that's what we get.

MEMBER NELSON: But you can do the context. You just put it in context.

MEMBER PEARSON: We had initially put it in the implications only, and then it was kind of recommended that it come up into the recommendations as well. It was certainly brought up early and often in the implications section which we had, too.

MEMBER SLAVIN: And it may be better to have more of a policy that it wouldn't be in the conclusion if you can't tell from the question, but it could be in the implication, just for consistency.

MEMBER NELSON: Except sometimes I think you need, as we said earlier, there are a couple of questions where you need some context in the conclusion. I think that this is one that you probably do. But it is pretty simple. I mean, within the context of other conclusions that we have here, it should be without sodium.

MEMBER PEARSON: Well, as you saw, we were the champions of context. I mean you can see all the caveats we already have.

Anything else?

(No response.)

So, I have a couple of announcements.

Shirley just hands me a note that the Brenna/Lapillone paper is being printed,

so you all will have it to look at.

I think this could be a very important public health issue for us.

MEMBER RIMM: Yes, Joanne just mentioned to me that that paper, that figure, actually -- this is Eric Rimm -- was reprinted from a Joseph Hibbeln article.

MEMBER PEARSON: Right.

MEMBER RIMM: So, it is actually the Hibbeln article we should put in here, instead of the Brenna article because Brenna, I think, was just borrowing it.

MEMBER PEARSON: Because Hibbeln isn't in here.

MEMBER RIMM: It's referenced in here --

MEMBER PEARSON: Right. So, we have the wrong reference --

MEMBER RIMM: But that figure itself was originally printed by Joe Hibbeln. Well, it is the right reference. He used it also, but I think we should cite the original

source.

MEMBER PEARSON: Right.

MEMBER APPEL: I think, though, I can't at this point say include it or exclude it, but I think you might consider excluding it. It is so hit you over the head. It says percent children. I don't know what the Y-axis is. The Y-axis isn't explained.

MEMBER PEARSON: No, it is quartile.

MEMBER APPEL: Percent children.

MEMBER PEARSON: It is the lowest quartile, the percentage of kids that are in the lowest quartile. So, if its more than 25 percent you're at risk. I think it is straightforward.

MEMBER SLAVIN: But I agree with Larry that, if you look at the last four points, they are essentially the same, and you have two at the end. So, I think it can be really misinterpreted. So, I'm still I would like to --

MEMBER PEARSON: But I think there is an asymptote above which it doesn't look like there's any additional --

MEMBER RIMM: I mean we have a similar figure a few pages before that for these summaries of all the omega-3 articles and cardiovascular disease. Not too surprising, it looks very similar. There is an asymptote at about 250 milligrams a day. So, we should go back and look at the original --

MEMBER PEARSON: Sure.

MEMBER RIMM: -- paper, just to make sure, I agree. But if it is not clear, or if it is too shocking, then we should take it out.

MEMBER APPEL: Or is it a quartile of that population or a standardized quartile? So, I mean, this is a big deal.

MEMBER ACHTERBERG: That is what I want to look at. Which kids? How was that IQ measured? You know, looking at reliability,

looking at that standard deviation, because the implications here are huge, and we have to pay attention not only to the nutrition side of the equation, but that IQ side of the equation in terms of quality of data and who was sampled.

MEMBER PEARSON: Okay. Madam Chairman, we are now 15 minutes early.

(Laughter.)

CHAIR VAN HORN: We are so proud of you.

MEMBER PEARSON: We are 15 minutes early of the original schedule.

CHAIR VAN HORN: Thank you to the fatty acids group for catching us up.

Also, just to add to that final discussion again, what we are doing now is exactly what could be predicted, which is now that we are all together and being able to compare notes across these chapters, certain things like these figures that maybe make sense to the group that has been immersed in

it for the last year and a half, and perhaps doesn't come across the same way to everyone else, does deserve a little additional attention. So, just as we have said all along, there are some unfinished issues that we will continue to pursue after today before this report is finalized.

Now, with that, what I would like to do, Joanne, if you are up for this, is go ahead with protein, and then we will take a break before carbohydrate. Is that all right?

All right. So, Joanne Slavin, take it away.

MEMBER SLAVIN: We are on to protein. It is Joanne Slavin. I am the Chair.

I want to thank my members, Cheryl Achterberg, Xavier Pi-Sunyer, Linda Van Horn, and also our wonderful staff, Jan, Eve, Rachel, and Joan, for their assistance.

This protein presented a new challenge because there was nothing. A lot of

the other chapters there were sections in 2005. So, we started from scratch, and some of the food groups are also in this. So, some foods that we did as looking at foods, since they were mostly protein foods, ended up in this chapter. So, we have a bit of a mix of types of studies here.

So, No. 1 question, animal protein and health outcomes: what is the relationship between intake of animal protein products and selected health outcomes?

Some conclusions:

Modest evidence from prospective cohort studies shows inconsistent relationships between intake of animal protein products, mainly red and processed meats, and cardiovascular disease.

Our second conclusion: moderate evidence found no clear association between intake of animal protein products and blood pressure in prospective cohort studies.

Limited inconsistent evidence from

prospective cohort studies suggests that intake of animal protein products, mainly processed meats, may have a link to type 2 diabetes.

And there was insufficient evidence available to link animal protein intake and body weight.

Moderate evidence reports inconsistent positive associations between colorectal cancer and the intake of certain animal protein products, mainly red and processed meat.

Little evidence shows that animal protein products are associated with prostate cancer incidence. And what we had done with removing the grades, we tried to get the three descriptors in, and sometimes we had difficulty changing the conclusion as it was. So, in parens, that was a Grade III before. So, limited is in there.

And we would certainly appreciate anybody's suggestions for improving the

wording on these.

Next, limited evidence from cohort studies shows there is not an association between an intake of animal protein products and overall breast cancer risk. However, in premenopausal and estrogen-receptor-positive subjects, animal protein product intake may alter risk for breast cancer.

So, that was the animal protein, and we will talk now about plant protein and health outcomes. What is the relationship between vegetable protein and/or soy protein and selected health outcomes?

Few studies are available, and the limited body of evidence suggests that vegetable protein does not offer special protection against type 2 diabetes, coronary heart disease, and selected cancers.

We have talked about this data at previous meetings, and one of the problems in the cohort studies that are available, there are definitely very few vegans and very few

vegetarians, and just the reporting in this area is really difficult because sometimes people will self-report as a vegetarian, but, then, consume red meat or report consuming animal products.

Moderate evidence from both cohort and cross-sectional studies shows that intake of vegetable protein is generally linked to lower blood pressure.

Soy protein, we did soy protein separately because there's many more feeding studies and research in this area. Moderate evidence suggests soy protein may have small effects on total and LDL cholesterol in adults with normal or elevated blood lipids, although results from systematic reviews are inconsistent.

A moderate body of consistent evidence finds no unique benefit of soy protein on body weight.

Limited evidence suggests that soy protein may lower blood pressure in adults

with normal blood pressure.

Then, just specifically vegetarian diets and health outcomes: how do the health outcomes of a vegetarian diet compare to that of a diet which customarily includes animal products?

Our conclusion: limited evidence is available documenting that vegetarian diets protect against cancer. However, there is suggestive evidence that vegetarian, including vegan, diets are associated with lower BMI and blood pressure. Vegan diets may increase risk of osteoporotic fractures.

Discussion and consensus? Questions?

Eric?

MEMBER RIMM: This is Eric Rimm.

Can we go back to the slides on red meat?

MEMBER SLAVIN: We can. Tell me when you want to stop.

MEMBER RIMM: Well, no, right

here. Stop here because this one says, for the colon cancer, it says, "Moderate evidence reports inconsistent positive associations...."

Now can you go back a previous slide to red meat?

Can I ask that "positive" be put into the first conclusion on red meat? Because this sounds like it is moderate evidence and it is inconsistent, meaning -- I don't even know the relationship.

MEMBER SLAVIN: Yes. I think what happened, when we went in and made the changes with these --

MEMBER RIMM: Yes, grades and things like that.

MEMBER SLAVIN: -- with the grades, leaving that, and putting the moderate, you know, we tried to go with the moderate, limited, strong descriptors.

MEMBER RIMM: Yes. Because it is relatively positive for processed meats. So,

maybe we can say, "Moderate evidence from prospective cohort studies shows inconsistent positive relationships." Because, otherwise, the moderate and inconsistent, it is almost a double negative.

MEMBER SLAVIN: No, it's I think some of these, they get so weak with all the descriptors, that that's --

MEMBER RIMM: Yes. Well, I wonder if we could take out some of the descriptors to make it --

MEMBER PEREZ-ESCAMILLA: I'm not sure what "inconsistent positive relationship" means.

MEMBER RIMM: Right.

MEMBER SLAVIN: Well, yes, I think that's the problem, is that if it is inconsistent, then it's -- yes, you are right. That's where --

MEMBER PI-SUNYER: Why don't you just say, "Moderate evidence shows positive relationships"? Wouldn't the "moderate" cover

it? Or do you think that is too strong?

MEMBER SLAVIN: If I go back, I guess we need to, we probably need to go back to what we were changing these from, which I don't have in front of me, unfortunately, right now. I guess I could go to -- because before they were changed, where we were at, just to make sure that we are not adding --

MEMBER RIMM: Yes, but I think that recent meta-analyses that is in press was pretty convincing that it is processed meats.

MEMBER SLAVIN: Correct.

MEMBER RIMM: So, you know, I would say that that is less than inconsistent. I mean it is more than just being inconsistent though.

MEMBER ACHTERBERG: And this is Cheryl, if I can add to it, too.

I don't have this analysis with me, but I did some on this in terms of the literature before. And when you break these studies out, and you look at the whole, some

show something; some don't. But when you look at the sample sizes and the kind of designs, my take on it was processed meats were definitely related.

MEMBER SLAVIN: And I think for certain areas there's differences in that, too. But what we originally had was "Moderate evidence from prospective cohort studies shows inconsistent relationships between intake of animal protein products and cardiovascular disease, mainly red and processed meats." That is where we were before.

MEMBER APPEL: This is Larry.

I think you do need to make it a little bit more positive. I mean we have, actually, a little bit of a problem in the sense that the Total Diet chapter did a literature review on vegetarian diets, and most of them -- I don't have the actual numbers -- showed a relationship with CVD. So, I think that the context is it is pretty likely, but it is not the most overwhelming

evidence base.

MEMBER SLAVIN: And I think, remember, too, how this was set up, that we looked at animal protein products. So, it was very broad, and the tables that are provided in the chapter or in the portal, the other ones, really, there was essentially no data for other protein products. So, when you look, you know, if you count up the number of studies, it is not very strong.

Probably because of the way we asked the question, not all studies look at red and processed meats, either. So, there are a couple of studies, but it is still inconsistent for sure.

I think, as we go back into our deliberations, too, there was at one point, trying to say, well, we should just look at meat and processed meat separately, and that is not the way this review was done. So, that this review was done on animal protein and included everything. We have a bunch of

studies, and it is all in the portal. I think it will show clearly what we found.

MEMBER NELSON: This is Mim.

So, is it that it is inconsistent with animal protein, and that there is a modest evidence, though, when you break it down into red and processed?

MEMBER SLAVIN: No.

MEMBER NELSON: Or it's inconsistent across the board? Because I think it is weird when you put -- I can't figure out where the modifier here -- is it inconsistent with red and processed meats? Or is it inconsistent across the board?

MEMBER SLAVIN: There's none of them that are consistent. I would say that the more recent ones with red and processed meat there's more, but that is not consistent, either.

But the way we did this, if you go in, there's certain things that come up on these studies, depending on what type of food

frequency and how people collect this information. So, you have egg consumption. There is white meat consumption. There is red meat consumption. And there are people that actually try to get at animal protein. So, there are some studies that actually estimate that. So, this is a very mixed dataset.

MEMBER PEARSON: Why can't you just say there is no consistent evidence from prospective cohort studies for relationships between intake of animal proteins?

MEMBER NELSON: And leave out the "red and processed meats"?

But that is what I am saying. Is it inconsistent on just animal protein or is there more evidence on red and processed meats? Which I am hearing a disagreement in the Committee. It sounds like there's sort of inconsistent with animal protein, but more evidence when you break it down into red and processed meat.

MEMBER SLAVIN: I think there is

more, but it is not consistent. And that's the problem. It is definitely inconsistent. There's none of those that you see, yes, there's a relationship.

So, how to make this -- and all of these, as we go through this, you will see that every one of these were kind of, they are different. Some of them have more data, but the way we set this up, we have kind of our exposure data is animal protein. So, it is this broad range of exposure data.

And you're right that the types of studies are very different. We tried to focus on prospective studies.

MEMBER PEREZ-ESCAMILLA: Joanne, this is Rafael Perez-Escamilla.

And this is not a comment for you, but in general for the Committee because I don't want to make things more complicated. But when we use a term "inconsistent", it can be inconsistent in terms of directionality; it can be inconsistent in terms of some are

statistically-significant and others are not; it could be inconsistent in terms of effect size. And it is really difficult, I think, to know what we are dealing with.

MEMBER SLAVIN: Right. Yes.

MEMBER PEREZ-ESCAMILLA: Because if we are talking about effect size, statistical significance, but the vast majority pointed in one direction; if we think about a meta-analysis approach, the conclusion may be very different than if it were inconsistent because there is no relationship, and some of them are positive, some negative, and some neutral.

MEMBER SLAVIN: Yes, and I think that is why there has been a movement away from the word "inconsistent", but in this case I think it is in there because it is the way we asked the question; that is kind of where we are.

I don't know, Linda, if you have read through the summary of where we netted

out, remembering this review. This was a really hard review. I mean it was very difficult because it hadn't been done before, and we attempted to look at animal protein products. And it was kind of in reference to animal versus vegetarian, if you just asked that question, what kind of results do you get?

CHAIR VAN HORN: Right, but I do think that, as Eric pointed out, when there has been a specific animal protein documented, which in this case has most frequently been red and processed meat, those studies have shown a positive association with cardiovascular disease. At least that is what it says in this chapter.

So, it would appear to me that, if, in fact, going back to what Mim was saying, you know, if the broader context is animal protein, and there are inconsistent data related to that, simply by virtue of the way the data were collected, but, of all that

data, the most consistent data appears to be with animal protein, I mean with red meat and processed meat, then I do agree that we need to specify that independently, as you have done in the chapter. I mean the chapter says that. It is just the conclusion --

MEMBER SLAVIN: Yes. In the seven articles, Eric, it looks like the nurses' health study was not related to animal protein, and Iowa women's health was not, right.

MEMBER NELSON: But I think that is what we are saying, is that it seems like there is inconsistent with animal protein as a whole, but there is more emerging or there is more evidence that there is a positive relationship with red and processed meat.

MEMBER SLAVIN: But I think we probably didn't capture it or it may have to do with previously -- if you look at the times we looked, too, I am not sure, because we only have, it looks like we had seven articles.

So, that doesn't give us a lot of data.

MEMBER ACHTERBERG: Again, when you look at methodologies that vary widely, you are looking at food frequencies, and sometimes they asked more detailed information about what kind of meat people consumed, and sometimes they didn't. But if I remember, and I am doing this from memory, which is always questionable, the larger studies did show a relationship to processed meat, and a smaller -- and I'm talking about tens of thousands of people -- and the smaller studies did not.

MEMBER SLAVIN: But I'm thinking, too, Cheryl, that was stronger for colorectal than it was for this area. Because of our seven articles that we have here, the only thing I see was when they substituted red and processed meat for carbohydrate-dense foods, then they found a relationship. So, yes.

MEMBER ACHTERBERG: I think you may be right. The cardiovascular disease may

be less clear.

But part of the problem with the studies are the methodologies themselves and how nuanced they were in finding out what kind of meat and what kind of preparation people used for those meats. And that is an important future research note. We have to collect that data, and it wasn't in most of these studies.

MEMBER NELSON: This is Mim.

So, you couldn't put here there's emerging evidence that within this category red and processed meats --

MEMBER SLAVIN: I don't think we have it in our review. So, if it is there, we --

MEMBER NELSON: But Linda just read it.

MEMBER SLAVIN: Well, I think in cardiovascular disease, there really isn't much in this review in those seven articles.

CHAIR VAN HORN: It says

specifically, "A positive association between red meat and processed meat in CVD mortality was observed in the NIH AARP diet and health study." And there's two references related to that.

MEMBER SLAVIN: When they substituted red meat for carbohydrate.

CHAIR VAN HORN: Yes.

MEMBER SLAVIN: So, in that type of an analysis, they found it. But, otherwise, it -- so, I think that is where we're at. So, if we have some other references that we could -- and I don't know, Eric, what studies you're thinking of that we missed in this.

MEMBER RIMM: Well, this is Eric Rimm.

I think -- I don't know if I sent this around to the whole Committee -- there is an in press meta-analysis from a post-doc that is working with Taheri Mozaffari, and it actually summarized every paper on red meat

and processed meat, and the association was specifically for processed meat and cardiovascular disease. So, it is in press. I thought I sent it, but maybe I didn't. So, I can send it to you to make sure that all the articles are covered that are also in your review.

But I mean it is hard to do it one at a time, but it is when you put it all together that I think the story is a little bit stronger.

I'll send it to you.

MEMBER PEREZ-ESCAMILLA: I have just a comment. Could you go to your last slide, the one on vegetarian diet?

MEMBER SLAVIN: Sure. I just wonder if anybody, you know, of these, and I really appreciate even others that helped us work through this, because each of these were different endpoints, but they were essentially the same data. I mean a lot of them are from the same data. So, there is not a huge amount

of studies here, amazingly enough.

I would say where, let's see, like the colorectal cancer, I think that is the one Cheryl was thinking of. There were more positive, even though it wasn't consistent there, there were more positive associations, and it was more with red meat and processed meat. So, that data was a little stronger. But, otherwise, the rest is pretty limited.

So, which slide?

MEMBER PEREZ-ESCAMILLA: The last one. You have the vegetarian diet.

MEMBER SLAVIN: Okay.

MEMBER PEREZ-ESCAMILLA: And you have outcomes. And it is a very quick question.

Because you have limited evidence for cancer, and then you use a term, "however, there is suggestive evidence...." So, that means, suggestive evidence means it is something stronger than limited or is it also limited or is it moderate?

MEMBER ACHTERBERG: The "limited" here refers to quantity of work. So, there is a very limited quantity of work to make conclusions from. But when you look at it, it is suggestive of.

MEMBER SLAVIN: Yes, there is hardly any studies, in that most cohort studies there's no vegans, and even the EPIC study, where they really tried to include people, it is still like 2 percent. You know, it is a really low number. So, when you have that few people in your cohort, and then you try to look at things, there's not much to see.

MEMBER PI-SUNYER: Can you change that "there" to "it"? So, to know that you are dealing with the same dataset? "However, it is suggestive" rather than "however, there is suggestive...." It sounds like that's another dataset.

MEMBER SLAVIN: Yes, and I'm thinking, I don't remember, Cheryl, through

like our grades on this. I think that would be that is not changing the data.

MEMBER ACHTERBERG: I think that's fine.

MEMBER SLAVIN: Do you think that's -- yes.

You know, there's a lot of lit, if you go into this area, there's a ton of lit reviews, and there's a lot of expert opinion, but there's really very limited data. And part of the reason is because, I know, Trish, we've talked about this, that even in the NHANES dataset people will say they're vegetarians or vegans, and then they report eating animal products. So, most people in the U.S. for sure, like 98 percent, I think the ADA position paper said it was less than 2 percent of people are actually vegetarians. Then, within that, the vegan group is much smaller. So, we have a real limitation on data here, on numbers.

MEMBER APPEL: This is two

comments. One is sort of a semi-process, but it could create problems.

In the dietary patterns chapter, we do a search on vegetarian diets and CVD and total mortality, and we say there are five papers, and they are all show a reduced risk of CVD. One is a meta-analysis. I think we need to go through those.

So, I am worried about one chapter doing this, and then we have this big chapter that is our focus that has one question that is done a little bit differently. So, I think this just has to be a note we have to reconcile. So, that is one thing, and I don't think we need to decide.

The second -- yes, go ahead.

MEMBER ACHTERBERG: May I answer that?

We were boxed in by the question. The question was vegetable protein. It wasn't vegetarianism. It wasn't a vegetarian diet. It was vegetable protein. And it was

the question that tied our feet together.

MEMBER APPEL: But this conclusion is about vegetarian diet. So, even if your question started out --

MEMBER SLAVIN: Well, we actually had another question on vegetarian diets that was essentially a collapser, and part of it was because we just didn't have data. I mean if you look at that table, as I recall, there's only like three studies that came up, but we can go in. It will all be in the portal, of what that was based on.

CHAIR VAN HORN: Well, I think Larry's point is that one search on this same question, i.e., vegetarian diets and cardiovascular disease, yielded five studies, five papers.

MEMBER SLAVIN: And that will be in the portal, too, with an NEL review?

MEMBER APPEL: This is part of the ambiguity of the dietary pattern section, is that we went through the NEL process, but we

did not have a conclusion about each of the few questions we've had.

MEMBER ACHTERBERG: And what year did that review start with, Larry?

MEMBER APPEL: I believe, Joanne, it was unrestricted.

MEMBER ACHTERBERG: That's the difference.

MEMBER APPEL: Yes.

MEMBER ACHTERBERG: That's the difference. That's why we have three, and you have five.

CHAIR VAN HORN: Okay.

MEMBER NELSON: This is Mim.

I wonder -- sorry to come back to the contextual -- I mean I was thinking about a conversation that we had with Cheryl last night. If this is a place where, however, in the context of an eating pattern that is lower in animal protein or lower in animal products, there's other health benefits that are seen. I wonder if you do the contextual piece, so

that it can band-aid it a bit, so that we are not in conflict with the earlier.

And I think the same is going to happen; we are going to see with the fruits and vegetables that, if you are just focusing on one little thing as opposed to a dietary pattern that has lots of fruits and vegetables, it is a different way that you are addressing it. There might be a way to refer back and put it into context of a pattern of eating.

CHAIR VAN HORN: That was the whole point of the Total Diet chapter, if you think about it.

MEMBER NELSON: Well, I know, but I am wondering, with these questions --

CHAIR VAN HORN: Yes.

MEMBER NELSON: -- if there is a way to add a little bit of context to them, then they are not in disagreement.

CHAIR VAN HORN: Right.

MEMBER SLAVIN: But I think one of

the things, Mim, is the average person eats animal products. Like your data, there are very few vegetarians, vegans.

MEMBER NELSON: I am not saying anything about that. I'm just saying, not this question, the other question --

MEMBER SLAVIN: But, you know, if you look at animal protein and vegetable protein, almost everybody -- and then how do you get at that? I think we made a pretty good attempt to be inclusive. Let's look at these questions that way, and it is only one way of asking the question. So, yes.

MEMBER NELSON: Oh, yes, I know. I think it is the boxed-in is the issue. I mean, Cheryl, you said it. You get boxed-in and then you can't look at it in context. I just think that there may be reasons with the conclusions here to add a tiny bit of context, so that we don't look like we are contradicting ourselves.

CHAIR VAN HORN: It might be

useful at this point, because, of course, a lot of this chapter was written before the Total Diet chapter, since that was written at the end, and maybe what we do is, again, cross-reference these studies in a way that suggests that, while the focus of this chapter was on protein only, there are additional data that advocate or provide further support for the benefits of a vegetarian, more vegetarian type of eating pattern, or something like that. That way, you include both.

Yes, Tom?

MEMBER PEARSON: I am still confused. I think for all of the sections I think our wording, I don't think it is a moderate or strong evidence issue. But under the plant protein, the soy protein conclusions, if you could go to the last one there, don't you really want to say evidence is limited that soy protein may lower blood pressure? Isn't that what you want to say?

This suggests that there's limited

evidence, suggests that it may be in fact so. So, for many of these statements on limited, I can't tell what you want to say, frankly. So, I think, for all of us, if it limited, it is a statement you can't support. There isn't anything out there. It's inconsistent or --

CHAIR VAN HORN: Right.

MEMBER PEARSON: -- it's just not existent. But I think we have to be clear because this one suggests, if I were saying, well, gee, it looks like there's a little of evidence to say that this works --

MEMBER SLAVIN: This is a Grade III, doesn't mean there isn't any evidence. If you read through where that came from, that's what it was. It was a Grade III. So, that is how it got to limited.

MEMBER PEARSON: Well, but a Grade III says that evidence is insufficient to suggest that soy protein lowers blood pressure. That is what a Grade III means.

MEMBER SLAVIN: And I think in the

translation that is where we end up, I mean, because --

MEMBER PEARSON: Well, I think the translation is problematic then. I mean I think we need to be standardized because I can't --

CHAIR VAN HORN: Yes, what you are hearing, I believe, is that one interpretation of this is there are insufficient data to make a strong relationship, point out a strong relationship, whereas the other says, of the data that is available, it looks like there's a relationship, and those are very different implications.

MEMBER PI-SUNYER: There were three RCTs and they were all positive. That's not bad.

MEMBER SLAVIN: For? Are you talking about body weight or --

MEMBER PI-SUNYER: I am talking about soy protein and blood pressure. You have here three RCTs and they are all three

positive on page 20. On page 20, you have there are three RCTs, and they are all three positive, as far as I can see. I guess Leiou is negative, but the others --

MEMBER SLAVIN: Yes, it is definitely mixed. Then, the conclusion is that there's a little bit of data that vegetable protein plays a role, that soy protein is different. You know, better is not there. So, it doesn't have a unique benefit. I think that is probably where the conclusion was a while ago, which is the last statement. Yes, soy protein does not appear to have any unique benefits in blood pressure control. That is probably the perfect thing, but it doesn't fit the format. So, it got lost probably.

VICE CHAIR FUKAGAWA: This is Naomi.

I really do think that we have been boxed-in by trying to become too uniform, and we are losing the nuances of the messages

that we are trying to get across. I think that is where we are getting stuck.

MEMBER PI-SUNYER: This is Xavier.

Maybe that last sentence, soy protein does not appear to have unique benefits in blood pressure control, would be the right conclusion.

MEMBER PEARSON: I could understand that.

CHAIR VAN HORN: That appears to be what --

MEMBER SLAVIN: That is the best statement.

CHAIR VAN HORN: Right.

MEMBER APPEL: This is Larry.

But that has to be placed in the context of another conclusion, which is there is moderate evidence that protein from vegetable sources lowers blood pressure. And then a qualifier to that is that soy protein doesn't have any magical benefit.

CHAIR VAN HORN: So, it is just

the same as lipids, yes, right.

MEMBER APPEL: You might want to put those in the same conclusion, just to make it --

MEMBER SLAVIN: But is somebody keeping track of this? Because I think these are subtleties that are important.

MEMBER PEARSON: I think -- this is Tom -- the word "suggests", what is limited evidence suggests, I think we need to -- limited evidence is available; limited evidence is -- but when you put that "suggests" as a positive connotation, to me, limited evidence is available is a negative connotation.

CHAIR VAN HORN: Yes. Or there is limited evidence, and that's it.

MEMBER SLAVIN: And it is different. So, I think that is why soy is sitting out here by itself, is there's many more feeding studies and intervention studies as opposed to the vegetable protein, which is

all EPI studies. So, that is, I think, why it got split out. That was the goal in splitting it out originally, but --

CHAIR VAN HORN: Right, but, again, it draws unfair advantage, so to speak, to soy, as though it did have some unique properties related to vegetable protein, when, indeed, we have no ability to state that because other vegetable protein studies haven't been published or we don't have access to them. So, it is simply an issue of volume and capacity.

MEMBER SLAVIN: And do we have agreement, then, that the conclusions don't have to have those three words? Because that is kind of what we are agreeing to right here.

CHAIR VAN HORN: Yes.

MEMBER SLAVIN: So, does everybody agree to that?

CHAIR VAN HORN: That is why we started this discussion with that exact issue because we knew there would be times, and this

is one of them, where those don't apply well enough.

MEMBER PEREZ-ESCAMILLA: This is Rafael.

But I think this is an example where the problem is not with the word "limited"; it is with the word "suggests". I really don't think that this has much to do with the fact that we are boxed-in. I just don't think we are. I think those base reviews are mostly based on five categories. We chose not to go into the fourth and the fifth, and that is the language that the World Cancer Research Fund used for the first three.

MEMBER SLAVIN: So, if we got rid of "suggests" there, Rafael, would you be okay with that?

MEMBER PEREZ-ESCAMILLA: That is what we are trying to say, yes.

CHAIR VAN HORN: Yes, that is a statement of fact, "limited evidence", there is limited evidence that soy protein may lower

blood pressure.

MEMBER SLAVIN: Yes, I think that could easily go, yes.

CHAIR VAN HORN: Period.

MEMBER SLAVIN: "There is" was already cut out. We have been down that path. So, I have already been spanked for that, and I don't like that one anyway.

(Laughter.)

So, I agree that is not every strong.

CHAIR VAN HORN: No. Yes, take out the word "suggests".

MEMBER SLAVIN: Just get rid of "suggests", and then we're okay?

VICE CHAIR FUKAGAWA: This is Naomi.

I wanted to get back to that statement about vegan diets increasing the risk of osteoporotic fractures because it really is in the context of a low calcium intake, not that the vegetable protein or that

orientation increases --

MEMBER SLAVIN: Right, right. Yes.

MEMBER NELSON: Does that really need to be there?

VICE CHAIR FUKAGAWA: I think I would either strike that statement out or qualify it because vegan diets, it is really the relationship to calcium intake, at least my memory of those studies.

MEMBER SLAVIN: Those studies, that is probably the strongest finding. Actually, as I recall, it is stronger than the lower BMI and blood pressure as a finding.

VICE CHAIR FUKAGAWA: Yes.

MEMBER SLAVIN: So, it kind of needs to stay if they are there, really.

VICE CHAIR FUKAGAWA: But most of this is EPIC, right?

MEMBER SLAVIN: Pardon?

VICE CHAIR FUKAGAWA: A lot of this is the EPIC database?

MEMBER SLAVIN: Absolutely. Yes.

VICE CHAIR FUKAGAWA: And that is the correlation from the vegan diet with fractures was largely related not so much to protein per se as much as to calcium, but it is interrelated.

MEMBER APPEL: This is Larry.

I don't think you want to say it, but it is also potentially sodium because increased sodium -- everything comes back to sodium. No.

(Laughter.)

But increased sodium increases calcarea, well-documented. Everybody knows it. So, if you don't have a lot of calcium, and vegetarians consume similar amounts of sodium as everybody else, so it is actually a double-whammy potentially.

CHAIR VAN HORN: That's right, it is. And that is the other reason why, again, the food modeling issue becomes so relevant to each of these chapters, because no one is

suggesting you can't be nutritionally adequate on a vegan diet, including dietary calcium, but you have to ensure that dietary calcium sources are there.

MEMBER SLAVIN: And I think also, Linda, just that the vegan is either great or it is horrible, just like all diets. So, it doesn't say that the diet is good. It can be low in protein. It can be low in calcium. It can be low in everything.

So, I think that is why that is up there, that people --

MEMBER NELSON: This is Mim.

In the implication part, I am assuming you say it is most likely because of low calcium and other factors? I mean lower protein, it may be because it is lower protein, too, which may be a factor? All of those factors, it may not be the vegan --

MEMBER SLAVIN: Yes, it is on page 23, the implications.

MEMBER NELSON: Okay.

MEMBER SLAVIN: And I think these were all cut out for lack of time. The point there is few studies, a lot of amino acids, obviously, differences between animal and plant proteins, and limiting amino acids are in there. And it is more complementary protein. So, we probably need to make some implications about other nutrients that could be lacking.

MEMBER NELSON: Yes.

MEMBER SLAVIN: As it is, it is not there.

MEMBER NELSON: Okay.

CHAIR VAN HORN: Or something about, just a statement regarding attention to nutrient adequacy is important in consuming a vegan diet. All of them, it is not just -- I mean it is iron; it is B12. There are other nutrients that could be a problem in vegan diets.

MEMBER SLAVIN: Right. And I also think with the lower calories, as we tell

people to lower calories and protein as both the percentage and protein quality becomes important. So, that is kind of a difficult message to get across here, too.

MEMBER ACHTERBERG: So, to be consistent with the nutrient adequacy chapter, what we probably need to say in the implications is there are certain nutrient concerns related to vegan diets, comma, give them the list, right? Then, that ties back to the other chapter.

MEMBER APPEL: This is Larry.

Could we go to the conclusion on animal products and breast cancer risk, because there is some language in it that is a bit difficult?

MEMBER SLAVIN: Yes.

MEMBER APPEL: So, it is the second part, the "however, in premenopausal and estrogen-receptor-positive subjects, animal protein product intake may alter risk...." So, first, I need directionality,

but, then, there are other two aspects of this.

It is estrogen-receptor-positive is a clinical; that is a cancer subgroup. Okay? That typically is post-menopausal women. Then you have premenopausal before that. So, are you talking about in premenopausal women without breast cancer and estrogen-receptor-positive women with a prior history of breast cancer? Because it doesn't really make sense to me. I just don't understand it.

MEMBER SLAVIN: I don't know if, Cheryl, you want to talk? And then, I can follow up.

MEMBER ACHTERBERG: This is Cheryl.

This really comes out of the AICR report as much as anything else. Breast cancer, there are lots of different kinds of breast cancers.

MEMBER APPEL: Sure.

MEMBER ACHTERBERG: Put it that way. And so, when you look at particular kinds of breast cancer, there is a relation for these two types, those two different types.

MEMBER SLAVIN: In certain studies that measured that.

MEMBER APPEL: But is this limited to women who have had breast cancer? Because it is also funny, too, because premenopausal women tend to have estrogen-receptor-negative, and then you say estrogen-receptor-positive. So, it looks like you're accompanying --

MEMBER ACHTERBERG: It is two different kinds. It is two groups.

MEMBER SLAVIN: So, premenopausal women with breast cancer and estrogen-receptor-positive subjects with breast cancer, there was some link there. Otherwise, there was nothing.

MEMBER RIMM: Then you could say "then, also in". Instead of saying "and",

just say, "in premenopausal and also in estrogen-receptor-positive".

MEMBER ACHTERBERG: That would help.

MEMBER APPEL: Or, "however, in women who have had breast cancer" --

MEMBER SLAVIN: But this is all cohort studies, EPI. So, it is all breast cancer people for sure.

MEMBER WILLIAMS: When you say, "alter risk", do you mean "increase risk"?

MEMBER APPEL: See, this is funny. The first half reads like primary prevention, animal protein and whether you develop breast cancer, and the second half looks like it is dealing with people who have disease. You don't get estrogen-receptor-positive unless you have a disease and you have been biopsied. It is a very --

MEMBER SLAVIN: That's true.

MEMBER APPEL: Yes.

MEMBER SLAVIN: That's true.

There's two, you know, like, overall, there's no risk. If you would just look at breast cancer and animal protein products, it doesn't, as Eric would say, nothing lights up. But there are some studies where, when they looked at premenopausal with certain types of animal protein --

MEMBER APPEL: It's incidence. It's still incidence.

MEMBER ACHTERBERG: Yes, it's incidence, yes.

MEMBER RIMM: It's among the subject people who get estrogen -- sorry. It is still incidence. This is not survival among people with breast cancer. It is looking at, if you stratify -- overall, there is no association. If you stratify and say I am just going to look in premenopausal women or women who ultimately got estrogen-receptor-positive breast cancer, in that group there is an association.

MEMBER APPEL: Okay. Now I get

it. But, then, it should be, "however, in premenopausal women animal protein intake may increase the risk of estrogen-receptor-positive breast cancer."

MEMBER SLAVIN: Only if they have breast cancer. I mean that is what is confusing, yes.

MEMBER APPEL: Oh, okay, but I think this is --

MEMBER SLAVIN: Yes. And when you look at this literature, it is really hard to come up with a conclusion here because, overall, no difference, and there's just these two couple of studies that actually measured this. So, most studies don't measure it. So, there's only a little bit of data, but that's the only relationship.

So, I don't know if it is better not even to have it because it may confuse more than enlighten where we are at here.

MEMBER ACHTERBERG: I guess this is "Survivor". I want to see it in there.

(Laughter.)

Thank you.

I think maybe what we ought to be saying is, "however, animal protein product intake may increase risk for premenopausal breast cancer and for estrogen-receptor-positive breast cancer." That's what the evidence says.

MEMBER NELSON: This is Mim.

That is not in conflict with the first statement? Because the first statement says, overall, there is no relationship.

MEMBER ACHTERBERG: For overall cancer, if you lump it all together.

MEMBER NELSON: It says breast cancer.

MEMBER SLAVIN: Right, right.

MEMBER ACHTERBERG: But it's lots of different diseases. So, if you lump it all together, you don't see it.

MEMBER PI-SUNYER: Yes, but premenopausal women includes a lot of the

women. So, they would be included in your first sentence, and you are including them also in --

MEMBER NELSON: I think the question is, the second one is only, correct, estrogen-positive-receptor types of cancer.

MEMBER SLAVIN: You know what? It might be good, Mim, if we just split it.

MEMBER NELSON: I think it has to be split.

MEMBER SLAVIN: It would be clearer because, as it is right now, it is too confusing.

MEMBER NELSON: Just do two sentences, period, full stop, and then --

MEMBER SLAVIN: And then, maybe like in one large prospective study blah, that that's exactly what --

MEMBER NELSON: Yes, I think if you do that, there's more clarity.

MEMBER SLAVIN: Yes. Yes. Because, as it is, it is too confusing.

MEMBER NELSON: Yes.

CHAIR VAN HORN: Okay, that would be good. So, are you able to make those distinctions, Cheryl, Mim? Just make two separate bullets out of that.

MEMBER SLAVIN: Are you guys taking notes? I'm taking some notes.

MEMBER NELSON: This is not my --

MEMBER PEARSON: So, the first part is going to read, "Evidence from cohort studies shows no association...."

MEMBER NELSON: "Limited evidence".

MEMBER PEARSON: Well, it is the same problem.

MEMBER NELSON: Yes.

MEMBER PEARSON: "Limited" doesn't help me there.

MEMBER NELSON: Well, it would say --

MEMBER PEARSON: "Evidence from cohort studies shows that there's not an

association...."

MEMBER SLAVIN: It was a Grade III.

MEMBER PEARSON: So, we are back to the double entendre here. So, "limited" doesn't help me. It is, "Evidence from cohort studies shows that there's not an association between intake of animal protein...."

MEMBER NELSON: But I think it is okay to say there is limited evidence. Isn't there?

MEMBER SLAVIN: But if you want to get rid of "limited", I think it is okay because there's no association -- you know, I think this is, when you are modifying nothing, what have you got?

MEMBER NELSON: No, but if you do that --

MEMBER SLAVIN: No?

MEMBER NELSON: -- then you could have three studies that say there isn't a relationship or you could have fifty. If

there was fifty, there would be strong evidence that there's no relationship. If there's a couple of studies that show no relationship, but there's limited evidence. I think you have got to be a little careful. Otherwise, you don't know if there's tons of evidence that shows there's no relationship or there's very small amount of evidence that shows there's no relationship.

MEMBER SLAVIN: You can see No. 2 was prostate cancer. When we tried to put these in this different format, that is why that one looks -- that one, there is virtually nothing there. So, there is not much evidence, and it is a Grade III.

MEMBER NELSON: Isn't there moderate evidence that there's no --

MEMBER SLAVIN: There's not.

MEMBER NELSON: -- relationship?

MEMBER SLAVIN: No.

MEMBER NELSON: There's only a couple of studies?

MEMBER SLAVIN: Yes. And I think this "limited", "little", all these things, what are they describing? I think Rafael is saying that that's the problem we're having. You know, are we describing the number of studies, the types of studies? There's so many descriptors here.

MEMBER NELSON: But that's where consistent or inconsistent comes into play.

MEMBER PEARSON: See, what it is is that evidence from a limited number of cohort studies shows there's not an association between animal protein --

MEMBER SLAVIN: I think there's quite a few, though, Cheryl, right? I don't have it right in front of me, but --

MEMBER NELSON: But you just said there were three.

MEMBER SLAVIN: That's for prostate, yes.

MEMBER NELSON: Oh.

MEMBER SLAVIN: Breast, there's

much more.

MEMBER NELSON: That's why I said I think it is a moderate, I thought there was a moderate amount of studies that show there's no relationship.

MEMBER PEARSON: You didn't tell me, then, there is limited evidence. You said there's a lot of studies; there's a lot of evidence. So, this statement isn't true.

MEMBER ACHTERBERG: There are six studies on the breast cancer. And again --

MEMBER SLAVIN: Since 2004.

MEMBER ACHTERBERG: Since 2004. And different studies evaluated different outcomes. So, in some cases they looked at pre- and post-menopausal; in other cases they didn't. In some cases they looked at estrogen sensitivity; in other cases they didn't.

So, when you look at the literature, it is spotty.

MEMBER PEARSON: I wasn't talking about the second --

MEMBER SLAVIN: So, maybe mixed evidence, I mean because all the studies are done differently. That is why I think for cancer on a lot of these things --

MEMBER PEARSON: So, inconsistent evidence.

MEMBER NELSON: Well, if you say "inconsistent" --

MEMBER SLAVIN: But it is consistent that animal protein products aren't the link.

MEMBER NELSON: Yes, but, then, I wouldn't say "mixed" or "inconsistent" because it sounds like --

MEMBER SLAVIN: Like you are talking about the study.

MEMBER NELSON: There is either a limited amount of evidence or there is a moderate amount of evidence. It is one or the other that shows there's no relationship. I mean that's it.

MEMBER ACHTERBERG: Well, if you

look at the paragraphs on the bottom of page 15 and 16 in our notebooks, you will see how this breaks out.

MEMBER APPEL: This is Larry.

I mean I pulled up this report, you know, the big, thick one that actually did everything. Can we just lift their conclusion? Because they actually say that no conclusion was reached on the relationship of meat, poultry, or whatever, and breast cancer, and just cite the report, rather than --

CHAIR VAN HORN: Except there were three new studies that were reviewed because that report ended in 2007 or 2008, I think, and we have now studies from 2009, three studies from 2009 and one from 2008, one from 2007.

MEMBER NELSON: Then it sounds like it is more moderate. It sounds like there is a moderate amount of evidence that shows there's no relationship.

MEMBER SLAVIN: Yes, and I think

that what there is is what we have talked about, that it might depend on your status; it might depend on what type of meat. You know, there's a little bit of data that has come in since 2004 that wouldn't exactly go along with that. You know there might be some lights that are lighting up that we would miss. So, I think that is why we wrote it the way we did, but we could just say there's limited or we can say moderate evidence that there is not an association with overall breast cancer risk.

I don't know, Cheryl, you have been on this, too.

MEMBER ACHTERBERG: Yes, I guess I will go along with the overall, but some evidence suggests a differential effect, depending --

MEMBER NELSON: Yes, that's good. Then I think you should qualify it. Put "overall", and then qualify where there is some evidence.

MEMBER ACHTERBERG: That is kind of what we tried there.

MEMBER SLAVIN: Right.

MEMBER ACHTERBERG: That is almost exactly what we tried to do.

MEMBER NELSON: But it may need to be there's a moderate amount of evidence, and then you come to full stop. Then you say, you know, from a couple of emerging studies or new studies there's evidence with X, Y, and Z. Then it is just clearer, the nuances.

I agree with Naomi a lot. I think we have to be really careful. We get to like distill it down so far that -- the nuances are actually what are some of the most interesting parts here.

MEMBER SLAVIN: How about if we go with "Evidence from cohort studies shows there is no association between intake of animal protein products and overall breast cancer risk."? And then full stop, and then, "however", yes, kind of where we are at there.

MEMBER NELSON: But I think you need either a limited or moderate for the no association. We are saying, if it is pretty consistent, but it is either limited or moderate, you can put one of those in for the no association overall. Then, it qualifies, you know, there's either a couple of studies or there's quite a few.

VICE CHAIR FUKAGAWA: So, after your full stop -- this is Naomi -- you could say, "however, in selected populations" or "in subgroups of patients with...."

MEMBER SLAVIN: And then just parens maybe?

VICE CHAIR FUKAGAWA: Yes.

MEMBER SLAVIN: Premenopausal.

VICE CHAIR FUKAGAWA: Yes, with breast cancer because that is the point, right, they have breast cancer?

MEMBER SLAVIN: Yes.

VICE CHAIR FUKAGAWA: They have breast cancer --

MEMBER SLAVIN: Right.

VICE CHAIR FUKAGAWA: -- which is why we know they are one way or the other.

MEMBER SLAVIN: Right.

VICE CHAIR FUKAGAWA: They are survivors.

MEMBER SLAVIN: Right.

VICE CHAIR FUKAGAWA: Then, in that case, you know, there may be a relationship.

MEMBER SLAVIN: Right. Right.

CHAIR VAN HORN: Yes, that clarifies. Yes, that would be good.

MEMBER SLAVIN: Excellent. Other questions on this?

MEMBER APPEL: This is Larry.

I wonder, I don't know if we had a plan after the CVD, you know, how to deal with that. I just want to make sure that we do because I am a little bit worried because I have that piece in the dietary patterns section.

MEMBER SLAVIN: And it probably will come up with milk, too. We haven't gotten there yet.

CHAIR VAN HORN: Well, we added the word "positive", thanks to Rafael. I think he wanted to include the word "positive" relationship between intake of animal protein products, mainly red and processed meat, and cardiovascular disease, because there was no direction provided. That was the point that was made earlier.

MEMBER APPEL: So, is that just the resolution? Just add "positive" to that question, and then --

CHAIR VAN HORN: That was what we came up with. Now, if somebody wants to come up with an alternative to that?

MEMBER RIMM: Because it matches the colon cancer.

CHAIR VAN HORN: Right, the cardiovascular disease.

MEMBER NELSON: So, we will say,

"inconsistent positive"? Is that how it is going to read?

CHAIR VAN HORN: It says, "moderate evidence from prospective cohort studies shows inconsistent positive relationships between intake of animal protein products...."

MEMBER SLAVIN: Yes, I think modifying "positive" with "inconsistent" is not helpful.

CHAIR VAN HORN: So, take out --

MEMBER RIMM: So, maybe we put the "positive" further down by the red meat and processed.

CHAIR VAN HORN: Okay.

MEMBER SLAVIN: But I think for this one we don't have much data on it, unfortunately.

MEMBER NELSON: I think we are going around in circles.

MEMBER SLAVIN: I think we should get through the milk, too, because I think we

have similar issues.

CHAIR VAN HORN: Okay. This will be another one on the table that needs to --

MEMBER SLAVIN: But do people feel like "inconsistent positive", is that at all clear?

MEMBER NELSON: You can't do that, no. You can't do that.

CHAIR VAN HORN: That's useless.

MEMBER NELSON: It's useless.

CHAIR VAN HORN: You can't do both together. It is too much of an oxymoron.

MEMBER SLAVIN: Okay. Let's see, soy, discussion and consensus. Well, discussion, but how about protein-related food groups and health outcomes, milk and milk products?

You know, remember, this was our first try. So, I am going to back up and tell my Committee how much I appreciate it, and our staff. It was really difficult to look at whole foods, and a lot of this was whole

foods.

So, what's the relationship between intake of milk and milk products and selected health outcomes?

These are our conclusions:

Strong evidence demonstrates that intake of milk and milk products provides no unique role in weight control.

Moderate evidence indicates that the intake of milk and milk products is linked to improved bone health in children. Limited evidence suggests a positive relationship between the intake of milk and milk products and bone health in adults, but results are inconsistent due to variability in the outcomes considered. So, we split that because the data are quite different.

Moderate evidence shows that intake of milk and milk products is protective against cardiovascular disease.

A moderate body of evidence suggests an inverse relationship between the

intake of milk and milk products and blood pressure.

And, you know, I wanted to note here, like for Tom's, with putting all these things together, collapsing, we have not collapsed these. One of the reasons we didn't collapse them is because we got different results. So, we have kind of kept all these things separate at this point.

Moderate evidence shows that milk and milk products are associated with lower incidence of type 2 diabetes in adults.

Limited evidence is available showing intake of milk and milk products is associated with reduced risk of metabolic syndrome and may even be protective in certain population groups.

Insufficient evidence is available to assess the relationship between intake of milk and milk products and serum cholesterol levels.

And implications are here, but I

would be happy to -- just that milk is, obviously, milk and milk products are nutrient-rich, and if people consume them, they get all these nutrients.

But questions?

MEMBER PEARSON: Can we go to the metabolic syndrome one?

MEMBER SLAVIN: Yes.

MEMBER PEARSON: Go to the metabolic syndrome one.

So, "Limited evidence is available showing intake of milk and milk products is associated with reduced risk...."

MEMBER SLAVIN: Now, remember that we did this really similar to the way you would have done the chocolate or the nuts. This is done strictly as the way the review was done was on food groups. So, not nutrients; food groups, milk and milk products, and everything comes up, you know. So, we are searching for yogurt, cheese, milk intake.

MEMBER PEARSON: But you say that limited evidence is there for reduced risk of metabolic syndrome, and then you say it may even be protective.

MEMBER SLAVIN: Yes.

MEMBER PEARSON: That is redundant.

MEMBER SLAVIN: Well, there are some studies that show that milk -- you know, remember it is the usual problem with whole foods, that a lot of times people that eat whole foods do other things well.

MEMBER PEARSON: For this sentence to make sense, it would have to say, "Limited evidence is available showing intake of milk and milk products is associated with an increased risk of metabolic syndrome and may even be protective in certain groups."

Because, otherwise, you say you have limited evidence to say there's reduced risk, and then it my be protective. That is the same thing said over again.

MEMBER SLAVIN: Yes, I think there were different -- it is kind of why we split the children versus adults. There were differences in age groups. So, we may need to think about that. There wasn't a lot of data, as I recall, that came up with that.

MEMBER PEARSON: But you see my point?

MEMBER SLAVIN: Yes. No, I do.

MEMBER PEARSON: So, I would think this would make sense if you said that, "Limited evidence is available showing intake of milk and milk products is associated with increased risk of metabolic syndrome and may even be protective in certain population groups." I can understand that.

MEMBER SLAVIN: Well, yes, I would have to go back and look at these studies.

MEMBER NELSON: But wouldn't the way to do it is that certain subgroups may even get more benefit than others? Isn't that --

MEMBER PEARSON: I am concerned about saying there's no evidence that there's reduced risk and then some groups would be protected.

MEMBER NELSON: But it says there is reduced risk.

MEMBER PI-SUNYER: I don't understand why you want to increase risk.

(Laughter.)

MEMBER PEARSON: No, I think I said because it is the limited evidence part.

MEMBER SLAVIN: And what we had was one systematic --

MEMBER PEARSON: She's saying the same thing twice.

MEMBER SLAVIN: Yes, we have one systematic review with a meta-analysis, one prospective cohort, and three cross-sectional studies. That is our data.

MEMBER NELSON: This is Mim.

After "metabolic syndrome" you should just have a full stop, period.

MEMBER PEARSON: Right.

MEMBER NELSON: It's there's limited evidence at the moment. There's a few studies that are pointing in the right direction, and that's it, full stop.

MEMBER PEARSON: Yes.

MEMBER SLAVIN: Yes, that's fine, I think. I don't think that will change it. I think there were subgroup differences in this meta-analysis. So, that is why it comes up. That was a large source of our data.

MEMBER NELSON: But that can come out in your paragraphs, you know, when you talk about it.

MEMBER SLAVIN: That's fine.

Yes, Rafael?

MEMBER PEREZ-ESCAMILLA: This is Rafael.

Do most of these studies control for caloric intake in terms of how to interpret these.

MEMBER SLAVIN: These studies, no.

No. Remember, the way this was searched was just food groups and disease. So, health outcome, milk and dairy products. So, they are all types of studies. So, they are prospective studies. I am not even thinking, Cheryl, there aren't going to be any feeding studies because these are just studies looking at health risk, health outcome.

MEMBER PEREZ-ESCAMILLA: Right. But in terms of the cohort studies, they could have controlled for caloric intake.

MEMBER SLAVIN: They might adjust or --

MEMBER PEREZ-ESCAMILLA: Right.

MEMBER APPEL: They probably did adjust.

MEMBER SLAVIN: Yes.

MEMBER PEREZ-ESCAMILLA: Right, because I think that is important in terms of interpreting is this a property of milk versus just a general food intake patterns that tends to be lower in calories among people who

consume more dairy. I mean I don't know what the answer is, but for interpreting that --

MEMBER SLAVIN: And you know, I think this is another example of the salted nuts, that most of this data looks at all dairy products, you know, cheese, yogurt, and sometimes they try to separate out low and high fat, but a lot of times they don't. It is just dairy group intake.

VICE CHAIR FUKAGAWA: This is Naomi.

So, the phrase "may even be protective in certain population groups" will be deleted?

MEMBER SLAVIN: Yes.

VICE CHAIR FUKAGAWA: Okay. Because the support for that are really cross-sectional studies.

MEMBER SLAVIN: Right.

VICE CHAIR FUKAGAWA: Right. So, that is what makes potentially the difference.

MEMBER SLAVIN: Larry?

MEMBER APPEL: Yes, this is Larry.

When I saw the conclusion about vascular disease, it sort of hit me over the head because I serve on so many Heart Association committees, and we never think of milk as being, insufficient milk as being a risk factor for heart disease or stroke. So, I did go back to like the systematic review and the meta-analysis that were cited, and there are some issues with it.

One is the systematic review totally misinterprets one of my studies.

(Laughter.)

It attributes the DASH study to milk, which is common, but a problem.

Then, I looked at the meta-analysis, and there is a paragraph that is really interesting. It says that the study by Frank Hu, a nurse health study, says, if you have low-fat milk products, you see a benefit. If you consume regular milk products, you have increased risk. And they said, if you

include both estimates in our meta-analysis, there is significant heterogeneity and you can't make a conclusion.

So, that means that these results are really probably dependent, or could be dependent, on type of milk, and we don't acknowledge that. I am a bit worried, you know, about this.

So, I can see people jumping on drink more milk to prevent CVD, but we are not really, I don't think -- I just don't see that we can make that statement. I think somehow we have to qualify this, also, about low-fat milk.

You might even say that, even though there is an inconsistent approach to low-fat versus full-fat milk, and in some studies that investigated it they had opposite relationship -- I think you can cite this one paper from the meta-analysis and just leave it at that because I think that --

MEMBER SLAVIN: Well, you know, I

think, Larry, the one paper we have on the serum cholesterol is that cheese intake was protective for cholesterol. And there's three studies in that. So, we left that as inconsistent.

But I think dairy products, you know, you eat a dairy product. They are all different. There's protein. There's other bioactives. So, it could be having nothing to do with any of the compounds we're talking about.

This is, I think, the frustration to look at whole foods. I mean we all want to talk about whole foods, but when you look at data, it creates some confusion like this.

Yes, Mim?

MEMBER NELSON: Well, but I think you are absolutely right. I mean that is the wonderful thing about the research we do, is it is really complicated and fun. But I wonder about the 2015 Guidelines, that they don't focus on any single food groups

whatsoever, and they just focus on food patterns; we will probably be better off because you can't isolate any of these things out of the diet.

I mean that is, I think, the problem. You know, you can look at certain things. I just think we have to be very careful because it is hard to look at these things in isolation.

MEMBER APPEL: But getting back, I am not quite sure how to deal with this because the moderate term, actually, I think is stronger than what it might be. Unfortunately, the literature review actually stopped at this one.

I am wondering if there's a fair or something like this.

(Laughter.)

Because I do worry about this. I don't know about Linda or other people who are CVD, you know, epidemiologists, how we --

CHAIR VAN HORN: This is when,

looking at the grade, it is Grade III. So, before we did away with the grades, we were --

MEMBER SLAVIN: You mean not for cholesterol. For cardiovascular it is II.

CHAIR VAN HORN: Yes, yes, II. This is a II, right. So, it is stronger.

MEMBER SLAVIN: And I also think our accepting these systematic reviews, we are depending on other people's interpretation. So, even though it is a timesaver, and I know why we do it with all these questions, I understand Larry's concern that people tend to -- they do the best they can, but a lot of times it tends to overstep what is there.

MEMBER RIMM: Yes, this is Eric.

Maybe one of the concerns is that we are sort of dichotomizing, saying it is either good or bad. I think the effect estimate, if it is protective, is quite small. I mean the meta-analyses I have seen and the summaries that I have seen, the relative risks are really they may be below one, and maybe

they misinterpreted Frank's and Larry's wrong, but I think the relative risks are pretty small.

MEMBER SLAVIN: Well, they are talking about a 10. They said here was a 10 to 15 percent reduction in ischemic heart disease and 20 percent in stroke, who reported drinking the most milk relative to those drinking the least.

MEMBER RIMM: Well, maybe it is just in the interpretation of people who wrote the previous reviews and how they pull out the exposure data.

MEMBER APPEL: This is Larry.

You know, the relative risk was .84 for stroke. That is within the range of easily what is confounding, you know, 20 percent. This is not like a .4 or --

MEMBER SLAVIN: And I think all these food group questions, it is exactly what you said, Mim, that you don't just live on milk; you live on a combination of milk and

grains. And when you try to sort it out, whether it is a nutrient sort or a food group sort, you know, the data is different, and we don't want to overinterpret it, but we can't ignore it, either.

MEMBER RIMM: This is Eric.

I know that Shelly and I have talked about this briefly. But did you, then, compare this to milk and calcium in prostate cancer? Because I know that it is about the same thing, and I don't think it is covered here, but it is sort of about the same thing in a positive level. Maybe there wasn't any -- was there systematic reviews there? That is coming up.

MEMBER SLAVIN: No. I think no.

MEMBER RIMM: I am just concerned about having all 65-year-old men drinking three cups of dairy a day, trying to reduce their risk of heart disease based on this relatively-strong statement.

MEMBER SLAVIN: What's in the AICR

about that?

MEMBER RIMM: The prostate cancer, yes.

MEMBER NICKOLS-RICHARDSON: Milk and prostate -- this is Shelly -- milk and prostate cancer is in that AICR report. So, if you want to look at Larry's book --

MEMBER APPEL: For a dollar.

(Laughter.)

MEMBER NICKOLS-RICHARDSON: -- if I recall, it's not really strong at all.

I looked it up for Eric.

MEMBER NELSON: So, is that one going to stay as moderate or is it going to be fair, or what is it going to be in the context of a pattern of eating that is high in dairy, milk?

MEMBER NICKOLS-RICHARDSON: It is definitely moderate. Our Committee came up with a II. Yes, if we are going to go with those words, then -- and we may, you know, as we get to other questions that also have

inconsistent, like fruit and vegetable --

MEMBER RIMM: No, actually, it says it's pretty strong, actually.

MEMBER APPEL: But I think we need to add a qualifier to this one.

MEMBER SLAVIN: For this, we only looked at milk, milk and health outcomes. So, that is the way it was done. So, it is a new look at -- and if you go back to 2005, there was a section on dairy products that were reviewed.

I think, for implications, we could clearly put things into that, too, because right now most of the implications, I guess they are, yes, talked about here. It is just that our review would support recommendations for milk and milk products, and there's some data on, if people drink milk as a young child, they are more likely to continue to take in milk. And also, if you don't, you know, like milk is just one food product. These are the nutrients that it

provides. So, if you choose not to take it in, then there would be shortfalls potentially, as the way food intake patterns are modeled, that you have got to make sure you cover those.

A lot of the things like soy milk and rice milk and the alternatives don't have the same nutrient composition. So, make sure people understand that.

MEMBER PI-SUNYER: I want to just ask Larry, what do you think is the downside of saying that milk --

MEMBER APPEL: Well, we're --

MEMBER PI-SUNYER: I mean the downside is that people may drink a little more milk, but that's okay, isn't it?

MEMBER APPEL: This is milk. It's not saying, you know, there are no qualifications to this. I mean I am looking at this.

They basically selected the risk estimate for low-fat milk, included that in

it, and said we omitted the estimate for whole milk, which was 1.67 as the risk of CVD and stroke. So, that is significant heterogeneity. That is pulling out a piece of evidence that would potentially affect your overall risk estimate.

So, I could potentially live with this if we modified it in some way to say, "but there is evidence that there is difference effects by different types of milk," but a qualifier.

This is people who are going to start drinking, you know -- who knows? -- whole milk, full-fat cheese.

MEMBER RIMM: Larry, this is Eric Rimm.

Just to answer Xav's question for something that you and I should be concerned about, the WCRF conclusion is that diets high in calcium are probable causes of prostate cancer. There's limited evidence suggesting that high consumption of milk and dairy

products is a cause of prostate cancer.

So, it is true that in our society milk is a pretty strong marker of calcium intake, and there is pretty strong, consistent evidence now that high calcium, as marked by milk, is associated with increased prostate cancer risk. So, that would be my concern about having people having a little bit more milk.

MEMBER NICKOLS-RICHARDSON: But I believe that there is another statement in there, that milk is not --

MEMBER SLAVIN: Is not related, yes, when you look at milk as --

MEMBER NICKOLS-RICHARDSON: Yes, milk is not related. The calcium and vitamin D is different.

MEMBER PI-SUNYER: That may be in high-calcium-eaters, but most of Americans are low-calcium-eaters.

MEMBER NELSON: So, this is Mim.

Staying out of the fray here, but

maybe a suggestion. Is there the preponderance of the evidence with the CVD with low or nonfat dairy products versus all-comers, ice cream, cheese? Or you are saying, Joanne, that there is equal, the whole range, and the low fat, nonfat isn't more protective?

MEMBER SLAVIN: Well, I think it is the way studies have been done, Mim. So, in the past, people looked at fats. They looked at saturated fats. They don't look at food.

So, when you do it this way and say let's look at food, a lot of times the data, epidemiological data is not clear. Is this low fat? And milk intake has changed big time over 20 years. People are much more likely to have low fat. So, I don't think we have that data. We don't have feeding studies where we give people skim milk and full-fat milk and show --

MEMBER NELSON: But I thought, Larry, that you just presented their findings,

that if it was low or nonfat, it was below one, and if it was above -- I mean, right?

MEMBER APPEL: That's right.

MEMBER NELSON: I mean that seems like that is worthy --

MEMBER APPEL: It was for low-fat milk, it was .78; for full milk, it was 1.67.

MEMBER NELSON: Yes, I mean that is a big difference. You don't think that's worthy of qualifying this statement?

MEMBER APPEL: I think we need to qualify it. I mean, even if you just say there is some evidence, just to cut the edge off of this, because --

MEMBER SLAVIN: I guess my concern, too, is we want to make sure it gets into the NEL review. Cheryl and I have talked about that. We have been very true to the system. We really want all the papers in the review, and if it is going to be added, we want it in, so the public can access it. You know, we really want all the data there for

everyone to see. So, it is fine to add it, but it needs to get into the review.

MEMBER PEARSON: But this is Tom.

I mean, within our whole context of caloric restriction in an obese pediatric population, isn't it logical to say that you should pick a low-calorie form of milk?

MEMBER NELSON: I mean it is the same as salt. I mean we have the nuts.

MEMBER PEARSON: Yes, absolutely.

MEMBER NELSON: I mean it was nuts. But we are saying in the context of the whole diet, it should be salt-free.

MEMBER SLAVIN: Right.

MEMBER NELSON: It seems like we could do a similar qualifier here, that in the --

MEMBER SLAVIN: Yes. No, absolutely. I think for implications it is not a problem.

MEMBER PEARSON: And a C level of evidence is fine with me. It is just common

sense.

MEMBER NELSON: But this is going to be added to the conclusion in the nut one. I mean I think it should be added here to the conclusion of this one. I mean I think there are some nuances that we have to add to some of these questions in order for them to be not misinterpreted.

CHAIR VAN HORN: Yes, I would agree with that. We have to do justice to the data, but we have to make sure that it is implicit that the nutrition issues related to this that address the adequacy and calorie concerns are also evident.

MEMBER PEARSON: I mean I would be very concerned, again, of the conclusion being lifted out of context.

MEMBER SLAVIN: Yes, and I don't know, Larry, since you have looked at that systematic review, does it do much for low versus high fat? I mean it doesn't really take it on or --

MEMBER APPEL: No, this is the only one where they say that this -- you have to select how to use this study. Because if you use one estimate, you get heterogeneity and you can't combine. If you use the other estimate, we're fine. So, they use the one estimate; they're fine, and that is an easy way out of the game. But heterogeneity is actually part of what we would want to report. You know, there are differences.

MEMBER NELSON: But my sense for the wordsmithing here is maybe we don't worry about that at the moment, but in the context of the American diet, where we are right now, that it would be low in nonfat dairy foods that we would be talking about, similar to the salt. We are not advocating all nuts. And I think you do that, and then, you are staying clear to the science; you are just adding a little bit of a nuance here.

MEMBER SLAVIN: But I also think, culturally, we get into problems because a lot

of groups really do like high-fat dairy, and whether it is yogurt or milk for their kids, I think it creates a problem. You can take your added fats in different ways. So, I think from dairy, some people don't want to take it, they don't want skim milk and they won't drink any milk. So, I don't want to be so restrictive that people don't drink milk.

MEMBER NELSON: So, are we saying that across the board then for cultural reasons, we don't care whether it is nonfat or low fat?

MEMBER SLAVIN: No, I think we care, but it is one of your sources of fat. So, you can make that choice. You know, it kind of gets into this flexibility of we don't want people to not drink any dairy products or eat dairy products if they can only have fat-free or low-fat, that still the nutrients in that group are important.

So, depending on the diet, you can make those diets work if you choose to not

have other added fats in your diet.

MEMBER NELSON: But that is across the board with all our recommendations.

MEMBER ACHTERBERG: With all due respect, I think one of the positions we started out the entire report with is that all of our recommendations would be for the most nutrient-dense form to decrease SoFAAs. So, I think we need to go back to that. Everything we put in this report should be in its most nutrient-dense form.

MEMBER NELSON: Yes, then you can choose, if you want some ice cream because you can fit it in, you can. But I think that, otherwise, we are in conflict.

MEMBER WILLIAMS: This is Chris.

I just wanted to mention that for children whole milk is one of the top six sources of solid fats. And the solid fats and added sugar are 40 percent of calories for children. So, it is significant.

CHAIR VAN HORN: Okay. Well, I

think we really need to move on. So, again, this is one of those that we are going to need to resolve, but perhaps not right this second. And yet, I think all of the points that have been made are extremely important, and having consistency across the report will be very important, too.

MEMBER RIMM: Linda, can I just add one thing?

CHAIR VAN HORN: Yes.

MEMBER RIMM: This is Eric.

I mean I don't want to drop the prostate cancer thing completely. Obviously, it is too late to do an NEL review, but that AICR report does have sort of a nice summary line that we could -- can we quote that?

MEMBER SLAVIN: But I think Shelly's point is it is nutrient-based, not food-based, so it doesn't fit.

MEMBER RIMM: Well, it is milk-based, too. They say there's limited evidence from six to eight studies that milk causes

prostate cancer.

I hate to just look at one side of the coin, just at the --

MEMBER SLAVIN: But we didn't look at cancers at all with dairy. So, if we are going to bring in that -- you know, we didn't do cancer with our questions. We did lots of health outcomes, but we didn't do --

MEMBER RIMM: But are we at risk then for looking at just one side of the coin? I mean maybe it is too late. It is just it is too bad, since there are a few things in the AICR report --

CHAIR VAN HORN: Yes, I don't think we can begin to accommodate things we didn't look at. You know, if we didn't look at dairy and prostate cancer, then we can't now suddenly put it in.

MEMBER RIMM: We probably didn't because the WCRF report, we probably said, oh, it is out there already. But it would be a shame to completely forget it because they do

summarize the cancer very nicely for milk in four sentences. You know, there are two cancers that are linked to milk consumption.

CHAIR VAN HORN: Larry?

MEMBER APPEL: This is Larry.

I mean I thought that at the front end we said we are not going to do much with cancer because we have this recent report. I know like that for salts, I mean I did lift a section on salt and gastric cancer. I just took the sentence and just inserted it in a contextual setting.

MEMBER RIMM: I did the same for alcohol and breast cancer. I didn't do the whole review over it, but I wanted to take a few sentences. You can't just focus on things that --

CHAIR VAN HORN: Okay. So, that sounds like a precedent then. You know, that if, in fact, a topic like this has already been addressed, lifting it literally from the ACIR report, then we could, in fact, do the

same with this one.

MEMBER PEARSON: And place it in contextual materials for that chapter.

CHAIR VAN HORN: Yes, in the context. It is not a conclusion statement, but it is in the context, yes. Okay.

MEMBER SLAVIN: Our last protein question --

CHAIR VAN HORN: Right, yes.

(Laughter.)

MEMBER SLAVIN: -- was, what is the relationship between the intake of dried beans and peas and selected health outcomes?

This has been tough because dried beans and peas sound quite inedible to people, and they were called legumes. They have gone through many different "who am I and how do you eat me?" We are not talking about eating them dry, but that is the way they are looked at in USDA. So, dried beans and peas.

There's very little research, and you can see limited evidence is the word of

the day here. So, we looked at three endpoints: body weight, serum lipids, and type 2 diabetes.

No. 1, limited evidence exists to establish a clear relationship between intake of dried beans and peas and body weight.

As I go through here, too, remember that the average person intakes, it is kind of like vegetarianism in any type of dataset; most people don't eat very many.

Limited evidence suggests that dried beans and peas have unique abilities to lower serum lipids. They do have soluble fiber. Soluble fiber is accepted as lipid-lowering. So, they are typically on lists of having the potential to lower serum lipids, but there are very few studies that support that they, themselves, have that role.

And then, limited evidence is available to determine a relationship between intake of dried beans and peas in type 2 diabetes.

Discussion? Yes?

MEMBER PEARSON: Could we, under that serum lipid one, say, "Limited evidence," "There is limited evidence that dried beans and peas have unique ability to lower serum lipids", period? Again, that suggests it is a positive suggestion.

MEMBER SLAVIN: Yes. No, I think --

MEMBER PEARSON: You are saying there aren't any studies.

MEMBER SLAVIN: Right.

MEMBER PEARSON: So, just say it. "There is limited evidence that dried beans have unique ability...."

MEMBER SLAVIN: Yes. And, you know, as I look at those two, both the serum lipids and the type 2 diabetes, theoretically, beans are always on lists that would be useful for those, but that's it. They haven't been studied.

So, absolutely. I have no problem

getting rid of that.

MEMBER ACHTERBERG: I will make my pitch. I have tried for a long time.

(Laughter.)

This is Cheryl.

We should be saying, "cooked dried beans and peas".

MEMBER SLAVIN: Or something else.

MEMBER ACHTERBERG: Because we specifically excluded fresh peas, peas in their pods, snow peas. I mean we specifically excluded certain kinds of beans and peas. So, why not just describe it as cooked dried beans and peas? And we will be more clear.

CHAIR VAN HORN: That seems like something we could do consistently throughout the report.

MEMBER NELSON: I agree because it is in the integrated and translation chapter.

CHAIR VAN HORN: Yes.

MEMBER NELSON: And I am thinking dried beans just like I eat them every night,

but I don't eat them dried.

(Laughter.)

CHAIR VAN HORN: Thank goodness. We're glad about that, Mim.

MEMBER NELSON: So, I would advocate for cooked dried beans, and I would be happy to --

CHAIR VAN HORN: Okay. Anne Rogers is noting this duly. So, she is going to take that on.

Going back to the other point that Tom just made, though, I am a little unsure that we said exactly what we mean. Are we saying that there is limited evidence regarding a relationship between dried beans and peas and serum lipids? That's the point, isn't it, that there is only limited evidence, period? It is not --

MEMBER SLAVIN: Well, there are really no studies.

CHAIR VAN HORN: Okay. Yes, we've got to say it that way.

MEMBER PI-SUNYER: This, to me, suggests that there is some evidence.

CHAIR VAN HORN: Yes, that's my point, and I am hearing two different things.

MEMBER SLAVIN: There is some. I mean it is just, if you look, there is systematic -- there is probably one of those things where there's more systematic reviews than there is research. So, there are studies, but it is not -- I am trying to remember what we have.

One of the problems you have in EPI, you have very little EPI data because people don't eat these products.

CHAIR VAN HORN: Right. That's the problem. Yes.

MEMBER SLAVIN: In NHANES you don't have any data; people don't eat it. So, the studies you have are really short-term feeding studies.

MEMBER NELSON: There are some.

MEMBER SLAVIN: Yes, but they

don't show much. Obviously, we don't have any, of the things we looked at, there really isn't anything out there.

CHAIR VAN HORN: Well, and when it is substituted, for example, for red meat and processed meat, and high saturated fat-containing foods, you are going to see an impact, you know, but it is not necessarily dried beans and peas.

MEMBER SLAVIN: But it hasn't been. You know, like, yes, it hasn't been studied.

CHAIR VAN HORN: It is anything that would substitute for that. So, we just need to clarify that a little bit, I think. It is still a little --

MEMBER ACHTERBERG: And Cheryl again.

I just don't understand why we don't have more info about cooked dried peas and beans, because there is a significant population segment in this country that eats

beans five, six, seven days a week. It is just amazing that we don't have these data.

CHAIR VAN HORN: A lot of it is funding. But some of it is also --

MEMBER ACHTERBERG: I just want that in the transcript somewhere for someone to read.

(Laughter.)

MEMBER SLAVIN: You know, I think what has come up, too, Cheryl, is just the calories associated with that. I know with some of our modeling, that to get the same amount of protein, you actually eat more calories. So, it almost goes in conflict to our calorie message. And also, a lot of people eat beans refried. I mean they do. So, there's a lot of fat that comes along with --

MEMBER RIMM: It's going to be good fat, though.

(Laughter.)

MEMBER SLAVIN: Potentially.

CHAIR VAN HORN: Cook them in fish oil and we're all set.

(Laughter.)

Okay. I think, with that, thank you. Thank you very much.

We are now, again, behind a little. So, let's take a 15-minute break, and please return full of energy, so we can push on with carbohydrates.

Thank you.

(Whereupon, the foregoing matter went off the record at 3:04 p.m. and resumed at 3:29 p.m.)

CHAIR VAN HORN: Okay, welcome back, everyone.

I think we are in for the last roundup now. We are going to proceed with the carbohydrates chapter and Joanne Slavin.

Thank you.

MEMBER SLAVIN: Thanks, Linda.

I would like to acknowledge my members of the Subcommittee: Cheryl

Achterberg, Xavier Pi-Sunyer, Linda Van Horn. And our staff: Jan Adams, Eve Essery, Rachel Hayes, and Joan Lyon.

The first question: what are the health benefits of dietary fiber?

Dietary fiber from whole foods protects against cardiovascular disease, obesity, and type 2 diabetes and is essential for optimal digestive health.

This conclusion was based on an NEL review that was published in 2008 and updated in our report.

Second, what is the relationship between whole grain intake and selected health outcomes?

This built on 2005, and these were our conclusions. We looked at three: cardiovascular disease, type 2 diabetes, and body weight. And these are our conclusions:

A moderate body of evidence from large prospective cohort trials shows that whole grain intake, which includes cereal

fiber, protects against cardiovascular disease.

Consumption of whole grains is associated with reduced incidence of type 2 diabetes in large prospective cohort studies. And this is another example of going from the old conclusion to the new; we put "limited" there just because there was no other data, and the reviews of that were mixed. So, feeding studies, those types of studies, there was very little there.

And then, limited evidence shows that intake of whole grains and grain fiber is associated with lower body weight. This is also an example of there's a lot of cross-sectional studies, but pretty inconsistent data.

I think the implications, we know that people aren't getting enough whole grains and fiber, and this balance within rich and fortified grains. So, we want to encourage both fiber-rich whole grains and enriched

grains balance, and it gets back to nutrient adequacy, the folic acid and other things that are in enriched grains. So, to keep a balance there to provide all the nutrients.

And in general, looking at some of the modeling, total grains typically are overconsumed. So, we don't want to recommend more in this. For the average person, we are talking about switching to more of the fiber-rich whole grains rather than eating more grains in general.

And the last conclusion there is, going from 2005 to 2010, the reviews, there is a real lack of standards for whole grain foods and measurement of whole grain content, and there's a lot of inconsistencies there. So, I think for the future, coming up with definitions, agreeing on definitions, agreeing on labeling for foods, and measurement of whole grains will be essential for bringing some more clarity to this area.

Have we got discussions, consensus

on those two topics, fiber and whole grains?

CHAIR VAN HORN: I just think it is important for all those listening, because of the time this group has spent talking about that very thing, just to reiterate that this is not a matter of adding additional grains, but, rather, being specific and selective about the types of grains and choosing the whole grains because of their added contributions, both nutrients and fiber, et cetera, but without exceeding the calorie limits that have been established.

MEMBER SLAVIN: Yes, I think the Committee was concerned just about the number of products that are coming out that are whole grain that don't seem to have any whole grain in them, and to make sure that there are standards to prevent that and not mislead the public.

Any other questions, whole grains or fiber? Tom?

MEMBER PEARSON: This is Tom

Pearson.

The recommendation, "Limited evidence shows that intake of whole grains and grain fiber is associated with lower body weight." So, you've got two systematic reviews, pooled analysis of 15 observational studies, pooled analysis of 20 studies, eight other studies, all of which are showing statistically-significant reductions in BMI. What's so limited about it?

MEMBER SLAVIN: I think what was limited, and this is where we at one point decided to get rid of cross-sectional studies, and most of those studies are mixed; you know, cross-sectional studies are in them. So, that created some differences in our conclusion on that.

Some of the other studies where they had the best measures of whole grains, so in the British studies they actually have grams of whole grain in their database and seven-day food records. In those studies,

they saw no relationship. So, some of the strongest studies saw no relationship. The cross-sectional studies are pretty consistent, though.

MEMBER PEARSON: But, even with that, so the Williams review had five RCTs and four observational studies.

MEMBER SLAVIN: Well, I think the problem with the Williams is it is also with legumes. If you read that study, it is not just whole grains. So, it is legumes and whole grains. So, trying to sort that out, that meta-analysis isn't as clear as it might look.

And you know, I think, also, we have one RCT that has looked at different endpoints, not finding any difference, which isn't too surprising short-term.

But, you know, we are happy to -- this conclusion, we tried really hard to make it represent the data that we have in our review. And I am very open to suggestions on

how to -- I think for the type 2 diabetes, we have two review articles and very little data. So, that one is different. There seems to be a little more data on weight, but it is not --

MEMBER PEARSON: I mean this gets to Linda's point before, is that there are carbohydrates and then there are carbohydrates. And if, in fact, there is a door open to say that there is a form of carbohydrates with evidence for weight reduction, geez, we should drive our truck through it.

MEMBER SLAVIN: Well, you know, I think part of it, too, is in Chris' you noticed in kids, with fiber you didn't see it. She didn't find an association. I think when we get to Cheryl's on fruits and vegetables, a lot of times with weight you don't see a relationship with different types of carbohydrates, and, overall, carbohydrates tend to be protective.

So, in trying to take total

carbohydrates and say which ones are most protective, I don't know, we can probably get to it in fruits and vegetables, but I think for adults it is pretty strong for fiber; it is okay for whole grains, but it is not -- you know, I think a lot of it really does have to do with our inability to differentiate whole grains and measure whole grains, and that if we don't fix that problem, we will continue to have unclear data.

You know, it will come up with glycemic index, too. A lot of our measures for carbohydrate quality aren't helping us too much.

MEMBER RIMM: This is Eric.

I guess I agree with Tom's comment that, if you look at your first two paragraphs, which are very nicely written, for body weight it does suggest there's about 15 to 20 studies that show very strong evidence that a diet high in whole grains and fiber lowers BMI. Anything beyond that, I realize

there may be some small short-term trials, but if you are looking at weight gain, it is always going to be troublesome.

I mean I would be worried if this is -- can you go back one slide to the previous conclusions?

MEMBER SLAVIN: Yes, absolutely. Yes.

MEMBER RIMM: I mean it almost looks like we are throwing that away, saying the other stuff is stronger.

MEMBER SLAVIN: Yes, I think you are right. I think, when limited evidence came in the front, I don't think that came with -- because it was a Grade III, so it was just stuck there.

MEMBER RIMM: I mean I would say that the evidence for body weight is as strong as the cardiovascular disease evidence. I mean this looks like it is 20, 25, 20 prospective studies which are long-term, which is what you have to look at for body weight.

You, obviously, know the data much better than anybody in this room.

MEMBER SLAVIN: Yes. No, I think that because of the change in the way these are written, that "limited" is not really the right word. I think we could go --

MEMBER NELSON: So, could it be parallel to the cardiovascular disease?

MEMBER SLAVIN: It is not as good as the cardiovascular as far as the data, I would say. But I think it is okay to be moderate.

MEMBER PEARSON: I mean just to say that we had in the fat study many fewer than 20 studies, and we called it moderate. I mean an RCT or two and three or four observational studies. Good enough for us, you know.

MEMBER SLAVIN: Yes.

MEMBER RIMM: So, the other thing is just a wording. It says, "prospective cohort trials". Do you mean observational

studies? Are those really prospective cohort studies? There's not lots of trials that look at fiber.

MEMBER SLAVIN: Yes, I think that is exactly right; it shouldn't say, "trial".

MEMBER RIMM: So, if you just take out "trials", it just --

MEMBER SLAVIN: Yes.

MEMBER NELSON: This is Mim.

You are saying, then, the third one will be changed to "moderate evidence shows"?

MEMBER SLAVIN: Yes.

MEMBER NELSON: Okay.

MEMBER SLAVIN: I think that is okay because I think grain fiber, I am looking at that. That really does strengthen that.

MEMBER NELSON: Okay.

MEMBER SLAVIN: So, I think that "moderate evidence" there would be consistent.

MEMBER NELSON: Great. Thanks.

CHAIR VAN HORN: And the other

thing is we sort of fast-forwarded over the first slide, but going back to what Tom's wording was, you know, there is Class IA evidence that dietary fiber from whole foods protects against cardiovascular disease, obesity, and type 2 diabetes. I mean that is a really powerful statement.

That, I think, sets the stage. It is, as you were saying, the need for providing systematic, standardized definitions of what whole grains are because fiber is so much better defined at this point than whole grains that the epidemiologic evidence is, understandably, confounded by some of those findings. But when you look at dietary fiber, there's no question and, as Shelly pointed out in nutrient adequacy, it is one of the biggest shortfall nutrients that we have in our diet. So, the emphasis on those foods in this context seems totally appropriate.

MEMBER NELSON: Can I just follow up then?

To the first slide, when you say, "What are the health benefits of dietary fiber?", there is not going to be a qualifier to that that says there is strong evidence?

MEMBER SLAVIN: Well, what originally happened here, Mim, and this kind of goes back to history, this was not an NEL review because we had -- the American Dietetic Association published one in 2008. So, we just built on that. So, when we originally wrote these conclusions, since it wasn't an NEL conclusion, we didn't do it in the same way. So, actually, much of that is a Larry --

MEMBER NELSON: But there's several. I mean like the Physical Activity Guidelines report is what is forming the basis. We do say there's strong evidence. We give it, you know, we are just sort of transferring that. So, I wonder if this should have a qualifier to give it the umph that it needs.

Linda, what --

MEMBER PI-SUNYER: Except for a lot of the data is moderate, not strong.

MEMBER SLAVIN: Yes. Right. If you go into the evidence-based review, not all of those would have gotten a Grade I. You know, they would get a Grade II.

MEMBER NELSON: So, then, I am confused with what Linda just said, but, then, I will defer to the fiber expert.

MEMBER SLAVIN: Part of it is, I think, just diabetes, and it comes across -- I think we will get it in glycemic index, too, that that a lot of times will be a II, not a I, or even a III.

We could put -- I don't think that would be wrong. The reason it is not there is because we didn't do an NEL review in this sense.

Cheryl, help me out.

MEMBER ACHTERBERG: Well, I just wanted to add the observation that not all grains are created equal and not all fiber is

equal, either. That is confounding a lot of this literature.

MEMBER SLAVIN: Yes.

MEMBER APPEL: This is Larry.

Is this one of those where it was just updated after 2005, too?

MEMBER SLAVIN: You mean for fiber?

MEMBER APPEL: Yes, for fiber and whole grains. Because I went to the 2005 report, and they actually have some major studies with long followup.

MEMBER SLAVIN: Right.

MEMBER APPEL: And they come to a much stronger conclusion.

MEMBER SLAVIN: No, this one was actually only updated from 2006, which was when the ADA started. So, it was even past that. But, yes, you are right, everything that is already in there is the basis for the fiber recommendation. So, we could pull more of it forward, yes.

MEMBER NELSON: I think that you've got to look at that, then.

MEMBER SLAVIN: But there's no question. I mean we have, you know, Shelly's got it. It's food intake is low. We have dietary recommendations. Fiber is a nutrient. I don't think there's any real question that we need more.

MEMBER NELSON: But it is more the strength of the evidence. We are saying that there's moderate.

MEMBER SLAVIN: No, it is not moderate. I think for whole grains, when we are talking about whole grains, it is different than fiber, yes.

MEMBER NELSON: Yes.

MEMBER WILLIAMS: This is Chris.

Joanne, it says in your writeup that the ADA review gave it a Grade II, which would be moderate. So, I think you could use that word or even moderately strong.

MEMBER SLAVIN: Yes, but, you

know, it is different because it is a nutrient. So, I think that is why it netted out here, and we really wanted to make the point of whole foods, that the data that is out there, the epidemiological data, which is summarized in 2005, is based on food intakes of fiber and foods.

MEMBER NELSON: But you think they are saying -- Larry, you just read that -- that it's really strong evidence, that they are saying in 2005?

MEMBER SLAVIN: For fiber.

MEMBER NELSON: For fiber? Which is what this one is, isn't it? I mean dietary fiber.

MEMBER APPEL: Well, no, this was whole grains and obesity.

MEMBER NELSON: Oh, okay.

MEMBER SLAVIN: Okay.

MEMBER APPEL: Yes, this is whole grains and --

MEMBER SLAVIN: Yes, both fiber

and whole grains were done in 2005.

MEMBER NELSON: And they have stronger evidence?

MEMBER APPEL: Well, I mean we didn't, obviously, use the classification, but they reached, "consuming at least three servings of whole grains per day can help reduce the risk of diabetes and CHD and helps with weight maintenance."

It actually -- and I remember the discussion -- it was one of the stronger sort of nutrient/weight relationships that we voted on.

MEMBER SLAVIN: And I think since then, if you look at the studies, it is more a mix than it was then, but, yes, it has gotten weaker, and a lot of it is probably because of lack of definitions. And the ones where they have the best definitions, they don't see the relationships when they measure it. So, I think it is okay where it is at.

All right. I am going to let

Cheryl, pass this down, since she worked on this topic, and let her handle this.

MEMBER ACHTERBERG: Okay. The next question pertains to vegetables and fruits.

What is the relationship between the intake of vegetables and fruits, not including juice, and selected health outcomes?

So, our first set of conclusions:

Consistent evidence suggests at least a moderate inverse relationship between vegetable and fruit consumption with myocardial infarction and stroke, with significantly larger, positive effects noted above five servings of vegetables and fruits per day.

Next, reflecting on past research on dietary patterns, there has been found a significant relationship. But looking at the literature since 2005, insufficient evidence is available to assess the relationship between vegetable and fruit intake per se and

blood pressure or serum cholesterol.

Evidence for an association between increased vegetable and fruit intake and lower body weight is modest with a trend towards decreased weight gain over five-plus years in middle adulthood; no conclusions can be drawn from the evidence on the efficacy of increased vegetable and fruit consumption in weight loss diets.

There's limited and inconsistent evidence suggesting an inverse association between total vegetable and fruit consumption and the development of type 2 diabetes.

And evidence also indicates that some types of vegetables and fruits are probably protective against some cancers.

For implications then, vegetables and fruits are nutrient-dense and relatively low in calories. In order to meet the recommended intakes, Americans should emphasize vegetables and fruits in their daily food choices, without added solid fats, sugars

starches, or sodium, to maximize health benefits.

Significant favorable associations between vegetable and fruit consumption and health outcomes appear to be linked to a minimum of five servings per day and positive linear effects may be noted at even higher consumption levels. While the impact of increased vegetable and fruit consumption is unclear for some chronic diseases and markers, improvements in preventing CVD and certain cancers may occur with increase consumption of these foods.

So, we can now open the floor for discussion.

MEMBER PEREZ-ESCAMILLA: Cheryl, this is Rafael.

Thanks for all this work. I know this is a lot of evidence you have gone through.

In terms of your conclusion regarding fruits and vegetables and body

weight, the issue here is that when you look at the randomized controlled trials that have lowered energy density by increasing fruit and vegetable intake, you get very consistent results that that helps with weight loss among people trying to --

MEMBER ACHTERBERG: In the first six months, and then when you look at 12 and 18 months, it fades away entirely.

MEMBER PEREZ-ESCAMILLA: Okay, because the data that I reviewed, which was mostly the first one to two years of followup, it was still seen towards the end of those trials. So, I am wondering if you looked only at studies that have tried to isolate fruits and vegetables or if you looked at the same energy density studies that I looked at that were interpreting them in a different way.

MEMBER ACHTERBERG: Yes, I am not exactly sure. We would almost have to take it study by study, head to head.

MEMBER PEREZ-ESCAMILLA: Yes.

MEMBER ACHTERBERG: But, as I know the literature, most of the effect in terms of weight faded. It was not sustained over time.

MEMBER PEREZ-ESCAMILLA: Okay.

CHAIR VAN HORN: But this is really important, and it is exactly the same situation that we were facing in the comparison between the science safety chapter on fish and fatty acid chapter on fish, and wanting to be sure that those references are equally matched.

MEMBER ACHTERBERG: Yes.

CHAIR VAN HORN: I think maybe this is an additional point of comparison where we want to be sure that what Rafael's criteria were matched yours. Especially if we are citing the same studies, we need to report them the same way.

MEMBER ACHTERBERG: And I suspect a lot of the hitch here is trying to separate the effect of vegetables and fruit per se as a caloric condition versus, if you add more

vegetables and fruits, are there other adjustments in the dietary pattern that, then, lower the --

MEMBER PEREZ-ESCAMILLA: Which are the ones I looked at. I looked at those that lowered energy density by increasing fruit and vegetable intake.

CHAIR VAN HORN: Okay, and that is important. So, can you two --

MEMBER ACHTERBERG: We'll have to compare studies head to head.

MEMBER PEREZ-ESCAMILLA: Yes.

CHAIR VAN HORN: That would be very helpful.

Mim?

MEMBER NELSON: It seems to me -- this is Mim -- there's another issue, and I dealt with this with some of the behavior questions. Also, are you looking at it as a weight loss tool or are you looking at the association of fruits and vegetables and body weight in the population?

I know with the behavior questions, with the exception of the self-monitoring, we ended up not looking at like snacking and breakfast and other things as a tool for weight loss. It was more the associations with a healthier eating pattern that we ended up going with because, otherwise, it is very different data.

I wonder if any of that is going on in this, except for potentially some of the really longer-term trials that are more looking at some more distal outcomes. I don't know.

Because the question is whether it is really associated with, you know, better weight status than it is whether it is a tool for weight loss to me.

MEMBER ACHTERBERG: Well, as I try to be very specific in this conclusion, in terms of weight gain, you really see the effect in middle adulthood. That is where there was the strongest effect in long-term

studies, much less so at younger ages. But when it came to weight loss, at least as I recall the studies, the effect faded out rather quickly.

MEMBER NELSON: But that probably makes sense because it is isocaloric. I mean that makes sense. So, then, you know, I think we have to be careful about what we are looking at here.

MEMBER SLAVIN: I am going to come in here -- it is Joanne -- because the way this was set up was fruit and vegetable intake and different outcomes. So, body weight, we opened it up to that, and there are probably studies on dietary patterns that didn't come into this review. So, that is the way it happened.

And if you look at the data, it is not very impressive, and it is probably not too surprising. You know, it is just not very strong.

MEMBER NELSON: For weight loss?

MEMBER SLAVIN: No, for body weight. I mean it is just body weight, fruit and vegetable intake, is there a relationship? It was opened very broadly. So, we tried hard to get data into the dataset.

And it is the same question with this whole food. It is looking at a whole food that has lots of different nutrients, is associated with different dietary patterns, but in a whole food approach like this, and you ask the question, the data is not strong. It is a Grade III.

MEMBER NELSON: So, is it possible, then -- sorry to be the context queen over here or the champion, but is there a possibility -- you said it, Cheryl, in your remarks, but it is not written here, that with the exception of -- patterns of eating that are high in fruits and vegetables do show the benefit. Again, I know that is not exactly what you looked at, but it supports other searches that were done.

MEMBER ACHTERBERG: That's what I was trying to do. I was trying to tip my hat, so to speak, to dietary patterns, which are different because of the whole context, to fruits and vegetables per se.

MEMBER NELSON: Right.

MEMBER ACHTERBERG: When you look at just the vegetable and fruit data --

MEMBER NELSON: Right.

MEMBER ACHTERBERG: And the other thing, as you look at these studies, some are domestic; some are international. They are eating different kinds of vegetables and fruits. The patterns are really very variable. So, it is hard to find a consistent thread that works across all of this in a general sense.

Ultimately, the bottom line is it is the patterns that matter, and we don't have a clue -- this is a little bit of an editorial -- but we don't have a clue about mechanisms.

MEMBER PEARSON: You know, with

some of the foods, we went down to some specifics, like with the nuts, you know, we were talking about pistachios and peanuts, et cetera. I just wonder, your evidence against cancers, gosh, specifically cancer in the mouth, pharynx, larynx, and esophageal, you know, 16 of 18 cohort studies of carrot consumption, 16 of 16 case controlled studies -- I am afraid that people are going to blow off this fruits and vegetables thing as not being the quality of evidence that may be in certain very microcosms.

MEMBER SLAVIN: But, you know, I think I will come in here because I think like fruits are mostly sugar. You wouldn't expect, if we dumped fruit on people's diet, that there would be -- you know, why would anything improve? So, I think that people have been expecting more than is there.

And if you look at the recent EPIC study on cancer and fruits and vegetables, it is not very strong. So, if anything, more

recent data isn't as strong as where people thought it was.

I am with Cheryl that the dietary patterns, it is a great pattern; it fits a nutrient adequacy, no question about it that way. But, for disease prevention, it is not --

MEMBER PEARSON: No, I am just saying that all cancers are specific diseases. That is the problem with grouping all of them.

MEMBER SLAVIN: Right.

MEMBER PEARSON: So, if it doesn't work in one cancer, it doesn't work in pancreas cancer, it doesn't mean it doesn't work in alimentary tract cancers, which the things are actually traveling over.

So, as you look at your review, you have scores of studies, all of which are positive, and you are saying, well, maybe.

MEMBER ACHTERBERG: No, I am saying definitely some fruits and vegetables

have a very strong preventive effect for some cancers. That is the only way I can condense this.

MEMBER PEARSON: Right.

MEMBER ACHTERBERG: Beyond that, you have to get very specific. So, berries are good for gum and esophageal mouth cancer; tomatoes, prostate cancer. It gets very specific.

And it is very difficult to make a general statement, which is why I said some -- it is really vegetables more often than fruits -- but some vegetables and fruits, if you had a mix-and-match test with some cancers.

MEMBER SLAVIN: And I think, also, Cheryl, point out that this was not a review by our Committee.

MEMBER PEARSON: Right.

MEMBER SLAVIN: We went with the ACIR report and summarized that.

MEMBER ACHTERBERG: Yes.

MEMBER SLAVIN: So, it is not an

independent review.

MEMBER ACHTERBERG: And that report points out that the data have gotten weaker over time as well.

MEMBER NELSON: This is Mim.

You couldn't take out the "probably"? It can't be that some types of vegetables and fruits are protective against some cancers?

MEMBER ACHTERBERG: Actually, the AICR report, I mean the older report said probably, and they have backed off and said "may". I really had to rely on the ACIR report.

MEMBER NELSON: Okay.

MEMBER ACHTERBERG: And I suggested, and I know it is a big debate because of the length of the report, but there is one table in that report that I think, if we could add to our report, would be really helpful, which lists the different kinds of cancers --

MEMBER SLAVIN: And how mixed the results are.

MEMBER ACHTERBERG: I think it would be a helpful addition if we could find the space in the report to add that.

VICE CHAIR FUKAGAWA: This is Naomi.

I would like to get back to the question about body weight because the issue of increasing plant-based proteins or plants and vegetables and fruits in our diets is one of our cross-cutting, overarching themes. I think Rafael's analysis in the energy balance side with respect to energy density being so important, and that in many ways vegetables and fruits help us achieve that lower energy density whole food pattern, or whatever you want to call it.

So, therefore, I do think that we must find a way to reconcile these kinds of conclusions that suggest that we really don't know much about the effects, although I

understand what you are saying in terms of how you ask the question, but I think we are sort of getting ourselves tied.

MEMBER ACHTERBERG: Two words that have been stripped out of this report that I guess I am fond of in trying to explain some of the results are "per se".

The issue here is vegetables and fruits per se, meaning alone with and independent of the diet, other components of the diet, don't have certain effects. But in a dietary whole pattern, you will see effects. That is the difference.

And that is a function, I think, of the way the questions were posed, and, in effect, we were restricted when we looked at the data to answer a question. In hindsight, some different questions would have yielded some different answers.

MEMBER NELSON: This is Mim.

I might recommend to that, that you do nuance the conclusion here to put some

of that context in this, because I think it is exactly how you stated it. But when it is so narrow, it loses the contextual piece to this, and that's really a shame.

Because I think, No. 1, we really don't eat vegetables and fruits per se in isolation. We do eat them in part of a pattern of eating.

So, I think that it is a tough place because you have gotten cornered because it is so focused, which is really interesting. But if we don't, then, put the context around it, it really looks completely in conflict with everything else that we are coming up with.

MEMBER APPEL: Yes, this is Larry Appel.

Yes, this chart is actually quite good.

MEMBER ACHTERBERG: It is.

MEMBER APPEL: And maybe we should try to figure out how to include it.

But I think that the statement about some cancers looks pretty timid compared to at least the bar graphs here, which show a probable relationship with mouth, pharynx, larynx, esophagus, and stomach for both fruits as well as non-starchy vegetables.

MEMBER ACHTERBERG: For those cancers, yes, but when you look at pancreatic and --

MEMBER APPEL: Yes. No, I realize that. No, no, no, no. But that's all we did in 2005. You know, we just said it's these. We didn't go beyond the evidence, but the evidence --

MEMBER PEARSON: Epithelial cell alimentary tract cancers, I mean those are all essentially the same --

MEMBER ACHTERBERG: So, the suggestion would be two statements about cancer. One that might pertain just to the alimentary tract cancers, and then, otherwise, we could say some cancers, some vegetables and

fruits. Is that what you are saying or suggesting?

MEMBER APPEL: Well, you could just be specific about the positive ones and not try to sort of like dance around the others. I mean it is pretty clear. You could say those ones I just mentioned with fruit and non-starchy vegetables --

MEMBER ACHTERBERG: Right.

MEMBER APPEL: -- and leave it at that.

CHAIR VAN HORN: This goes right along the same lines as what we were discussing earlier where we said we are lifting things right out of this report to be able to make a statement in this report.

MEMBER SLAVIN: I kind of would think, though, Cheryl, that if, for completeness, if we could actually get the whole figure in because there are lots of cancers where there is no relationship and lots of fruits and vegetables where there

isn't. So, it is just a complicated, you know, it is this huge grid. Otherwise, I don't think it is complete. It is very biased to just pick.

MEMBER NELSON: Back to the other sort of contextual issue, do you think it is possible to add to the conclusion here a little bit of context around, "notwithstanding dietary patterns that are rich in vegetables and fruits do show benefit," or something along those lines? Use your "per se" and, then, "notwithstanding" or something along those lines.

I think, then, it is more in keeping with the rest of the report and others. Otherwise, it is hard -- I mean we are having a hard enough time dissecting this. Think about others that might read this and trying to understand the nuances.

MEMBER ACHTERBERG: Well, I might add, too, again, our Committee had a lot of different research recommendations, half of

which were stripped out of the report for space. So, at least one or more of those recommendations spoke to the need of more nuanced research, separating out different kinds of vegetables and fruits, doing work that would drive at mechanisms more, and tying that to particular cancers.

Because we can't understand the impact of a dietary pattern until, frankly, we develop more and better science. But I think those statements were stripped out of the report.

MEMBER NELSON: But it is more than just cancer. I mean it is cardiovascular disease, hypertension --

MEMBER ACHTERBERG: It is all of them.

MEMBER NELSON: Yes.

MEMBER ACHTERBERG: You know, is it the allium vegetables? If you look at the European studies, that is what they emphasize. If you look at Asian studies, it is a

completely different set compared to what we eat here in the United States.

I think, just based on my knowledge of botany, these are very, very different kinds of substances found across these different kinds of vegetables and fruits. They are going to work differently. That is the context here I think that matters most, is we don't know very much about it.

VICE CHAIR FUKAGAWA: This is Naomi.

I do think, though, that we must be cautious about going down the road of potentially opening up a huge area of research that, again, becomes reductionist, because, then, we could go down to every potentially active molecule that occurs in a plant or in combination and its reaction with the plant and an animal product, and we won't really necessarily move the field forward.

MEMBER ACHTERBERG: I don't disagree, but take, for example, there's a

fair amount of work done on garlic and its cousins relative to cancer. What happens there is different than what happens if you eat a tomato.

I think there are some very important research questions that need to be posed and examined. That is all I am suggesting, not the 66 different proteins that are found in a single strawberry seed.

CHAIR VAN HORN: Okay. In the interest of time, I think we ought to move forward. We still have to finish carbohydrates and then go on to sodium, potassium, and water.

So, I do agree that taking a look and comparing the evidence is definitely important, so that we are consistent about that. Lifting the table out of the ACIR report seems like it does justice to more of this. Coming up with recommendations for research, that absolutely is appropriate here. And anything else, I think we are going to

have to deal with later.

Larry, did you have something else?

MEMBER APPEL: I don't want to perseverate on this, but the insufficient evidence of fruit and vegetable and blood pressure, is there a way we could just asterisk this based on data after 2005? I mean we are ignoring the best studies in this one, and I just don't think it looks right.

CHAIR VAN HORN: Right, totally. You know, to eliminate or ignore the landmark studies that have already been done, you know, it seems like that would be unfortunate.

MEMBER ACHTERBERG: I think we have referred to that, and if we just write what I spoke, it should address that because those were dietary pattern issues.

CHAIR VAN HORN: Great.

Okay. Joanne?

MEMBER PI-SUNYER: Okay. We go on to glycemic index.

Could I have the next slide, please?

So, the first question was: what is the relationship between glycemic index and glycemic load and selected health outcomes?

The first conclusions are:

Strong and consistent evidence shows that glycemic index and glycemic load are not associated with body weight and do not lead to a greater weight loss or better weight maintenance.

And the second, that abundant, strong epidemiological evidence demonstrates there is no association between glycemic index or load and cancer.

And the second set of conclusions:

A moderate body of inconsistent evidence supports a relationship between high glycemic index and type 2 diabetes. Strong, convincing evidence shows little association between glycemic load and type 2 diabetes.

Due to limited evidence, no

conclusion can be drawn to assess the relationship between either glycemic index or load and cardiovascular disease.

CHAIR VAN HORN: Okay. I think we have spent a fair amount of time on this already. Is there any further comment to be made?

(No response.)

Okay. We will move ahead.

MEMBER SLAVIN: All right. Carbohydrates and health outcomes, sugar-sweetened beverages.

In adults, what are the associations between intake of sugar-sweetened beverages and energy intake?

And, in adults, what are the associations between intake of sugar-sweetened beverages and body weight?

And this is another example where in the energy balance the associations with children were found and reported. So, we are going to need to get these at least

crosstalking here.

So, the conclusions:

Limited evidence shows that intake of sugar-sweetened beverages is linked to higher energy intake in adults.

And conclusion two: moderate epidemiologic evidence suggests greater consumption of sugar-sweetened beverages is associated with increased body weight. In isocaloric conditions, added sugars, including sugar-sweetened beverages, are no more likely to cause weight gain than any other source of energy.

And implications: added sugars, as found in sugar-sweetened beverages, are not different from other calories, and reducing intake is recommended to reduce calories. And intake of caloric beverages, including sugar-sweetened beverages, sweetened coffees and teas, energy drinks, and other drinks high in calories and low in nutrients should be reduced in consumers needing to lower body

weight.

So, we can go back to any questions on the conclusions or implications.

Eric?

MEMBER RIMM: This is Eric.

I think it is something we did sort of talk about before. This sentence on "in isocaloric conditions," it makes it sound like we have suddenly become experimentalists. And the question really is, what is the impact of foods? Is it associated with weight gain?

I mean you could say, "in isocaloric conditions," you know, saturated fat probably wouldn't do it and anything wouldn't in isocaloric conditions. It is not like it is --

MEMBER SLAVIN: And I think, Tom, I don't know how you figured out how to do it in the fat. Because most of the studies, when you are controlling energy intake, to make it clear that that it is the way the study is

done, as opposed to free-living, yes. There are really two whole types of studies here.

MEMBER NELSON: But I wonder, is that more of an implication than it is a conclusion? Because it seems to me --

MEMBER RIMM: It is a contextual issue. It is not even --

MEMBER SLAVIN: Yes, because most of the studies here are these types of studies, and they don't show any differences. So, it really is a large body of our evidence is right there. So, if that goes away, then our conclusion -- that is what our data is. Most of our data is that.

MEMBER WILLIAMS: Joanne, those are feeding studies, aren't they, mostly?

MEMBER SLAVIN: They are usually, yes, they are all different types. People try to get at this in different ways, but they are really different studies, but they typically try to control calories, yes.

MEMBER NELSON: Right, but that

is, again, back to the issue of the relationship between sugar-sweetened -- which is your first sentence, that there is a relationship or there seems to be an association versus -- I mean, if you put anything in isocaloric, people aren't going to lose weight or gain weight. I mean it doesn't matter what it is. I mean it is a little bit of a "duh". I don't mean to say that negatively, but if you put someone in a CRC and you feed them and you give them sugar-sweetened beverages or you give an apple, and it is the same calories, it's not going to matter.

MEMBER SLAVIN: You know, I think, too, Mim, it does come out in the macronutrient chapter also that, obviously, a calorie is a calorie. So, this is kind of making the same point, and the studies clearly show that. I don't know why people wouldn't think that, but there's a lot of people that don't think that.

MEMBER NICKOLS-RICHARDSON: This is Shelly.

I think that this second sentence is true to the science that you looked at. And while my issue is what I said before, that I don't think that America in isocaloric condition is in energy balance. So, that is where I think that the epidemiologic data makes a little more sense or seems to suggest a different outcome.

But looking strictly at the studies that you reviewed, that second statement is correct, based on that science. So, it is hard to reconcile the first sentence with the second sentence, and then to look at the other data like the Marriott paper that suggests that the sugar-sweetened beverages then have a negative effect on micronutrient intake.

So, it is not that this is wrong. It is just it is hard to live with that statement because America is not in that type

of controlled conditions.

MEMBER SLAVIN: Right, and I think I kind of wanted --

MEMBER RIMM: Especially since the first conclusion says they eat more calories if they drink sugar-sweetened beverages.

MEMBER SLAVIN: Yes, like the first one in energy intake in adults, there's really very little data there at all. That is why it is limited. That is why that is not strong.

And I know when I talked, listened to Chris', 12 out of 18 didn't show a relationship. So, I guess I wouldn't consider that strong. I would consider it more moderate.

So, I think this whole area, we probably need to compare, because kids versus adults, obviously, probably kids are more likely to consume, too. So, it could be that the findings would be different for adults or kids. But, right now, they are pretty

inconsistent, the two conclusions.

Yours is strong though, and it is 12 out of 18. So, I think we are going to have to -- you know, that is pretty mixed.

MEMBER WILLIAMS: The strength was a little bit different, but not that significantly.

MEMBER SLAVIN: Yes.

MEMBER NELSON: I guess I am worried about the implication of what this conclusion could be conferred as. I know that in your implication statement you talk about they are empty calories, et cetera. I just am a little nervous about that, not a little, but quite nervous.

MEMBER SLAVIN: I will let some of my other Committee people talk.

MEMBER PI-SUNYER: Yes, I mean I think everybody would wish that this was different, but it isn't different. And you know, you can interpolate. You could have more sugar and less rice, and you would be all

right.

MEMBER SLAVIN: Yes, and I think it comes out in our chapter, too, that carbohydrates --

MEMBER PI-SUNYER: People try to demonize sugar, but --

MEMBER SLAVIN: It is not strong. The relationship of sugar and body weight is not there. It is not --

CHAIR VAN HORN: Yet. I do think that there's some preliminary evidence. In fact, I was looking in my bag to see if I brought it with me. There's definitely animal experimental studies going on now in terms of looking at high fructose corn syrup versus sucrose versus other things.

MEMBER SLAVIN: Yes, but, you know, we have stayed away from animal studies.

CHAIR VAN HORN: Yes. No, no, no. All I am suggesting is, to go back to what Mim is saying, that at this point in time we can only report what we have. But as far as

where this literature is going, I can guarantee you, then, in 2015 there will be a rich literature on this subject because everybody is interested in it.

So, you know, I think we have to place it in the context that is truthful. I do think that the evidence, from what I looked at, I think Christine is absolutely right, in children the data seem to be stronger. But what we report on here has to be back to calories are calories.

MEMBER NELSON: But we don't say in kids that isocalorically, you know, we don't say that because we wouldn't say that.

MEMBER SLAVIN: But I wonder for them, if you look at our body of evidence, most of our studies are those studies. We didn't have a lot. We have some. We tried to use the systematic reviews that were out there. They were really mixed.

So, if you look at the studies that are in our report, it is quite different

from Chris' report, the number of studies, the types of studies.

MEMBER NELSON: But I think with the first part of the second bullet, I think it is probably fine. I am nervous about how it is going to get interpreted.

MEMBER WILLIAMS: I agree. I just think that second part of the second bullet, the two parts are in conflict.

MEMBER SLAVIN: I don't think they are because they are completely different studies.

Can we make it a third bullet?

MEMBER NICKOLS-RICHARDSON: This is Shelly.

I think in the implication it is clear, though, that a place to reduce calories is sugar-sweetened beverages. So, those two statements in that second bullet are correct based on the science. They just don't mesh well. And I think the implication is the place to make it clear what that second part

really means.

MEMBER PEARSON: Yes, following up on what Linda was talking about, obviously, there are industry efforts to replace sugar with high fructose corn syrup --

MEMBER CLEMENS: It is the other way around.

MEMBER PEARSON: I'm sorry. Right, to go back with sugar rather than high fructose. Is there enough evidence to even comment on high fructose corn syrup?

MEMBER SLAVIN: No.

MEMBER PEARSON: I am just wondering if that is worth stating.

MEMBER CLEMENS: There was a big review on this --

MEMBER SLAVIN: Yes, it was just published --

MEMBER CLEMENS: -- about two years --

MEMBER SLAVIN: Well, there was actually a recent one published in 2010 that

is in there, too.

And fructose is no different in studies on weight loss. You know, because, typically, high fructose corn sweeteners aren't any really higher than sucrose. So, if you feed strictly fructose, you see differences in animal studies. I think that's the data there.

MEMBER PEARSON: My point is that a positive study isn't always needed to make a significant result. So, a comment that this isn't an issue is probably worth -- because no one else knows that. So, everyone is --

MEMBER PI-SUNYER: That it is not an issue to substitute sugar for high fructose --

MEMBER PEARSON: Right. A calorie is a calorie is what you are saying.

MEMBER SLAVIN: Yes, it is a wash.

MEMBER PEARSON: But the point is that is not what is out there in the press and in the market and every other place. We are

trying to advise the American people about what to think. So, I am wondering --

MEMBER SLAVIN: I think it is in the background in the carbohydrates, but it isn't front and center here at all.

MEMBER ACHTERBERG: It sounds like we are creating an implication now. So, you might want to add that.

MEMBER SLAVIN: Yes.

MEMBER ACHTERBERG: That to educate the American public --

MEMBER SLAVIN: That carbohydrates --

MEMBER PI-SUNYER: We can put it in the implications.

MEMBER SLAVIN: Yes, we could put that in the implications for sure.

VICE CHAIR FUKAGAWA: This is Naomi.

But don't we have to consider that the different forms of sugars can have different metabolic effects? So, it may be

equivalent, if you are substituting for the effect on body weight, but there are other aspects of one's metabolism that could be --

MEMBER SLAVIN: The only one we have in there is that Stan Hope study where they gave high fructose. So, we do have that study. Very few studies, but it is in there, what we could find, yes.

MEMBER PI-SUNYER: No, fructose is very different, but not many people eat just fructose. It is either sugar or high fructose corn syrup. It is not isolated fructose.

MEMBER SLAVIN: So, your exposure is the same. It is just the amount as opposed to --

CHAIR VAN HORN: Okay. Shall we move on?

MEMBER SLAVIN: Well, do we want another implication? Does anybody --

MEMBER CLEMENS: Yes, add an implication.

MEMBER SLAVIN: Okay.

CHAIR VAN HORN: I think as Shelly pointed out, to clarify this as two separate bullets with an implication on it, I think makes sense. They are two different points.

MEMBER SLAVIN: All right.

MEMBER APPEL: I have a question.

MEMBER SLAVIN: Yes.

MEMBER APPEL: The evidence has improved since 2005, Xav, wouldn't you at least agree to that?

MEMBER PI-SUNYER: Yes.

MEMBER APPEL: Okay. Because I think there was a Schultz study, and then we had a public --

MEMBER PI-SUNYER: It has improved a little bit, but not a huge amount.

MEMBER APPEL: But it has improved.

MEMBER PI-SUNYER: Yes, definitely.

MEMBER APPEL: But there are four cohort studies that Joan showed me, and each

of them are positive, you know, for a relationship. So, I am wondering if we should comment that the recent evidence is stronger than previous evidence on this relationship because I think that is true.

MEMBER PI-SUNYER: Yes, we had a very hard time.

MEMBER APPEL: We had a hard time, but it is actually easier now. So, I am wondering if we should actually comment here.

Part of the problem was that there was crappy type of evidence. It is all cross-sectional, and people were confused. But the evidence is in a direction, a trajectory that you just pointed out. Somehow that concept I think has to get weaved into this.

MEMBER SLAVIN: Yes, and I do think it is another problem with trying to get at exposure. You know, carbohydrate measures are terrible. So, an overall carbohydrate, total carbohydrate is linked to lower body weight. That is the environment you are in

now.

MEMBER APPEL: And the other thing is that there has been a change in the types of how the exposures are done. They are looking at change. So, the Schultz study and our study looked at change, going from where you are to increasing or decreasing. When you look at change as an exposure, you see a relationship. That is probably, I think, the biggest difference. It is the change in methods over time that has led to these relationships.

MEMBER NELSON: Do you think there is a way -- this is Mim -- in that second bullet or the first bullet to say that, while still moderate, there is more evidence to make it a stronger -- or something like that? Is that what you're --

MEMBER APPEL: I think so because this is not like it has been moderate; it has been moderate. I mean we have seen over five years an improvement in the quality of

evidence on this front. It is not gigantic, but we went from pretty mediocre to now having a consistent, but relatively -- relatively few to compare it to others, but these are higher-quality studies than we have seen before.

MEMBER SLAVIN: And I think if you just look at intake of added sugars or sugar-sweetened beverages and weight or body weight, that doesn't show you much. You do have to look at change. You know, there's different ways of getting there, but just the usual way, those studies are not supportive.

MEMBER NELSON: Right, but the stronger design is change over time.

MEMBER SLAVIN: Well, it is a different design.

MEMBER NELSON: Right.

MEMBER SLAVIN: And to explain it in this is the problem. I think that's --

MEMBER NELSON: But I don't think you have to. You can just say that there's more data than there was in 2005 or it is

stronger evidence than there was.

MEMBER SLAVIN: It is disappointing how little there is, though, for such an important topic, I think. When we get into the strength of the evidence, it would be nicer if we had --

MEMBER NELSON: I think it would be great to have more, but I think what we are just saying is that there is more stronger evidence than there was before. That is all.

MEMBER SLAVIN: I think moderate is really pretty generous, yes.

MEMBER APPEL: We are not advocating changing for moderate.

MEMBER SLAVIN: But that is really what the four studies are. That sentence is based on those four studies, and I think it explains it pretty well. That is really what it is talking about, because those are the studies that that is based on. The other studies don't find it at all. So, I think it is already there. We could write it a

different way.

MEMBER NELSON: And these change studies are included in those four studies?

MEMBER SLAVIN: That's the four right there.

MEMBER NELSON: Okay.

MEMBER SLAVIN: That's the moderate evidence.

MEMBER NELSON: Okay, but, then, it is stronger than it was in 2005, though. It adds to the literature.

MEMBER SLAVIN: But before it wasn't there, no.

MEMBER ACHTERBERG: I gnashed my teeth over this for a long time. Joanne did the initial work, and it just was hard, but I had to come around. I had to say that's what it says; that's where the science is.

CHAIR VAN HORN: Okay. So, we want to just make sure we are being specific about the science, and I think Shelly's point is still the driving force here, to be very

clear and separate those two points, and make sure that they stand alone. And the idea of growing evidence is certainly important, too, because that is going to happen.

MEMBER APPEL: I really think that that is an important concept because it has changed. It is not moderate over all time. This is better methods --

CHAIR VAN HORN: Right, this is for now. This is what we have found.

MEMBER NELSON: It was limited before, and now it is moderate.

CHAIR VAN HORN: Exactly.

MEMBER SLAVIN: Yes, right, which it says, right.

MEMBER NELSON: I don't see it there, but --

MEMBER APPEL: I don't see the change.

MEMBER NELSON: I don't see the change.

CHAIR VAN HORN: You could say,

"now exists," or something like that, that just illustrates there's a time situation here.

MEMBER NELSON: Yes, it is a time course.

CHAIR VAN HORN: Yes.

MEMBER APPEL: Improved quality of evidence, now considered moderate.

MEMBER NELSON: Yes, exactly. That is the way to do it. It is just a slight modification. No? You guys aren't in --

MEMBER SLAVIN: I think it is really confusing. We have worked on this one a lot. I think the Subcommittee knows that we have tried long and hard to get this one where it should be. The word is the moderate epidemiologic -- you know, it was a --

MEMBER NELSON: We agree with all of that.

MEMBER SLAVIN: Now suggests?

MEMBER APPEL: The evidence now suggests.

MEMBER SLAVIN: That's fine. Yes, that's fine.

MEMBER NELSON: Yes, that would help a little bit.

CHAIR VAN HORN: At least it puts it in a time course at this point.

MEMBER NELSON: Exactly, "per se" and "now".

(Laughter.)

CHAIR VAN HORN: Okay, Joanne.

MEMBER SLAVIN: Okay. Non-caloric sweeteners. Are non-caloric sweeteners related to energy intake and body weight?

These are our conclusions:

Moderate evidence shows that using non-caloric sweeteners will affect energy intake only if they are substituted for higher-calorie foods and beverages. So these are the types of studies where calories are controlled.

A few observational studies reported that individuals who used non-caloric

sweeteners are more likely to gain weight or be heavier. This does not mean that non-caloric sweeteners cause weight gain; rather, that they are more likely to be consumed by overweight and obese individuals.

Yes, so this dataset is also not what you would like to see. You know, obviously, if we want people to not use sweeteners and we want them to use non-caloric sweeteners, it would be nice to have some data that shows it is linked to lower body weight. There is not much out there. But, theoretically, we have to believe calories, that if you controlled everything else and switched over, you should lose weight. But there is not a ton of research to support that.

MEMBER NELSON: But I think there's a couple of like moving/shifting things in these three bullets or the three concepts.

So, can I just ask a simple

question? Just sort of in the population as a whole, is there any benefit, does there seem to be a benefit for consuming foods and beverages that have artificial sweeteners? For body weight?

MEMBER PI-SUNYER: Not over water.

MEMBER SLAVIN: Right. Right.

MEMBER NELSON: Yes, I mean, I will tell you one of my greatest fears with our report at the moment, the unintended consequences, because we are talking so much about added sugar. I mean I am advocating it, but we are talking so much about added sugars and solid fats, that all we are going to see is the food supply become completely replete with artificial sweeteners. And it is a concern of mine.

I mean I know we talk about minimally-formulated and processed, and things like that, but I, for one, don't think there is any evidence to say that will help to bring down body weight. That would be my

hypothesis.

So, I think that we have got to be careful how we word this so that we aren't just promoting artificial sweeteners in the food supply.

MEMBER CLEMENS: This is Rog.

As a food tech scientist here, I assure you, Mim, that we won't see the artificial sweeteners take a boom.

Carbohydrates, with the high fructose corn syrup, or sucrose, they all have very definitive, functional properties in the entire food supply. So, we won't see the boom that you're thinking about.

MEMBER NELSON: Well, we saw it before with fat substitutes when we said fat was bad. So, I am a little bit concerned, but --

MEMBER PI-SUNYER: Also, isn't it true that, Larry, in your water chapter you say water is better than the other stuff?

MEMBER APPEL: What am I being

accused of here?

(Laughter.)

MEMBER PI-SUNYER: I don't remember, but I thought you said that the preference is water.

MEMBER APPEL: Oh, yes, but that is a contextual statement. We tried to do a literature search with water and weight, and we couldn't find anything. So, we just made a contextual statement that, when people drink fluids, they should preferably drink water or low-calorie or no-calorie fluids.

MEMBER NELSON: Well, I am wondering, similar to the sugar-sweetened beverages, the one before where the cohort studies show a relationship, but if you do an isocaloric there's no difference.

I mean, in a sense, I wonder, the first bullet here basically says it will help if you are really good about decreasing calorie intake and substituting. I don't think people are very good at that.

MEMBER SLAVIN: Well, I think the way this is set up, though, the bottom are the EPI studies, and the top here are the feeding studies. Your best data is going to be, if you control everything, obviously, people would lose weight in that setting.

Now in the free-living, what happens is what exactly happens down there. If you look in an EPI study who is using artificial sweeteners, it tends to be overweight and obese individuals.

MEMBER NELSON: It is really?

MEMBER SLAVIN: But it doesn't cause that.

MEMBER NELSON: Right.

MEMBER SLAVIN: You know, it is an association, and that is where you are with your data.

MEMBER NELSON: Although there is this emerging evidence that this increase in the sweet sort of taste has been an issue, and that it could be caused by, not caused

necessarily, but a contributor from all these sweeteners. It's a hypothesis.

CHAIR VAN HORN: That is no further along than what we were just about high fructose corn syrup. So, I think we have to take it as it is.

MEMBER SLAVIN: Move on? All right.

It looks like we got all the fun ones, but here's liquids versus solids. What is the impact of liquids versus solid foods on energy intake and body weight?

What we have is, evidence is conflicting that liquid and solid foods differ on their effect on energy intake and body weight. However, liquids in the form of soup may lead to decreased energy intake and body weight.

That is the data. You know, the soup data is kind of interesting, but that is an example of a liquid that, if people have it before, they tend to eat less at a subsequent

meal. But when you control calories, liquid versus solid, the studies that are out there really don't show differences in energy intake or body weight.

I can see people looking at their clocks.

So, any questions?

MEMBER APPEL: Yes. This is Larry.

And maybe this is a distinction that I am not even sure I know. But you say impact of liquids versus solid foods. Is it calories from liquids versus calories from solids? Because that is what we studied in our study.

MEMBER SLAVIN: Yes, right. Right.

MEMBER APPEL: And there was a difference, and then it got attenuated over time.

MEMBER SLAVIN: Right. Yes. No, your study was probably the one that did it

that way. Everybody else, most of the controlled feeding studies people have tried to balance liquids versus solids in these mostly satiety, short-term-type studies.

And obviously, people see it is a liquid; it is a solid. I mean they can see it, too.

So, there aren't great data, but --

MEMBER APPEL: So, is it conflicting? Conflicting means liquids are better than solids, and solids better than liquids. Or is there insufficient evidence to conclude?

MEMBER SLAVIN: Yes.

MEMBER APPEL: So, sometimes solids look better --

MEMBER SLAVIN: Yes.

MEMBER APPEL: -- or liquids look better than solids?

MEMBER SLAVIN: Yes. And if you look at the studies, they are all in the -- we

tried to find anything we could, and there was no consistent design there at all. So, yes, I would have to say it is conflicting.

And I am happy, we are happy to consider other ways of talking about it because there are a couple of fairly well-done soup studies that did show that. So, that is in our evidence review.

All right. Discussion and consensus?

And then, other related topics. Unfortunately, we have too many topics, but I will go quickly through this. These were some non-NEL searches we did.

Role of carbohydrates, fiber, protein, fat, and food form on satiety. Lots of things affect satiety.

These are done in laboratory settings to control for variables. It may not be generalizable.

Fiber seems to be more satiating than low-fiber foods. Sometimes when fiber is

added, you don't see the same effect. Small changes in macronutrient content of the diet probably don't significantly alter satiety.

And that is all reviewed in there.

Prebiotics/probiotics. We did a short review on this. We concluded gut microflora play a role in health. Research is developing.

There are foods that are high in prebiotics and foods that are high in probiotics. As part of accepted diet patterns, they are fine, but there's not enough data that says prebiotics or probiotics should be recommended.

And that's it. Questions?

(No response.)

Larry?

CHAIR VAN HORN: Larry, go for it. And you are next, Larry. Just remember that.

MEMBER APPEL: All right. So, let's see. Okay. So, we had questions on sodium, potassium, and water. I am going to

also provide the implications, because what I did was really, or our Committee -- oh, actually, one second.

I think we do need to acknowledge everybody on our group. Yes, they did a terrific job.

Actually, while I enjoyed our stimulating conversations at nine o'clock on Friday morning, I am looking forward to having my nine o'clock morning. Yes, okay.

But they did a terrific job of keeping us on task and, also, a lot of fun, especially on the dietary patterns work that we did.

Okay. So, we had questions on sodium, potassium, and water. So, the first question on sodium: what is the effect of sodium intake on blood pressure in children and in adults? And we have a two-part conclusion.

The first: a strong body of evidence has documented that in adults, as

sodium intake decreases, so does blood pressure.

And then the second conclusion: a moderate body of evidence has documented that, as sodium intake decreases, so does blood pressure in children, birth to 18 years of age.

And I think if there is anything that I am sort of on the fence, it is whether this is moderate or moderately strong for the children because the best study was a clinical trial, and it showed a result. It was the Andover-Exeter trial, and it was just a lot -- and the meta-analysis, overall, the meta-analysis was good, but there were a lot of small studies. So, I would put a moderate body of evidence.

Now I put the stuff, the more meaty aspect of this in the implications, which I am going to go through. I think these are important, so I am going to read through these.

So, the projected health benefits of a reduced sodium intake are substantial and include fewer strokes, cardiovascular disease events, and deaths, as well as substantially reduced healthcare costs. And there have now been three to four major, independent projections of benefits, and they all reached that conclusion or pieces of that.

In view of these potential benefits and the currently very high intake of sodium in the general population, children and adults should reduce their sodium intake as much as possible by consuming fewer processed foods that are high in sodium and by using little or no salt when preparing or eating foods.

To Roger's suggestion, I modified the "processed foods that are high in sodium," rather than just saying, "processed foods". Okay.

All right. So, implications, two: the current food supply is replete with

excess sodium. Many foods contribute to the high -- this is very important -- many foods contribute to a high intake of sodium. While some foods are extremely high, the problem of excess of sodium reflects frequent consumption of foods that are only modestly increased in sodium.

A major new concern is the excess sodium added to products such as poultry, pork, and fish through injections or marination. Efforts to quantify the amount of sodium from this type of processing is warranted.

Finally, an important determinant of sodium intake is calorie intake. Hence, efforts to reduce calorie intake might also lower sodium intake.

All right. Three: in 2005, the Dietary Guidelines for Americans recommended a daily sodium intake of less than 2,300 milligrams for the general adult population and an intake of 1,500 milligrams for

hypertensive individuals, Blacks, and middle-aged and older adults. Because the latter groups together now comprise nearly 70 percent of U.S. adults, the goal should be 1,500 milligrams per day for the general population.

Given the current U.S. marketplace and the resulting excessively high sodium intake, it will be challenging to achieve the lower goal. This reduction should occur incrementally, from 2,300 to 1,500 over time. A recent Institute of Medicine report has provided a roadmap to achieve gradual reductions in sodium intake. That is just a reference to the recent report from about two to three weeks ago.

Fourth, because early stages of blood pressure-related atherosclerotic disease begin during childhood, both children and adults should reduce their sodium intake. Individuals should increase their consumption of dietary potassium because increased potassium intake helps to attenuate the

effects of sodium on blood pressure.

So, I think I should stop there, and then we have potassium and water.

There has been a lot of discussion on this already.

CHAIR VAN HORN: Yes, I was just going to say I think you did such an excellent job of this earlier that most of us have probably spent some time with it.

But are there any new thoughts among the panel that need to be stated?

(No response.)

I think you really have done a comprehensive job of very clearly stating what the issues are.

MEMBER PI-SUNYER: The only question, the only comment I would put is where you say, "Hence, efforts to reduce caloric intake might also lower sodium intake," I would just say, "Hence, reducing calorie intake will lower sodium intake." Isn't that true? Make it more positive.

MEMBER APPEL: Yes, you can do that. I think it is basically 2 milligrams of sodium per calorie.

MEMBER PI-SUNYER: Right. So, it will happen?

MEMBER APPEL: It will happen, yes. It's modest.

MEMBER PI-SUNYER: It makes it positive.

MEMBER APPEL: Okay.

MEMBER PEARSON: This is Tom.

I am glad you put the IOM report in there. It is just to say, I mean, the ranks are closed on this issue. Yes, the army is formed, and now we have got to get to work.

MEMBER APPEL: All right. So, let's move on to potassium. Okay.

What is the effect of potassium intake on blood pressure in adults?

And the conclusion: a moderate body of evidence has demonstrated that a higher intake of potassium is associated with

lower blood pressure in adults.

Not much data in children, and we didn't really review it.

So, implications: increasing dietary potassium intake can lower blood pressure. A higher intake of potassium also attenuates the adverse effects of sodium on blood pressure. Other possible benefits include a reduced risk of developing kidney stones and decreased bone loss.

In view of the health benefits of adequate potassium intake and its relatively low current intake by the general population, increased intake of potassium is warranted. The IOM set the AI for potassium for adults at 4,700 milligrams per day. Available evidence suggests that Blacks and hypertensive individuals especially benefit from an increased intake of potassium.

There's some more contextual information in that, and it could be removed, but it is a summary of what also is covered

later on.

Any discussion?

(No response.)

I mean the reality is that it is fruits and vegetables. So, we are not really telling people to take pills.

Okay. All right. Now here's the most controversial one. Okay. Water.

(Laughter.)

Hold onto your seats. I am going to put the armor on for this one.

Okay. What amount of water is recommended for health?

We actually did, just to remind people, we did literature searches on water and chronic disease. We also brought in experts who were involved with the IOM report who are true card-carrying experts on water. They said the literature really hasn't changed since 2005.

And also, none of the evidence on water, except for very little is based on sort

of clinical trial-type evidence or epidemiologic. There are a few studies. So, it is a different kind of evidence on hydration.

But, anyway, rather than a grade, with approval from the NEL staff and hierarchy, we crafted this conclusion. There's no grade.

Based on an extensive review of the evidence, an IOM panel in 2004 concluded that the combination of thirst and usual drinking behavior, especially the consumption of fluids with meals, is sufficient to maintain normal hydration. However, because water needs vary considerably, and because there is no evidence of chronic dehydration in the general population, a minimum intake of water cannot be set.

Implications: in order to prevent dehydration, water must be consumed daily. Healthy individuals who have routine access to fluids and who are not exposed to heat stress

consume adequate water to meet their needs. Purposeful drinking is warranted for individuals who are exposed to heat stress or perform sustained physical activity. In view of the ongoing obesity epidemic, individuals are encouraged to drink water and other fluids with few or no calories.

It is sort of apple pie kind of stuff. Okay.

MEMBER PEREZ-ESCAMILLA: Larry, this is Rafael.

In terms of water, fluids, and hydration, is there a need to make a special statement for elderly individuals?

MEMBER APPEL: Yes. There were some public comments on this issue. We also did a literature search as well.

In the end, among healthy elderly -- we are not talking about elderly who have limited access to fluids or elderly who have cognitive issues where there are problems -- there is really no evidence of dehydration.

The evidence is pretty well summarized in the IOM report.

MEMBER PEREZ-ESCAMILLA: Several summers ago, there was a fairly substantial number of casualties in France of elderly individuals during a heat wave during the summer.

MEMBER APPEL: Yes. Well, we cover that in that statement: "Purposeful drinking is warranted for individuals who are exposed to heat stress or who perform sustained...."

But do you think we need to qualify this? Because that is sort of like an extreme type of thing. I mean, when that happens, you need to stop --

MEMBER PEREZ-ESCAMILLA: I mean only if the evidence supports that the elderly may be at higher risk. If not, that's fine with me. I mean it is just my understanding was that the elderly were at a higher risk of their thirst mechanism not responding in

proportion to temperature increases.

VICE CHAIR FUKAGAWA: This is Naomi.

I tend to agree that the normal, healthy, older individual does have some alterations in their ability to sense thirst. So, therefore, they may wait longer.

MEMBER PI-SUNYER: But the French heat wave was kind of a natural experiment, and hundreds died, hundreds of elderly people in that heat stress. So, you might quote that as a natural experiment.

VICE CHAIR FUKAGAWA: This might be something that we should also put in the section, I guess our introduction or our -- I can't remember that section, Anne, where we talk about older persons.

MEMBER PI-SUNYER: Well, put it in the implications.

MEMBER APPEL: I mean I can add a sentence here. We do have heat stress.

MEMBER PI-SUNYER: You could put

one for individuals, particularly older persons or something.

MEMBER APPEL: Okay. It gets a little bit complicated. Yes, yes. Well, I mean we are not here wordsmithing. I will add, somehow weave in the concept here. Yes, okay.

And if my staff could find a reference to the French -- I think there are two. I mean there's the Chicago heat wave -- it wasn't nearly as bad as the one in France -- and then France.

CHAIR VAN HORN: There are also some data somewhere that suggest that the elderly, because of concerns about incontinence, self-selectedly avoid fluid. So, that compounds the problem sometimes in the elderly. So, there is that issue, but it goes far away from what you are trying to do here.

MEMBER APPEL: There are a few things here. There are kidney issues with

reduced ability to concentrate. There may be cognitive issues. There are people on diuretics, and sort of a whole host of things. So, how do you put this in --

MEMBER PI-SUNYER: Well, I just think they are a subgroup in greater risk. So, somehow it would be good to make that point.

CHAIR VAN HORN: Okay. Well, thank you very much.

And speaking of drinking, Eric, would you like to talk to us about alcohol?

(Laughter.)

At this late hour, that is sounding really interesting.

MEMBER RIMM: Talk into the microphone.

All right. So, I also would like to thank the Subcommittee, Larry, Tom, and Naomi, as well as my colleagues on the staff, Rachel Hayes, Patricia Guenther, Jean Altman, Patricia MacNeil, and Shirley Blakely for

helping us tremendously with this review.

Although none of us have said it, we all actually thank Anne Rodgers for slapping us around and keeping us in shape and making sure we get things to her.

(Laughter.)

But, actually, it is amazing how nice she was about doing it. So, anyway, sorry. It has nothing to do with the alcohol chapter per se.

(Laughter.)

So, here are the questions that we have, and we did a little bit of wordsmithing.

What is the relationship between alcohol intake and weight gain?

And here we wanted to say there was moderate evidence, but we also have the word "moderate drinking" in the sentence at the same time. So, we put moderate evidence at the front and then said:

Evidence suggests that among free-living populations moderate drinking is not

associated with weight gain. However, heavier consumption over time is associated with weight gain.

Implications for this:

Alcoholic beverages provide calories, but are not a good source of nutrients.

Consumption beyond two drinks a day may lead to weight gain.

And consumption of less than two drinks a day does not appear to be associated with weight gain at a faster rate than non-drinkers. Faster weight gain, yes.

The second question is on cognitive decline. What is the relationship between alcohol intake and cognitive decline with age?

And again, our conclusions, we said, first, were moderate evidence.

Evidence suggests that, compared to non-drinkers, individuals who drink moderately have a slower cognitive decline

with age.

For limited evidence, here we say, although limited, evidence suggests that heavy or binge drinking is detrimental to age-related cognitive decline.

So, so far, these conclusions have mirrored each other.

The implications for cognitive decline is:

Alcohol, when consumed in moderation, does not appear to quicken the pace of typical age-related loss of cognitive function.

And heavy drinking and episodes of binge drinking impair short- and long-term cognitive function and should be avoided.

For coronary heart disease, we actually, at a late date, we chopped stroke out of this because, I would say now and I am not summarizing here, but there's a number of chronic disease endpoints actually and acute endpoints that we write about as contextual

issues at the beginning because they have been summarized before. So, they are non-NEL reviews. So, we have done things, for instance, on breast cancer, on cirrhosis, on other hepatic diseases, on stroke. So, at the beginning of this chapter, for those of you who waded through it, there are some non-NEL summaries based on recently-published reviews.

So, because of that, we actually took stroke out of this because the data on drinking and drinking patterns was much clearer for coronary heart disease.

So, what is the relationship between alcohol intake and coronary heart disease? This is sort of brought forward from the 2005 Guidelines.

There is strong evidence, evidence consistently demonstrates that, compared to non-drinkers, individuals who drink moderately have lower risk of coronary heart disease.

And, we now have brought forward the recent results from a recent meta-analysis

on drinking patterns. It is that there was insufficient evidence to determine if drinking patterns were equally predictive of risk, although there was moderate evidence to suggest that heavy or binge drinking is detrimental.

The implications of this (and I guess this is where Shelly and Rafael brought out some very good points that helped us actually reshape the chapter a bit and reshape how it is written), is that an average daily intake of one to two alcoholic beverages is associated with low risk of coronary heart disease among middle-aged and older adults. And for this, we assumed that most of the epidemiological studies, actually, we were able to see that most of the epidemiological studies were asking people to report their average weekly consumption.

Therefore, we thought the guidelines should be based more on weekly consumption, and not specifically on daily

consumption because most people in the United States do not drink daily. So, our assumption was that this guideline would be on average weekly consumption, and that meant up to seven drinks a day for women -- sorry -- up to seven drinks a week for women -- (laughter) -- it is getting late in the day -- and 14 drinks a week for men with no binge drinking, where heavy or irregular binge drinking is defined as four drinks a day for women and five drinks a day for men. And again, we would reiterate here, avoid binge or heavy irregular drinking.

What is the relationship between alcohol intake and bone health?

Again, our overall conclusion is there is moderate evidence here, and evidence suggests a J-shaped association between alcohol consumption and incidence of hip fracture, although there was a suggestion that heavy or binge drinking was detrimental to bone health. That is actually both acutely and chronically.

There is -- implications for this conclusion is:

There is insufficient evidence from epidemiological data to make a strong conclusion related to patterns of alcohol intake and bone health.

However, it is very likely that the increased risk of fracture among individuals who drink more than one to two drinks per day on average is due to accidents that follow heavier consumption. That will actually tie into our conclusion on unintentional injury.

Unintentional injury. What is the relationship between alcohol intake and unintentional injury?

Here we felt there was strong evidence. Substantial evidence demonstrates that drinking in excess increases the risk of unintentional falls, motor vehicle accidents, and drowning. We actually added drowning, I believe, from the 2005 because there actually

is a growing body of evidence on drinking and swimming.

When alcohol is consumed in moderation, the evidence for risk of unintentional injury is less well-established for activities such as driving, swimming, athletic performance, but abstention from alcohol is the safest for these activities. Again, we are trying to reiterate the obvious, but that alcohol can cause injuries, and if participating in these types of activities, that you should abstain.

One that we all have talked about in a little bit more detail and have interviewed some experts on is: does alcohol consumption during lactation have adverse health effects?

Here, what is the relationship between alcohol consumption and the quality and quantity of breast milk available for the offspring?

And the second part of this

question is: what is the relationship between alcohol consumption and post-natal growth patterns, sleep patterns, and/or psychomotor patterns of the offspring?

Here, we felt for the conclusions, for the first question, that there is moderate evidence. Here there is: consistent evidence shows that when a lactating mother consumes alcohol, alcohol enters the breast milk, and the quantity of milk produced is reduced, leading to reduced milk consumption by the infant. That is obviously just acutely when the woman is drinking.

Although limited, evidence suggests that alcohol consumption during lactation was associated with altered post-natal growth, sleep patterns, and/or psychomotor patterns of the offspring. Again, that is when alcohol is consumed while the mother is -- right before the mother is breast feeding.

So, the implications for this, and

I think this is where the meat of it is, and this is why we actually wanted to bring this question forward, was that:

The benefits of breast feeding to the infant are well-established.

A woman who chooses to breast feed need not completely abstain from alcohol.

And because the level of alcohol in breast milk mirrors the mother's blood alcohol content, after latch-on has been perfected and a pattern of consistent breast feeding has been established, at around the age 2 to 3 months, a mother could wait three to four hours after a single drink -- and in parentheses I put "the time it would take to metabolize ethanol" -- before breast feeding, and the infant exposure to alcohol would likely be negligible.

It is not sufficient for a woman to express breast milk after alcohol consumption to prevent exposure to the infant because the concentration of alcohol in breast

milk will remain at levels in the blood until all of the alcohol is metabolized.

Contrary to medical and cultural folklore, alcohol consumption does not enhance lactational performance; rather, it reduces milk production and decreases infant milk consumption in the three to four hours after alcohol is consumed.

There is still insufficient evidence to conclude definitively that alcohol exposure to an infant during lactation affects the post-natal growth of the child. Nonetheless, alcohol exposure to the breast-feeding infant by breast feeding too soon after consuming a single drink should be avoided.

So then, we also -- I guess maybe this is somewhat unique. There were some implications and relevant contextual issues that we felt are related to the entire chapter, not to any one specific question.

And one was to sort of remind

people that abstention is an important option and to sort of give some context to that: that approximately one in three American adults does not drink alcohol.

And adverse effects for unintentional injury or for certain people and situations can occur at even moderate alcohol consumption levels. Just to remind people, again, that is operating vehicles, pregnant women, people swimming and doing other activities that require coordination. And that is in the text.

If implications – oh sorry – and if truly evidence-based, then for individuals who choose to drink, recommendations should be interpreted as average over the course of the week and not necessarily every day, or conversely, all concentrated on a few days.

There we have it. If anybody still has the energy, I am open for discussion.

CHAIR VAN HORN: Eric, I think you

did a great job of pulling it together from the last time we discussed it, and it reads very, very well.

Tom, did you have something?

MEMBER PEARSON: Just another comment. We discussed this, but under the total chapter, "Abstention is an important option. Approximately one in three American adults does not drink alcohol."

But there are some adults that shouldn't drink alcohol. It might be worth putting that in.

MEMBER RIMM: Yes. Well, it is actually in the text.

MEMBER PEARSON: It is in the text?

MEMBER RIMM: Yes. I mean pregnant women, women who can't control their consumption, driving, things like that.

MEMBER PEARSON: Right.

MEMBER RIMM: Yes. Yes, you're right, I apologize to my Subcommittee members

because I did tweak the slides a little bit without showing it to them. But, yes, it's there.

MEMBER PEARSON: Because for some people, it is not a choice; it shouldn't be a choice. It should be a prohibition.

MEMBER RIMM: Right. It was mostly to give people, to remind people that there's not the pressure of drinking. One in three Americans don't drink.

MEMBER PEARSON: Right.

CHAIR VAN HORN: Any other comments for Eric?

MEMBER RIMM: I will say that the two Committee members who read our chapter, Rafael and Shelly, really I think helped a lot. Because, as you say, you can read through this a thousand times, but to get someone else's perspective was very helpful in shaping it and rewording some of the conclusions.

CHAIR VAN HORN: That is very

important.

Okay. Well, we are going to also open the floor for Roger and his group to talk about food safety and technology. They have offered to short-sheet this one, but we are going to let you decide what it is important.

MEMBER CLEMENS: We will do that now. There is now an abyss. We have opened the floor.

First of all, thank you so much. I am Rog Clemens with my colleagues Rafael and Naomi. Thank you so much for being part of this great group of Food Safety and Technology.

In particular, thank you very much, Kellie, Donna, Holly, and Shirley for contributing so much to the research and the contribution to the writing material of this important chapter.

Everybody wants to consume food, and everybody wants to be sure that food is, in fact, safe. That is exactly where we are.

We broke up the various sections within Food Safety. And I turn to my colleague and friend, Rafael, to address food safety in the home.

Rafael?

MEMBER PEREZ-ESCAMILLA: Yes. I was thinking, because we have done this presentation maybe two or three times before, that I can be very brief in summarizing where I think the evidence stands.

The U.S. population overall is not following food safety recommendations when they prepare food in their homes and, also, sometimes in the decisions that they make when they consume foods outside their homes. And this is true across the life cycle and across the socioeconomic status group.

We have a situation here where we don't have that very evident socioeconomic differential for different behaviors. The evidence comes out in different ways sometimes. Low-income groups practice better

food safety behaviors or report that they practice better food safety behaviors. In other times, the converse is true for higher socioeconomic groups, and so on.

Consistent with the report from 2005 and the work by Lydia Medeiros and colleagues, we did reach the conclusion that perhaps the three areas that we would get the biggest bang for the buck would be hand washing and kitchen sanitation issues, prevention of cross-contamination, and cooking and storing prepared foods at the right temperatures.

The Committee also reviewed the issue related to the consumption of undercooked or raw animal source food products. We have concluded that, even though that incidents of food-borne illness outbreaks or food-borne intoxicants related to these behaviors may not be that great, whenever it happens, it can be extremely serious. Whenever it happens, oftentimes, it ends with

death or very, very serious harm to the individuals.

So, for that reason, we do feel very strongly that the project related to listeria and vibrio related to the consumption of raw oysters in the U.S. are very well-justified by the U.S. Government that has those programs in place.

And secondly, the Committee reviewed extensively the benefit/risk studies related to seafood consumption, and very consistently the studies come across with very favorable benefit/risk ratios, including for vulnerable subgroups, that is, pregnant women, lactating women, women of reproductive age, or young children.

The qualification here is that it is extremely important for the American public at large to have access, to make wise selections, and know which types of seafoods should be avoided or limited with regard to their consumption.

We believe that, given the very low levels of consumption of seafood in the country, that the U.S. population could really benefit in terms of cardiovascular health, in terms of the neural development of their infants, without having a major impact on risk issues. And that includes to some extent the evidence reviewed on cancer.

And last, but not least, I want to fully echo and endorse Tom's comment about the need for more support to deliver food safety education to the very diverse communities that form our country, and the Cooperative Extensive system has historically played a very important role and, hopefully, can continue to play a very central role in the delivery of this education.

MEMBER CLEMENS: Thank you, Rafael, for that wonderful summary.

I want to summarize, also. We look at the technology in the home. It is really interesting that, in fact, a lot of the

technology that is now used in the food industry to improve food safety is not available in the home. We also see that what is available in the home is not being used properly.

Very few studies for this agree, whether it is a thermometer or a cutting board or even a refrigerator.

So, again, to Rafael's point, and also addressed by Tom, we clearly need greater education on food safety in the home.

Larry?

MEMBER APPEL: Yes. This is Larry Appel.

I guess it is in the integration/translation chapter we make a comment about developing a strategic plan. To me, this is one area where this is a crying need, you know, because I just don't, for the life of me, understand how you take the population and you educate them or get them to do the right thing.

So, I am wondering if you might want to specifically state something like this because I am sort of skeptical that just a little bit of education here -- I think it is much more, there has to be a systems approach to this.

MEMBER CLEMENS: Thank you for that great comment. We actually have that in our chapter. Maybe some of that should go into the integration chapter as well.

MEMBER NELSON: I think we are planning to add that bullet, so to speak. We don't have much more than that because it really should go to the individual chapters.

But since I'm talking, can I ask a question or comment? And this is probably too much to bite off, but I am thinking that -- first, is a question.

Given we are reading a lot about these E. coli outbreaks and other issues, is there any sense of what proportion of food-borne illnesses are a result of a person not

doing the right thing versus the food supply?

Because I do think, you know, one of the things that -- we are talking to your point a little bit, Larry -- but the whole report there are certain things individuals can do, and we need to do them better, but, then, there are other issues that are sort of converging that are making our food supply more challenging in many ways.

So, the first question is: is there any sense of what the proportion is at all? Or is it just so understudied that we don't know?

MEMBER PEREZ-ESCAMILLA: We tried. We tried very hard, and the answer is it is not known.

MEMBER NELSON: We don't know?

MEMBER PEREZ-ESCAMILLA: The very big problem, the very big challenge here is the degree of underreporting for small, home-based outbreaks that don't affect a lot of people. It is so, so huge that I think it is

a very important question, and we tried to get an answer.

And there is some data -- and Rob brought this to our attention -- that comes from the states in terms of individuals that get diagnosed with food-borne illness, and then that gets reported back to a database, and they try to get at the issue of whether this happened at home or during a picnic or --

MEMBER NELSON: Right. Because that is how they determine these outbreaks, is by CDC tracking.

MEMBER PEREZ-ESCAMILLA: Right.

MEMBER NELSON: But, sorry. Then, so we may not know what the percentage is, but in your chapter do you at least have -- and I know; I was a peer reviewer of it, and I had asked if this could be added in, thinking about the other sort of ways that we are thinking about the other issues in the report, about that we do need to be careful about some of the way our food supply is managed and

produced and distributed right now because it is a real problem.

I think that is where the sort of systems-based -- and we are not the FDA here, but I think that we really need to be careful because these are these widespread things where I don't know if it is true that a typical burger has a thousand different cows in it, you know, beef in it, which makes it scary, you know, because then you can't track stuff.

But I am just concerned that we need to have at least a couple of sentences that it is not just washing your hands and refrigerating food.

MEMBER CLEMENS: I appreciate your comments there, Mim. I, too, share your concern. We share your concern.

As the locavore movement is picking up, we think there is a significant opportunity to improve safety issues to make a huge impact on the American public. Right

now, there aren't any safety nets for the locavores. That is a serious omission.

MEMBER NELSON: Yes, but I am still more worried about the national homogenization than the locavores.

MEMBER CLEMENS: Well, even at the local level, at the national level, there are several bills in the governments, both working with Canada and the United States. They are working together to look at traceability. There was a brand-new report on traceability that was issued just two months ago. So, in fact, we will see from farm to fork every ingredient, whether it is produced in the United States or offshore, will be traceable. So, the government, working with industry, is actually having a lot of steps in place to reduce the risk of those types of food-borne outbreaks.

MEMBER PEREZ-ESCAMILLA: I think the very important message to consumers is that, I think what is very important is to

inform consumers in a very objective manner as to what it is that the government is doing, what it is that the industry is doing, and what it is that they can do to minimize the chance that something can happen, given that they are the last line of defense.

VICE CHAIR FUKAGAWA: This is Naomi.

I do think we also have to remember that a lot of our translation/integration chapter is suggesting or encouraging more locally-produced foods and products. And this will have to be melded in in some way in terms of what national food safety programs might be because we may "do in" the smaller farmer, the regional cheesemaker, or, you know, regional producers of foods. I think that is an important thing because we could be giving mixed messages in terms of who is responsible for the safety at the end point.

MEMBER PEARSON: I suspect that

this is like crime or homicide. You know, you hear about the large outbreaks of this or that, and they get all the press. Then, there is this underpinning of a huge burden of individual problems out there.

I just wonder, with the health reform legislation, there is talk of everyone having a personalized prevention program. Well, why shouldn't that have some suggestion that you could actually cook supper and not die from it?

(Laughter.)

So, I think there's some opportunities as we come up with at least talking about the individualization of one's personal health and the things to do that with current legislation, that you could do with intersectorial activities, HHS, across to some other things. So, I think there are some opportunities with this, but I suspect that this is -- you know, we only hear about the tip of the iceberg, the arbiter that is not

doing a good job.

MEMBER SLAVIN: I have just a concern about this chapter interrelating with some of the other chapters. It has to do with minimally-processed and fresh fruits and vegetables because I think people never realize how many outbreaks are linked to that. And also, I think the sodium issue, that sodium does have a role in food preservation. So, kind of balancing all these goals and objectives and not having unintended consequences really.

MEMBER CLEMENS: Indeed, sodium is more than flavor. We want to address that. I think we started to do that.

We have had good conversations with Larry for that various point. We discussed that the last time of go-round. So, we don't want to avoid those unintended consequences.

On minimally-processed, we haven't come to a definition. I spoke to Rob about

that, and we want to be sure we get a definition included here. The USDA has a small definition, if I recall correctly, Rob, but that deals within the kitchen, if I recall correctly. So, we should incorporate that into -- and we have that here in the chapter. It is in the glossary.

So, maybe instead of putting it out in the glossary, we can actually put it in the chapter itself, so they can see it upfront.

MEMBER ACHTERBERG: But, Roger, shouldn't we, if we are mentioning minimally-processed at home, concomitant with that is shorter shelf life?

MEMBER CLEMENS: Many of the topics -- I appreciate that, Cheryl -- many of the topics that we discussed today will actually impact shelf life, virtually everything. If you reduce the saturated fat, it will impact shelf life. If you reduce the sodium, you are reducing shelf life.

Virtually everything we discussed today will impact shelf life in the home or in the industry.

CHAIR VAN HORN: And therein lies what a lot of people say is the difference between Europe and the United States, the size of our refrigerators.

(Laughter.)

The fact is that we store and hold things for so much longer than others do.

Oh, Kathryn, sorry.

MS. McMURRY: I just have a question for clarification. The Fatty Acids Subcommittee discussed an amount of 8 ounces of fish -- sorry -- of seafood per week, and the Food Safety Subcommittee is discussing up to 12 ounces of seafood per week. I am wondering if we could get a little clarity about what the Committee as a whole wants to recommend.

MEMBER PEARSON: We have had discussion. I don't think this is your

recommendation. This is how much you can eat up to where you are sure it is safe, which includes the 8 ounces. It gets a little bit more interesting when you get up to 16 ounces or something like that.

But if you are, in fact, eating the ones with the high mercury, you don't need to eat that much to get to 250 milligrams of DHA/EPA. The high-mercury fish, you don't need to eat that much of in order to get an amount of DHA/EPA.

So, everything is perfectly consistent.

CHAIR VAN HORN: Yes, I think the point is the recommendation is 8 ounces, but even if you go beyond that, I think is the point, that 12 ounces is safe, can be safe. Correct?

MEMBER PEARSON: Yes.

CHAIR VAN HORN: Okay. Larry, one more thing?

MEMBER APPEL: It is a separate --

CHAIR VAN HORN: A separate topic?

MEMBER APPEL: It is a safety versus health and nutrition issue.

CHAIR VAN HORN: All right. Well, I think, ladies and gentlemen, we have come to an amazing point in the fact that we have delivered the topics, despite a two-hour delay this morning. I really, really appreciate all of the Committee's help in trying to be succinct and efficient in terms of the presentations.

It is important for those still listening to us to realize that we have come to a consensus on many, many things, but we also have some additional issues to resolve. So, I think, once again, as I said earlier, we cannot at this point say that this report is completely finished, but we are really close.

And the next step is for us to fine-tune and finalize these conclusion statements, which will happen over the next couple of weeks, I guess I could say.

Carole, do you want to add to that?

MS. DAVIS: Well, what we have here is the direction we need to go in. So, we are okay to do tweaking from this direction that you all have given us. So, we really have completed the report, and we will go ahead to work to get these edits that people have given us today.

CHAIR VAN HORN: Yes. I think the point that the Committee wants to make, and I have heard this from everyone, is that no one today feels comfortable yet saying, yes, I read the whole thing now that all these changes have been made. So, I think that the goal would be to have some additional opportunity to review what things have been resolved.

But I also think there have been specific recommendations about sharing and partnering on some of these topics, so that there is consistency, crosstalk, wording that

is similar in each of these chapters, so that we use the word "moderate" in the same way across all the different studies. Where I think earlier we didn't have the ability to do that, now I think we have all been through a mindset that would probably put us on an equal playing field. So, hopefully, we can go forward with that.

Once again, I can't express enough our thanks to the group as a whole, to the support staff for all the incredible work and support that has been provided throughout this process.

Unless I hear from anyone else of any other topics, I think we can adjourn for today.

Rob? Sorry. Okay, Rob?

Thank you.

DR. POST: Well, I do have some comments.

Larry, did you have a comment?

MEMBER APPEL: No. I know it just

didn't come up, but the sources of energy expressed as calories, you know, really we need to have that paper that evidently is in press because right now we are not presenting them optimally anyplace in the report. I guess there was some paper --

CHAIR VAN HORN: Yes, there is a paper. It is in press now.

MEMBER APPEL: It is in press. So, can it be inserted in the report? Because right now we express grams of sugar-sweetened beverages, percent calories just among beverages. It is really not presented in an optimal way. If the messages is calories, calories, calories, we need to present data about where the calories are coming from in the categories we have often used in other sections of the report.

So, we need to get that. Wherever that paper is, we need to get approval and somehow weave it in in the right way.

MEMBER NELSON: I am sorry, Linda.

This is Mim. I have another question.

Are you going to communicate with us with what the process is? Because there are some outstanding issues. Are we going to have a way to figure out how we resolve those outstanding issues and refine some of the wording? So, we will just wait? We will stay tuned to hear from you and others? Okay.

CHAIR VAN HORN: Yes. I mean I, personally, would like to make sure that all of us, after all this work, are happy with the final report. So, I will personally be back in touch with you via email in some fashion, but I have yet to find out how that is going to work exactly.

So, I think, in the meantime, the main goal is don't hesitate at this point, strike while the iron is hot, still fresh in your mind, on the wording changes, on the, again, consolidation, reconciliation of different references, et cetera. That is really important.

So, you know who you are. I don't need to go around and do that again.

All of those should go directly to who? To Carole. Okay. Very good.

MEMBER APPEL: This is Larry again.

Though I think we really do need clarity on this process, so that we can -- I mean, is it possible to say within a week we get a collated document with the conclusions? Everybody has an idea of the contentious ones where we need to -- and then, there are other ones where we said just add this, but it is not really that big a deal. Can we get a document within one week that is collated? Because we have had a lot of email traffic that has been very difficult to manage.

CHAIR VAN HORN: Okay. Joanne Spahn says yes. And we do what Joanne Spahn says.

(Laughter.)

MEMBER APPEL: Okay.

CHAIR VAN HORN: So, I think that will help us because, once we have that, and we are all looking at the same thing, that will help.

DR. POST: And I would add the comments that you are providing, whether it is on a chart or in a chapter, definitely that is part of the process and getting those to the staff. That is important, your subtopic areas.

And we need that, well, we need that today. So, that would help.

MS. DAVIS: The book or the folders?

MEMBER RIMM: This is Eric Rimm.

But there's going to be more tweaking we do besides just what we give you today.

CHAIR VAN HORN: Yes.

MEMBER RIMM: So, there's going to have to be some four- or five-day deadline before everything gets sent in, and then

Joanne makes a copy from now. But, still, I think as much as all of us would like to read the entire document over from front to back again, which, of course, we don't -- is there any way we can figure out to track changes within the printed document, so we actually can see what was changed? Because all of us are going to contribute small pieces, but it would be nice to know what, you know, Larry did with his.

CHAIR VAN HORN: You mean for the conclusion statements, is what you are saying?

MEMBER RIMM: Yes.

MEMBER NELSON: Yes, although, I mean, I know with the integration chapter, there is more than just the conclusion. Like the total diet and the integration chapter are two chapters I think we may all want to read those. They aren't very long. Then, the others might just be the conclusion and implication for the others. That is what I might suggest because it might help.

CHAIR VAN HORN: That is a good point. Carole just pointed out that each group should be working with your leads, your DGMT leads, and putting the responsibility kind of on them to communicate back, so that we can, then, be more standardized in the approach that we are taking.

And what I am envisioning is, then -- Joanne, correct me if I'm wrong -- that the conclusion statements will be yet again modified from the version we got just recently from you, and then we have that final set to look at. Is that correct?

MS. SPAHN: What I hear is, I'm going to finalize -- we will start with a clean conclusion statement from this morning. Then, we will track changes for any changes that were recommended today. So, that when you look through it, you can see very clearly what changed as a result of this meeting or subsequent meetings within your Subcommittee.

CHAIR VAN HORN: Yes, so that

answers your issue, Eric. We will all look at the same thing, and it will reflect what was done today. But anything new and different needs to be done within a week.

MS. DAVIS: So, I think within each of the chapters we are going to need to be sure that we have gotten all the things that have been brought up. That is how you can work with the DGMT leads and NEL people. So, we will have to schedule some meetings.

DR. POST: Okay. I would like to add a comment. Then, I think it is important that the public, the folks that are on the phone and that have hung out with us all day, has the idea that, in fact, essentially, the tweaking and modifying in terms of context or text, that we have gotten a clear direction on the content of the conclusions. And that was important for today's outcome. So, there really are no unended issues, but there are ways to help make the conclusion statements better and certainly with better text. That

will be the effort here and the work over the next week, as we have heard.

And with that, I would like to say thank you to Linda, and thank you to the whole 2010 Dietary Guidelines Advisory Committee for taking this arduous volunteer effort on. We look forward to receiving the Committee's final recommendations and the advisory report.

I would like to say thanks to the USDA and HHS staff that supported the work of the Advisory Committee members.

(Applause.)

Throughout this process, they have become your friends and certainly phone pals and in-person pals over the last almost a couple of years.

(Laughter.)

And I would like to say first to Carole Davis, the Designated Federal Officer and Co-Executive Secretary for the DGAC from USDA, who I introduced this morning, I would like to say thank you. She provided primary

administrative leadership for all the operations, and those were done fantastically.

(Applause.)

And I will point out, too, I would like to say thanks to Kathryn McMurry. She is the second Co-Executive Secretary from HHS, who provided much valuable guidance as well.

(Applause.)

Then, I want to thank and recognize Shanthy Bowman from the Agricultural Research Service of USDA, and Holly McPeak from the Office of Disease Prevention and Health Promotion, who also served as Co-Executive Secretaries to the Committee.

(Applause.)

Many thanks go to the Dietary Guidelines management team, Kellie O'Connell and Colette Rihane definitely, for getting these kinds of meetings organized.

(Applause.)

And in addition to the four Executive Secretaries, they definitely provide

the primary support.

And also, I would like to recognize, from USDA, Jan Adams.

And you have seen these names on various slides. They are our crackerjack team here to get the support the Committee needs.

Jan Adams, Trish Britten, Eve Essery, Patricia Guenther, Kellie O'Connell again, and Colette Rihane.

And from HHS, Shirley Blakely and Rachel Hayes.

And now I would like to recognize, as has been done today, our science writer and editor, Anne Brown Rogers, who pulled today's draft report together. We couldn't have done it without her.

(Applause.)

And much thanks and appreciation goes to the staff of the Evidence Analysis Library Division at CNPP, who have operated the Nutrition Evidence Library under the direction of Joanne Spahn.

And I would like to also recognize Jean Altman and Donna Blum-Kemelor; Eve Essery, who was mentioned earlier; Thomas Fungwe; Joan Lyon; Patricia MacNeil; Molly McGrane; Julie Obbagy; and Yat Ping Wong, who is our research librarian from the National Agricultural Library.

And additionally, not listed on theses slides are the countless other USDA and HHS employees who provided behind-the-scenes assistance and support along the way. Their efforts and experience do not go unnoticed.

We would also like to recognize our 81 National Service Volunteer Evidence Abstractors, who are depicted here on this slide. And I think there is another slide as well, and perhaps even a third slide.

These volunteers reviewed over a thousand articles that went into this effort. That's quite a lot.

And last, but not least, I would like to thank our contract support staff and

consultants for their outstanding efforts and contributions.

And thanks very much to all the assistance of the Graduate School, who has provided us especially this help, especially for their gracious allowance of using their facilities for this last meeting.

Again, I want to thank or express our appreciation for the service this Advisory Committee has provided to the federal government and the cooperative work of all the subcommittees and the staff.

And on the last comment, or the previous one, I would definitely like to thank the Graduate School again because the rest of this day worked out quite nicely, having started off having a very rocky start, and having found out along the day that, actually, the electricity has been out in the rest of this building, except for essentially our area. And we have managed to keep the air conditioning as well.

So, we definitely lucked out. Fate was with us. That's a good sign.

So, we look forward to completing this very shortly.

With that, I will ask Linda for any closing remarks before closing the meeting.

CHAIR VAN HORN: Just thank you again. Safe travels to everyone.

And for all those who listened in, we hope you enjoyed and appreciated the effort that has gone into providing these guidelines, and we look forward to their implementation.

Thank you.

MEMBER CLEMENS: This is Rog.

The implementation, Carole, when we get these back to you, what's the plan and timing to get these to the Secretaries and, ultimately, to the public?

DR. POST: We have said that the report would go by June; it would go to both Secretaries.

There is a process for public comment. I wanted to mention that. And then the report will be available for public comment, the advisory report.

After that, of course, it is the basis for establishing the Dietary Guidelines for Americans 2010 policy. That will be the busy work of all the staff and perhaps some help with some advice and counsel along the way from Committee members, but it will be the work of the federal agencies to get this work done by the end of the year.

And 2011 is sort of the preview here, 2011 being the robust consumer-oriented communications efforts, public and private partnerships, to magnify the messaging that we will be researching this year, so that we are all ready and speaking with one nutrition voice, many voices, but one nutrition voice when it comes to 2011.

MEMBER PEARSON: This is Tom.

Just out of interest, since we

have been working on this, those public comments, are those usually shared with the Committee?

DR. POST: Yes, they will be up there. In fact, just as the comments we received for this Committee's work, they will be part of the public availability. They will be available at our dietaryguidelines.gov website.

MEMBER PEARSON: And they could be chopped up by working group, et cetera?

DR. POST: Screened and sorted, screened in terms of topic area, and made available in a very helpful way.

MS. McMURRY: Just to be clear, though, your report will not change.

MEMBER PEARSON: Well, I understand, but I think it is interesting, you know, we are just interested in seeing what people think of it.

DR. POST: The comments in this case, though, will be handled as a comment to

a Federal Register from the Department, but making it available and segmenting them by topic area is something that can be done.

MEMBER APPEL: This is Larry.

I am just wondering, many of us have had, I think, conversations about how to improve the process, especially leading up to it. I am just wondering if there is going to be a systematic attempt to just gather a few ideas from us. Because we used the two hours downstairs and said, well, how would you do it better? I thought we came up in our own circle with a lot of good ideas.

MEMBER NELSON: Well, this is Mim.

I would hope that, as a Committee, similar to the 2005, that we might consider writing a letter to the nutrition community around what our challenges were and some advice we might give to both USDA, HHS, and the next Committee. And we should publish that because I think we certainly have some real solid ideas on how it could be, the next

Committee -- we have learned a lot.

DR. POST: And we would welcome all these ideas as we move forward and look forward to 2015.

And I am, of course, putting my HHS folks on the spot.

(Laughter.)

And I should say, too, that Wendy Braund may have some comments in terms of concluding comments.

DEPUTY DIRECTOR BRAUND: I will make it quick. Don't worry.

I commend your efforts. On behalf of the Department, we all thank you.

As a physician and a public health practitioner, I especially appreciate your fidelity to the science, but, also, your efforts to bring implications to your recommendations, because I think those are really going to be critical in helping us to translate those recommendations into action steps that we can take as Departments and that

individuals can take to better their own health.

So, thank you so much.

DR. POST: Thank you.

(Applause.)

(Whereupon, at 5:34 p.m., the proceedings in the above-entitled matter were adjourned.)

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