

Report of the

**JOINT FAO/WHO EXPERT CONSULTATION ON THE RISKS AND
BENEFITS OF FISH CONSUMPTION**

Rome, 25–29 January 2010



**World Health
Organization**



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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
WORLD HEALTH ORGANIZATION
2011

WHO Library Cataloguing-in-Publication Data

Report of the joint FAO/WHO expert consultation on the risks and benefits of fish consumption, 25–29 January 2010, Rome, Italy.

1.Food contamination. 2.Fish products - toxicity. 3.Fishes - toxicity. 4.Methylmercury compounds - toxicity.
5.Mercury poisoning. 6.Risk assessment. I.World Health Organization. II.Food and Agriculture Organization of the United Nations.

ISBN (FAO) 978-92-5-106999-8

ISBN (WHO) 978-92-4-156431-1 (NLM classification: WA 703)

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Printed in Italy.

Recommended citation

FAO/WHO (2011). Report of the Joint FAO/WHO Expert Consultation on the Risks and Benefits of Fish Consumption. Rome, Food and Agriculture Organization of the United Nations; Geneva, World Health Organization, 50 pp.

PREPARATION OF THIS DOCUMENT

The thirty-eighth Session of the Codex Committee on Food Additives and Contaminants requested the Codex Alimentarius Commission, at its twenty-ninth Session in 2006, to seek scientific advice from the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) on the risks and benefits of fish consumption: specifically, a comparison of the health benefits of fish consumption with the health risks associated with the contaminants methylmercury and dioxins (defined here to include polychlorinated dibenzo-*p*-dioxins [PCDDs] and polychlorinated dibenzofurans [PCDFs] as well as dioxin-like polychlorinated biphenyls [PCBs]) that may be present in fish. The Codex Alimentarius Commission request was driven by growing public concern in recent years regarding the presence of chemical contaminants in fish. Over the same period, the multiple nutritional benefits of including fish in the diet have become increasingly clear. FAO and WHO held an Expert Consultation on the Risks and Benefits of Fish Consumption from 25 to 29 January 2010 at FAO headquarters in Rome, Italy. Data on levels of nutrients and specific chemical contaminants (methylmercury and dioxins) in a range of fish species were reviewed, 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, including for sensitive groups of the population.

ACKNOWLEDGEMENTS

The Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) would like to express their appreciation to all those who contributed to this Expert Consultation and the preparation of this report, whether by providing their time and expertise, data and other relevant information or by reviewing and providing comments on the document.

Appreciation is also extended to all those who responded to the call for information that was issued by FAO and WHO and thereby drew our attention to references that were not readily available in the mainstream literature and official documentation.

We are sincerely thankful for the budgetary contributions from the Norwegian Ministry of Fisheries and Coastal Affairs, the Japanese Ministry of Health, Labour and Welfare, the Nordic Council of Ministers and the Food and Drug Administration of the United States of America, which allowed us to organize and carry out the Expert Consultation.

FAO/WHO.

Report of the Joint Expert Consultation on the Risks and Benefits of Fish Consumption. Rome, 25–29 January 2010.

FAO Fishery and Aquaculture Report. No. 978. Rome, FAO. 2011. 50 pp.

ABSTRACT

The Food and Agriculture Organization of the United Nations and the World Health Organization convened a Joint Expert Consultation on the Risks and Benefits of Fish Consumption from 25 to 29 January 2010. The tasks of the Expert Consultation were to review data on levels of nutrients (long-chain omega-3 fatty acids) and specific chemical contaminants (methylmercury and dioxins) in a range of fish species and to compare the health benefits of fish consumption and nutrient intake with the health risks associated with contaminants present in fish. The Expert Consultation drew a number of conclusions regarding the health benefits and health risks associated with fish consumption and 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 these risks and benefits to their citizens. The output of the Expert Consultation is a framework for assessing the net health benefits or risks of fish consumption that will 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. The Expert Consultation concluded the following:

Consumption of fish provides energy, protein and a range of other important nutrients, including the long-chain n-3 polyunsaturated fatty acids (LCn3PUFAs).

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

Among the general adult population, consumption of fish, particularly fatty fish, lowers the risk of mortality from coronary heart disease. There is an absence of probable or convincing evidence of risk of coronary heart disease associated with methylmercury. Potential cancer risks associated with dioxins are well below established coronary heart disease benefits from fish consumption.

When comparing the benefits of LCn3PUFAs with the risks of methylmercury among women of childbearing age, maternal fish consumption lowers the risk of suboptimal neurodevelopment in their offspring compared with the offspring of women not eating fish in most circumstances evaluated.

At levels of maternal exposure to dioxins (from fish and other dietary sources) that do not exceed the provisional tolerable monthly intake (PTMI) of 70 pg/kg body weight established by JECFA (for PCDDs, PCDFs and coplanar PCBs), neurodevelopmental risk for the fetus is negligible. At levels of maternal exposure to dioxins (from fish and other dietary sources) that exceed the PTMI, neurodevelopmental risk for the fetus may no longer be negligible.

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

DECLARATION OF INTERESTS

The Secretariat ensured that all experts participating in the Expert Consultation had completed declaration of interest forms. Sixteen out of 17 experts declared no substantial economic interest in the topics discussed. One expert had received research grants from industry, but there was no involvement that was considered to be a potential conflict of interest with the issues to be discussed at the meeting.

FURTHER INFORMATION

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ACRONYMS AND ABBREVIATIONS

ALSPAC	Avon Longitudinal Study of Parents and Children
BENERIS	Benefit–Risk Assessment for Food: An Iterative Value-of-Information Approach
BRAFO	Benefit–Risk Analysis of Foods
CI	confidence interval
DALY	disability-adjusted life year
DHA	docosahexaenoic acid
DPA	docosapentaenoic acid
EFSA	European Food Safety Authority
EPA	eicosapentaenoic acid
FAO	Food and Agriculture Organization of the United Nations
IOM	Institute of Medicine
IQ	intelligence quotient
JECFA	Joint FAO/WHO Expert Committee on Food Additives and Contaminants
LCn3PUFA	long-chain n-3 polyunsaturated fatty acid
PCB	polychlorinated biphenyl
PCDD	polychlorinated dibenzo- <i>p</i> -dioxin
PCDF	polychlorinated dibenzofuran
PTMI	provisional tolerable monthly intake
QALIBRA	Quality of Life – Integrated Benefit and Risk Analysis
QALY	quality-adjusted life year
TCDD	2,3,7,8-tetrachlorodibenzo- <i>p</i> -dioxin
TEF	toxic equivalent factor
TEQ	toxic equivalent
USA	United States of America
USEPA	United States Environmental Protection Agency
USFDA	United States Food and Drug Administration
WHO	World Health Organization

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