



**Pregnancy Care Guidelines - Nutrition, Physical Activity and Weight
Doctors For Nutrition submission
July 2020**

Latest nutrition research and recommendations

Doctors for Nutrition (DFN) applauds the intentions and objectives of the new Clinical Practice Guidelines: Pregnancy care, and the efforts of the Expert Working Group (EWG) in collating and analysing the data currently available on the relationship between nutrition in the antenatal period and maternal and child outcomes.

One of Doctors For Nutrition's primary objectives is to equip healthcare practitioners with modern, evidence-based information to apply nutrition as a tool in disease prevention and health care. This is a goal we share with the revised Pregnancy Care Guidelines, which are designed to "...complement the education and skills of health professionals."

As an Australian health-promotion charity with medical and dietetic practitioner ambassadors across Australia, New Zealand and globally, DFN advocates that nutrition is the area of greatest significance and the most urgent need for change in order to improve the health and wellbeing of mothers and babies.

Overall, we recommend that the nutrition data considered as part of the guidelines should take a broader view on current nutritional science: that is to consider not only research published on pregnancy and nutrition but also research that involves the impact of the food we eat across the entire lifespan. This would ensure that the guidelines include contemporary recommendations focussed on achieving the stated intentions of improving health and wellbeing of mothers and babies.

We would like the EWG to consider further and more specific nutrition recommendations in order to assist health professionals with their advice to women before and during pregnancy. Specifically, we recommend that the EWG revises the current singular practice point and places a stronger emphasis on the importance of a diet that is high in whole plant foods. We are concerned that the practice point as it is currently written is too general to be likely to motivate health professionals to give practical nutritional advice, and misses a golden opportunity to provide these professionals with specific advice on which kinds of foods are beneficial to have before, during and following pregnancy as supported by scientific evidence (these foods are also the most likely to be lacking in the current standard Australian diet).

Currently the single practice point provided for nutrition reads:

"Eating the recommended number of daily serves of the five food groups and drinking plenty of water is important during pregnancy and breastfeeding."

Australia's 'five core food groups' were established and outlined in the Australian Dietary Guidelines, published in February 2013. The 2013 update was substantially based upon a literature review commissioned by the NHMRC that answered '...targeted questions on food, diet and disease/health relationships covering the period 2002–2009'¹.

However, over the last 11 years, there has been a substantial amount of publication in the area of nutrition science and consequently a significant shift in our understanding of nutrition.

For example, prominent evidence-based dietary guidelines have taken steps to avoid influence of commercial interests and are inconsistent with our 2013 'five food group' concept. The Harvard School of Public Health's 2011 'Healthy Eating Plate', for example, removes the 'dairy' category and promotes consumption of fruits, vegetables, whole grains, and healthy protein². More recently Canada's Dietary Guidelines (2019), which considered evidence published between 2006 and 2018, also removed the 'dairy' category and similarly promotes consumption of vegetables, fruit, whole grains, and protein foods³. They specifically recommend that 'among protein foods, consume plant-based more often.'

Based on this latest research, we believe that the next iteration of the Australian Dietary Guidelines (which will consider similar evidence) should place an emphasis on the consumption of fruits, vegetables, legumes and whole grains specifically, and on plant-based sources of protein.

We therefore recommend making an adjustment to the nutrition practice point in the Clinical Practice Guidelines to provide a similar recommendation, in order to bring these Guidelines up to date with modern nutritional science. Equally importantly, this more specific recommendation would help health professionals provide Australian women with a practical step they could take to improve their health during pregnancy and beyond, and the health of their babies.

Vegetables, Fruits, Whole Grains and Legumes

From their review of the recent evidence, the EWG has concluded that '...eating vegetables, fruit and legumes during pregnancy is beneficial to both mother and baby', results in a reduction in the risk of neural tube defects, and has a possible association with improvements in glucose tolerance, fetal growth, pre-eclampsia, preterm birth, and wheeze at 12 months. They have also identified that low fruit intake is associated with higher prevalence of major depressive disorder, and a low intake of legumes is associated with generalised anxiety disorder. Finally, a lower risk of childhood leukaemia is noted to be associated with maternal consumption of fruit, vegetables, and legumes.

A recent review by Kibret et al. found that "Adherence to a healthy dietary pattern (intake of vegetables, fruits, legumes, whole grains) was significantly associated with lower odds (OR; 95 % CI) of pre-eclampsia (0.78; 0.70, 0.86; I²=39.0 %, P=0.178), GDM (0.78; 0.56, 0.99; I²=68.6 %, P=0.013) and PTB (0.75; 0.57, 0.93; I²=89.6 %, P=0.0001)."⁴ Similarly, Raghavan et al. concluded that "...dietary patterns before and during pregnancy that are higher in vegetables, fruits, whole grains, nuts, legumes, fish, and vegetable oils and lower in meat and refined grains..." are associated with reduced risk of hypertensive disease of pregnancy, and that dietary patterns that are associated with reduced risk of gestational diabetes mellitus "...are higher in vegetables, fruits, whole grains, nuts, legumes, and fish and lower in red and processed meats."⁵ In a second review, cited by the EWG, Raghavan et al. concluded that dietary patterns associated with lower risk of preterm birth and spontaneous preterm birth are "...higher in vegetables; fruits; whole grains; nuts, legumes, and seeds; and seafood (preterm birth, only), and lower in red and processed meats, and fried foods."⁶ Legume consumption specifically has also recently been associated with a decreased risk of GDM⁷.

Health benefits of consumption of vegetables, fruits, whole grains, and legumes during pregnancy specifically are therefore well documented in the literature. This is unsurprising given that these benefits are also consistent throughout the literature pertaining to human health throughout the lifespan. For example, the recently published Global Burden of Disease Study found that low intake of whole grains caused the greatest loss of

disability-adjusted life years (DALYs) globally, and diets low in fruits (3rd), vegetables (5th), legumes (9th), and fibre (7th) were also all major causes⁸. Plant foods are high in nutrient density and low in energy density. Furthermore, they are rich in antioxidants, phytonutrients, and fibre.

Despite these substantial health benefits, less than 4% of Australians eat the minimum recommended amount of vegetables and legumes⁹. Just 31% Australians eat the recommended number of serves of fruit⁹. While only 30% of Australians eat the recommended number of serves of grains, only 34% of grains consumed by Australians are wholegrain⁹. Unsurprisingly then, recent analysis has found that only 28.2% of Australian adults meet the adequate intake for fibre and less than 20% of adults met the Suggested Dietary Target to reduce the risk of chronic disease¹⁰.

These statistics are all the more sobering when considered in the context of research suggesting that currently recommended dietary targets for fruit and vegetable consumption are suboptimal, with reductions in risk for cardiovascular disease and all-cause mortality seen up to 800g/day (some sources have equated this to 10 servings of fruit and vegetables a day instead of 5)¹¹.

It is worth also noting that, besides the caution regarding listeria, there are no adverse effects identified from increased consumption of fruits, vegetables, whole grains, and legumes. Given that there is substantial evidence of benefit, no evidence of adverse effects, and evidence that Australian women do not consume enough of these foods, an emphasis on these foods within, or in addition to the nutrition practice point will be beneficial. We would therefore strongly encourage the EWG to consider a variation on the following statement as part of the guidelines:

“Australian women do not consume enough vegetables, fruits, wholegrains, and legumes. These foods provide important nutrients for a healthy pregnancy including adequate supplies of iron, calcium, zinc, and protein. Furthermore there is substantial evidence that these foods are the safest to consume during pregnancy and throughout the lifespan, and that the increased consumption of these foods is strongly and consistently associated with improved outcomes during pregnancy and across the lifespan. Recommend that consumption of vegetables, fruits, whole grains, and legumes is increased during pregnancy.”

Dairy

As detailed earlier, evidence-based dietary guidelines such as the Harvard School of Public Health's 2011 'Healthy Eating Plate' and Canada's Dietary Guidelines (2019), have removed 'dairy' categories. DFN recommends the EWG to remove specific 'dairy' categories and focus on adequate intake of calcium from plant based food.

Meat

The EWG identified only two findings associated with meat consumption, both suggestive of adverse health effects. Firstly, lower maternal meat consumption may be protective against wheeze in the child. Secondly, maternal intake of cured meats may be associated with a risk of childhood retinoblastoma. Furthermore, as cited above, studies which have identified dietary patterns that are associated with improved maternal and child outcomes consistently identify patterns that are 'low in meat'.

Since the publication of the Australian Dietary Guidelines, processed meat has been categorised as carcinogenic to humans, and red meat has been categorised as probably carcinogenic to humans by the WHO. The 2018 Third Expert Report of the WCRF and AICR has found strong evidence that both processed meat and red meat increase the risk of colorectal cancer, and recommends limiting consumption¹².

The Guidelines note risks of listeriosis for pregnant women of raw or undercooked meat, chilled pre-cooked meats, and pâté and meat spreads. While meat may provide nutrients such as protein, iron, zinc and vitamin B12, none of these nutrients are exclusively found in meat. Meat also contains saturated fat and dietary cholesterol, and either can contain or promote the formation of several other compounds now known to be deleterious to health, including advanced glycation endproducts, polycyclic aromatic hydrocarbons, N-Glycolylneuraminic acid, and Trimethylamine N-Oxide.

There is no evidence of benefit of meat consumption during pregnancy and well documented evidence of carcinogenicity and harms during pregnancy. Therefore we recommend that the EWG consider a recommendation to limit meat consumption during pregnancy and/or place emphasis on increasing plant-based sources of protein consistent with Canada's Dietary Guidelines and the Third Expert Report.

Fish

While the literature appears to provide evidence consistent with benefits of fish consumption, our contention is that it is difficult to separate these from the benefits caused by the substitution for fish instead of more harmful meat. As the identified benefits are not readily observed for lean fish, it is almost certain that these are attributable to increased intake of omega 3 long-chain polyunsaturated fatty acids. There is already a suggestion within the Guidelines for women to consider supplementing these.

Substituting omega 3 supplements instead of fish would reduce fetal exposure to mercury through maternal fish consumption, high amounts of which the EWG has noted are associated with low birthweight, small-for-gestational age, delayed language and communication skills, and an unfavourable metabolic profile in children. This would be especially the case if supplements were sourced from algae rather than fish, and would also enable women to avoid other industrial pollutants that may be found in fish including dioxins, PCBs, and DDT.

Although there is a list of fish species provided in the Guidelines that women should 'take care' with consumption of, given that it is not possible for women to know the mercury (and other contaminant content) of any particular fish source they are consuming, it would seem more prudent to recommend supplementation rather than fish consumption, despite the potential benefits noted by the EWG. Given that there are no other nutrients found in fatty fish that cannot be reliably sourced from other foods that do not carry the undeterminable risk of mercury contamination, recommending fish consumption during pregnancy may be neither as inexpensive, convenient, nor safe as omega 3 supplementation.

Conclusion

In summary, we propose that the Guidelines would benefit from more specific nutrition recommendations to increase consumption of fruit, vegetables, whole grains and legumes during pregnancy. Furthermore, consideration of an additional recommendation to emphasise plant-based sources of protein over those of animal origin (particularly in the case of meat) is likely to be conducive to the Guidelines stated objective of improving health and wellbeing of mothers and babies.

Finally, we submit that these changes to the nutrition recommendations are of great importance especially due to the documented lack of skills and training in nutrition for medical students as is evidenced by recent Australasian research^{13,14}.

Thank you for your consideration of our submission. We would welcome any correspondence and can provide the EWG with any further information should this be of assistance.

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