

Results of the public consultation on the WHO draft guideline on total fat intake for the prevention of unhealthy weight gain in adults and children

Comments were received from the following individuals and organizations

Government agencies

Isabelle Demonty	Health Canada, Government of Canada
Gabrielle Lamourelle	US Department of Health and Human Services
Keisha Roberts	CARPHA, Trinidad and Tobago

Nongovernmental and consumer organizations and associations

Manuel Moñino	European Federation of the Associations of Dietitians (EFAD) - European Specialist Dietetic Network for Public Health, Spain
Sarah Ohlhorst	American Society for Nutrition, US
Moises Torres-Gonzalez	National Dairy Council, US

Private sector (including industry organizations and associations)

Constance Boyer	International Dairy Federation, Belgium
C Bulkman	Upfield, Netherlands
Kalila Hajjar	FEDIOL, the EU vegetable oil and protein meal industry, Belgium
Siska Pottie	IMACE - European Margarine Association, Belgium
Candice Spence	Nutrition Network, South Africa
Ann-Kristin Sundin	LRF Dairy Sweden (The Swedish Farmers Association, Dairy office)

Academic/research

Salmeh Bahmanpour	Shiraz University of Medical Sciences, Islamic Republic of Iran
James Capon	Non-affiliated, Belgium
Clare Collins	The University of Newcastle, UK
Hélène Delisle	University of Montreal, Faculty of Medicine, Department of Nutrition, Canada
Elizabeth Kandathil Eapen	Sree Mookambika Institute of Medical Sciences, Kulasekharam, Kanyakumari District, Tamil Nadu, India
Alexandra Mondragon	Cenipalma, Colombia
Dr Leonard A Piché PhD RD	Nutrition, Western University, Canada
Paul Van Veldhoven	KU Leuven, Belgium
Vanessa White-Barrow	University of Technology Jamaica
Albert Lihong Zhou	Guangxi University of Chinese Medicine, China

Other

Tim Riley	Private, US
Heleen Roex-Haitjema	Doctors for Nutrition, Australia

UK, United Kingdom of Great Britain and Northern Ireland; US, United States of America

Summary comments and WHO responses

Comments were compiled and summarized (and/or paraphrased), and brief responses prepared.

Role of dietary fat in obesity

Summary comment	Response
The focus should not be limited to dietary fat: there is substantial evidence that not only fat, but total energy intake, carbohydrate intake, sugar intake, overall diet composition, and physical activity may as well lie behind unhealthy weight gain.	That the aetiology of unhealthy weight gain is complex and includes multiple inputs, dietary fat being only one, is noted in the Remarks section. WHO currently has guidance on many of these other factors including guidelines on free sugars intake and physical activity, additional forthcoming guidelines on carbohydrates, non-sugar sweeteners and elements of dietary patterns, as well as energy requirements for all ages. In addition, in recognition that it is the overall diet that is important in maintaining health and to facilitate the interpretation and use of all healthy diet guidelines, work is planned on a guidance document that brings together all WHO recommendations on healthy diet in one place.
The guideline on fat intake should not only be based on the effects of modifying the amount of fat intake on body fatness, but also the quality of fats and how they impact health.	The recommendations in the guideline cover both total fat intake (recommendation 1) and 'quality' of dietary fat (recommendation 2). Recommendation 2 is a 'cumulative recommendation' or paraphrasing of the individual recommendations for these nutrients found in the forthcoming guidelines on saturated fatty acid, <i>trans</i> -fatty acid and polyunsaturated fatty acid intake, and is based on the effects of these nutrients on mortality and NCD outcomes.

Foods, dietary patterns and macronutrients

Summary comment	Response
WHO guidance should focus on foods and dietary patterns, not individual macronutrients as people eat foods not nutrients. Evidence suggests that foods and dietary patterns may be more important than individual nutrients, as foods are complex mixtures of nutrients, with different 'structures' (i.e. the food matrix) that allow for synergies not able to be captured in evidence for individual nutrients.	WHO recognizes the interest in, and utility of, dietary guidance based on foods and dietary patterns (WHO is in the planning stages of developing guidance on certain foods and elements of dietary patterns) and acknowledges the body of literature assessing health effects of a relatively small number of foods, including work on attempting to understand the possible role of the food matrix in the context of disease risk. However, WHO

	<p>nutrition guidelines and the recommendations contained therein are intended for a global audience and therefore must be relevant globally. Macronutrient-based recommendations are therefore valuable because they are globally relevant and allow governments and national decision-making bodies to translate the recommendations as needed at the country level into culturally and contextually specific food-based dietary guidelines that take into account locally available foods and dietary customs. It must also be noted, that while the recommendations themselves do not explicitly address specific foods, they also do not prohibit consumption of any foods, including the foods provided as examples in the comments. However the recommendations on saturated fatty acids (and <i>trans</i>-fatty acids) must also be considered alongside other WHO recommendations on healthy diets.</p> <p>From a process perspective, the NUGAG Subgroup on Diet and Health was specifically tasked with updating the population macronutrient intake goals as originally established by the 1989 WHO Study Group on Diet, Nutrition and Prevention of Noncommunicable Diseases, and later updated by the 2002 Joint WHO/FAO Expert Consultation on Diet, Nutrition and the Prevention of Chronic Diseases. This work includes not only updating guidance on saturated fatty acids and <i>trans</i>-fatty acids, but also sodium, potassium and free sugars (which has been completed), and total fat, polyunsaturated fatty acids, and carbohydrates, which is currently being finalized.</p> <p>Also as noted elsewhere, in recognition of the importance of dietary patterns in relation to health and risk of disease, it should be noted that WHO is currently working on developing guidance on elements of dietary patterns which will also complement WHO recommendations on macronutrient intakes.</p>
<p>Generally speaking, recommending the increase or decrease in intake of individual nutrients may have unintended consequences such as issues with nutritional adequacy,</p>	<p>While the recommendations themselves do not explicitly address specific foods, they also do not explicitly prohibit consumption of any foods. Many fat-containing foods, such as dairy</p>

resulting from the exclusion or decreased intake of nutrient-rich foods.	foods can be consumed while adhering to the recommendations, particularly lower fat versions of dairy foods.
A large body of evidence from both RCT and observational studies, strongly suggest that dairy foods including whole fat dairy foods, are associated with benefits with regards to prevention of weight gain in children.	As noted, assessing individual foods was beyond the scope of this work. Irrespective, the NUGAG Subgroup on Diet and Health concluded there was insufficient evidence to make a recommendation for children, and therefore WHO does not currently recommend or suggest an upper limit for total fat intake in children.
The source of dietary fat matters and explicit recognition should be given to the health benefits associated with plant-based sources of dietary fat. An increasing body of evidence shows a diet based on whole-plant foods, with lower overall fat intake associated with improved health outcomes.	Comparing the effects of consuming fat of plant origin to that of animal origin on body fatness was beyond the scope of this work. With respect to body fatness, dietary fat intake in studies included in the review were of mixed origin. Recommendations on the source of dietary fat is partly addressed in Recommendation 2 from the forthcoming guidance on saturated fatty acid, <i>trans</i> -fatty acid and polyunsaturated fatty acid intake. In addition, as noted elsewhere, forthcoming WHO guidance will consider level of processing of foods, and animal vs plant origin in the context of guidance on foods.

General comments on Recommendations

Summary comment	Response
It should be made clearer throughout the document that the 30% threshold in this recommendation should not be interpreted as an upper value nor as an NRV-NCD.	Although there is insufficient evidence to make this statement as a recommendation, it is included in the Remarks section, which provides information on contextualizing the recommendations, and is the most prominent section other than the recommendations themselves. Because it is clearly communicated that the 30% does not represent an upper limit, various bodies can interpret this in the context of their particular terminology without the guideline including specific terms.
The threshold of 30% was quite arbitrary based on the description of how it was selected. How about 35%, 40%, or even 45%, which was not well investigated.	Based on the dose-response results, reducing from intakes higher than 30% (up to 43%) would also result in lower body weight, but the effect is cumulative and therefore the biggest weight difference was observed at intakes of 30% or less. From the guideline:

	<p>“When compared directly via subgroup analysis, there was a greater difference in body weight in trials where total fat intake was reduced to a final level of less than 30% of total energy intake in the intervention arms than in trials where total fat intake was reduced to a final level that was 30% of total energy intake or more in the intervention arms. In addition, the observed dose–response relationship indicates a cumulative effect of lower fat intake across the range of baseline intakes, with a greater reduction in fat intake resulting in a greater difference in body weight. Therefore, although an effect on body weight is anticipated with reducing total fat intake regardless of the level of total fat intake achieved, the greatest effect may be achieved with a reduction to 30% of total energy intake or less.”</p>
<p>There should be separate recommendations for different population groups; e.g. elderly, pregnant women, Asian/ Indian populations (as cut offs for overweight and obesity are different from global recommendations addressing waist circumference and central obesity, etc.), those on ketogenic diets.</p>	<p>The evidence collected did not support different recommendations for different population groups, and the NUGAG Subgroup on Diet and Health did not think that the effect of higher total fat intake on unhealthy weight gain would be significantly different across humans in different settings such that the recommendation wouldn’t generally be relevant. Comments about nutritional adequacy and minimum amounts of dietary fat, including for pregnant women are found in the Remarks section. Also noted in the Remarks section is that those who are able to maintain energy balance at higher intakes of dietary fat may be able to consume total fat at levels greater than 30% of total energy intake without increasing their risk of unhealthy weight gain.</p>
<p>It should be made clear to Member States, policy makers and media how a conditional recommendation should be interpreted as such a recommendation may also be misinterpreted as being similar to a strong recommendation.</p> <p>The relationship between the strength of evidence and strength of recommendation made should be more clearly explained and in terms that will be understood by the diverse audiences described as the target for the guideline. Consider providing a text box (rather</p>	<p>We had provided multiple footnotes describing in detail what a conditional and strong recommendation mean, however, we have now further highlighted these concepts in a highly visible text box within the guideline.</p> <p>Regarding how the certainty in the evidence relates to the strength of Recommendation 1, this is clearly and succinctly described in the <i>Rationale</i> for the recommendation, and involves consideration of several factors in addition to the certainty in the evidence as described in the <i>Evidence to Recommendation</i></p>

than only footnoting) to adequately explain the relationship of the concepts throughout the document.	section. Additional information is provided in the <i>Formulation of the recommendations</i> sub-section of the <i>How this guideline was developed</i> section.
The basis of WHO's suggested dietary fat recommendations is under the historical premise that because fat and fatty acids are "the most energy dense of the macronutrients, supplying 9 kcal (37.7 kJ) of energy per gram".	The energy density of dietary fat as noted in the comment was not a factor considered by the NUGAG Subgroup on Diet and Health in formulating recommendations, rather the recommendations were based on a review of the evidence for a relationship between dietary fat intake and measures of body fatness. The quoted statement in the comment is included in the <i>Background</i> section of the guideline simply as part of the background information provided on dietary fat.
<p>The guideline includes the following statement in the Remarks "to ensure an adequate intake of energy and essential fatty acids, and to facilitate the absorption of lipid soluble vitamins, total fat intake in most adults should be at least 15–20% of total energy intake, although energy requirements are increased during pregnancy and lactation." This should be reflected in the recommendation itself as well by rewording to:</p> <p><i>To reduce the risk of unhealthy weight gain, WHO suggests that adults limit total fat intake to 30% of total energy intake or less, but not below 15 to 20% of total energy intake.</i></p>	While an adequate intake of dietary fat is critical for normal physiological function, reviewing the relevant evidence with the goal of updating the dietary fat requirements was beyond the scope of work for this guideline. Because the currently available evidence for dietary fat requirements was not reviewed systematically, the NUGAG Subgroup on Diet and Health is not able to make a recommendation on requirements as suggested in the comment. Until current evidence is reviewed and requirements for dietary fat are updated, the current requirements are as noted in the <i>Remarks</i> section.
Recommendations should not be based on other national dietary guidelines without sufficient review of their own sources of information and removal of bias.	WHO performs its own independent assessment of the evidence and develops guidelines based on the WHO guideline development process. Consequently, the recommendations in the total draft guideline are not based on other national dietary guidelines, but on an independent review of the relevant evidence by the NUGAG Subgroup on Diet and Health.

Evidence base for the Recommendations

Recommendation 1

Summary comment	Response
<p>The research questions do not allow for the establishment of causality between a reduction of the proportion of energy intake from fat and body fat measures, and the impact of lowering total fat intake on total energy intake is not fully considered. Therefore, the evidence reviewed does not support Recommendation 1.</p> <p>A. Included studies were not restricted to those that attempted to maintain isocaloric intakes between arms. Because the compared diets were not isocaloric, it is not possible to ascribe the reduction in body fat measures specifically to the reduced proportion of energy intake from fat.</p> <p>B. Subgroup analysis indicated that interventions resulting in lower total energy intake resulted in larger reductions in indicators of body fat, as might be expected. This reduces our confidence that it is the reduction in the proportion of energy intake from fat specifically that results in changes in body weight and other indicators.</p> <p>C. As the draft guidelines note, there were indications that participants in some of these trials who reduced fat intake, but not total energy intake, did show small but significant positive outcomes. This finding requires more research before it can be considered conclusive, as it could be confounded by baseline and trial overall dietary patterns.</p> <p>D. The risk of bias analysis considered dietary differences in intervention and control arms, however, it does not appear to have considered differences in total energy intake between arms.</p> <p>E. Because total energy intake can be reduced by modifications of intakes of other macronutrients than dietary fat, this introduces a major source of uncertainty in the assignment of causality specifically to altered fat intake. Many weight loss trials have found equal or similar reductions in indicators of body fat</p>	<p>A-C. The primary aim of developing guidance on dietary fat intake was to assess whether or not the amount of dietary fat consumed impacted measures of body fatness, irrespective of mechanism, and was not limited solely to determining whether there is an inherent or intrinsic property of dietary fat that impacts body weight (which would need to be answered by strictly controlled isocaloric exchange studies), though studies assessing this mechanism were included in the systematic review. Accordingly, while a subset of the studies were designed to maintain isocaloric conditions (though not all were able to maintain them), none of the included studies explicitly advised or otherwise implemented an intervention to reduce energy intake, rather the intervention was to change the percentage of calories consumed as fat, and in several studies it was further indicated that the reduction in energy from fat should be replaced with other nutrients. Studies that advised participants to reduce energy intake with or without an explicit weight loss goal, were excluded for reasons described in the systematic review and guideline.</p> <p>That in many of the studies energy intake decreased is therefore viewed not as a confounding factor, but as what appears to be a primary mechanism for the effect of reducing total fat intake on body fatness; i.e. decreasing total fat intake leads to a reduction in energy intake which is not compensated fully by the intake of other nutrients. This is considered by the NUGAG Subgroup on Diet and Health to be a valid pathway to reducing or otherwise blunting an increase in body fatness that occurs over time.</p> <p>With that said, results from the small number of studies that reported largely equivalent energy intakes still suggest a small difference in body fatness and therefore while the energy reduction pathway may be the primary mechanism, there may also be some intrinsic properties of dietary fat that promote</p>

<p>whether the macronutrient limited was fats or carbohydrates.</p> <p>F. It could be that higher total fat in the diet is a determinant of higher total energy intake, but the systematic review does not address this nor does the recommendation reflect this possibility.</p> <p>It is recommended that revised scientific questions are formulated and that either a new systematic review is conducted, or a re-analysis of the currently included studies is performed, to answer the revised scientific questions. The recommendation could also be revised to clearly indicate the uncertainty about whether it is the proportion of energy from total fat or total energy intake that is associated with reduced body.</p>	<p>reduction of body fatness with decreased intake, but as noted in the comment, requires further research before any conclusions can be made.</p> <p>D. Because, as noted in the response to items A-C above, a change in energy intake was not considered a confounding factor, but rather a possible mechanism for an impact on body fatness, this does not represent a source of bias.</p> <p>E. It is well-noted that reducing intake of any nutrient that results in a reduction of energy intake without a corresponding increase in intake of other nutrients to offset the energy deficit, can lead to negative energy balance and a reduction in body fatness. However, because the studies included in the systematic review asked participants to reduce fat intake but did not explicitly ask participants to also reduce energy intake, the expectation would be that many would have naturally compensated for the energy deficit, however it appears that most did not.</p> <p>Studies that have compared low carbohydrate (higher fat) vs low fat (higher carbohydrate) diets in weight loss studies are confounded by the explicit intention to restrict energy intake and lose weight and therefore while they can provide an indication if one diet or the other is more effective for weight loss, they can't answer questions about any potential differences between organic responses to changing the percentage of fats or carbohydrates when energy isn't explicitly restricted; i.e. does one or the other lead to greater compensation in intake of other nutrients, changes in energy intake, and/or changes in measures of body fatness.</p> <p>F. While evidence for effects of increasing fat intake was not systematically reviewed, as noted in the comment, the results of the systematic review of reduced fat intake suggest that higher fat intakes may lead to increased energy intake not compensated by a reduction of energy intake from other sources and thus positive energy balance. And several non-systematically reviewed studies referenced in the Background section of the guideline have in</p>
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	<p>fact reported increased energy intakes with ad libitum fat intake.</p> <p>The results of the systematic review (including the possibility that higher fat intakes may lead to increased, uncompensated energy intakes) are not unlike the results observed in the systematic review underpinning the WHO free sugars guideline: while isocaloric exchange of sugars for other nutrients did not result in a significant difference in body weight, lower free sugar intake in the context of ad libitum diets resulted in lower body weight (and higher intake resulted in increased body weight).</p> <p>Regarding the suggestion to conduct a new review or reanalyse the data, given the explanation above, it is clear that the review and analyses conducted are appropriate for the questions being asked. It is also clearly noted in the <i>Remarks</i> section that the presumed primary mechanism for lower body fatness with reduced fat intake is via reduction of total energy intake and because this is a mechanism, it is therefore not necessary to include in the recommendation itself; the recommendation is based on the effects on body fatness regardless of mechanism.</p>
The results of the review are confounded by energy intake so the data should have been adjusted for energy intake prior to meta-analysis and it should note how many studies reported on energy intake and fat quality	<p>See response above on the role of energy intake in the analysis of the included studies.</p> <p>All but a very few studies reported some measure of energy intake in the intervention and control arms. Few studies reported on fat “quality”, however the main focus of the systematic review and guideline is on the effects of total fat intake – regardless of type – on measures of body fatness.</p>
The recommendation should be amended to include language on maintaining an energy-balanced, nutritionally adequate diet.	These elements are referred to in the <i>Remarks</i> section, which are included to provide context and limited information on implementation.
The majority of the evidence used for the WHO recommended guidelines include a reduction in weight or BMI which is not reflective of body fat percentage or metabolic health. Studies which did look at body fat percentage had results which were concluded to be only marginally significant. More important	While body weight and body mass index (BMI) may have shortcomings as measures of adiposity when classifying individuals as overweight or obese based on predefined cut-offs, using these measures to assess <i>changes in adiposity</i> across large numbers of randomized participants drawn from many different

<p>measures of metabolic health, such as total cholesterol, LDL, HDL and triglycerides only demonstrated a small reduction or little to no effect, suggesting that metabolic health did not improve with decreased intake of dietary fat.</p>	<p>populations is appropriate, as it is expected that there will be relatively few instances where weight loss/difference assessed in individual participants results from reductions in tissue mass other than adipose. As noted in the comment, pooling results of the relatively small number of studies looking at body fat percentage showed a small, but positive benefit with reduced total fat intake, as did waist circumference.</p> <p>Regarding blood lipids, a small but significant decrease in LDL cholesterol in the absence of change in either HDL cholesterol or triglycerides (evidence suggests interventions to change the former do not impact disease risk and the latter is not as well-accepted as a risk factor for disease as LDL cholesterol) is suggestive of benefit.</p>
<p>More than half the cohort studies reported a null association between total fat intake and measures of body fatness and those showing positive associations did not assess body fat percentage and therefore there is no reliable evidence from cohort studies for an association between total fat intake and body fat percentage.</p>	<p>Because it is acknowledged in the guideline that the aetiology of overweight/obesity is complex and many factors, dietary and other, contribute to unhealthy weight gain, it is not surprising to see variability in the results of the cohort studies as it is difficult to control for all possible confounding factors. Nevertheless, a fairly large number showed a positive association, and only a few, a negative association, and therefore these results were not inconsistent with that from the RCTs. In addition, measures of body fatness, unlike many disease outcomes which can take years to develop, can be measured in the shorter-term, and therefore are very amenable to assessment via RCTs, data from which are generally and in this specific case, of higher quality than that from cohort studies.</p> <p>Also see above response with respect to body fat percentage.</p>
<p>Investigations used to support a total fat recommendation often do not have data on energy balance of the individuals participating in the study. Metabolic implications of the quantity and type of fat consumed are impacted by whether one is in negative, positive, or stable energy balance. Thus, within any effort to derive a number for total fat</p>	<p>Regarding the systematic review, regression analysis was performed with body weight as the dependent variable and BMI (an indicator of longer-term energy balance) as an explanatory variable. Results show a significant positive correlation between BMI and the magnitude of the difference in body weight. In terms of whether individual participants at the time of participating in the study were in</p>

consumption, there should be some comment about the energy balance of subjects.	<p>negative, positive, or stable energy balance, it is not possible to say. However, because the various studies included participants from different populations at different times, and randomized the participants to the different arms of each study (i.e. reduced fat intervention and control), the expectation is that across all studies (and within arms of studies) all three metabolic states are represented.</p> <p>Regarding the recommendations, the role of energy balance is considered in the <i>Remarks</i> stating that “individuals who can maintain energy balance (or otherwise prevent excess energy intake) at higher fat intakes may be able to consume total fat at levels greater than 30% of total energy intake without increasing their risk of unhealthy weight gain”.</p>
The evidence that there is no harm in reducing total fat intake to <30% of total energy intake is based on a small number of outcomes. More outcomes should have been considered.	The outcomes noted in the guideline were those reported in a large number of RCTs that assessed body weight. Evidence from individual studies of other study types not assessing body weight was not collected for this guideline. Plans for assessing other outcomes are being discussed.

Recommendation 2

Summary comment	Response
The recommendations refer to both quantity of and quality of fat, however the evidence base for recommendation 2 is not presented and corresponding guidelines for recommendation 2 are not yet available. WHO should ensure that these are released in a timely manner.	The second recommendation in the guideline is a ‘cumulative recommendation’ or paraphrasing of the individual recommendations for these nutrients found in the forthcoming guidelines on saturated fatty acid, <i>trans</i> -fatty acid and polyunsaturated fatty acid intake. The evidence base for these recommendations was not reviewed or considered separately for the total fat guidelines and therefore including specific discussions on the evidence or other details for saturated fatty acid, <i>trans</i> -fatty acid and polyunsaturated fatty acid intake in this guideline is not appropriate; such information can be found in the respective forthcoming guidelines.
Recommendations should not be taken from previous WHO guidelines on use of PUFA versus	Recommendation 2 comes from forthcoming guidelines on saturated fatty acids, <i>trans</i> -fatty

<p>SFA. This is biased. Rather, updated evidence, from within the last 5 years, should be used in drawing conclusions as to recommended amounts.</p>	<p>acids, and polyunsaturated fatty acids which are based on evidence updated in the last few years and published in 2023.</p>
<p>Recommendation 2 to limit saturated fat to 10% of total energy intake or less is not based on evidence related to weight gain as evidence related to saturated fat per se was not reviewed and evaluated. Therefore, this recommendation is not justified to include in this guideline and it will likely be misinterpreted and misapplied.</p>	<p>Although a clear link between Recommendation 1 and unhealthy weight gain has been made in the recommendation itself (because in this case, the evidence review was for a very specific purpose and thus the outcome assessed by the evidence limited to unhealthy weight gain although it is known that there are other health outcomes relevant to total fat intake), the guideline is not a guideline on limiting unhealthy weight gain, but rather dietary fat intake, and therefore it was considered appropriate and necessary to also provide recommendations on dietary fat 'quality' in addition to quantity. WHO is in the process of gathering evidence on other outcomes relevant to dietary fat intake.</p> <p>Regarding saturated fatty acids, <i>trans</i>-fatty acids and polyunsaturated fatty acids, a number of outcomes were assessed and recommendations made based on cardiovascular disease and mortality outcomes, as noted in the <i>Rationale</i> for this recommendation.</p>
<p>A large number of comments received were in reference to the evidence base for recommendation 2, specifically on saturated fatty acids, <i>trans</i>-fatty acids and/or polyunsaturated fatty acids.</p>	<p>Because recommendation 2 is a 'cumulative recommendation' or paraphrasing of the individual recommendations for these nutrients found in the forthcoming guidelines on saturated fatty acid, <i>trans</i>-fatty acid and polyunsaturated fatty acid intake, detailed summaries of evidence for each were not provided in the draft total fat guideline, but rather will be included in the respective guidelines. In addition, a public consultation on the draft saturated fatty acid and <i>trans</i>-fatty acid guidelines was held in 2018 and similar comments such as those received for the draft total fat guideline were received at that time. Responses to these comments will be posted to the WHO website. A public call for comment on the draft polyunsaturated fatty acid guideline will be held when the guideline is finalized.</p> <p>WHO is working to release the guidelines underpinning recommendation 2 in 2023.</p>

Features of the systematic review

Summary comment	Response
The studies were relatively short and therefore evidence for a longer-term effect is lacking. Also, there isn't evidence on the rate of compliance and whether low-fat diets can be maintained over the long term.	<p>More than half the RCTs lasted for more than two years, and five of them lasted for more than five years. In subgroup analysis, trials of any duration, including those lasting more than two years or more than five years showed a significantly lower body weight with lower fat intake. Effects of dietary changes on body weight can be observed in the short term and provide an indication of whether the intervention itself has an effect. Measuring the effect over the longer term is therefore largely a result of compliance with the intervention as noted in the comment. The results of the review suggest the intervention of lower fat intake has an effect which may be maintained at least for five years, but evidence on longer term effect and ability to maintain a lower fat diet on the order of decades or lifetime is lacking.</p> <p>Compliance was assessed in most studies, and in sensitivity analyses in which studies with concerns of non-compliance were removed, lower body weight with lower fat intake was still observed.</p>
Meta-analyses could not be conducted on the RCTs chosen for this guideline.	A large number of meta-analyses were conducted on the RCTs included in the systematic review for adults. Because there were only three RCTs identified for children, each reporting different outcomes at different ages, these could not be meta-analysed.
The systematic review doesn't report data on the amount of total fat reduction in relation to the amount of weight loss.	Regression analysis was performed with body weight as the dependent variable and amount of fat reduction as an explanatory variable. Results show a significant positive correlation between the amount of dietary fat reduced and the magnitude of the difference in body weight.
One of the greatest concerns about the studies which the recommendation is based on, is that overall diet quality has not been considered and hence from this report it is not clear what is the optimal fat intake for both a healthier weight and overall nutritional health.	<p>Because these are RCTs, participants have been randomized and therefore diet quality should have largely been similar across groups.</p> <p>As noted elsewhere, WHO is in the process of gathering evidence on other outcomes relevant to dietary fat intake.</p>

	Also as noted elsewhere, reviewing the relevant evidence with the goal of updating the dietary fat requirements was beyond the scope of work for this guideline. Because the currently available evidence for dietary fat requirements was not reviewed systematically, the NUGAG Subgroup on Diet and Health is not able to make a recommendation on requirements as suggested in the comment. Until current evidence is reviewed and requirements for dietary fat are updated, the current requirements are as noted in the <i>Remarks</i> section.
Noted that no attempt was made to distinguish between reduction in animal fat or in vegetable oils. Most likely, persons with a dietary advice and enrolled in those studies might have consumed less animal fat.	Noted. Most studies did not report animal vs plant fat as that was not the primary aim of the studies included in the systematic review.
Did any of the studies consider impact on nutrient adequacy of low-fat diets post intervention?	This type of information would have been captured in the adverse effects outcome (if it were negatively affected) but not necessarily if it were positively affected as improved nutrient adequacy was not a prioritized outcome. There was little to no evidence reported of any serious effects on nutrient adequacy in the included studies.

Low- and middle-income countries (LMICs), nutrition transition

Summary comment	Response
The WHO draft guidelines on total fat intake for adults included comments on the 'nutrition transition' -the shift from traditional diets composed of whole foods, such as pulses and whole grains, and that are low in animal-source foods, salt, and refined oils, sugars, and flours, to an energy-dense and nutrient-poor diet composed of refined carbohydrates, high fat intake, and processed foods- in LMICs as one of the main factors associated with the increased incidence of overweight and obesity. While the proliferation of nutrient-poor energy-dense type of foods is a recognized important factor associated with increased risk of NCDs, it is possible to recognize that traditional diets are not necessarily absolutely healthy without exception. It has been reported that staple food-based and/or traditional diets typically	Noted. The "nutrition transition" is referenced only in the context of the documented observation that in many LMICs, diets are shifting to those that are higher in fat, salt and sugars. No judgements are made about dietary quality or diversity of traditional diets and how they might compare to other diets as such discussions are beyond the scope of this guideline.

lack dietary diversity and have been associated with micronutrient deficiencies. Therefore, it has been suggested that some aspects of dietary change associated with the nutrition transition can be acceptable.	
The nutrition transition in LMIC is referenced whereby people are transitioning to diets higher in fat, salt, and sugars, with concomitant increases in overweight and obesity diet in many countries. It is not clear what the exact dietary changes are and may be a result of increasing the amount of processed meats and foods.	Acknowledged that it isn't clear what the exact dietary changes are that are linked to increasing rates of overweight and obesity, and this is how it is presented in the guideline. However, some evidence suggests increased fat intake may play a role as noted in the references included.
There is very limited data from LMICs in the systematic review and therefore extrapolating the data to LMICs and the relevance of the recommendation on total fat is questionable.	Efforts were made to collect published data from as many countries as possible, however most studies were conducted in high income countries. While the NUGAG Subgroup on Diet and Health noted the lack of data from LMICs, they did not think that the effect of higher total fat intake on unhealthy weight gain would be significantly different across humans in different settings such that the recommendation wouldn't generally be relevant to those in LMICs.

Role of processed foods in obesity

Summary comment	Response
<p>Highly processed foods such as snacks are not listed as key sources of fats in the background and are not discussed substantively elsewhere.</p> <p>The guideline should address highly processed foods as accumulating evidence suggest this may be a major contributor to obesity and poor health outcomes.</p>	<p>Highly processed foods have now been included as sources of fat in the human diet in the <i>Background</i> section, however an assessment of highly processed foods outside of their contribution to overall fat intake was beyond the scope of this guideline. Future WHO guidance on processing of foods is planned.</p> <p>The recommendations in the draft total fat guideline also should not be considered in isolation, but in the context of other relevant WHO guidelines.</p>
The statement "Processed foods high in fat should be replaced with whole foods where possible, as many processed fat-free and low-fat products often contain free sugars and may contain as many calories as full-fat versions" is	Comments made in the <i>Remarks</i> section do not carry the weight of recommendations, but rather are intended to provide context and limited information on implementation. As such they do not require support by a

not specifically supported by evidence presented within the draft guidelines. Both “processed foods” and “whole foods” are incredibly diverse groups of products. These can vary widely in their fat, total nutrients, and calorie content. Depending on context, processed products may be the critical source of essential fatty acids for certain populations, while available whole foods may be inadequate or lacking them entirely. The guideline should take care not to make overly broad, non-contextualized statements and recommendations in respect to an essential nutrient.	comprehensive systematic review of the evidence. It is noted that “processed” foods vary greatly and are not universally of poor dietary quality. However “highly processed” foods generally do contain high levels of fat, sugars, and/or sodium. The statement in question as therefore been reworded as follows: “ <u>Highly</u> processed foods high in fat should be replaced with whole foods where possible, as many <u>highly</u> processed fat-free and low-fat products often contain free sugars and may contain as many calories as full-fat versions.”
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General comments

Summary comment	Response
It must be made clear that fat is an essential nutrient.	This is clearly noted in both the <i>Background</i> and <i>Remarks</i> sections of the draft guideline.
Regarding the general comments, the draft guidelines indicate that the goal is “limiting” total dietary fat intake. There is concern that this could be construed to mean a goal of reducing total fat intake, without regard for context. Given the essential role that dietary fats play in ensuring adequate nutrition and physiological function, consider reframing the goal as ensuring appropriate total dietary fat intake, thus highlighting the risk of under, as well as over, consumption.	The word “limit” is used as a synonym to reduce and is never used in a context that would suggest total fat intake should be limited without limit, or in all situations. The targets for dietary fat intake along with relevant <i>Remarks</i> , provide all the necessary context.
The draft guidelines need to ensure that the focus is clearly on reducing over-consumption of dietary fat and ensuring appropriate consumption of dietary fat, and does not have the effect of promoting the idea that dietary fat should be reduced to the fullest extent possible, without regard for context.	See response above.
To be comprehensive, the guideline should also include evidence for: <ul style="list-style-type: none"> • Low-fat vs low-carbohydrate diets for weight loss • Outcomes other than unhealthy weight gain • Lower total fat vs lower free sugar intake and BMI and body fat at population level 	The aim of this guideline was on the prevention of unhealthy weight gain, not on the management of existing overweight (i.e. weight loss) and therefore weight loss studies were explicitly excluded. A WHO guideline on the management and treatment of obesity in children and adolescents is currently being developed.

	<p>Outcomes other than unhealthy weight gain are currently being reviewed.</p> <p>The rationale for both limiting the focus of the guideline to prevention of unhealthy weight gain and focusing only on this outcome are described in the guideline.</p> <p>A review of the evidence for ‘head to head’ comparisons of fat and free sugars has not been conducted and is not planned, as it the position of the NUGAG Subgroup on Diet and Health that focus should not be on one nutrient or another, but all nutrients together and this is noted in the remark in the Remarks section about considering the recommendations in the total fat guideline in the context of recommendations in all relevant WHO guidelines. And as noted elsewhere, to facilitate the interpretation and use of all healthy diet guidelines, work is planned on a guidance document that brings together all WHO recommendations on healthy diet in one place.</p>
The guideline must explicitly address the link between fat recommendations with environmental impacts.	While the relationship between patterns of food consumption and environment is critically important, a systematic review of the evidence of the environmental impact of the recommendations is beyond the scope of this guideline, and in the case of total dietary fat, would be a complex analysis given the variety of sources of dietary fat from both plants and animals.
An explanation should be provided in the draft guideline for why the GRADE assessment for percentage body fat percentage is different between the systematic review and the draft guideline.	It is noted in the <i>Summary of Evidence</i> section and in the GRADE evidence profiles in Annex 6 why occasionally there are differences in the GRADE assessments between published reviews and guidelines. In the mentioned case, this was because the systematic review team combined all measures of body fatness into one composite measure for GRADE assessment which they assessed as <i>high</i> overall, whereas the NUGAG Subgroup on Diet and Health preferred to assess each individually. With respect to body fat percentage which is assessed as <i>moderate</i> in the guidelines and <i>high</i> as part of the composite measure in the review, only two studies contributed data (not 3 as indicated in the GRADE table in the review)

	<p>and as noted in the corresponding footnote in the GRADE table in the guideline:</p> <p>“Of the two studies reporting percentage body fat, one (WHI) carries 98.8% of the weight in meta-analysis and therefore contributes virtually of the data. This study was conducted in postmenopausal women from different ethnic backgrounds living in the USA. While the effect observed for percentage body fat in this population is consistent with the effects observed for body weight, BMI and waist circumference in larger, more heterogeneous populations, and there is no evidence to indicate that the physiological response to a change in total fat intake would be significantly different between this group and the general adult population, this outcome has been downgraded for indirectness as a conservative measure.”</p> <p>Because all the individual components of the composite measure are consistent, the overall assessment of certainty in the evidence can be represented by the highest assessed individual component, and hence the <i>high</i> rating overall, which is in line with the assessment in the systematic review.</p>
Include references on role of fatty acids to facilitate the intestinal uptake of fat-soluble vitamins and as integral structural proteins in cell membranes in background text.	The roles of fatty acids described in the background are universally accepted and can be found in general textbooks for acceptable. Therefore, it wasn't considered necessary to reference all of these statements.
Suggested to include in the target population 'Food & Nutrition Educators (at all levels of Formal Education)'	Noted. Food and nutrition educators have been included in the target population.
The stated Objective on page 15 is accompanied by no information/evidence from anyone that weight gain has been reduced or stopped at population level by focusing on the reduction of the fat content in food - a factor in food guidelines around the world for many decades.	<p>As noted, nowhere in the guideline does it suggest that reducing fat intake should be the focus of obesity prevention initiatives, rather it states:</p> <p>“This recommendation should not be interpreted as implying that total fat is the only risk factor for unhealthy weight gain and that reducing total fat intake alone is sufficient to prevent unhealthy weight gain. The aetiology of unhealthy weight gain is complex and can involve many different inputs. Therefore, this</p>

	<p>recommendation should be considered in the context of other relevant WHO guidance, including that on the intake of free sugars, carbohydrates , non-sugar sweeteners energy requirements and physical activity.”</p>
<p>Some of the references are several years old, can they be updated?</p>	<p>The Cochrane reviews were updated in the last 1-2 years. Other references will be reviewed and updated where appropriate.</p>
<p>Although “unhealthy weight gain” was assessed as an increase in, or greater measures of, body fatness, an increase in body fatness is not necessarily unhealthy.</p>	<p>For the purpose of the guideline, unhealthy weight gain refers to unintentional weight gain (i.e. increase in body fatness) that contributes to the progression towards overweight and obesity, but excludes appropriate weight gain during pregnancy and as part of normal growth and development in childhood. Other exceptions would include weight gain resulting from activities that increase muscle mass without increasing fat mass, such as weight-lifting and other strength-building exercise. Any increase in body fatness other than what has been described above, although on its own might not be detrimental (if it is a small amount), contributes to progression towards overweight and obesity in a cumulative manner. This type of gradual weight gain over time may be how a significant portion of individuals become overweight or obese.</p>

Call for comment on the draft WHO Guideline: Total fat intake for adults and children

Survey response 1

General information

Family/last name
Moñino
Given/first name
Manuel
Organization/affiliation
European Federation of the Associations of Dietitians (EFAD) - European Specialist Dietetic Network for Public Health
Sector
Non-governmental agency
Sector [Other]
Country
Spain

Comments on the draft guideline

Summary of evidence
<ul style="list-style-type: none">•❑The main sources of fat in the diet are cited as meat, fish, dairy, plant-based oils, nuts and seeds although no reference is given. No acknowledgement is given to the fact that high fat snacks such as pastries etc also contribute. The authors mention nutrition transition whereby people from LMIC are transitioning to a high fat, high salt, high sugar diet and obesity levels are increasing. We are not sure that they are transitioning to a diet higher in meat, dairy, nuts and seeds, but perhaps in processed meats and highly processed foods, thus we believe that some of the underpinning theory seems weak. On the other hand, the studies included in the first systematic review does not include LMIC, thus all extrapolations to these countries do not take into account factual data. We believe that ultra-processed foods actually have a decisive role here, even because in these countries, probably the food industry will still not feel the pressure to adapt their products to a health logic, as rate of food literacy in these countries unfortunately are low. In the review of the evidence, we find the discussion misses to approach this aspect.•❑We also find the discussion misses to approach how the quality of fat relates to the health effects of the consumed fat amount.•❑While acknowledging that the focus of the text is fat intake (and unintentional weight gain), we miss recognition of how other nutrients can contribute to overweight and obesity. Authors recognize that high-fat diets can be similarly or more effective in weight loss, but the case of weight gain is not discussed and there is wide evidence that not only fat, but total energy intake, carbohydrate intake, sugar intake and overall diet composition may as well lie behind unhealthy weight gain.•❑Although the inclusion criteria were that only studies of a duration of 6 months or more were included, we are not confident that we are provided with any evidence to support a long-term effect. We think only one study looked at BMI at 1yr and one study, BMI at 3yrs. There is no mention of compliance to the low fat diet i.e. if the participants in the studies were able to adhere to the low fat diet for an extended period of time.•❑As public health dietitians, our first premise is to do no harm. The reviewers only considered whether there would be any detrimental effect on blood lipids, blood pressure and quality of life (one study). Of course there were no 'harmful' effects seen with respect to these variables and indeed some benefits. The authors rightly present the physiological functions of fats in the introduction and we would like future research to investigate further whether low fat diets (

Evidence to recommendations
<ul style="list-style-type: none"> One of the greatest concerns about the studies which the recommendation is based on, is that overall diet quality has not been considered and hence from this report it is not clear what is the optimal fat intake for both a healthier weight and overall nutritional health. In fact, when subgroup analysis is carried out the greater effect was observed when dietary advice was given, thus it seems very likely that diet quality will be better than in the other subgroups (i.e.: foods provided without advice). The authors do rightly concede the difficulties if the % energy derived from one macronutrient is reduced, what does it replace it with – ideally complex, fibre-rich CHO's rather than free sugars. It is proposed that the findings of the report and the recommendation may be used to drive reformulation strategies but again manufacturers will need careful guidance on what the fat should be replaced with.
Recommendations and supporting information
<p>Industrially produced trans fatty acids (iTFA's)</p> <ul style="list-style-type: none"> The guideline recommends the amount of saturated fatty acids and trans-fatty acids - "Fat consumed should be primarily unsaturated fatty acids, with no more than 10% of total energy intake coming from saturated fatty acids and no more than 1% of total energy intake coming from trans-fatty acids (strong recommendation)" - but there's no reference to industrially produced trans fatty acids (iTFA's). Since WHO is calling for the elimination of artificial TFA acids from the global food supply by 2023, it would be consistent to address this aspect in the present guideline. It is important to note that whilst high income countries policies have undertaken actions plans to reduce industrially produced trans fatty, certainly there is no the case LMIC In 2017, the Public Health Committee from EFAD made its contributions to the project "Study to support the impact assessment of the initiative to limit industrial trans fats intakes in the EU" (SANTE/2016/E1/055), witch goal was to analyse the impacts that would result from specified EU actions to reduce dietary intake of iTFA, considering that sources of TFA from ruminants generally contribute little to the overall intake of TFA. (https://ec.europa.eu/food/sites/food/files/safety/docs/fs_labelling-nutrition_transfats_is-study-report.pdf) In 2018, WHO launched the REPLACE action package (review, promote, legislate, evaluate, create, apply) to provide strategic guidance for all countries to act towards this goal by 2023. One of the 6 components of the REPLACE package was to "assess and monitor trans-fats content in the food supply and changes in trans-fat consumption in the population". (https://www.who.int/teams/nutrition-and-food-safety/replace-trans-fat)
Other comments
<p>General comments:</p> <ul style="list-style-type: none"> While acknowledging obesity as a public health concern, we think that a new guideline on fat intake should not only be based on its effect on weight maintenance, but on the effects of total and quality of fats in health. In the same way, we consider as relevant to have specific recommendation for other population groups as elderly since obesity is increasing dramatically in this group. Ethnicity and socioeconomic status have not been considered at all. There is concern that health inequalities may be increased if people do not have the income to improve diet quality and reduce their intake of HFSS processed foods. The report does correctly emphasise the fact that where undernutrition is a concern, a low fat diet may not be appropriate but there could be more clarity as to the groups at risk, i.e elderly and those requiring nutritional support and what strategies are required to ensure that people who fall into this category understand the importance of fat in providing nutritional support. We believe that prevention strategies should emphasize food consumption as a source of key elements rather than nutrients. Although we recognize data of population intake of specific nutrients can guide nutrition-related policies, it is becoming an outdated concept for many health-care professionals in a day-to-day practice. Actually, we would like that the guideline emphasizes how the replacement of dietary fat should be done, making it more visible. Although it is not on the scope of the document, it would be worthy reinforcing the role of fat in health, not only for the prevention of obesity, but also its treatment, and considering different stages of the life cycle, such as pediatric age, pregnancy, adults and the elderly. We believe that protein and fibre should be taken into account as key dietary elements in general context of the diet together with other WHO recommendations on free sugars and carbohydrates. There is no mention about the importance of activity in preventing unhealthy weight gain in the report and no mention if this was considered in the individual studies. We also believe that these recommendations should not only be in line with SDG 2 and 3, but also with 12: ensure sustainable consumption and production patterns. In this way, the reduction of fat consumption through ultra-processed products is also ensured.

CALL FOR COMMENT ON THE DRAFT WHO GUIDELINE: TOTAL FAT INTAKE FOR ADULTS AND CHILDREN

April 2021

Response of European Specialist Dietetic Network (ESDN) for Public Health of the European Federation of the Associations of Dietitians (EFAD)¹.

We really welcomed the opportunity to participate in this consultation, and we hope our comments are helpful for the development of this guidelines:

General comments:

- While acknowledging obesity as a public health concern, we think that a new guideline on fat intake should not only be based on its effect on weight maintenance, but on the effects of total and quality of fats in health. In the same way, we consider as relevant to have specific recommendation for other population groups as elderly since obesity is increasing dramatically in this group.
- Ethnicity and socioeconomic status have not been considered at all. There is concern that health inequalities may be increased if people do not have the income to improve diet quality and reduce their intake of HFSS processed foods.
- The report does correctly emphasise the fact that where undernutrition is a concern, a low fat diet may not be appropriate but there could be more clarity as to the groups at risk, i.e elderly and those requiring nutritional support and what strategies are required to ensure that people who fall into this category understand the importance of fat in providing nutritional support.
- We believe that prevention strategies should emphasize food consumption as a source of key elements rather than nutrients. Although we recognize data of population intake of specific nutrients can guide nutrition-related policies, it is becoming an outdated concept for many health-care professionals in a day-to-day practice. Actually, we would like that the guideline emphasizes how the replacement of dietary fat should be done, making it more visible.

¹Amanda Avery, (United Kingdom), Teresa Rodrigues (Portugal), Elena Carrillo (Spain), Zeynep Begüm Kalyoncu (Turkey), Cláudia Afonso (Portugal) and Manuel Moñino (Spain). <http://www.efad.org/en-us/specialists-networks/public-health/>

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- Although it is not on the scope of the document, it would be worthy reinforcing the role of fat in health, not only for the prevention of obesity, but also its treatment, and considering different stages of the life cycle, such as pediatric age, pregnancy, adults and the elderly.
- We believe that protein and fibre should be taken into account as key dietary elements in general context of the diet together with other WHO recommendations on free sugars and carbohydrates.
- There is no mention about the importance of activity in preventing unhealthy weight gain in the report and no mention if this was considered in the individual studies.
- We also believe that these recommendations should not only be in line with SDG 2 and 3, but also with 12: ensure sustainable consumption and production patterns. In this way, the reduction of fat consumption through ultra-processed products is also ensured.

Industrially produced trans fatty acids (iTFA)s

- The guideline recommends the amount of saturated fatty acids and *trans*-fatty acids - "Fat consumed should be primarily unsaturated fatty acids, with no more than 10% of total energy intake coming from saturated fatty acids and no more than 1% of total energy intake coming from *trans*-fatty acids (*strong recommendation*)" - but there's no reference to industrially produced trans fatty acids (iTFA)s. Since WHO is calling for the elimination of artificial TFA acids from the global food supply by 2023, it would be consistent to address this aspect in the present guideline. It is important to note that whilst high income countries policies have undertaken actions plans to reduce industrially produced trans fatty, certainly there is no the case LMIC
- In 2017, the Public Health Committee from EFAD made its contributions to the project "Study to support the impact assessment of the initiative to limit industrial trans fats intakes in the EU" (SANTE/2016/E1/055), witch goal was to analyse the impacts that would result from specified EU actions to reduce dietary intake of iTFA, considering that sources of TFA from ruminants generally contribute little to the overall intake of TFA. (https://ec.europa.eu/food/sites/food/files/safety/docs/fs_labelling-nutrition_transfats_is-study-report.pdf)
- In 2018, WHO launched the REPLACE action package (review, promote, legislate, evaluate, create, apply) to provide strategic guidance for all countries to act towards this goal by 2023. One of the 6 components of the REPLACE package was to "assess and monitor trans-fats content in the food supply and changes in trans-fat consumption in the population". (<https://www.who.int/teams/nutrition-and-food-safety/replace-trans-fat>)

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Evidence and discussion

- The main sources of fat in the diet are cited as meat, fish, dairy, plant-based oils, nuts and seeds although no reference is given. No acknowledgement is given to the fact that high fat snacks such as pastries etc also contribute. The authors mention nutrition transition whereby people from LMIC are transitioning to a high fat, high salt, high sugar diet and obesity levels are increasing. We are not sure that they are transitioning to a diet higher in meat, dairy, nuts and seeds, but perhaps in processed meats and highly processed foods, thus we believe that some of the underpinning theory seems weak. On the other hand, the studies included in the first systematic review does not include LMIC, thus all extrapolations to these countries do not take into account factual data. We believe that ultra-processed foods actually have a decisive role here, even because in these countries, probably the food industry will still not feel the pressure to adapt their products to a health logic, as rate of food literacy in these countries unfortunately are low. In the review of the evidence, we find the discussion misses to approach this aspect.
- We also find the discussion misses to approach how the quality of fat relates to the health effects of the consumed fat amount.
- While acknowledging that the focus of the text is fat intake (and unintentional weight gain), we miss recognition of how other nutrients can contribute to overweight and obesity. Authors recognize that high-fat diets can be similarly or more effective in weight loss, but the case of weight gain is not discussed and there is wide evidence that not only fat, but total energy intake, carbohydrate intake, sugar intake and overall diet composition may as well lie behind unhealthy weight gain.
- Although the inclusion criteria were that only studies of a duration of 6 months or more were included, we are not confident that we are provided with any evidence to support a long-term effect. We think only one study looked at BMI at 1yr and one study, BMI at 3yrs. There is no mention of compliance to the low fat diet i.e. if the participants in the studies were able to adhere to the low fat diet for an extended period of time.
- As public health dietitians, our first premise is to do no harm. The reviewers only considered whether there would be any detrimental effect on blood lipids, blood pressure and quality of life (one study). Of course there were no 'harmful' effects seen with respect to these variables and indeed some benefits. The authors rightly present the physiological functions of fats in the introduction and we would like future research to investigate further whether low fat diets (<30% energy) do no harm with far more variables considered related to the physiological functions of fat (there has been a recent study expressing concerns about a low fat diet because of reduced levels of testosterone). The

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document cites a previous WHO paper suggesting at least 15-20% energy from fat is required.

- The authors do rightly identify that the effect on body weight may be due to the associated reduction in energy intake when total fat is reduced. If possible it would have been good for an adjustment for energy intake to have been undertaken before the meta-analysis.
- It is interesting that a greater effect was observed with a lower baseline dietary fat intake which infers that perhaps the participants were reasonably motivated and committed to following a healthier diet in line with guidelines. Similarly, a greater effect was observed in participants with an underlying health condition again suggesting perhaps a greater level of motivation.
- One of the greatest concerns about the studies which the recommendation is based on, is that overall diet quality has not been considered and hence from this report it is not clear what is the optimal fat intake for both a healthier weight and overall nutritional health. In fact, when subgroup analysis is carried out the greater effect was observed when dietary advice was given, thus it seems very likely that diet quality will be better than in the other subgroups (i.e.: foods provided without advice). The authors do rightly concede the difficulties if the % energy derived from one macronutrient is reduced, what does it replace it with – ideally complex, fibre-rich CHOs rather than free sugars. It is proposed that the findings of the report and the recommendation may be used to drive reformulation strategies but again manufacturers will need careful guidance on what the fat should be replaced with.

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Survey response 2

General information

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Salmeh
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Shiraz University of Medical Sciences
Sector
Academic/research
Sector [Other]
Country
Iran (Islamic Republic of)

Comments on the draft guideline

Summary of evidence
<p>A big concern of high intakes of total dietary as is overweight and obesity which leading to growth of double burden of malnutrition in many LMIC. Although fats and fatty acids are the most energy dense of the macronutrients but its physiological role and nutrition-related benefits like as providing essential fatty acids and facilitating the absorption of lipid soluble vitamins should be considered.</p> <p>Modifying diet to low-fat one may not the beneficial factor to lower the current obesity epidemic because considering other factors like dietary behavior, other macronutrients quantity and quality, energy requirement and physical activity are important.</p> <p>Both quality and quantity of fat and fatty acids consumed are important for achieving and maintaining nutritional adequacy; and reducing potential harms related to blood lipids or blood pressure and markers of anthropometric measures of body fatness in both adults and children.</p>
Evidence to recommendations
Evidences-based and large scale studies to support recommendation of lowering or limiting total fat intake are insufficient to finalize the guideline; because there is a lack of studies which separately studies the outcomes of each type of essential fatty acids on health and disease.
Recommendations and supporting information
Last but not least, both quantity and quality of dietary fats and fatty acids and differentiating animal fats from vegetable oils should be take into consideration and keep in mind that policy actions and public health interventions to monitor nutrition transition which lead to higher prevalence of overweight and obesity have pivotal role in this regard
Other comments

Call for comment on the draft WHO Guideline: Total fat intake for adults and children

Summary of evidence

A big concern of high intakes of total dietary as is overweight and obesity which leading to growth of double burden of malnutrition in many LMIC. Although fats and fatty acids are the most energy dense of the macronutrients but its physiological role and nutrition-related benefits like as providing essential fatty acids and facilitating the absorption of lipid soluble vitamins should be considered.

Modifying diet to low-fat one may not the beneficial factor to lower the current obesity epidemic because considering other factors like dietary behavior, other macronutrients quantity and quality, energy requirement and physical activity are important.

Both quality and quantity of fat and fatty acids consumed are important for achieving and maintaining nutritional adequacy; and reducing potential harms related to blood lipids or blood pressure and markers of anthropometric measures of body fatness in both adults and children.

Evidence to recommendations

Evidences-based and large scale studies to support recommendation of lowering or limiting total fat intake are insufficient to finalize the guideline; because there is a lack of studies which separately studies the outcomes of each type of essential fatty acids on health and disease.

Recommendations and supporting information

Last but not least, both quantity and quality of dietary fats and fatty acids and differentiating animal fats from vegetable oils should be take into consideration and take in mind that policy actions and public health interventions to monitor nutrition transition which lead to higher prevalence of overweight and obesity have pivotal role in this regard.

Survey response 3

General information

Family/last name
Pottie
Given/first name
Siska
Organization/affiliation
IMACE - European Margarine Association
Sector
Private sector
Sector [Other]
Country
Belgium

Comments on the draft guideline

Summary of evidence
<p>In the document reference is made to specific WHO recommendations related to the quality of dietary fat (refs 64, 65 and 66) but these recommendations are not yet finalised nor published to our knowledge. The NUGAG group should be encouraged to finalize and publish these guidelines in order to be able to refer to these specific recommendations.</p> <p>The draft WHO guidance indicates (at e.g. page 10) that: "The threshold of 30% in this recommendation should not be interpreted as an upper value of intake to be achieved by increasing fat intake among those with nutritionally adequate total fat intakes already less than 30% of total energy intake." IMACE suggests that it should be made clearer throughout the document that the 30% threshold in this recommendation should not be interpreted as an upper value nor as an NRV-NCD.</p>
Evidence to recommendations
No comments
Recommendations and supporting information
<p>In the document reference is made to specific WHO recommendations related to the quality of dietary fat (refs 64, 65 and 66) but these recommendations are not yet finalised nor published to our knowledge. The NUGAG group should be encouraged to finalize and publish these guidelines in order to be able to refer to these specific recommendations.</p> <p>The draft WHO guidance indicates (at e.g. page 10) that: "The threshold of 30% in this recommendation should not be interpreted as an upper value of intake to be achieved by increasing fat intake among those with nutritionally adequate total fat intakes already less than 30% of total energy intake." IMACE suggests that it should be made clearer throughout the document that the 30% threshold in this recommendation should not be interpreted as an upper value nor as an NRV-NCD.</p>
Other comments
No other comments

Survey response 4

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Comments on the draft guideline

Summary of evidence
Related to the trials on reduced fat intake, one can wonder why no attempt was made to distinguish between reduction in animal fat or in vegetable oils. Most likely, persons with a dietary advice and enrolled in those studies might have consumed less animal fat. The remark related to the effect of the intervention type (p24, line 15) "with the greatest difference in body weight resulting from dietary advice" could point to such effect.
Evidence to recommendations
Recommendations and supporting information
Other comments
<ul style="list-style-type: none">- in various sentences, fatty acids are claimed to facilitate the intestinal uptake of fat-soluble vitamins (e.g. p3, last line; p10, 1st line; p12, lines 10-11; p35, line 9) (relevant reference missing), Although mixed bile salt micelles can contain fatty acids, uptake of these vitamins is primarily controlled by bile acids/salts (confer malabsorption). At least for vitamin D, its bioavailability is not influenced by fat intake (PMID 24915331).- consider to rephrase "Fatty acids are also an integral structural component of cell membranes" (p12, lines 12-13): fatty acids (chemical name for a non-esterified aliphatic carboxylic acid) as such have no structural role in membranes, and their levels are/must be low in membranes; esterified in phospholipids, they are structural membrane components; in a non-esterified form, they can affect membrane integrity/function.

Survey response 5

General information

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University of Montreal, Faculty of Medicine, Department of Nutrition
Sector
Academic/research
Sector [Other]
Country
Canada

Comments on the draft guideline

Summary of evidence
Whilst the focus is on total fat restriction as a means to prevent overweight/obesity, my opinion is that the evidence regarding the following would also be needed, were it only in summary (or else indicate clearly why these are not addressed): 1. Low fat vs low carbohydrate diets to loose weight 2. Lower total fat vs lower free sugar intake and BMI and body fat at population level 2. Limited fat diets for health benefits other than weight control (prevention of diabetes and CVD and certain types of cancer) 3. The effect of type and origin of dietary fat on BMI and body fat composition.
Evidence to recommendations
No evidence on the effect of the type and origin of dietary fat on body weight and fat is presented and yet the second bullet recommendation addresses this. If such evidence is available on the other guideline on type of dietary fat, please clearly refer to it and perhaps provide a summary in the present guideline.
Recommendations and supporting information
Other comments
This is a very thorough and useful guideline. It would be interesting to show examples of populations achieving 30% fat in their diet!

Survey response 6

General information

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Academic/research
Sector [Other]
Country
Canada

Comments on the draft guideline

Summary of evidence
Re: Recommendation 1 (for Adults): While some evidence regarding the possibility of confounding e.g., Reduced Total Energy Intake occurred in some study Results was acknowledged, maybe include something to the effect of 'Limit total dietary Fat to 30% of Total Energy Intake while consuming an energy balanced, nutritionally adequate diet'. Possibly also include an * to indicate the 'special need' for increased Energy and other Intake ... for Pregnant and Lactating Females ...
Evidence to recommendations
Would like to have seen a little more evidence to support 'Quality of Fat Intake' to support Recommendation 2 (Adults and Children over 2 yrs), especially pointing to data to ensure adequate intake of not only Essential Fatty acids (including Minimum Levels for them by Life-Stage) but also possibly dietary levels for preformed important metabolically active longer chain w-3 and w-6 Fatty Acids, since the conversion to them by humans is so low (and that the Intakes of their Precursors may also be inadequate). In addition, Re: Fatty Acid Quality, some discussion about the Ratio of Saturated Fatty Acids (SAFA) to Unsaturated Fatty Acids is appropriate and also the Ratio of Unsaturated Fatty Acids to each other e.g., Mono-Unsaturated (MUFA) to Poly-Unsaturated Fatty Acids (PUFA) levels and the levels of w-6 to w-3 PUFA in the diet. Furthermore, some additional information Re: the negative health effects of Trans Fatty Acids (TrFa) is appropriate along with progress to reduce their levels in foods in recent years in particular jurisdictions.
Recommendations and supporting information
see 'Summary of Evidence' and 'Evidence to Recommendations' Sections above.
Other comments
Although it may be implied, it is suggested that 'Food & Nutrition Educators (at all levels of Formal Education)' be specifically identified among the list for 'Target Audience' in an effort to reach (and provide timely Recommendations on Fat Intake) to the Teachers / Instructors / Professors and Students at all levels of Education.

Survey response 7

General information

Family/last name
Spence
Given/first name
Candice
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Nutrition Network
Sector
Private sector
Sector [Other]
Country
South Africa

Comments on the draft guideline

Summary of evidence
Evidence to recommendations
Recommendations and supporting information
Other comments

WHO Guideline: Total fat intake for adults and children

Summary of Evidence:

The majority of the evidence used for the WHO recommended guidelines include a reduction in weight or BMI which is not reflective of body fat percentage or metabolic health. Studies which did look at body fat percentage had results which were concluded to be only marginally significant. More important measures of metabolic health, such as total cholesterol, LDL, HDL and triglycerides only demonstrated a small reduction or little to no effect, suggesting that metabolic health did not improve with decreased intake of dietary fat.

With regards to the Cohort studies – nearly 59% of the studies reviewed (23/39) showed no statistically significant associations between fat intake and body fat, which only included weight, BMI and abdominal circumference as measurements (not body fat percentage). 12 Studies had a positive association but again, without a proper body fat percentage these other markers are unreliable. 3 Studies had a negative association. The culmination of these cohort studies suggest that there is no reliable evidence between intake of dietary fat and body fat percentage.

Evidence to Recommendations:

Evidence suggests that limits placed on saturated fat consumption are misplaced. A focus on metabolic health markers is of greater benefit for determining health outcomes. A reduction in carbohydrate consumption rather than fat consumption (which naturally occurs when we remove processed foods from our diet) may improve metabolic health and should be considered as an option.

These expert reviews (and references) cover the main points of interest

1. Astrup A, Bertram HC, Bonjour J-P, et al. WHO draft guidelines on dietary saturated and trans fatty acids: time for a new approach? *BMJ*. 2019;366:l4137.
doi:[10.1136/bmj.l4137](https://doi.org/10.1136/bmj.l4137)
2. Astrup A, Magkos F, Bier DM, et al. Saturated Fats and Health: A Reassessment and Proposal for Food-based Recommendations: JACC State-of -the-Art Review. *Journal of the American College of Cardiology*. Published online June 17, 2020.
doi:[10.1016/j.jacc.2020.05.077](https://doi.org/10.1016/j.jacc.2020.05.077)
3. Leading Scientists Agree: Current Limits on Saturated Fats No Longer Justified. The Nutrition Coalition. Published March 4, 2020.
<https://www.nutritioncoalition.us/news/saturated-fat-limit-not-justified>
4. Krauss RM, Kris-Etherton PM. Public health guidelines should recommend reducing saturated fat consumption as much as possible: **NO**. *Am J Clin Nutr*. Published online June 4, 2020. doi:[10.1093/ajcn/nqaa111](https://doi.org/10.1093/ajcn/nqaa111) (ABSTRACT) & Debate [CONSENSUS](#)

Evidence for limiting dietary fat intake is flawed

1. Harcombe Z, Baker JS, Cooper SM, et al. Evidence from randomised controlled trials did not support the introduction of dietary fat guidelines in 1977 and 1983: a systematic review and meta-analysis. *Open Heart*. 2015;2(1):e000196. doi:[10.1136/openhrt-2014-000196](https://doi.org/10.1136/openhrt-2014-000196)
2. Harcombe Z, Baker JS, Davies B. Evidence from prospective cohort studies does not support current dietary fat guidelines: a systematic review and meta-analysis. *Br J Sports Med*. 2017;51(24):1743-1749. doi:[10.1136/bjsports-2016-096550](https://doi.org/10.1136/bjsports-2016-096550) [PDF](#)
3. Thornley S, Schofield G, Zinn C, Henderson G. How reliable is the statistical evidence for limiting saturated fat intake? A fresh look at the influential [Hooper meta-analysis](#). *Internal Medicine Journal*. 2019;49(11):1418-1424. doi:[10.1111/imj.14325](https://doi.org/10.1111/imj.14325) ABSTRACT

Dietary fat intake and CVD risk/obesity/T2DM

1. Micha R, Mozaffarian D. Saturated Fat and Cardiometabolic Risk Factors, Coronary Heart Disease, Stroke, and Diabetes: a Fresh Look at the Evidence. *Lipids*. 2010;45(10):893-905. doi:[10.1007/s11745-010-3393-4](https://doi.org/10.1007/s11745-010-3393-4)
2. Siri-Tarino PW, Sun Q, Hu FB, Krauss RM. Meta-analysis of prospective cohort studies evaluating the association of saturated fat with cardiovascular disease¹²³⁴⁵. *Am J Clin Nutr*. 2010;91(3):535-546. doi:[10.3945/ajcn.2009.2772](https://doi.org/10.3945/ajcn.2009.2772)
3. Zhu Y, Bo Y, Liu Y. Dietary total fat, fatty acids intake, and risk of cardiovascular disease: a dose-response meta-analysis of cohort studies. *Lipids in Health and Disease*. 2019;18(1):91. doi:[10.1186/s12944-019-1035-2](https://doi.org/10.1186/s12944-019-1035-2)
4. Neuenschwander M, Barbaresko J, Pischke CR, et al. Intake of dietary fats and fatty acids and the incidence of type 2 diabetes: A systematic review and dose-response meta-analysis of prospective observational studies. *PLOS Medicine*. 2020;17(12):e1003347. doi:[10.1371/journal.pmed.1003347](https://doi.org/10.1371/journal.pmed.1003347) (does favour veg fat but does not find a harmful association of saturated fatty acids with T2D incidence)
5. Souza RJ de, Mente A, Maroleanu A, et al. Intake of saturated and trans unsaturated fatty acids and risk of all cause mortality, cardiovascular disease, and type 2 diabetes: systematic review and meta-analysis of observational studies. *BMJ*. 2015;351:h3978. doi:[10.1136/bmj.h3978](https://doi.org/10.1136/bmj.h3978)
6. Kang Z-Q, Yang Y, Xiao B. Dietary saturated fat intake and risk of stroke: systematic review and dose-response meta-analysis of prospective cohort studies. *Nutrition, Metabolism and Cardiovascular Diseases*. Published online October 1, 2019. doi:[10.1016/j.numecd.2019.09.028](https://doi.org/10.1016/j.numecd.2019.09.028)
7. Chowdhury R, Warnakula S, Kunutsor S, et al. Association of dietary, circulating, and supplement fatty acids with coronary risk: a systematic review and meta-analysis. *Ann Intern Med*. 2014;160(6):398-406. doi:[10.7326/M13-1788](https://doi.org/10.7326/M13-1788)
8. Forsythe CE, Phinney SD, Feinman RD, et al. Limited Effect of Dietary Saturated Fat on Plasma Saturated Fat in the Context of a Low Carbohydrate Diet. *Lipids*. 2010;45(10):947-962. doi:[10.1007/s11745-010-3467-3](https://doi.org/10.1007/s11745-010-3467-3)

9. Dehghan M, Mente A, Zhang X, et al. Associations of fats and carbohydrate intake with cardiovascular disease and mortality in 18 countries from five continents (PURE): a prospective cohort study. *Lancet*. 2017;390(10107):2050-2062. doi:[10.1016/S0140-6736\(17\)32252-3](https://doi.org/10.1016/S0140-6736(17)32252-3)
10. (Aude YW, Agatston AS, Lopez-Jimenez F, et al. The national cholesterol education program diet vs a diet lower in carbohydrates and higher in protein and monounsaturated fat: a randomized trial. *Arch Intern Med*. 2004;164(19):2141-2146. doi:[10.1001/archinte.164.19.2141](https://doi.org/10.1001/archinte.164.19.2141))

Cholesterol/LDL focus

1. Gjuladin-Hellon T, Davies IG, Penson P, Amiri Baghbadorani R. Effects of carbohydrate-restricted diets on low-density lipoprotein cholesterol levels in overweight and obese adults: a systematic review and meta-analysis. *Nutr Rev*. 2019;77(3):161-180. doi:[10.1093/nutrit/nuy049](https://doi.org/10.1093/nutrit/nuy049)
2. Ravnskov U, de Lorgeril M, Diamond DM, et al. LDL-C does not cause cardiovascular disease: a comprehensive review of the current literature. *Expert Rev Clin Pharmacol*. 2018;11(10):959-970. doi:[10.1080/17512433.2018.1519391](https://doi.org/10.1080/17512433.2018.1519391)
3. Zinöcker MK, Svendsen K, Dankel SN. The homeoviscous adaptation to dietary lipids (HADL) model explains controversies over saturated fat, cholesterol, and cardiovascular disease risk. *The American Journal of Clinical Nutrition*. 2021;(nqaa322). doi:[10.1093/ajcn/nqaa322](https://doi.org/10.1093/ajcn/nqaa322)
4. Ramsden CE, Zamora D, Majchrzak-Hong S, et al. Re-evaluation of the traditional diet-heart hypothesis: analysis of recovered data from Minnesota Coronary Experiment (1968-73). *BMJ*. 2016;353:i1246. doi:[10.1136/bmj.i1246](https://doi.org/10.1136/bmj.i1246)

Lower carbohydrate and ketogenic diets with higher fat content can lead to T2DM remission, reduced CVD risk, and a reduction in obesity and metabolic syndrome

Fat content is higher than WHO recommendations (i.e.>30% of total energy intake) in the studies below.

1. Tay J, Thompson CH, Luscombe-Marsh ND, et al. Effects of an energy-restricted low-carbohydrate, high unsaturated fat/low saturated fat diet versus a high-carbohydrate, low-fat diet in type 2 diabetes: A 2-year randomized clinical trial. *Diabetes Obes Metab*. 2018;20(4):858-871. doi:[10.1111/dom.13164](https://doi.org/10.1111/dom.13164)
2. Goss AM, Gower B, Soleymani T, et al. Effects of weight loss during a very low carbohydrate diet on specific adipose tissue depots and insulin sensitivity in older adults with obesity: a randomized clinical trial. *Nutrition & Metabolism*. 2020;17(1):64. doi:[10.1186/s12986-020-00481-9](https://doi.org/10.1186/s12986-020-00481-9)
3. Sondike SB, Copperman N, Jacobson MS. Effects of a low-carbohydrate diet on weight loss and cardiovascular risk factor in overweight adolescents. *J Pediatr*. 2003;142(3):253-258. doi:[10.1067/mpd.2003.4](https://doi.org/10.1067/mpd.2003.4) [PDF](#)
4. Chiu S, Bergeron N, Williams PT, Bray GA, Sutherland B, Krauss RM. Comparison of the DASH (Dietary Approaches to Stop Hypertension) diet and a higher-fat DASH diet on

blood pressure and lipids and lipoproteins: a randomized controlled trial¹⁻³. *The American Journal of Clinical Nutrition*. 2016;103(2):341-347.

doi:[10.3945/ajcn.115.123281](https://doi.org/10.3945/ajcn.115.123281)

5. Kong Z, Sun S, Shi Q, Zhang H, Tong TK, Nie J. Short-Term Ketogenic Diet Improves Abdominal Obesity in Overweight/Obese Chinese Young Females. *Front Physiol*. 2020;11. doi:[10.3389/fphys.2020.00856](https://doi.org/10.3389/fphys.2020.00856)
6. Forsythe CE, Phinney SD, Fernandez ML, et al. Comparison of low fat and low carbohydrate diets on circulating fatty acid composition and markers of inflammation. *Lipids*. 2008;43(1):65-77. doi:[10.1007/s11745-007-3132-7](https://doi.org/10.1007/s11745-007-3132-7) ABSTRACT

Recommendations and Supporting Information:

Evidence to reduce dietary fat is not as strong as the evidence in support of reducing dietary sugars and refined oils. Evidence to support reduction of saturated fat is weak in addition to outdated evidence being used as a measure of metabolic health (i.e. total cholesterol, LDL). Updated guidelines to support metabolic health need to be reviewed and included in making these recommendations. There should not be a cap at 30% of total dietary fat and there should not be a cap at 10% of saturated fat until all updated evidence is reviewed to include metabolic health.

Recommendations should not be taken from previous WHO guidelines on use of PUFA versus SFA. This is biased. Rather, updated evidence, from within the last 5 years, should be used in drawing conclusions as to recommended amounts. Recommendations should also not be based on other national dietary guidelines without sufficient review of their own sources of information and removal of bias.

Other comments:

The past dietary guidelines have been proven ineffective. Initial dietary guidelines in 1970 proposed that reducing dietary fat while increasing carbohydrate intake would minimize the risk of cardiovascular disease (Hite et al, 2010). Since then, the adoption of these guidelines has proven ineffective in combating morbid obesity and the incidence of non-communicable diseases.

It appears that decreasing saturated fat intake does not have significant effects with regards to cardiovascular events or strokes, and people are just as likely to die from the aforementioned issues when compared with individuals who consume more saturated fat (Ramsden et al, 2013). The evidence suggests that the average individual consumption of saturated fat does not have a significantly negative impact on cardiovascular health and is not associated with increased incidence of heart disease.



Existing guidelines that are being reinstated or followed are not effective for the population. The most relevant and current evidence should be considered. These are our recommendations and the aforementioned studies support our viewpoint.

The above submission has been compiled by the Nutrition Network and The Noakes Foundation Teams and Nutrition Network members.

Survey response 8

General information

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Country
India

Comments on the draft guideline

Summary of evidence
Well written
Evidence to recommendations
Well written
Recommendations and supporting information
Comprehensive

Other comments

1. In the Recommendation for children, Separate sections may be earmarked for children < 5 years and > 5 yrs.
< 5 yrs. - Generally diet restrictions are not recommended even in the overweight due to the rapid and early stage of growth, but only increasing physical activity is advised. And the BMI cut off is also different, unlike other age groups
> 5 yrs. The recommendations are acceptable
2. Saturated to PUFA ratio is given, transfat < 1% included, but highlight needed on MUFA and also Omega 6 and Omega 3 PUFA ratio
2. A separate section may be added for the exceptional groups. eg. a). The Asian/ Indian cut offs for Overweight and Obesity is different from this global recommendations addressing the high waist circumference and central obesity. b). Those on Ketogenic Diet/ Nutritional Ketosis as a lifestyle, what advice to be given?

The following extract is added for ready reference

Overweight and obesity are defined as follows:

Children (+2 standard deviations (SD) of the WHO Child Growth Standards median

School-aged children and adolescents (5–19 years):

- Overweight: BMI-for-age >+1 SD of the WHO growth reference for school-aged children and adolescents (equivalent to BMI 25 kg/m² at 19 years)
- Obesity: >+2 SD of the WHO growth reference for school-aged children and adolescents (equivalent to BMI 30 kg/m² at 19 years)

Adults (≥20 years):

Overweight: BMI ≥25 kg/m²

Obesity: BMI ≥30 kg/m²

Guidelines on the management of overweight and obesity in children and adolescents are currently being developed by the WHO Department of Nutrition and Food Safety

Survey response 9

General information

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Roberts
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Keisha
Organization/affiliation
CARPHA
Sector
Government
Sector [Other]
Country
Trinidad and Tobago

Comments on the draft guideline

Summary of evidence
Evidence to recommendations
Recommendations and supporting information
Other comments

WHO Guideline: Total fat intake for adults and children (DRAFT)

COMMENTS

The WHO guideline is well structured and timely, especially given the effect of COVID-19 on persons who are overweight and obese. It is clear the guideline was not developed for the purpose of weight loss, but rather to reduce one's chance for unhealthy weight gain. This is clear based on the research questions employed for the systemic review. The research questions used for the systemic review were:

1. What is the effect of reduced intake of total fat on unhealthy weight gain in adults?
2. What is the effect of reduced intake of total fat on unhealthy weight gain in children?

1. Summary of the evidence

Recommendation 1-To reduce the risk of unhealthy weight gain, WHO suggests that adults limit total fat intake to 30% of total energy intake or less (conditional recommendation).

It was stated "the evidence from cohort studies was reviewed, but not formally assessed for quality using GRADE methodology or directly utilized in decision-making with respect to formulating the recommendations."

Twenty-six RCTs were assessed and there was uncertainty on whether total energy intake was a confounder in the treatment arm for some studies. Also, it was not clear whether type of fat, e.g., saturated vs polyunsaturated affected results, given the reference in the document made to the effects of fat quality in maintaining a healthy weight.

Therefore, it may be prudent to clearly highlight the no of RCTs that satisfied the research question of maintaining a healthy weight but were not impacted by total energy intake and / or fat quality, or alternatively adjusted for these possible confounders.

This is important given a metanalysis could not be conducted on the RCTs chosen for this guideline.

Furthermore, the broad groupings used for fat intake led to ambiguity about the actual quantity of fat relevant to the recommendation. RCTs assessed seemed to fall into one of two groups, for fat intake, relevant to the research questions. RCTs were grouped as 29-43% fat intake at baseline and 14-35% fat intake for intervention. This wide range for fat intake at intervention may cause ambiguity on the actual quantity of fat that produced positive effects at intervention.

2. Evidence to recommendations

Recommendation 1-To reduce the risk of unhealthy weight gain, WHO suggests that adults limit total fat intake to 30% of total energy intake or less (conditional recommendation).

Due to the inability to pool data from the RCTs a meta-analysis could not be conducted. However, GRADE was conducted based on a narrative summary, rating the findings into high certainty, moderate certainty, and low certainty.

The assessment of the evidence from the RCTs support the conclusion of this draft guideline, but there is ambiguity for the section ‘Overall certainty of the evidence’ with respect to body weight, BMI, waist circumference, and percentage body fat, as the positive effects on these parameters may have been affected by total energy consumed, in the intervention arms of the RCTs.

3. Recommendations and supporting information.

This guideline is prudent in highlighting that recommendation 1 must be implemented in the context of avoiding excess energy intake.

4. Other comments

Possible typographical errors

1. Pg 15, bullet no 4 remove “in”
2. Pg 31, bullet no 2 remove “and”
3. Pg 32, 2nd sentence add “of” after some.
4. Pg 39, bullet no 4 remove “effects”
5. Pg 40, 6th line state “this”

Survey response 10

General information

Family/last name
Riley
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Tim
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Private
Sector
Other
Sector [Other]
Country
United States of America

Comments on the draft guideline

Summary of evidence
I have struggled with my weight for 40 years. Literally a lifetime of experience so far. I have tried a variety of diets, including following organizational/agency recommendations including the United States food pyramid.
Evidence to recommendations
Based on years of failed attempts to control my weight and health I took a different direction in eating whole foods and not worrying about saturated fats. Since learning and implementing a lifestyle with whole foods and plenty of healthy saturated fats (grass fed red meat, pure butter, coconut oil etc.) I have not only lost weight and kept it off (60 lbs) but I also have reversed some of my bloodwork to be the healthiest I have been since a teenager. Processed foods and seed oils do NOT work, eating a diet like this with moderate to heavy exercise was simply 1 step forward and 3 steps back when you include lack of physical change and mental exhaustion of failing time and time again.
Recommendations and supporting information
We need to look at the science not funded by large food companies.
We need more healthy fats and meats in our diet that is also sustainable, i.e. regenerative farming.
Other comments
I am just person and I hope this comment is read and seriously considered.
Health has been a struggle my whole life. When I learned how much extra sugars and other chemicals are put into my food we decided to change our family's diet to whole foods meaning minimally processed grass fed and sustainable meats, vegetables, and fruits utilizing the dirty dozen list. Since making this change my family has rarely gotten sick, this was pointed out by children, and have better lab results.
The U.S. got it wrong, don't follow the U.S guidelines.

Survey response 11

General information

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Zhou
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Academic/research
Sector [Other]
Country
China

Comments on the draft guideline

Summary of evidence
<p>For adult:</p> <p>“The unhealthy weight gain refers to unintentional weight gain (i.e. increase in body fatness) that contributes to the progression towards overweight and obesity, but excludes appropriate weight gain during pregnancy and as part of normal growth and development in childhood. Other exceptions would include weight gain resulting from activities that increase muscle mass without increasing fat mass, such as weight-lifting and other strength-building exercise. For the development of this guideline, unhealthy weight gain was assessed as an increase in, or greater measures of, body fatness as reported in the systematic reviews underpinning the recommendations.”</p> <p>Although “unhealthy weight gain” was assessed as an increase in, or greater measures of, body fatness. However, an increase in body fatness is not necessarily unhealthy. It’s not surprising that reduced fat intake resulted in lower body fatness and/or lower body weight. Actually, reduced protein and/or carbohydrate intake may also result in lower body fatness and/or lower body weight. Therefore, the listed evidence was not sufficient for making any recommendations. The total fat intake has to be considered simultaneously with total protein and total carbohydrate intake. Otherwise, the evidence would be not very meaningful.</p>
Evidence to recommendations
<p>The effects observed for body measures of body fatness were small to modest in magnitude. Would it be more significant if total carbohydrate intake was reduced?</p> <p>Since unhealthy weight gain is hard to be defined. The primary focus of the recommendations should not be “unhealthy weight gain”. A better indicator should be pursued. Since dietary fat contributes significantly to satiety, a moderately high fat diet could be very healthy.</p> <p>Page 31: However, ...</p> <p>Page 32: The impact of some of these ...</p>
Recommendations and supporting information
<p>The evidence for the following recommendation was not reviewed in the document:</p> <p>Fat consumed should be primarily unsaturated fatty acids, with no more than 10% of total energy intake coming from saturated fatty acids and no more than 1% of total energy intake coming from trans-fatty acids (strong recommendation).</p> <p>Page 33: In note 3, one period should be deleted for the first sentence.</p> <p>The threshold of 30% was selected because most of the trials included in the analyses reported total fat intakes of 30% or more at baseline⁴ (range: 29-43% of total energy intake) and most studies achieved intakes of 30% or less in the intervention arms (range: 14–35% of total energy intake). Based on the aforementioned argument, the cutoff (30%) was quite arbitrary. How about 35%, 40%, or even 45%, which was not well investigated.</p>

Other comments

Page 15: The objective of this guideline once finalized will be to provide guidance on the intake of total fat, to reduce unhealthy weight gain in adults and children. (one period was deleted)
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Survey response 12

General information

Family/last name
Capon
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James
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non-affiliated
Sector
Academic/research
Sector [Other]
Country
Belgium

Comments on the draft guideline

Summary of evidence
<p>You write on page 3 that: "The main sources of fat in the human diet are meat, fish, dairy foods, plant-based oils and fats, nuts and seeds; which may be true, but neglect to mention that in terms of daily consumption, particularly in westernized societies, ultra-processed foods (NOVA category 4) are the main source of dietary fat.</p> <p>To suggest that the saturated in fat highly processed foods is identical to that in natural meat, fish, cheeses and nuts for example is disingenuous at best. Suggested additional paper: "Ultra-Processed Foods and Health Outcomes: A Narrative Review"</p> <p>https://pubmed.ncbi.nlm.nih.gov/32630022/</p>
Evidence to recommendations
<p>The stated Objective on page 15 is accompanied by no information/evidence from anyone that weight gain has been reduced or stopped at population level by focusing on the reduction of the fat content in food - a factor in food guidelines around the world for many decades.</p> <p>"The objective of this guideline once finalized will be to provide guidance on the intake of total fat, to reduce unhealthy weight gain in adults and children."</p> <p>Meanwhile the evidence is steadily accumulating that the consumption of ultra-processed foods is strongly correlated with increasing levels of obesity and poor health outcomes - "Ultra-Processed Foods and Health Outcomes: A Narrative Review"</p> <p>https://pubmed.ncbi.nlm.nih.gov/32630022/</p>
Recommendations and supporting information
Other comments
<p>I am aware that your mandate relates to fat and especially, saturated fat, and yet your guidelines have to be practical, so with westernized societies getting more than half their calories from UPF, and the correlations with eating more UPF (Kevin Hall https://pubmed.ncbi.nlm.nih.gov/31105044/) and being obese (country NOVA data), such a narrow reductionist approach is no longer helpful for individuals or society.</p>

Survey response 13

General information

Family/last name
Boyer
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Constance
Organization/affiliation
International Dairy Federation
Sector
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international organisation
Country
Belgium

Comments on the draft guideline

Summary of evidence
Evidence to recommendations
Recommendations and supporting information
Other comments



IDF comments to WHO Draft guidelines on total fat intake for adults and children (dated 30 April 2021)

The International Dairy Federation, the leading source of technical and scientific expertise in dairy since 1903, acknowledges the importance of this work and would like to thank the WHO for this public call. We appreciate the opportunity to provide comments to the WHO draft guideline: Total fat intake for adults and children.

General Comments:

The objective of this work is to provide guidance on intake of fat to reduce the risk of unhealthy weight gain in adults and children. It will have major implications for dietary guidelines around the world. As such, it is important that the recommendations are based on the totality of the strongest available evidence. The objective is also to ensure that the recommendations in this guideline can be used by policy-makers and programme managers to help and accelerate the implementation of actions to promote healthy diets.

We welcome the fact that, as stated, these recommendations should be considered in the context of other relevant WHO guidance, including that on the intake of free sugars, carbohydrates, as well as the recommendations related to the quality of dietary fat. Such may illustrate the need of considering fat intake not as an isolated nutrient but as part of a global diet. **However, to ensure that dietary practices associated with these recommendations are comprehensive, and with regards to the recent scientific literature on the topic, we would suggest that the WHO guideline emphasizes the value of a 'whole food' and 'dietary approach'.**

Indeed, foods and diets are clearly far more than the sum of their single nutrients. Many factors within a food influences the effects of a single nutrient. For fat, this could be the position of individual fatty acids on the glycerol molecule, the presence of other nutrients such as calcium and protein and carbohydrates, the structures/matrix of the food, the presence of other factors influencing the absorption of the fat, etc... Therefore, it is inaccurate to generalize the effects of a single nutrient without considering the food it is present in. Furthermore, it is not justified to generalize the effects of specific foods or food groups based on their content of single nutrients (Astrup *et al.*, 2020).

Dairy products are a source of high-quality protein, calcium, iodine, B vitamins and other important nutrients. Thus, in recommending decreasing or increasing the consumption of a single nutrient, there is the potential for unintended consequences such as issues with nutritional adequacy if the consumption of nutritious food such as milk, yogurt and cheese is reduced. In addition, dairy products have been proven to prevent the risk of NCD's like type 2 diabetes and colorectal cancer. When recommending decreasing or increasing foods on basis of a single nutrient approach, the effects on their whole food effects on NCD's should be evaluated in a transparent form.

Comments on recommendation 1:

WHO recommendations are as follows (verbatim):

- 1) To reduce the risk of unhealthy weight gain, WHO suggests that adults limit total fat intake to 30% of total energy intake or less (*conditional recommendation*).

The WHO guideline should focus on foods and dietary patterns. Overall, no single food or nutrient creates a healthy dietary pattern, but instead, it is the combination of nutrient-dense foods that is emphasized: “Researchers and public health experts understand that nutrients and foods are not consumed in isolation. Rather, people consume them in various combinations over time and these foods and beverages act synergistically to affect health. The Dietary Guidelines for Americans, 2015-2020 puts this understanding into action by focusing its recommendations on consuming a healthy dietary pattern. The 2020-2025 Dietary Guidelines carries forward this emphasis on the importance of a healthy dietary pattern as a whole - rather than on individual nutrients, foods, or food groups in isolation” (2015-2020 Dietary Guidelines for Americans).

Also, as stated by Professor Mozaffarian (2016): “There is growing evidence and consensus for such food-based dietary patterns as the best means to reduce CVD, obesity and weight gain, replacing outdated emphases on total fat, other isolated nutrients, or calorie counting”.

As dairy products have been highlighted as one of the main contributors to total fat intake, they will likely be unjustifiably targeted for reduction even though evidence supports **that dairy products, especially those that are higher in fat, may help prevent weight gain (see Appendix: Key evidence regarding dairy and weight gain).**

Finally, we recommend that it should be made clear to member states, policy makers and media how “conditional recommendation” should be interpreted (i.e. that they are based on non-conclusive evidence and therefore it is uncertain if the recommendation would provide a benefit; and a substantial debate is required before considering it as part of policy making). Furthermore, the “conditional recommendation” may also be misinterpreted as being similar to a “strong recommendation” as we have seen with other WHO guidelines (e.g. free sugar).

Comments on recommendation 2:

WHO recommendations are as follows (verbatim):

- 2) Fat consumed should be primarily unsaturated fatty acids, with no more than 10% of total energy intake coming from saturated fatty acids and no more than 1% of total energy intake coming from *trans*-fatty acids (*strong recommendation*).

The recommendation to limit saturated fat to 10% of total energy intake or less is not based on evidence related to weight gain as evidence related to saturated fat *per se* was not reviewed and evaluated. Therefore, this recommendation is not justified to include in this guideline and it will likely be misinterpreted and misapplied.

It is stated that this recommendation is relevant for all adults and children aged 2 years and above. Our concern is that such a recommendation for children, especially at such a young age, may result in a reduced intake of nutritious foods, such as dairy products and meat, which are important for ensuring optimal growth and development in children by providing a complete package of energy and essential nutrients.

With regards to dairy and obesity in children, a large body of evidence from both RCT and observational studies, strongly suggest that dairy foods including whole fat dairy foods, are associated with benefits with regards to prevention of weight gain: A recent review concluded, based on forty-three cross-sectional studies, thirty-one longitudinal cohort studies and twenty randomised controlled trials, that “milk and other dairy products are consistently found to not be associated, or inversely associated, with obesity and indicators of adiposity in children” (Dougkas *et al.*, 2019). A recent systematic review and meta-analysis of observational studies reported that “Observational research suggests that higher cow-milk fat intake is associated with lower childhood adiposity. International guidelines that recommend reduced-fat milk for children might not lower the risk of childhood obesity.” (Vanderhout *et al.*, 2020). Finally, a meta-analysis of RCTs concluded that “Children and adolescents aged 6-18 y consuming milk and milk products are more likely to achieve a lean body phenotype.” (Kang *et al.*, 2019).

Overall Conclusion:

IDF would like to highlight that nutrition research has shifted focus to whole foods with regards to health. This is based on the premise that we do not eat nutrients in isolation but as foods, and meals, and part of dietary patterns. This warrants further exploration and discussion in the guidelines.

The potential impact of these recommendations needs to be considered beyond just consumption of fat, which is consumed as part of a food matrix. For example, dairy products such as milk, cheese and yoghurt provide an important package of several essential nutrients and are associated with benefits with regards to prevention of weight gain and adiposity.

Milk and dairy products are a concentrated source of macro- and micronutrients. As FAO points out, they can play a particularly important role in human nutrition in developing countries where the diets of poor people frequently lack diversity, and consumption of animal-source foods may be limited.

In developed countries, milk and dairy products are also very valuable foods as they provide many of the nutrients that are often under-consumed in these countries, such as calcium and high-quality protein that are particularly important for both growing children and the aging populations.

Any translation and policy measure development of the final guidelines need to ensure that they will encourage diets that do support adequate nutrition, and not lead to the unintended consequences of discouraging the intake of nutritious foods such as milk and dairy foods.

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Astrup A *et al.* Saturated Fats and Health: A Reassessment and Proposal for Food-Based Recommendations: JACC State-of-the-Art Review. *J Am Coll Cardiol.* 2020 Aug 18;76(7):844-857. doi: 10.1016/j.jacc.2020.05.077.

Mozaffarian D. Dietary and Policy Priorities for Cardiovascular Disease, Diabetes, and Obesity: A Comprehensive Review. *Circulation.* 2016 Jan 12;133(2):187-225. doi: 10.1161.

Dougkas A *et al.* A critical review of the role of milk and other dairy products in the development of obesity in children and adolescents. *Nutr Res Rev.* 2019 Jun;32(1):106-127. doi: 10.1017/S0954422418000227.

Vanderhout SM *et al.* Whole milk compared with reduced-fat milk and childhood overweight: a systematic review and meta-analysis. *Am J Clin Nutr.* 2020 Feb 1;111(2):266-279. doi: 10.1093/ajcn/nqz276.

Kang K, *et al.* Effects of Milk and Milk-Product Consumption on Growth among Children and Adolescents Aged 6-18 Years: A Meta-Analysis of Randomized Controlled Trials. *Adv Nutr.* 2019;10(2):250-261. doi:10.1093/advances/nmy081.

Appendix: Key Evidence regarding Dairy and Weight Gain/Adiposity.

Schlesinger S *et al.* Food Groups and Risk of Overweight, Obesity, and Weight Gain: A Systematic Review and Dose-Response Meta-Analysis of Prospective Studies. *Adv Nutr* 2019; 10: 205–218.

Funding: Supported by NutriAct-Competence Cluster Nutrition Research Berlin-Potsdam funded by the Federal Ministry of Education and Research.

Meta-analysis of 43 prospective cohort studies of the association between the intake of 12 food groups (i.e., whole grains, refined grains, vegetables, fruit, nuts, legumes, eggs, dairy, fish, red meat, processed meat, and SSBs) and risk of overweight/obesity, abdominal obesity, and weight gain.

No association was observed for dairy products and risk of overweight/obesity, abdominal obesity and weight gain in high and low intake or dose-response meta-analyses.

Sayon-Orea C *et al.* Associations between Yogurt Consumption and Weight Gain and Risk of Obesity and Metabolic Syndrome: A Systematic Review. *Adv Nutr* 2017;8(Suppl):146S–54S.

Funding: No Funding.

Systematic review of prospective cohort studies looking at yogurt consumption and risk of weight gain, overweight, obesity and metabolic syndrome.

“Prospective cohort studies consistently suggested that yogurt consumption may contribute to a reduction in adiposity indexes and the risk of metabolic syndrome.”

Kratz M *et al.* The relationship between high-fat dairy consumption and obesity, cardiovascular, and metabolic disease. *Eur J Nutr* 2013;52:1-24.

Funding: No Funding.

Systematic review of epidemiological studies on the relationship between dairy fat and high-fat dairy foods, obesity, and cardiometabolic disease.

In 11 of 16 studies, **high-fat dairy** intake was inversely associated with measures of adiposity. The author’s concluded that: *“The observational evidence does not support the hypothesis that dairy fat or high-fat dairy foods contribute to obesity or cardiometabolic risk, and suggests that high-fat dairy consumption within typical dietary patterns is inversely associated with obesity risk.”*

Santiago S *et al.* Yogurt consumption and abdominal obesity reversion in the PREDIMED study. *Nutr Metab Card Diseases* 2016; doi.org/10.1016/j.numecd.2015.11.012.

Funding: funded, in part, by the Spanish Ministry of Health and the Centre Català de la Nutrició de l’Institut d’Estudis Catalans.

Sub-study within the PREDIMED RCT that assessed yogurt consumption on reversion of abdominal obesity and changes in waist circumference in 4545 older adults.

“Conclusion: Total yogurt consumption was not significantly associated with reversion of abdominal obesity status and a lower waist circumference. However, consumption of whole-fat yogurt was associated with changes in waist circumference and higher probability for reversion of abdominal obesity. Therefore, it seems that whole-fat yogurt has more beneficial effects in management of abdominal obesity in elderly population at high cardiovascular risk.”

Rautiainen S et al. Dairy consumption in association with weight change and risk of becoming overweight or obese in middle-aged and older women: a prospective cohort study. *Am J Clin Nutr* 2016;103:979-988.

Funding: National Institutes of Health.

This prospective study from Harvard University investigated how dairy product intake was associated with weight change and the risk of becoming overweight or obese in initially normal-weight women.

Data were obtained from 18,438 women aged 45 y from the Women's Health Study who were free of cardiovascular disease, cancer, and diabetes at baseline. Greater intake of **high-fat dairy products, but not intake of low-fat dairy products**, was associated with less weight gain. Lower risk of becoming overweight or obese was observed with the **highest intake of high-fat dairy products**.

Mozaffarian D. Dairy Foods, Obesity, and Metabolic Health: The Role of the Food Matrix Compared with Single Nutrients. *Adv Nutr* 2019;10:917S–923S.

Funding: No funding.

Review of the evidence based on a presentation given by Dariush Mozaffarian at the 6th annual Yogurt in Nutrition Summit in Boston, MA.

"The present evidence suggests that whole-fat dairy foods do not cause weight gain, that overall dairy consumption increases lean body mass and reduces body fat, that yogurt consumption and probiotics reduce weight gain, that fermented dairy consumption including cheese is linked to lower CVD risk, and that yogurt, cheese, and even dairy fat may protect against type 2 diabetes. Based on the current science, dairy consumption is part of a healthy diet, without strong evidence to favor reduced-fat products."

Survey response 14

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Comments on the draft guideline

Summary of evidence
Evidence summarised in attached document.
Evidence to recommendations
Recommendations and supporting information
Other comments
Please see attached file.



WHO Draft Guideline: Total fat intake for adults and children

Submission on behalf of Doctors For Nutrition • April 2021

Doctors For Nutrition appreciates this opportunity to provide a submission in response to the [WHO Draft Guideline: Total fat intake for adults and children](#). We welcome the report by the WHO Nutrition Guidance Expert Advisory Group (NUGAG) and Subgroup on Diet and Health and commend the high quality of statistical analysis presented within the report.

We are pleased to provide our comments and suggestions on the draft guideline, detailed in our response below. In summary, we would like to see:

1. Recognition that dietary fat intake from whole plant sources is associated with improved health outcomes.
2. Inclusion of planetary health considerations, in particular the urgent imperative for high-income countries to reduce fat intake from animal and processed foods in order to sustain a healthy environment.
3. Reference to the emerging research showing numerous health benefits, including significant weight loss, associated with ad-libitum low fat plant-based diets.

Doctors For Nutrition is an Australasian health promotion charity led by medical and dietetic professionals from across Australia, New Zealand and globally. Our vision is a society and healthcare system that embraces nutrition solutions to help people optimise their health and quality of life. More information is available at doctorsfornutrition.org.

COMMENTS

- 1. The guideline should avoid macronutrient 'reductionism', and recognise that the source of dietary fat matters: in particular, explicit recognition should be given to the health benefits associated with plant-based sources of dietary fat.***

Page 3 of the guideline correctly acknowledges that the main sources of fat in the human diet originate from meat, fish and dairy foods. While this guideline has examined fat in the context of the maintenance of a healthy weight, evidence shows fat from plant-based sources is associated with reduced mortality and risk of cardiovascular disease.^{1,2} Fats contained within whole plant foods are associated with numerous health benefits as well as being a source of fibre and other bioactive components.³⁻⁵ Therefore, the guideline should focus on and/or specify that the primary source of fat in the diet should be from minimally processed, plant foods.

We acknowledge the weight of evidence supporting recommendations to keep fat intake to <30% of energy for the maintenance of a healthy weight. However, recent data comparing high fat and low fat dietary patterns show large reductions to energy intake on very low fat plant based diets. It is acknowledged in the literature that regulation of energy intake is complex and cannot be defined or predicted by macronutrient percentage intake alone.⁶ Thus, the focus must be on the nutrient quality of the overall dietary pattern and consumption of whole foods.⁷

To achieve the WHO targeted 25% reduction in premature mortality from non-communicable disease, messaging between recommendations for fat intake need to be aligned with the WHO's Global action plan for the prevention and control of NCDs 2013-2020.⁸

2. The guideline must explicitly address the link between fat recommendations with environmental impacts.

As discussed by the Lancet Countdown,⁹ “.. we argue that the health profession not only has the ability but the responsibility to act as public health advocates by communicating the threats and opportunities to the public and policy makers and ensuring climate change is understood as being central to human wellbeing.” (pp.582)

The effects on the global food supply from climate change are likely to be significant. Food security has been identified as one of the largest health impacts from climate change in the 21st Century.⁹ Springmann et al.¹⁰ utilised the International Model for Policy Analysis and predicted that by 2050, 529,000 excess deaths would occur due to changes to the food supply driven by climate change.

Given the tremendous impacts on global health, dietary recommendations by the WHO need to align with planetary goals to reduce environmental footprints of food production. This means high-consuming countries in particular must make a rapid shift away from animal-sourced and processed foods and instead obtain the majority of fat from minimally processed plant-based foods, such as wholegrains, fruits, vegetables nuts and legumes which have significantly lower environmental impact,^{11,12} while providing reductions in relative risk for chronic diseases such as coronary heart disease, colorectal cancer, diabetes and stroke.¹¹

3. An increasing body of evidence shows a diet based on whole-plant foods, with lower overall fat intake associated with improved health outcomes

Although we acknowledge the body of evidence is still relatively small, increasing research surrounding ad-libitum low fat plant-based diets show numerous health benefits, including that of significant weight loss.

Participants following a 16 week, low-fat whole food plant-based diet, conducted by Kahleova et al.¹³, reported significant reductions to BMI, which were associated with reductions in dietary fat ($r=0.51$, $p<0.001$). The reduction to saturated fatty acid intake (11.4% to 3.3% of energy post intervention) was related to improved

insulin secretion and response.¹³ Participants in this trial on the low fat plant-based diet achieved a fat intake of approximately 17.5% of energy.¹³

A recently published crossover trial involving 62 participants on either a Mediterranean diet or low fat plant-based diet, showed significant weight loss of 6.0kg in the plant-based group, with no weight loss in the Mediterranean group.¹⁴ The low-fat plant-based diet comprised 17% fat (less than 5% of energy from saturated fat), which was associated with significantly greater improvements in insulin sensitivity and lipid concentrations when compared to the Mediterranean diet.¹⁴

The BROAD study in New Zealand included 65 patients randomised to either a control diet or a low-fat whole food plant-based diet (approximately 10% fat) for a period of six months. BMI was significantly reduced in the plant-based group when compared to usual care (4.4 vs 0.4 kg/m²).¹⁵ Importantly, these studies did not provide food to participants and calories were not restricted.

These studies indicate that overall fat intake <20% of energy (with ideal intake 8-15%) and saturated fat intake comprising <5% of energy is associated with numerous health benefits, including weight loss.

In addition, the research highlighted above supports existing work by WHO, showing reductions to energy dense food intake can lead to significant reductions to energy intake and limit weight gain. Importantly, in the dietary patterns presented here, dietary fat was replaced with other whole plant-foods which are nutrient dense and satiating and independently associated with numerous health benefits. Therefore, WHO recommendations on fat intake should specify that reductions to fat intake should be accompanied by increased consumption of whole plant-foods to obtain the health benefits of this reduction.

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Survey response 15

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Comments on the draft guideline

Summary of evidence
<p>Executive summary: Page 3 should acknowledge that ultra-processed foods are a major contributor to total fat. In regard to the references cited and the commissioned Cochrane systematic reviews on the relationship between fat intake (and change in) on body weight that could be included. Given they are now a number of years old, is there scope to update these?</p> <p>Page 6: The evidence - it would be good to add the meta-analysed mean effect for the weight change referred to (or to the section where this is described in more detail). Did any of the studies consider impact on nutrient adequacy of low fat diets post intervention? (It is only mention very generally in context of children on page 10)</p> <p>The summary of the evidence (from the commissioned reviews) is excellent. Could enhance presentation of some of the results using figures.</p> <p>Under potential harms it would be good to note if there is any assessment of impact on dietary patterns and nutrient intakes to enhance practical application of the findings.</p>
Evidence to recommendations
<p>A challenge will be in contextualizing the 30% recommendation into actual food patterns and developing this is a logical extension, particularly as in some countries a 'low fat' message has been in place for many years with extensive reformulation of food products and obesity levels have not decreased.</p>
Recommendations and supporting information
<p>Discussion of the implications for food patterns needs more consideration, particularly in regards to ultra-processed foods. It would be useful to consider research on dietary patterns associated with energy-dense diets. Can WHO refer to recommendations in regard to specific policies thatto support implementation of this goal linked to population weight change.</p>
Other comments
<p>A further research gap relates to impact of low fat diets on nutrient intakes, especially in children.</p>

Survey response 16

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Comments on the draft guideline

Summary of evidence
Evidence to recommendations
Recommendations and supporting information
Other comments

Health Canada's Comments on WHO Draft Guideline: Total fat intake in adults and children

Background

On April 1, 2021, the World Health Organization (WHO) Department of Nutrition and Food Safety launched a call for comments on the draft Guideline: Total fat intake for adults and children. The consultation (closing April 30th) allows stakeholders to comment on the draft Guideline before it is finalized and released (prior to the UN Food System Summit in September 2021).

This document summarises the joint comments of the Bureau of Nutritional Sciences and of the Office of Nutrition Policy and Promotion of Health Canada.

Key Comments

Health Canada supports the overall WHO guideline development process. The Draft Guideline: Total fat intake for adults and children is based on a systematic review of the scientific evidence.

However, Health Canada has concerns with the research questions of the systematic reviews underpinning the guideline. The research questions do not allow for the establishment of causality between a reduction of the proportion of energy intake from fat and body fat measures.

Therefore, we recommend that revised scientific questions are formulated and that either a new systematic review is conducted, or a re-analysis of the currently included studies is performed, to answer the revised scientific questions.

Detailed comments

- Health Canada's primary concern is that the evidence reviewed does not support Recommendation 1. The objective of the systematic review upon which the recommendation is based was to assess the effects of reducing the proportion of energy intake from fat (exposure) on measures of body fatness (outcome) in people not aiming to lose weight. The study inclusion criteria, the Risk of Bias (RoB) assessment, data analysis, and conclusions of the systematic review do not consider, in a meaningful way, the impact of lowering total fat intake on total energy intake, which would be expected to result in lower indicators of body fat such as body weight. Because total energy intake can be reduced by modifications of intakes of other macronutrients than dietary fat, this introduces a major source of uncertainty in the assignment of causality specifically to altered fat intake.

First, included studies were not restricted to those that attempted to maintain isocaloric intakes between arms. As described in the methods, the authors "considered a low fat intake to be one that aimed to *reduce fat intake to $\leq 30\%$ energy ($\leq 30\%E$) from fat, and at least partially replace the energy lost with carbohydrates (simple or complex), protein or fruit and vegetables.*" Partial replacement of energy, but not total replacement of energy, with other sources of energy resulted in many studies with arms consuming non-isocaloric diets. Table 1 describes total energy intakes of the intervention

and control arms for each of the included studies; the intervention arm generally resulted in lower total energy intake among participants across studies. Indeed, even studies that explicitly attempted to achieve isocaloric intakes between arms demonstrated differences in energy intake (for example, BDIT and CAN DBCP studies). Because the compared diets were not isocaloric, it is not possible to ascribe the reduction in body fat measures specifically to the reduced proportion of energy intake from fat.

Second, the RoB analysis considered dietary differences in intervention and control arms, however, it does not appear to have considered differences in total energy intake between arms. It is our opinion that this omission is a major limitation of the analysis.

Third, subgroup analysis indicated that interventions resulting in lower total energy intake resulted in larger reductions in indicators of body fat, as might be expected. This reduces our confidence that it is the reduction in the proportion of energy intake from fat specifically that results in changes in body weight and other indicators. Consistent with our concern is this remark made in the Guideline document: *'However, individuals who can maintain energy balance (or otherwise prevent excess energy intake) at higher fat intakes may be able to consume total fat at levels greater than 30% of total energy intake without increasing their risk of unhealthy weight gain.'*

Finally, it could be that higher total fat in the diet is a determinant of higher total energy intake, but the systematic review does not address this nor does the recommendation reflect this possibility.

Together, these issues result in uncertainty of the exposure/intervention and reduces confidence in a causal relationship between the exposure (proportion of energy intake from total fat) and outcome (body fat). **We recommend that revised scientific questions are formulated and that either a new systematic review is conducted, or a re-analysis of the currently included studies is performed, to answer the revised scientific questions.** The recommendation could also be revised to clearly indicate the uncertainty about whether it is the proportion of energy from total fat or total energy intake that is associated with reduced body fat.

- The specific recommendation on total fat intake aside, Health Canada supports the emphasis provided in the rationale that recommendations on total fat intake should be considered in the context of other relevant WHO Guidelines (e.g. Guideline on free sugars intake). The guideline states it should not be interpreted as implying that total fat is the only risk factor for unhealthy weight gain.
- Health Canada also supports the rationale provided for Recommendation 2 that acknowledges that both quantity and quality of fat consumed are important for health and nutritional well-being.
- The goal of the Guideline is to provide recommendations for both adults and children. However, due to the limited number of studies and inconsistent results identified in the systematic review with children, the evidence was considered insufficient to develop a recommendation specific to children. In addition, the NUGAG decided that the adult data could not be extrapolated to children. Instead, the Guideline points to a previous Food and Agriculture Organization (FAO) expert consultation on dietary fats that made recommendations for children aged 6 months and above and adolescents

(total fat intakes of up to 35% of total energy are appropriate to meet growth demands without leading to excess energy intake). Given this recommendation is now more than 10 years old, Health Canada is not confident it is informed by the best available evidence. Health Canada considers it the role of the NUGAG to review the best available evidence and make appropriate recommendations based on the evidence available.

- The systematic review focused on children (Naude et al 2018) had additional findings on CVD outcomes such as LDL and HDL cholesterol (graded Moderate to Very Low by the systematic review authors) which were not considered in the draft Guideline. The reason is unclear because the number of participants were similar in the CVD related analyses to the obesity related analyses. No explanation is provided in the draft Guideline for why CVD-related findings are described for adults and not for children, both in the body of the Guideline and in the evidence GRADE tables.
- With regards to the evidence of no harm, the draft Guideline mentions that fat intake is important for providing essential fatty acids and fat-soluble vitamins, and in this context total fat intake should not be below 15-20% of total energy intake. A WHO report of 1990 is cited for this statement. Although the extent of the reduction in total fat intake in the intervention arms included in the systematic review may generally not be large enough to suggest possible harm, it would have been appropriate to include the intake of essential fatty acids and fat-soluble vitamins as secondary outcomes in the review, the same way the impact of reducing fat intake on sugar and alcohol intake, for example, was assessed.
- Explanation should be provided in the draft Guideline for why the grade of one finding (impact of total fat intake on percentage body fat) changed between the systematic review (Hooper et al 2020) and the WHO Draft Guideline. It changed from high to moderate.

Survey response 17

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Comments on the draft guideline

Summary of evidence
Evidence to recommendations
Recommendations and supporting information
Other comments
Greetings from Colombia Regarding the consultation on fat consumption, we send comments attached in the document, to highlight the importance of having updated scientific evidence on consumption of different oils and the importance of taking into account the food matrix from where the fatty acids and biomolecules present in each type of fat come from.

Define dietary fat intake recommendation for adult individuals and children; It cannot be based solely on the fact that it is the nutrient with the highest energy value and therefore the equation of lower energy consumption must be made to face a multifactorial non-communicable chronic disease such as obesity.

The biochemical, structural and physiological bases that fats (vegetable and animal) fulfill within the healthy diet of human beings must be recognized. Therefore, not knowing the composition and effect of each of the saturated and unsaturated fatty acids in the body is not healthy for anyone. In light of the scientific evidence of the last five years; long chain saturated fatty acids (lauric (C12: 0), myristic (C14: 0), palmitic (C16: 0) and stearic (C18: 0) have been understood to have a positive impact on health As well as knowing the origin of the composition of the matrix, where the most important bio-components are found for the benefit and protection of the organism.

Comments # 1

While the goal is to provide guidance on total fat intake, to reduce the risk of unhealthy weight gain in adults and children; It is striking because they confine it to this only when today it is recognized that the problem of unhealthy weight gain is multi-causal and is not exclusive to a higher energy value from fat; and they fail to recognize the impact that a nutrient such as fats has on human nutrition, above all favorable when the benefit of certain types of fatty acids is exalted and especially when they understand the matrix in which these fatty acids are found; as well as the bio-components that they entail that make them important within the integration of human nutrition. Likewise, recognize the effect of excessive fat intake when on a high carbohydrate diet. And to finish with the immense work of years that has been given in reference to trans fatty acids, where science, academia and the food industry have worked to reduce at least 1% of its presence.

Studies in recent decades have shown that while reaching the total fat intake goal (20-35% Total Caloric Value (TQV)), the quality of the fat consumed is equally important. Recognizing that each fatty acid has a different impact on health, even if they belong to the same category, has taken their study to new frontiers and they have highlighted that not only should a nutrient be studied globally but also look at each of its components and how interact with each other (Vannice, 2014)

COMMENT # 2

On the predominant saturated fatty acids AGS in the diet that are long chain, mainly lauric (C12: 0), myristic (C14: 0), palmitic (C16: 0) and stearic (C18: 0); it has a different impact on health, even if they belong to the same category, that is why it is important not to continue grouping together as a "saturated" whole and demonize them, which are bad; but to review each of its components and how they interact with each other, as well as understand the interaction when they are present within a matrix that provides other types of bio-components that make it a comprehensive and beneficial fat. For example, Palm Oil is recognized as a product that has 40% saturated fat, standing out palmitic acid and oleic fatty acid from the other fraction and the important contribution of natural antioxidants, such as carotenes and vitamin E (tocopherols and tocotrienols) which have neuroprotective, anti-cancer and anti-cholesterolemic activity,

properties that are often not exhibited and according to the current scientific evidence, you should re-evaluate the dietary restrictions that have been given.

The study called, "Fat or fiction: the diet-heart hypothesis", review of 17 systematic analyzes of data from clinical trials) published in 2019; it is concluded: "Diets that replace saturated fats with polyunsaturated fats do not convincingly reduce cardiovascular events or mortality ... we must consider that the diet-heart hypothesis is invalid or should be modified. (DuBroff R, 2019)

COMMENT # 3:

You should add: the function of Fats derived from plant materials contain phytosterols, compounds with a structure related to cholesterol, which are often referred to as plant sterols. The side chain configuration and steroid ring bonding patterns create different chemistries between cholesterol and phytosterols. The most common phytosterols in the diet are β -sitosterol, campesterol, and stigmaesterol. Unlike cholesterol, phytosterols are absorbed differently and their plasma concentrations tend to be low. Due to their ability to displace cholesterol from intestinal micelles, phytosterols can reduce the efficiency of cholesterol absorption, lowering circulating LDL concentrations. (Maldonado, 2012). It has been known for years that these sterols produce hypercholesterolemic effects when ingested in the range of 1-3 g/day, which is why they are considered as important allies in the prevention of cardiovascular diseases, being their consumption indicated for individuals with mild or moderate hypercholesterolemia.

Another function is the structural one derived from phospholipids and sterols are the main components of cell membranes, whose lipid bilayer acts as a barrier to the passage of polar molecules and ions. Lipid membranes are amphipathic and consist of phospholipids (glycerophospholipids and sphingolipids), glycolipids (sphingolipids and galactolipids) and sterols, components characterized by their rigid fusion system of four hydrocarbon rings.

Finally, the regulatory function of eicosatrienoic (C20:3 n-6), arachidonic (C20:4n-6, AA) and eicosapentaenoic (C20:5 n-3, EPA) PUFAs are precursors of eicosanoids: prostaglandins, thromboxanes and leukotrienes, as well as lipoxins and some resolvins (type E), molecules that are biologically involved in inflammation processes, platelet function and immunity. These bioactive compounds are formed from these fatty acids by the action of enzymes such as cyclooxygenase (COX) and lipoxygenase (LOX) to give rise to different molecules with these activities (see below in sections 6 and 7 on AGPs). Moreover, from docosahexaenoic acid (C22:6n-3, DHA) some docosanoids are formed, such as D-type resolvins and protectins, which also play important roles in the processes of inflammation resolution and protection against apoptosis.

Small amounts of other lipids play a role as enzyme cofactors, constituents of facilitators that assist in protein folding, emulsification of agents in the digestive tract, as part of hormones or intracellular messengers, and in electron transport and hydrophobic anchoring of proteins.

The concentrations of eicosanoids and docosanoids synthesized in tissues are mainly related to the levels of n-6 and n-3 fatty acids in the diet. It is possible that the risk of chronic diseases can be reduced by modulating eicosanoid formation through changes in dietary fatty acid composition. Competitive inhibition between the n-3 and n-6 series by desaturases and COX suggests that increasing n-3 PUFA, especially EPA and DHA, would reduce AA levels in tissue lipids and consequently decrease the formation of AA-derived proaggregatory and inflammatory eicosanoids.

COMMENT #4

Studies such as "Effects of nutritional supplements and dietary interventions on cardiovascular outcomes: an overview and evidence map" (Khan SU, Khan MU, Riaz H, Valavoor S, 2019) have concluded: "There is no strong evidence that taking any of 16 nutritional supplements or following a diet that is low in salt or "bad fats" or high in "good fats" protects against cardiovascular disease or helps people live longer," said this new meta-analysis that used exclusively data from randomized controlled studies. And specifically on fats, they state, "In our analysis, the Mediterranean diet, dietary fat modification, dietary fat reduction, reduced consumption of saturated fat, omega-6 PUFA, or omega-3 ALA PUFA did not reduce the risk of mortality or cardiovascular outcomes." (Khan SU, 2019).; which contribute to consider fats not only in their quantity but in their quality; in their composition by type of fatty acid, as well as the matrix in which it is conceived.

COMMENTS # 5

On saturated fats and cardiovascular risk:

The study called "Meta-analysis of prospective cohort studies evaluating the association of saturated fats with cardiovascular disease" (Siri-Tarino, 2010) concluded that according to the meta-analysis of prospective epidemiological studies showed that there is no significant evidence to conclude that saturated fats in the diet are associated with an increased risk of coronary heart disease or CVD.

In the meta-analysis study that collected 8 high quality controlled clinical trials concluded that increased consumption of PUFA as a substitute for SFA is associated with a significant reduction in the risk of CHD (Mozaffarian D. 2010). In summary, increasing the consumption of PFA from 5% to 15% of energy as a replacement for SFA significantly decreased the risk of total and fatal CHD by 19% (RR = 0.81; 95% CI: 0.70-0.95), corresponding to a 10% reduction for each 5% increase in dietary energy in the form of PFA replacing SFA.

In 2014, a study entitled "Association of dietary, circulating and supplemental fatty acids with coronary risk: a systematic review and meta-analysis ,(Chowdhury R, Warnakula S, Kunutsor S, 2014) found 32 observational studies (512,420 participants) of dietary intake fatty acids; 17 observational studies (25,721 participants) of fatty acid biomarkers; and 27 randomized controlled trials (105,085 participants) of fatty acid supplements. In observational studies, the relative risks of coronary heart disease were 1.03 (95% CI, 0.98 to 1.07) for saturated, 1.00 (CI, 0.91 to 1.10) for monounsaturated, 0.87 (CI, 0.78 to 0.97) for long-chain ω -3 polyunsaturated, 0.98 (CI, 0.90 to 1.06) for ω -6 polyunsaturated, and 1.16 (CI, 1.06 to 1.27) for trans fatty acids when comparing the upper and lower thirds of fatty acid intake in the reference diet. The

corresponding estimates for circulating fatty acids were 1.06 (CI, 0.86 to 1.30), 1.06 (CI, 0.97 to 1.17), 0.84 (CI, 0.63 to 1.11), 0.94 (CI, 0.84 to 1.06), and 1.05 (CI, 0.76 to 1.44), respectively. There was heterogeneity of associations between individual circulating fatty acids and coronary artery disease. In randomized, controlled trials, the relative risks of coronary heart disease were 0.97 (CI, 0.69 to 1.36) for α -linolenic, 0.94 (CI, 0.86 to 1.03) for long-chain ω -3 polyunsaturated and 0.86 (CI, 0.69 to 1.07) for ω -6 polyunsaturated fatty acid supplements; concluding that the current evidence does not clearly support cardiovascular guidelines that encourage high consumption of polyunsaturated fatty acids and low consumption of total saturated fats.

Another meta-analysis analyzed 11 prospective studies that did evaluate the effect of lower SFA intake depending on whether they were replaced by carbohydrate (CHO), MFA or PUFA (Jakobsen MU, 2009) observed that reducing SFA intake by 5% of energy and replacing it with 5% PUFA significantly reduced the risk of total CHD by 13% (hazard ratio (HR) = 0.87; CI 0.77-0.97) and by 26% the risk of death from CHD (HR = 0.74; CI, 0.61-0.89). This meta-analysis also suggests that substituting AGS for AGM does not reduce the risk of CHD and may even increase it (HR = 1.19; CI, 1.00-1.42). The associations were similar when the analyses were limited to CHD deaths only. This study provides strong evidence that substituting AGS for AGP reduces the risk of CHD, whereas the effects of substituting AGS for AGM or CHO are unclear.

Last year, 2019, in the study, "Total fat intake, dietary fatty acids, and cardiovascular disease risk: a dose-response meta-analysis of cohort studies" (Zhu, Y., Bo, Y., and Liu, Y. 2019) found in this meta-analysis of cohort studies that the intake of total fat, SFA, MUFA, and PUFA was not associated with cardiovascular disease risk. However, they found that higher intake of TFA (trans fatty acids) was associated with increased CVD risk in a dose-response manner. Furthermore, subgroup analysis found a cardioprotective effect of PUFA (polyunsaturated fatty acids) in studies followed for more than 10 years.

Additionally, it is very important to take into account the article on "Intake of saturated and trans-unsaturated fatty acids and risk of all-cause mortality, cardiovascular disease and type 2 diabetes: systematic review and meta-analysis of observational studies" published in 2015 by BMJ (De Souza 2015) whose result for saturated fat were obtained from three to twelve prospective cohort studies for each association; obtaining as a result that saturated fat intake was not associated with mortality (95%: 0.91 to 1.09), CVD mortality (0.97, 0.84 to 1.12), total CHD (1.06, 0.95 to 1.17) ischemic stroke (1.02, 0.90 to 1.15) or type 2 diabetes (0.95, 0.88 to 1.03). There was no convincing association between saturated fat and coronary heart disease mortality (1.15, 0.97 to 1.36, $P=0.10$). They concluded that saturated fat is not associated with all-cause mortality, CVD, CHD, ischemic stroke, or type 2 diabetes, but the evidence is heterogeneous with methodological limitations.

COMMENT # 6

The estimation of the intake recommendations of a nutrient such as fat cannot be based only on the fact of its energetic contribution, but has to be within the context of the participation it has within the organism, in its structure, effectiveness and integration with other nutrients and substances from the cellular, organic and systemic level; to obtain the result of health and thus ensure a healthy weight, with an integral health.

COMMENT # 7

(Dr. Lee Hooper)

The main results and the authors' conclusion was: Main results: 32 RCTs (approximately 54,000 participants) and 30 sets of analyses of 25 cohorts were included. There is consistent evidence from RCTs in adults of a small weight reduction effect of consuming a lower proportion of energy from fat; this was observed in almost all included studies and was highly robust to sensitivity analyses. The effect of eating less fat (compared with the usual diet) is a mean weight reduction of 1.5 kg (95% confidence interval (CI) -2.0 to -1.1 kg), but greater weight loss results from greater fat reduction. The size of the effect on weight does not change over time and is reflected in reductions in body mass index (BMI) (-0.5 kg/m², 95% CI -0.7 to -0.3) and waist circumference (-0.3 cm, 95% CI -0.6 to -0.02). Cohort studies involving children and adults often suggest no relationship between total fat intake and subsequent measures of weight, body fat, or changes in body fat. However, it was suggested that lower fat intake was associated with lower weight gain in middle-aged adults, but not in the elderly, and with a change in BMI in the more valid cohort of children.

Authors' conclusions: Trials in which participants were randomized to lower fat intake versus usual or moderate fat intake, but with no intention to reduce weight, showed a consistent, stable but small effect of low fat intake on body fat: slightly lower weight, BMI, and waist circumference compared with controls. Greater fat reduction and lower initial fat intake were associated with greater weight reductions. This effect of reducing total fat was not consistently reflected in cohort studies evaluating the relationship between total fat intake and subsequent measures of body fat or change in body fat in studies of children, youth, or adults.

No report of type of fat and how much the reduction was versus the effect of weight loss and has been minimal weight reduction is found.

COMMENTS # 8

AUTHORS' CONCLUSIONS: We were unable to reach firm conclusions. Limited evidence from three trials that randomized children to dietary counseling or education to reduce total fat intake (30% or less TE) versus usual or modified fat intake, but with no intention to reduce weight, showed small reductions in body mass index, total- and LDL-cholesterol at some time points with lower fat intake compared with controls. There were no consistent effects on weight, high-density lipoprotein (HDL) cholesterol, or height. Associations in cohort studies relating total fat intake to subsequent measures of body fat in children were inconsistent and the quality of this evidence was mostly very low. Most studies were conducted in high-income countries and may not be applicable in low- and middle-income settings. High quality.

COMMENT # 9

It is 30% because it is an absolute value reported, but not because an evaluation of value versus effectiveness has been made.

COMMENT # 10

There was no evaluation of caloric expenditure involved where there could be a greater consumption of 30% of the energy value from fat consumption versus a greater expenditure of physical activity.

COMMENT # 11

As the etiology of obesity is complex; fat intake in human nutrition should be considered in greater depth because it involves cellular quality and organic structural responses that are affected by the unclear quality of fat and the matrix that it comes from.

COMMENT # 12

It is of vital importance to differentiate the type of fat or better formulated by the fatty acid that is being estimated. The organism more than needing how much is important, it needs the quality of its components that today in the light of science has demonstrated the need of fatty acids not only unsaturated but also saturated within a matrix that integrates benefits, beyond the energetic contribution.

COMMENT # 13

(63)Global recommendations on physical activity for health. Geneva: World Health Organization; 2010.

(64)Guideline: Saturated fatty acids intake for adults and children. Geneva: World Health Organization; In preparation). 2018

It is evaluated is total saturated fat, there is no analysis of differentiated saturated fatty acids and less is considered the matrix source of saturated fat in the studies, only the total intake of saturated fat. It is urgent to have the studies in which the composition of the dietary source of saturated fat intake and its positive effects on health. For example, there is palm oil, with its high content of natural antioxidants, such as carotenes and vitamin E (tocopherols and tocotrienols). They are essential components of the diet, because they cannot be synthesized by animals, in these, they have the ability to replace free radicals in cell membranes, which protects from damage of polyunsaturated fatty acids of the cell membrane, this damage is considered the cause of chronic diseases (neurological or cardiovascular disorders, cancer, cataracts and inflammatory diseases). (Hidalgo A, 2006 and Chandan S et al, 2006).

Tocotrienols possess neuroprotective, anticancer and anticholesterolemic activity, properties that are often not exhibited by tocopherols. In scientific studies on the physiological activity of vitamin E, it has been suggested that tocotrienols have an antioxidant action forty times higher than alpha-tocopherol, when compared using bilayer lipid systems similar to those of cell membranes (Rodriguez, 1997 and Bayon, 2003). Mixed tocopherols may be more potent in their antioxidant activity compared to alpha-tocopherol alone. This is demonstrated by a study in which a mixture of tocopherols and alpha-tocopherol alone was used for the prevention of platelet aggregation, relating the mixture of tocopherols to an increased release of nitric oxide and activation of superoxide dismutase, which may contribute to an effect on platelet aggregation in cardiovascular events. (Liu M et al, 2003).

Other benefits that have been found from these tocotrienols to been with aging, (Georgousopoulou EN, 2016) a systematic review of studies evaluated the potential effect of tocotrienol intake or circulating levels of tocotrienols on parameters associated with successful aging, specifically in relation to cognitive function, osteoporosis and DNA damage. Evidence from prospective and case-control studies suggested that increased blood levels of tocotrienols were associated with favorable cognitive function outcomes. Clinical trials are required to elucidate these effects.

The relationship of obesity and vitamin E as a natural lipophilic vitamin has also been studied recently. Due to having the α -tocopherol transfer protein. Recently, other vitamin E isoforms, tocotrienols, which have unique biological functions such as apoptosis induction, neuroprotective and anti-obesity effects (Fukui, K. (2019).

Additionally, in a randomized, double-blind, crossover trial study on the effect of palm olein and olive oil on serum lipids in a Chinese population; they obtained as a result that palm olein and olive oil consumption had no significantly different effect on BMI, serum total cholesterol, low-density lipoprotein cholesterol, high-density lipoprotein cholesterol, triglycerol, ApoB, fasting glucose or insulin concentration (all $p > 0.05$) concluding that palm olein and olive oil had no recognizable effects on BMI or blood lipids in a healthy Chinese population. (Sun G, 2018).

In the review on palm oil and the heart for the identification of evidence of the influence of palm oil on serum lipid profile and cardiovascular disease, they concluded that the major objection is the presence of palmitic acid, being a saturated fatty acid and by extrapolation should lead to elevated levels of total cholesterol and low-density lipoprotein cholesterol. However, there are many scientific studies, both in animals and humans, that clearly show that consumption of palm oil does not result in elevated serum cholesterol levels and that palm oil is not atherogenic. In addition to palmitic acid, palm oil consists of oleic and linoleic acids which are monounsaturated and polyunsaturated, respectively. Palm oil also consists of vitamins A and E, which are powerful antioxidants. Palm oil has been scientifically proven to protect the heart and blood vessels from plaque and ischemic injury. Palm oil consumed as dietary fat as part of a healthy, balanced diet has no incremental risk of cardiovascular disease. Little or no additional benefit will be gained by replacing it with other oils rich in monounsaturated or polyunsaturated fatty acids. (Osaretin J et al, 2015).

In 2016 in Bogota Colombia, a case-control study was conducted on the effect of hybrid palm oil and extra virgin olive oil consumption on traditional and emerging risk factors for cardiovascular disease; where it is defined that hybrid palm oil (*Elaeis oleifera* x *Elaeis guineensis*) has a high content of antioxidants and cardioprotective compounds such as, beta-carotene, tocopherols and tocotrienols; After supplying a total of 160 people over 50 years of age with a dose of 25 ml/day of hybrid palm oil and extra virgin olive oil (control group) for a period of three (3) months, the effect on the lipid profile was evaluated, The results of both groups showed a significant decrease in plasma total cholesterol and low density lipoproteins and an increase in phenolic content and antioxidant capacity. Saturated fatty acids and omega-3 index decreased in the erythrocyte membrane. Both oils showed similar results, suggesting that hybrid palm oil may be considered as the "tropical equivalent" of extra-virgin olive oil and provide similar benefits in cardiovascular health. (Ojeda et al, 2016)

In 2017 the position of the Nutrition Foundation in Italy, on palm oil and human health: NFI meeting report stated: "There is no evidence on the specific health effects of palm oil consumption compared to other fats rich in saturated fatty acids; the stereospecific distribution of saturated fatty acids in the triacylglycerol molecule of palm oil limits its absorption rate and metabolic effects; according to international guidelines, the intake of saturated fatty acids should be maintained $<10\%$ of total energy, within a balanced diet; within these limits, no effect of palm oil consumption on human health (and specifically on CVD or cancer risk) can be foreseen. (Marangoni F, 2017).

Under a systematic review of the association of palm oil consumption with CVD risk and CVD-specific mortality, the group of Ismail et al in 2018; where the search retrieved 2,738 citations for stroke and 1,777 citations for coronary heart disease (CHD) with four included studies. Palmitic acid was reported to be associated with risk of myocardial infarction (MI) (OR 2.76; 95% CI = 1.39-5.47). Total SFA intake was also reported to be nonsignificant for the risk of myocardial infarction. Variable intake of fried foods, the largest contributor to total SFA with 36% of households using palm oil for frying, did not show significant associations with risk of myocardial infarction. However, they conclude that, in view of the abundance of palm oil in the market, quantifying its true association with CVD outcomes is challenging. The present review was unable to establish strong evidence for or against palm oil consumption in relation to CVD risk and CVD-specific mortality.

Further studies are needed to establish the association of palm oil with CVD. An overall healthy diet should be prioritized for good cardiometabolic health; due to lack of a pooled effect estimate of the association, significant bias in selection criteria and confounders, inclusion of other foods along with palm oil, and possible outdated trend in the ecological study (Ismail, 2018).

In 2018, human trials were conducted to compare the effects on serum cholesterol levels given by palm olein and monounsaturated oils. It was postulated that the saturation/unsaturation of fatty acids located at the sn-2 positions of triglycerides in fat molecules determine the induced blood lipid levels, but not the overall saturation of the oils. The results showed that the effects of lipid parameters (LDL and HDL) induced by these oils are similar, with no significant differences. This study provides concrete evidence that the unsaturation levels of these oils at the sn-2 position of TG are similar (90-100%) considered to be responsible for lipid parameters. In conclusion, the negative perception of the public in believing that the overall saturation of oils is detrimental to health should be corrected because, in fact, the unsaturation at the sn-2 positions of saturated vegetable fat, such as palm olein and cocoa butter, causes them to behave as unsaturated mono-oils, unlike saturated animal fats that have a high content of saturated fatty acids at the sn-2 position. (Sin Teh, 2018).

The effect of palmitic acid in the pediatric age, it has been evidenced that, in breast milk, palmitic acid represents 25% of fatty acids and more than 70% are esterified mainly in position B or sn-2 position, favoring its absorption, as studies confirm that fatty acids found in the sn-2 position are preferentially absorbed compared to fatty acids in Sn 1 and 3 position of the triglyceride. An indicator of the importance of sn-2 palmitate is that it is found in the breast milk of all women, regardless of their ethnic origin or diet, and for this reason, palm oil is very useful in the breast milk substitute industry, providing a better availability of monounsaturated fatty acids, which are characterized by their hypocholesterolemic power, besides being a source of β palmitate, favoring the adequate cognitive development of the infant population.

COMMENT # 14

The matrix of polyunsaturated and saturated fatty acids and their bio-components should be included to clearly define the recommended values for both children and adults. There is a need for evidence-based research on the necessary intake of both polyunsaturated and saturated fats based on currently established data.

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Survey response 18

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Comments on the draft guideline

Summary of evidence
The priority health outcome considered by the WHO to develop the total fat intake guideline was unhealthy weight gain (as assessed by various measures of body fatness including body weight, BMI, waist circumference, skinfold thickness, percentage body fat), and adverse events (i.e., potential harms). Investigations used to support a total fat recommendation often do not have data on energy balance of the individuals participating in the study. Metabolic implications of the quantity and type of fat consumed are impacted by whether one is in negative, positive, or stable energy balance. Thus, within any effort to derive a number for total fat consumption, there should be some comment about the energy balance of subjects. Any report and recommendations issued should note the absence of such valuable data, if that is the case, and the subsequent implications for any recommendations made.
Evidence to recommendations
The American Society for Nutrition appreciates that the recommendation related to total fat is considered conditional because some individuals who reduce their fat intake might replace energy from dietary fat with energy from low nutrient density foods, reducing their overall health benefit. It is important to frame all recommendations in the context of overall diet quality and dietary patterns vs. specific food components or food groups.
Recommendations and supporting information
The recommendations in the WHO draft guideline for total fat, saturated fat, and trans fat are in line with recommendations from other expert committees and authoritative documents, including the 2020 Dietary Guidelines for Americans, which recommend that saturated fat consumption be less than 10% of calories per day and that trans fat consumption to be as low as possible; the 2020 Dietary Guidelines Advisory Committee Scientific Report which found that "Strong evidence demonstrates that replacing saturated fatty acids with polyunsaturated fatty acids in adults reduces the risk of coronary heart disease events and cardiovascular disease mortality;" and the 2005 National Academies report "Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat Fatty Acids, Cholesterol, Protein and Amino Acids" which recommends that adults consume 20-35% of calories from fat.
Other comments

**American Society for Nutrition (ASN) Comments on the draft World Health Organization (WHO)
Guideline: Total fat intake for adults and children draft guideline**

ASN Comment on WHO Summary of evidence chapter of draft guideline (page 20-27):

The priority health outcome considered by the WHO to develop the total fat intake guideline was unhealthy weight gain (as assessed by various measures of body fatness including body weight, BMI, waist circumference, skinfold thickness, percentage body fat), and adverse events (i.e., potential harms). Investigations used to support a total fat recommendation often do not have data on energy balance of the individuals participating in the study. Metabolic implications of the quantity and type of fat consumed are impacted by whether one is in negative, positive, or stable energy balance. Thus, within any effort to derive a number for total fat consumption, there should be some comment about the energy balance of subjects. Any report and recommendations issued should note the absence of such valuable data, if that is the case, and the subsequent implications for any recommendations made.

ASN Comment on WHO Evidence to recommendations chapter of draft guideline (page 28-31):

ASN appreciates that the recommendation related to total fat is considered *conditional* because some individuals who reduce their fat intake might replace energy from dietary fat with energy from low nutrient density foods, reducing their overall health benefit. It is important to frame all recommendations in the context of overall diet quality and dietary patterns vs. specific food components or food groups.

ASN Comment on WHO Recommendations and supporting information chapter of draft guideline (page 32-35):

The recommendations in the WHO draft guideline for total fat, saturated fat, and *trans* fat are in line with recommendations from other expert committees and authoritative documents, including the 2020 *Dietary Guidelines for Americans*, which recommend that saturated fat consumption be less than 10% of calories per day and that *trans* fat consumption to be as low as possible; the 2020 Dietary Guidelines Advisory Committee Scientific Report which found that “Strong evidence demonstrates that replacing saturated fatty acids with polyunsaturated fatty acids in adults reduces the risk of coronary heart disease events and cardiovascular disease mortality;” and the 2005 National Academies report “Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat Fatty Acids, Cholesterol, Protein and Amino Acids” which recommends that adults consume 20-35% of calories from fat.

Survey response 19

General information

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Given/first name
Moises
Organization/affiliation
National Dairy Council
Sector
Non-governmental agency
Sector [Other]
Country
United States of America

Comments on the draft guideline

Summary of evidence
Evidence to recommendations
Recommendations and supporting information
Other comments



DATE: April 28, 2018

FROM: National Dairy Council

RE: Public consultation on the WHO Draft guidelines on total fat intake for adults and children

To Whom It May Concern:

National Dairy Council® (NDC) appreciates the opportunity to submit comments for consideration on the WHO Draft Guidelines on total fat intake for adults and children.

NDC, the non-profit organization founded by U.S. dairy farmers, is committed to nutrition research and education about dairy's role in the diet and in health and wellness. NDC provides science-based dairy nutrition information to, and in collaboration with, a variety of stakeholders committed to fostering a healthier nation, including health professionals, educators, school nutrition directors, academia and industry. Established in 1915, NDC comprises a staff of registered dietitians and experts in nutrition research, product development, food safety and communications across the country. NDC is committed to helping improve children's health and wellness through programs such as Fuel Up to Play 60, which encourages youth to consume nutrient-rich foods and achieve at least 60 minutes of physical activity each day.

Evolution of dietary recommendations on dietary fat for the reduction of non-communicable chronic diseases: from a reductionist nutrient-focus approach to a food-based-dietary patterns approach.

There is no doubt that obesity has become an epidemic crisis worldwide. The incidence of obesity and type 2 diabetes -frequently referred to as the twin pandemics [1]- continues steadily growing in low- and middle-income countries (LMICs) as well [2,3]. Obesity is a multifactorial complex disease and an independent risk factor for cardiovascular disease, T2D, and some types of cancers [4,5]. It is well accepted that healthy nutrition can play a central role in reducing the risk of obesity and, in general, of non-communicable chronic diseases (NCDs) [6,7]. As indicated by experts in the field, given the enormous importance of nutrition for health, "multi-sectoral policies for better nutrition should be a top priority" [8] for global and local health authorities, governments, businesses, health systems and consumers. As such and, as a global health authority, it is of great significance that the WHO is proactively acting and providing this draft of guidelines on total fat intake for adults and children to reduce the risk of obesity. Having in mind the implications that these dietary guidelines may have -as it could

potentially affect the health of billions of people- it is of upmost importance that they represent state of the art scientific evidence, so that the dietary fat recommendations generated are well-aligned with the most updated body of evidence.

WHO draft dietary fat guidelines recommendations

The WHO draft guidelines on total fat intake suggest that “adults limit total fat intake to 30% of total energy intake or less (conditional recommendation)”. It is also suggested that “no more than 10% of total energy intake from saturated fat (SFA) and no more than 1% of total energy intake coming from trans fat (TF) (strong recommendation)”. The basis for these dietary recommendations relies mainly on a systematic review and meta-analysis conducted by WHO invited experts that included data from a total of 37 randomized control trials (RCTs), of which 24 were conducted in North America, 10 in Europe, 2 in Australia and New Zealand and 1 in China. Systematic review and meta-analysis of prospective cohort studies was not conducted because the data were “too varied to synthesize and therefore did not provide any useful information beyond that obtained from RCTs”. In summary, these draft dietary guidelines suggest following reduced fat diets to reduce the risk of “unhealthy weight gain” in adults.

The following additional scientific points could be considered when finalizing the proposed global dietary fat recommendations for adults:

1. The basis of the WHO’s suggested dietary fat recommendations is under the historical premise that because fat and fatty acids are “the most energy dense of the macronutrients, supplying 9 kcal (37.7 kJ) of energy per gram,” then, “higher fat intakes can increase total energy intake, which can lead to energy imbalance and unhealthy weight gain”. Although, stated in the draft report that “fat and fatty acids play a wide range of roles in human physiology, including the transport and absorption of fat-soluble vitamins providing structural integrity to cell membranes, regulating gene expression, supporting immune function, and promoting growth and development of the nervous system in early life”, these complex physiologic effects of dietary fats were not discussed further in the draft report. Additionally, we have learned that the health effects of fats vary also depending on the specific food source due to the presence of other nutrients, e.g. protein, minerals, vitamins, etc., food matrices, intramolecular and complex lipid structures and, processing [9,10,11]. In other words, we eat foods, not single nutrients and foods can be complex entities. An example of this complexity of fat content, foods and obesity risk is dairy foods.
 - Comparatively, whole- and reduced-fat dairy foods contain more calories and SFA than low-fat and fat-free versions. However, a growing body of evidence from observational studies indicates that the association between dairy food consumption and body weight is not always as expected based simply on fat and calorie content.
 - For instance, a 2013 systematic review concluded that observational evidence does not support an association between dairy fat or whole-fat dairy foods and obesity or cardiometabolic risk [12].
 - In a Women’s Health Study cohort study of more than 18,000 women who were normal weight at baseline and followed for 17 years, higher consumption of whole-

fat, but not low-fat, dairy products was associated with less weight gain. Consumption of whole-fat dairy foods was also associated with lower risk for overweight and obesity, but total dairy, low-fat dairy, specific dairy products (except yogurt) and calcium or vitamin D were not [13].

- In another study of 4,545 participants enrolled in the Prevention with Mediterranean Diet (PREDIMED) study, whole-fat yogurt consumption was associated with an average yearly decrease in waist circumference of 0.23 centimeters in the highest (52.5 g per day) compared to the lowest (1.7 g per day) quintiles of consumption [14]. While the original PREDIMED study was retracted [15], republished findings remained the same [16]. There is no reason to believe that the findings cited here [14] on whole-fat yogurt consumption were impacted by the retraction of the original publication.
- In a study of 19,352 perimenopausal women in Sweden, consumption of one or more servings of cheese per day was associated with 30% less weight gain after a nine-year follow-up. Among participants with a healthy weight at baseline, whole and fermented milk were associated with 27% less weight gain over nine years of follow-up [17].
- Similarly, a study of three prospective cohorts that included 120,877 healthy, non-obese U.S. women and men found no link between the consumption of most dairy foods and long-term weight gain [18].

As such, the scientific knowledge accumulated until now further complicates a simple prediction or conclusion that dietary fats have effects on obesity and related health outcomes driven by calorie content.

2. The WHO draft guidelines report indicates that the potential dietary fat recommendations are aimed to be used as guidance for LMICs. Interestingly, as indicated above most of the studies considered by the WHO experts were conducted in high-income countries (HICs) -24 out of 37 conducted in North America-, where current dietary recommendations have been evolving from a nutrient focus approach to a more food-based approach.
 - For instance, Mozaffarian D., presented a brief overview of the evolution of dietary fat recommendations in the US [30]. Briefly, in 1980, the US Dietary Guidelines (DG) first recommended low-fat diets and low-fat foods (limiting dietary fat to <30% of calories) with the idea that low-fat diets/foods might help prevent obesity [19]. Over time, a growing body of scientific evidence provided little evidence to support a 30% restriction. As such, the 2005 US DG [20] established a more moderated new range of fat intake of 20 to 35% of total calories more accordingly to the references established by the Institute of Medicine [21]. In 2015, the US DG Advisory Committee (DGAC) concluded that evidence no longer supported any upper limit and, stated that dietary guidelines should not focus on lowering total fat [22].
 - Dietary patterns emerged as the new focus for dietary recommendations. The 2015 US DGAC indicated that whole eating patterns need to be considered to

determine the impact of diet on chronic disease outcomes [22]. Eating patterns capture the synergistic and cumulative effects that combinations of foods and beverages – and the nutrients they contain – can have on health [23]. Because **“eating patterns contain multiple foods and beverages that work together in relation to health, they may be more predictive of health than any one food or nutrient”** [24]. Healthy eating patterns recommended included the Dietary Approaches to Stop Hypertension (DASH), the Mediterranean and vegetarian diets.

- The most current US DG (2020-2025 DGA) re-emphasized dietary recommendations based on eating patterns [25]. It states that “A dietary pattern represents the totality of what individuals habitually eat and drink, and the parts of the pattern act synergistically to affect health. As a result, **the dietary pattern may better predict overall health status and disease risk than individual foods or nutrients**”. It is stated that “A healthy dietary pattern consists of nutrient-dense forms of foods and beverages across all food groups, in recommended amounts, and within calorie limits. Achieving a healthy dietary pattern at each life stage not only supports health at that point in time, but also supports health in the next life stage and possibly for future generations”. Similar healthy eating patterns are recommended as the 2015-2020 DGA.
- Along these lines, in 2015 the Canadian Heart and Stroke Foundation [26] stated that “The science of nutrition is ever-evolving with new evidence emerging all the time. It is **becoming increasingly clear** that what has the most impact on health is the overall quality of one’s diet, combined with the types and quantity of food consumed.”
- In 2015, the Swedish Dietary Guidelines risk and benefit management report [27] stated that the evidence **“shows that the division between protein, fat and carbohydrates doesn't seem to play an important role in preventing weight gain**. However, there is scientific evidence showing that foods that are rich in fibre, that is green vegetables, root vegetables, legumes, fruit, berries, whole grain products, nuts and seeds, and possibly also dairy products, are connected with a reduced risk of weight gain.”
- Similarly, in 2019 the Public Health France (Santé Publique France) released France’s new recommendations on food, physical activity and inactivity for adults [28]. These new dietary recommendations are based on the Swedish Dietary Guidelines [27]. It encourages the public to gradually shift toward healthier lifestyles and **to emphasize a whole foods approach versus focusing on nutrient intake**.

Therefore, the examples listed above show how dietary recommendations are shifting based on the growing body of evidence from nutrient-focus to food-based across HICs. As such, WHO dietary fat recommendations have an opportunity to consider newer scientific evidence to have a greater impact in reducing the risk of obesity and its health consequences.

3. The WHO draft guidelines on total fat intake for adults connoted a nutrition transition -the shift from traditional diets composed of whole foods, such as pulses and whole grains, and that are low in animal-source foods, salt, and refined oils, sugars, and flours, to an energy-dense and nutrient-poor diet composed of refined carbohydrates, high fat intake, and processed foods- in LMICs as one of the main factors associated with the increased incidence of overweight and obesity [29]. While the proliferation of nutrient-poor energy-dense type of foods is a recognized important factor associated with increased risk of NCDs [30], it is possible to recognize that traditional diets are not necessarily absolutely healthy without exception. It has been reported that staple food-based and/or traditional diets typically lack dietary diversity and have been associated with micronutrient deficiencies [31]. Therefore, it has been suggested that some aspects of dietary change associated with the nutrition transition can be acceptable [2]. In this sense, it has been proposed that enhancing dietary diversity by including fruits and vegetables, eggs, cheese, milk, meat, and fish in some settings [32] could improve the nutrition transition and thus, have a positive impact on reducing risk of obesity and its related health complications in LMICs.

In summary, improving diet quality based on the inclusion of nutrient-dense foods is a focus of global dietary recommendations that seek to move toward healthy dietary patterns and away from individual nutrients such as fat.

Conclusions

Nutrition science and the scientific evidence has enormously evolved. There has been a move away from individual nutrient focus in dietary recommendations whose practice has not been successfully demonstrated for reducing the incidence of NCDs such as obesity. The WHO draft report on total fat intake for adults and children has an opportunity, if desired, to consider the full breadth of evidence available and to consider the evolution of dietary recommendations by HICs' health authorities to inform diet recommendations. Having in mind what the WHO represents globally and that its fat intake guidelines are important for future work that could affect the health of billions of people, making recommendations for dietary fat could be done while simultaneously considering the food source, the presence of other nutrients, food matrices and the health impacts associated with eating patterns. The ultimate goal is sound science that leads to improved diet quality and long-term health, especially in LMICs.

Thank you for the opportunity to submit these comments.

Moises Torres-Gonzalez, PhD
Vice President, Nutrition Research. National Dairy Council

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Survey response 20

General information

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Sector [Other]	
Country	
Belgium	

Comments on the draft guideline

Summary of evidence
<p>FEDIOL is the European federation representing the interests of the European vegetable oil and protein meal industry. Directly and indirectly, FEDIOL covers about 180 processing sites that crush oilseeds and/or refine crude vegetable oils. These plants belong to around 70 companies. It is estimated that 85% of the EU crushing and refining activity is covered by the FEDIOL membership structure.</p> <p>FEDIOL welcomes the possibility to provide feedback to the WHO Draft guideline on Total fat intake for adults and children.</p> <p>FEDIOL has carefully been through the document and would like to highlight the following points.</p> <p>Overall, whilst FEDIOL welcomes the recognition of the positive roles that fatty acids play in human physiology in page 12, FEDIOL considers that the benefits of unsaturated fatty acids and in particular those coming from polyunsaturated fatty acids (PUFA) are not highlighted enough. Such benefits have particularly been recognised in EU nutrition and health claims.</p> <p>FEDIOL is aware that specific WHO guidelines on PUFA have been developed but their specific health benefits should still be given further emphasis in the guidance on total fats. Indeed, the FAO Food and Nutrition Paper 91 noted “the need to focus on the roles of individual fatty acids (...)” and “recognized that individual fatty acids within each broad classification of fatty acids may have unique biological properties and health effects.”</p>

Evidence to recommendations

• On the conditional recommendation to limit total fat intake to 30% of total energy intake or less
FEDIOL notes the threshold of 30%, which is in line with past WHO guidelines. FEDIOL further notes on page 35 that “to ensure an adequate intake of energy and essential fatty acids, and to facilitate the absorption of lipid soluble vitamins, total fat intake in most adults should be at least 15–20% of total energy intake, although energy requirements are increased during pregnancy and lactation.” FEDIOL strongly considers that this should be reflected in the recommendation itself as well. This is also in line with the Reference Intake set by the European Food Safety Authority (EFSA) , which ranges for adults between 20 E% at a lower bound and 35 E% at an upper bound or those set at national EU country level . It is also further recognised that intakes below 15 E% are not desirable, because it may be difficult to ensure adequate intake of fat-soluble vitamins and essential fatty acids .

FEDIOL concurs with WHO that the guidelines under consultation should be seen in the context of other WHO dietary recommendations including those on free sugars and carbohydrates, which provide guidance on carbohydrate quality and hence that they be kept conditional. Indeed, reducing too much the % of total fat intake below the 30% threshold could have serious consequences from a nutrition point of view given the essential role that vegetable oils and fats play in our body. As indicated in studies referenced in the draft WHO guidance , low fat dietary regimes are associated with an increase in sugar and total carbohydrate consumption. This should hence be further considered in light of the WHO dietary recommendation on carbohydrate quality. Furthermore, fat reduction should not be done to the detriment of unsaturated fatty acids.

To take into consideration the points mentioned above, FEDIOL considers that the wording of the recommendation should be amended and proposes the following wording (new wording as underlined below):

To reduce the risk of unhealthy weight gain, WHO suggests that adults limit total fat intake to 30% of total energy intake or less, but not below 15 to 20% of total energy intake.

• On the strong recommendation on fat consumed should be primarily unsaturated fatty acids, with no more than 10% of total energy intake coming from saturated fatty acids and no more than 1% of total energy intake coming from trans fatty acids
FEDIOL concurs with the proposed percentage recommendations, which are in line with previous WHO guidelines on SAFA and on TFA, on which FEDIOL also provided input in the past. It also concurs with the recommendation to favour unsaturated fatty acids over saturated fatty acids, which is also in line with available science.

FEDIOL members will continue working on reformulation practices in partnership with industry higher in the chain to further improve nutrition profiles of food products.

Recommendations and supporting information
<p>•<input type="checkbox"/>On the conditional recommendation to limit total fat intake to 30% of total energy intake or less</p> <p>FEDIOL notes the threshold of 30%, which is in line with past WHO guidelines. FEDIOL further notes on page 35 that “to ensure an adequate intake of energy and essential fatty acids, and to facilitate the absorption of lipid soluble vitamins, total fat intake in most adults should be at least 15–20% of total energy intake, although energy requirements are increased during pregnancy and lactation.” FEDIOL strongly considers that this should be reflected in the recommendation itself as well. This is also in line with the Reference Intake set by the European Food Safety Authority (EFSA) , which ranges for adults between 20 E% at a lower bound and 35 E% at an upper bound or those set at national EU country level . It is also further recognised that intakes below 15 E% are not desirable, because it may be difficult to ensure adequate intake of fat-soluble vitamins and essential fatty acids .</p> <p>FEDIOL concurs with WHO that the guidelines under consultation should be seen in the context of other WHO dietary recommendations including those on free sugars and carbohydrates, which provide guidance on carbohydrate quality and hence that they be kept conditional. Indeed, reducing too much the % of total fat intake below the 30% threshold could have serious consequences from a nutrition point of view given the essential role that vegetable oils and fats play in our body. As indicated in studies referenced in the draft WHO guidance , low fat dietary regimes are associated with an increase in sugar and total carbohydrate consumption. This should hence be further considered in light of the WHO dietary recommendation on carbohydrate quality. Furthermore, fat reduction should not be done to the detriment of unsaturated fatty acids.</p> <p>To take into consideration the points mentioned above, FEDIOL considers that the wording of the recommendation should be amended and proposes the following wording (new wording as underlined below):</p> <p>To reduce the risk of unhealthy weight gain, WHO suggests that adults limit total fat intake to 30% of total energy intake or less, but not below 15 to 20% of total energy intake.</p> <p>•<input type="checkbox"/>On the strong recommendation on fat consumed should be primarily unsaturated fatty acids, with no more than 10% of total energy intake coming from saturated fatty acids and no more than 1% of total energy intake coming from trans fatty acids</p> <p>FEDIOL concurs with the proposed percentage recommendations, which are in line with previous WHO guidelines on SAFA and on TFA, on which FEDIOL also provided input in the past. It also concurs with the recommendation to favour unsaturated fatty acids over saturated fatty acids, which is also in line with available science.</p> <p>FEDIOL members will continue working on reformulation practices in partnership with industry higher in the chain to further improve nutrition profiles of food products.</p>
Other comments



21SAF137
30 April 2021

FEDIOL response on consultation on WHO draft guideline on total fat intake for adults and children

FEDIOL is the European federation representing the interests of the European vegetable oil and protein meal industry. Directly and indirectly, FEDIOL covers about 180 processing sites that crush oilseeds and/or refine crude vegetable oils. These plants belong to around 70 companies. It is estimated that 85% of the EU crushing and refining activity is covered by the FEDIOL membership structure.

FEDIOL welcomes the possibility to provide feedback to the WHO Draft guideline on Total fat intake for adults and children.

FEDIOL has carefully been through the document and would like to highlight the following points.

Overall, whilst FEDIOL welcomes the recognition of the positive roles that *fatty acids play in human physiology* in page 12, FEDIOL considers that the benefits of unsaturated fatty acids and in particular those coming from polyunsaturated fatty acids (PUFA) are not highlighted enough. Such benefits have particularly been recognised in EU nutrition and health claims.

FEDIOL is aware that specific WHO guidelines on PUFA have been developed but their specific health benefits should still be given further emphasis in the guidance on total fats. Indeed, the FAO Food and Nutrition Paper 91¹ noted *"the need to focus on the roles of individual fatty acids (...)"* and *"recognized that individual fatty acids within each broad classification of fatty acids may have unique biological properties and health effects."*

- *On the conditional recommendation to limit total fat intake to 30% of total energy intake or less*

FEDIOL notes the threshold of 30%, which is in line with past WHO guidelines. FEDIOL further notes on page 35 that *"to ensure an adequate intake of energy and essential fatty acids, and to facilitate the absorption of lipid soluble vitamins, total fat intake in most adults should be at least 15–20% of total energy intake, although energy requirements are increased during pregnancy and lactation."* FEDIOL strongly considers that this should be reflected in the recommendation itself as well. This is also in line with the Reference Intake set by the European Food Safety Authority (EFSA)², which ranges for adults between 20 E% at a lower bound and 35 E% at an

¹ Fats and fatty acids in human nutrition Report of an expert consultation, FAO Food and Nutrition Paper 91, FAO, Rome, 2010

² EFSA Panel on Dietetic Products, Nutrition, and Allergies (NDA); Scientific Opinion on Dietary Reference Values for fats, including saturated fatty acids, polyunsaturated fatty acids,

FEDIOL AISBL - THE EU VEGETABLE OIL AND PROTEIN MEAL INDUSTRY

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upper bound or those set at national EU country level³. It is also further recognised that *intakes below 15 E% are not desirable, because it may be difficult to ensure adequate intake of fat-soluble vitamins and essential fatty acids*⁴.

FEDIOL concurs with WHO that the guidelines under consultation should be seen *in the context of other WHO dietary recommendations including those on free sugars and carbohydrates, which provide guidance on carbohydrate quality* and hence that they be kept conditional. Indeed, reducing too much the % of total fat intake below the 30% threshold could have serious consequences from a nutrition point of view given the essential role that vegetable oils and fats play in our body. As indicated in studies referenced in the draft WHO guidance⁵, low fat dietary regimes are associated with an increase in sugar and total carbohydrate consumption. This should hence be further considered in light of the WHO dietary recommendation on carbohydrate quality. Furthermore, fat reduction should not be done to the detriment of unsaturated fatty acids.

To take into consideration the points mentioned above, FEDIOL considers that the wording of the recommendation should be amended and proposes the following wording (new wording as underlined below):

To reduce the risk of unhealthy weight gain, WHO suggests that adults limit total fat intake to 30% of total energy intake or less, but not below 15 to 20% of total energy intake.

- *On the strong recommendation on fat consumed should be primarily unsaturated fatty acids, with no more than 10% of total energy intake coming from saturated fatty acids and no more than 1% of total energy intake coming from trans fatty acids*

FEDIOL concurs with the proposed percentage recommendations, which are in line with previous WHO guidelines on SAFA and on TFA, on which FEDIOL also provided input in the past. It also concurs with the recommendation to favour unsaturated fatty acids over saturated fatty acids, which is also in line with available science.

FEDIOL members will continue working on reformulation practices in partnership with industry higher in the chain to further improve nutrition profiles of food products.

monounsaturated fatty acids, trans fatty acids, and cholesterol. EFSA Journal 2010; 8(3):1461. [107 pp.]. doi:10.2903/j.efsa.2010.1461. Available online: www.efsa.europa.eu

³ See for example the Dutch Health Council guidance

<https://www.gezondheidsraad.nl/binaries/gezondheidsraad/documenten/adviezen/2001/07/18/voedingsnormen-energie-eiwitten-vetten-en-verteerbare-koolhydraten/dossier-voedingsnormen-energie-eiwitten-vetten-en-verteerbare-koolhydraten.pdf>

⁴ Ibidem footnote 2.

⁵ Hooper L, Abdelhamid A, Bunn D, Brown T, Summerbell CD, Skeaff CM. Effects of total fat intake on body weight. Cochrane Database Syst Rev. 2015(8):CD011834.

Survey response 22

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Comments on the draft guideline

Summary of evidence
Evidence to recommendations
Recommendations and supporting information
Other comments

Call for comment on the draft WHO Guideline: Total fat intake for adults and children

Comments by: LRF Dairy Sweden through Ann-Kristin Sundin, ann-kristin.sundin@lrf.se

Thank you for this public call on commenting on the draft WHO guideline!

Summary if evidence

Comment: it is crucial to stratify the type of fat, the type of individual or groups of food (e.g. milk, yoghurt, cheese as separate foods/food groups, and not put them all into a broader category such as dairy, low-fat / high-fat dairy or alike. The rational behind that is the emerging evidence that different types of fatty acids, as well as what sources provide them in the diet, impact the health outcome. As such, for instance cheese - despite its high content of saturated fatty acids - is correlated with beneficial health outcomes as well as beneficial clinical biomarkers. A food matrix approach to nutrient recommendations and food based dietary guidelines will likely provide an even stronger evidencebased science base than solely focusing on total fat intake or intake of specific groups of fatty acids (e.g. saturated fatty acids).

Evidence to recommendations

Comment: it is crucial to stratify the type of fat, the type of individual or groups of food (e.g. milk, yoghurt, cheese as separate foods/food groups, and not put them all into a broader category such as dairy, low-fat / high-fat dairy or alike. The rational behind that is the emerging evidence that different types of fatty acids, as well as what sources provide them in the diet, impact the health outcome. As such, for instance cheese - despite its high content of saturated fatty acids - is correlated with beneficial health outcomes as well as beneficial clinical biomarkers. A food matrix approach to nutrient recommendations and food based dietary guidelines will likely provide an even stronger evidencebased science base than solely focusing on total fat intake or intake of specific groups of fatty acids (e.g. saturated fatty acids).

Foods regarded as high in fat, such as whole fat milk or yoghurt, or cheese) are also high in many nutrients. If lowered or deleted from the diet, the consequence of the nutrient and energy intake must be taken into consideration. This is, in part, mentioned on p 30:

“Subgroup on Diet and Health acknowledged that some individuals who reduce their fat intake might replace some of the energy from dietary fat with energy from foods that are undesirable from a dietary quality perspective, such as free sugars (78), reducing the net benefit. “

Thus, also from this aspect, it is important to stratify the foods rather than categorizing them into “untrue” groups of foods. For instance, dairy products are so vast in numbers and have different effects on health.

It is also of vital importance to recognize social factors of foods such as affordability, especially in economically vulnerable groups. Here, dairy products are a particularly important source of nutrients that may be difficult for many people to replace.

Recommendations and supporting information

Referring to the comments above, evidence suggests that the sources of fat in the diet highly impact the health outcomes. Therefore, we suggest a stratification of fat sources in this section, clarifying that there are science-based evidence to suggest that the part of total fat intake or part of groups of fatty acids does not provide a whole picture of the matter.

Survey response 23

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Comments on the draft guideline

Summary of evidence
The available evidence presented that supports the WHO Guidelines for Total fat intake for adults is of a high quality.
Evidence to recommendations
Recommendations and supporting information
Agree with the status of "conditional recommendation". Consideration should also be given to a minimum level of intake, especially for females of reproductive age.
Other comments

Survey response 24

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Comments on the draft guideline

Summary of evidence
Evidence to recommendations
Recommendations and supporting information
Other comments



UPFIELD response to the consultation on the WHO draft guideline on total fat intake for adults and children

Upfield welcomes the opportunity to contribute to the WHO draft guidelines on total fat intake for adults and children.

Upfield the leading producer of plant-based spreads, cheeses and creams globally. Our purpose is to make people healthier and happier with great tasting, natural plant-based products that are better for you and better for the planet.

After carefully reading the draft guideline Upfield wants to highlight the following:

Comments on summary of evidence:

1) Page 9:

The draft WHO guidance refers to *"other WHO recommendations related to the quality of dietary fat; for example, saturated fatty acids (64), trans-fatty acids (65) and polyunsaturated fatty acids (66)"*

We want to urge the WHO Nutrition Guidance Expert Advisory Group (NUGAG) Subgroup on Diet and Health to finalize and publish the Guidelines for Saturated fatty acids, Trans fatty acids and Polyunsaturated fatty acids.

2) Page 10:

The draft WHO guidance indicates that: *"The threshold of 30% in this recommendation should not be interpreted as an upper value of intake to be achieved by increasing fat intake among those with nutritionally adequate total fat intakes already less than 30% of total energy intake."*

It should made clearer throughout the document that the 30% threshold in this recommendation should not be interpreted as an upper value OR as an NRV-NCD.

Comments on Evidence to recommendations:

No comments

Comments on Recommendations and supporting information:

See comments 1-2 in Comments on Summary of Evidence.

Other comments:

WHO should set an NRV-NVD for trans fatty acids (total) of 1% energy.

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Survey response 25

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Comments on the draft guideline

Summary of evidence
Evidence to recommendations
Recommendations and supporting information
Other comments

Call for comment on the draft WHO Guideline: Total fat intake for adults and children

Comments on the draft guideline

Synthesized by HHS Office of Global Affairs

Thank you for the opportunity to review the draft WHO Guideline on Total fat intake for adults and children. Subject Matter Experts reviewed the draft guideline and provided the comments below.

- US health goals (“Healthy People 2030) include reducing overweight and obesity by helping people eat healthy and get physical activity.
- Every 5 years, the US Department of Health and Human Services and the US Department of Agriculture partners to develop/update the Dietary Guidelines for Americans (*DGA*, or *Dietary Guidelines*). The Dietary Guidelines for Americans is based on a rigorous review of the scientific evidence by the Dietary Guidelines Advisory Committee and federal scientists’ input.

The *Dietary Guidelines* recommend limiting saturated fat to less than 10% of calories based on the evidence on saturated fat and cardiovascular risk. The DGA also recommends that dietary patterns be within the Acceptable Macronutrient Distribution Ranges (AMDR), set by the National Academies of Science Engineering and Medicine, for protein, carbohydrate, and total fats, while staying within calorie limits. The AMDR for total fat is currently 25%-35% for 4 years and older and 30%-40% for children 1-3 years old.

Though the DGA do not set a maximum target for total dietary fat intake, the WHO recommendation that adults limit total fat intake to 30% or less of total energy intake is consistent with the healthy eating patterns outlined in the DGA. The recommendation that fat consumed should be primarily unsaturated fatty acids, with no more than 10% of total energy intake coming from saturated fatty acids and no more than 1% of total energy intake coming from trans-fatty acids aligns with the DGA.

Appropriate consumption of dietary fat is an essential component of adequate nutrition across life stages.

- The conclusions of the systematic review do not clearly support Recommendation 1. The major concern of the evidence review is that the impact of lowering total fat intake on total energy intake is not fully considered. It is expected that lowering intake of total energy from any energy source would result in lower indicators of body fat such as body weight. Total energy intake can be reduced by modifications of intakes of nutrients other than dietary fat. This introduces a source of uncertainty in the assumption of causality specifically to a change in fat intake.

Many weight loss trials have found equal or similar reductions in indicators of body fat whether the macronutrient limited was fats or carbohydrates. This evidence provides enough uncertainty to question the strength of the recommendation. A comprehensive total-diet approach, incorporating other factors such as activity level, may lead to better public health outcomes.

Section - Summary of evidence

As a general comment, the relationship between the strength of evidence and type of recommendation made (e.g., “conditional” or “strong”) should be more clearly explained and in terms that will be understood by the diverse audiences described as the target for the guideline. The report notes that there was “high certainty” in the evidence for recommendation 1, described as a conditional recommendation – one for which the WHO guideline development group is uncertain that the desirable consequences of implementing the recommendation outweigh the undesirable consequences or when the anticipated net benefits are small. Consider providing a text box (rather than only footnoting) to adequately explain the relationship of the concepts throughout the document.

Commenters also noted the following:

- Studies included in the review were not restricted to isocaloric intakes of energy sources between study arms and therefore it is not possible to attribute body weight outcomes to reduction in total fat intake.
- The Risk of Bias analysis considered dietary differences in intervention and control arms; however, it does not appear to have considered differences in total energy intake between study arms. This is a major limitation of the analysis.
- The subgroup analysis showed that interventions resulting in lower total energy intake resulted in larger reductions in body fat indicators, as would be expected. This reduces confidence that reduction in the proportion of energy intake from fat specifically results in changes in body weight and other weight indicators.
- A commenter also noted that the evidence presented relies almost exclusively on randomized controlled trials involving participants who had baseline dietary fat intake at or significantly exceeding the 30% of energy recommendation of the draft guidelines (29% to 43%). Based on the

presentation, it is not possible to conclusively infer from this data that a specific reduction in fat intake, and not a general reduction in caloric intake, drove the observed positive outcomes in body weight or other measures of overweight or obesity.

- As the draft guidelines note, there were indications that participants in some of these trials who reduced fat intake, but not total energy intake, did show small but significant positive outcomes. This finding requires more research before it can be considered conclusive, as it could be confounded by baseline and trial overall dietary patterns.
- Cohort studies were reviewed but not utilized to develop the recommendations in the draft guidelines as it was reported that meta-analysis of the results was problematic and individual results were not inconsistent with the randomized controlled trial meta-data. While these statements may be true specifically in regard to body weight outcomes, they do not support an unequivocal conclusion that reduced fat as a discrete variable—rather than reduced overall caloric intake—are the driver of these outcomes.
- When taken together, the trial and cohort data do not directly support the conclusion reached regarding total fats. The draft guidelines conclude “The certainty in the available evidence for an effect of reducing total fat intake on body weight, BMI, waist circumference and all harms measured except for quality of life was considered to be high.” The conclusion would better reflect the data if it read ““The certainty in the available evidence for an effect of reducing total energy intake by way of reducing total fat intake on body weight, BMI, waist circumference and all harms measured except for quality of life was considered to be high.”
- In order to justify a recommendation that adults limit total fat intake to 30% of total energy intake or less to reduce risk of unhealthy weight gain, it is necessary to determine that other dietary macronutrient patterns will not achieve the same or similar results. This review did not delve into the possibility that diets of multiple different macronutrient compositions could also achieve the same result. Of note, the US Dietary Guidelines recommended diets for adults of 30% of calories from total fat or less. This recommendation related to weight as well as cardiovascular disease outcomes. In 2015, the Dietary Guidelines Advisory Committee, reviewed the evidence for total fat and chose to not recommend a limit. This review, with weight loss as one outcome, included the Pounds Lost Trial, data from an NHLBI expert panel, and the AHA/ACC Overweight/Obesity Guidelines (2015 Dietary Guidelines Advisory Committee Report (health.gov)).
- The evidence cited supports conclusions that diets that exceed caloric requirements can lead to conditions of overweight or obesity at an individual or population level, rather than specifically in regard to high- or low-fat diets.
- The decision not to recommend a total fat intake recommendation for children was appropriate given the cited evidence.

Section - Evidence to recommendations

Commenters noted the following:

- This section addresses the probable challenges to feasibility and acceptability of implementing these dietary recommendations, including variability in individual values and preferences and available resources. The feasibility, acceptability, and equity concerns are valid.
- Regarding the general comments, the draft guidelines indicate that the goal is “limiting” total dietary fat intake. There is concern that this could be construed to mean a goal of reducing total fat intake, without regard for context. Given the essential role that dietary fats play in ensuring adequate nutrition and physiological function, consider reframing the goal as ensuring appropriate total dietary fat intake, thus highlighting the risk of under, as well as over, consumption.
- Regarding the benefits and harms, the risk of substitution of other high-calorie nutrients to replace reduced fat intake should be given due care. This lends further support to ensuring that recommendations concerning total dietary fat be placed firmly in the context of the overall dietary pattern; such is the approach taken by the DGA.
- Regarding the priority of the problem, the same concern applies. Efforts to combat overweight and obesity should not focus exclusively on any one dietary component, but rather must address the entire dietary pattern.
- The risks associated with over consumption of calories are clear and valid. The role of dietary fat as a significant contributor to caloric intake is likewise valid. The draft guidelines need to ensure that in translation evidence to recommendations that the focus is clearly on reducing over-consumption of dietary fat, and not on simply reducing dietary fat without context.
- It is possible that higher total fat in the diet is a marker of higher total energy intake, but the systematic review does not address this and recommendation 1 does not reflect this.

Section - Recommendations and supporting information

Commenters noted the following:

- The two recommendations can be accommodated in a variety of health dietary patterns and respect the essential role that dietary fat plays in ensuring adequate nutrition.

- The conditional nature of the recommendation for adults to limit total dietary fat intake to 30% of total energy is appropriate. Indeed, it highlights the need to place any recommendations specific to fats firmly in the context of the total dietary pattern.
- Recommend that WHO reanalyze the evidence with care given to the issues of uncertainty of the exposure and intervention in a causal relationship between the proportion of energy intake from total fat and the outcome of body fat. The recommendation could also be revised to clearly state the uncertainty of whether it is the proportion of energy from total fat intake or total energy intake that is associated with reduced body fat.
- The draft acknowledges that “providing overall dietary guidance is outside the scope of this guideline, because such guidance should be based on overall dietary goals that consider all required nutrients.”. A commenter inquired on efforts to translate/apply recommendations in relation to healthy dietary patterns, for example, facilitating non-nutrition professionals’ understanding of foods with saturated and unsaturated fatty acids and portions that relate to recommendations for different types of fats. Consumer tools around the Dietary Guidelines for Americans, for example, provide information on building healthy food patterns.

Section - Other comments

Commenters noted the following:

- Given the essential role that dietary fats play in nutrition, it is critical that any discussion of translating the recommendations—particularly into public policy—is carefully considered from the perspective of ensuring appropriate consumption of dietary fat, and does not have the effect of promoting the idea that dietary fat should be reduced to the fullest extent possible, without regard for context.
- Consideration of product labeling schemes, marketing and sales restrictions, and fiscal policies should acknowledge the fact that dietary fats are an essential nutrient. This is not adequately reinforced by the draft guidelines. Without careful contextualization, and attention to total dietary patterns and nutrient sourcing, there is considerable danger of public confusion and unintended negative consequences from efforts aimed exclusively at reducing total fat consumption.
- The statement “Processed foods high in fat should be replaced with whole foods where possible, as many processed fat-free and low-fat products often contain free sugars and may contain as many calories as full-fat versions” is not specifically supported by evidence presented within the draft guidelines. Both “processed foods” and “whole foods” are incredibly diverse groups of products. These can vary widely in their fat, total nutrients, and calorie content. Depending on context, processed products may be the critical source of essential fatty acids for certain populations, while available whole foods may be inadequate or lacking them entirely. The guideline should take care not to make overly broad, non-contextualized statements and recommendations in respect to an essential nutrient.
- The final paragraph of this section (page 38) should lead any discussion of translation and implementation. It better captures the nuanced approach that should be taken to assessing the need for intervention regarding dietary fat. These considerations are paramount, not secondary, to implementation. Suggest also including this information in the framing portion of the document as well.