Food and Agriculture Organization of the United Nations

World Health Organization

Joint FAO/WHO Expert Consultation on the Risks and Benefits of Fish Consumption

Executive Summary

25-29 January 2010, Rome, Italy

Background

The 38th meeting of the Codex Committee on Food Additives and Contaminants (CCFAC) requested the Codex Alimentarius Commission (CAC), at its 29th session in 2006, to seek scientific advice from FAO and WHO on the health benefits of fish consumption comparing those to the health risks associated with the contaminants methylmercury (MeHg) and dioxins and dioxin-like PCBs (DLCs) that may be present in fish. The health risks associated with dietary intake of these compounds have previously been assessed by the Joint FAO/WHO Expert Committee on Food Additives (JECFA).

The CAC request was driven by growing public concern regarding the presence of chemical contaminants in fish. This concern has become more apparent in recent years, while during the same period the multiple nutritional benefits of including fish in the diet have become increasingly clear.

The evolving science in this field has led to questions about how much fish should be eaten, and by whom, in order to minimize the risks of chemical exposures and maximize the health benefits. National authorities have been faced with the challenge of communicating complicated and nuanced messages to consumers and also with questions on regulating maximum levels of these chemical contaminants in fish and other foods.

FAO and WHO held an Expert Consultation on the Risks and Benefits of Fish Consumption 25 to 29 January 2010 at FAO Headquarters, Rome, Italy. Seventeen experts in nutrition, toxicology, epidemiology, dietary exposure and risk-benefit assessments discussed the risks and the benefits of fish consumption. Their task was to review data on nutrient and specific chemical (MeHg and DLCs) contaminant levels in a range of fish species, as well as recent scientific literature covering the risks and benefits of fish consumption. The review was used to consider risk-benefit assessments for specific end-points of benefits and risks, including for sensitive groups of the population. The output is intended to provide guidance to national food safety authorities and the Codex Alimentarius Commission in their work on managing risks taking into account the existing data on the benefits of eating fish.

Scope

- The purpose of the Expert Consultation was to provide a framework for assessing the net health benefits or risks of fish consumption that would assist governments to prepare advice for their own populations.

- Fish was defined as finfish and shellfish, whether of marine or freshwater origin, farmed or wild. Marine mammals and algae, as well as sustainability issues and environmental impacts, although important, were considered to be outside the scope of the Consultation.

- Based on the strength of the evidence, the Consultation examined the benefits of fish consumption on neurodevelopment and prevention of cardiovascular disease. Multiple other possible benefits were reviewed in background papers but not focused upon by the Consultation in their consideration of relative risks and benefits. The Consultation also examined the risks from fish consumption of MeHg and DLCs, including dioxins, furans and dioxin-like PCBs.

- The group was also requested to conduct an analysis of these benefits and associated risks and make a series of recommendations for target populations: including fetuses, infants/young children, women of reproductive age and high fish consumers as well as the general population.

Conclusions

- Consumption of fish provides energy, protein, and a range of other important nutrients, including the long-chain n-3 poly unsaturated fatty acids (LC n-3 PUFA).

- Eating fish is part of the cultural traditions of many peoples and in some populations is a major source of food and essential nutrients.

- Among the general adult population, consumption of fish, particularly oily fish, lowers the risk of coronary heart disease (CHD) mortality. There is absence of probable or convincing evidence of CHD risks of MeHg. Potential cancer risks of DLCs are well below established CHD benefits.

- When considering benefits of LC n-3 PUFA vs. risks of MeHg among women of childbearing age: maternal fish consumption lowers the risk of suboptimal neurodevelopment in their offspring compared to women not eating fish in most circumstances evaluated.

- At levels of maternal DLC intake (from fish and other dietary sources) that do not exceed the provisional tolerable monthly intake (PTMI) of 70 picograms/kg bodyweight/month established by JECFA, neurodevelopmental risk is negligible. At levels of maternal DLC intake (from fish and other dietary sources) that exceed the PTMI, neurodevelopmental risk may no longer be negligible.

- Among infants, young children, and adolescents, the available data are currently insufficient to derive a quantitative framework of health risks and benefits of eating fish. However, healthy dietary patterns that include fish and are established early in life influence dietary habits and health during adult life.

Recommendations

- To minimize risks in target populations, the Consultation recommended a series of steps that member states should take to better assess and manage the risks and benefits of fish consumption and more effectively communicate with their citizens:

    - Acknowledge fish consumption as an important food source of energy, protein, and a range of essential nutrients and part of the cultural traditions of many peoples.

    - Emphasize the benefits of fish consumption on reducing CHD mortality (and CHD mortality risks of not eating fish) for the general adult population.

- Emphasize the neurodevelopment benefits to offspring of fish consumption by women of childbearing age, particularly pregnant women and nursing mothers, and the neurodevelopment risks to offspring of such women not consuming fish

- Develop, maintain, and improve existing databases on specific nutrients and contaminants, particularly MeHg and DLCs, in fish consumed in their region.

- Develop and evaluate risk management and communication strategies that both minimize risks and maximize benefits from eating fish.

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