

Fish role in food-based strategies for Vitamin-A and nutrient deficiency in developing countries.

Frank Caron*

Department of Human Nutrition, The Royal Veterinary and Agricultural University, 1958 Frederiksberg, Denmark

Abstract

Many underprivileged individuals who are deficient in vitamins and minerals depend on fish for their meals and livelihood. This article discusses the consumption of fish in rural Bangladesh and Cambodia, as well as the vitamin A, calcium, iron, and zinc content and nutrient bioavailability of popular species. These species' contributions to nutritional intakes and their capacity to satisfy dietary guidelines are given and discussed. Fish intake by species was determined through analysis of data from consumption surveys. Studies on nutritional bioavailability and analyses of the nutrient contents of commonly consumed species were carried out. The average daily intake of raw, whole fish in Bangladeshi families was 13–83 g. Small fish were consumed often and comprised up 50–80% of all fish consumed in rural Bangladesh and Cambodia throughout the fish producing season. Since many little fish are consumed whole, they are a good source of calcium; some are also high in iron, zinc, and vitamin A. A traditional daily dinner with the iron-rich fish *trej changwa plieng* can meet 45% of the daily median iron need of Cambodian women. Even minor production of the vitamin A-rich fish *mola* in ponds in Bangladesh can meet the annual vitamin A prescription for 2 million children. The use of fish in food-based strategies to treat nutrient deficiencies in malnourished communities in Asia and Africa could be impacted by data on fish consumption at the species level, nutrient analyses, awareness of the nutritional value of fish, as well as promotion of the production and accessibility of nutrient-dense species.

Keywords: Underprivileged, Vitamin A, Calcium, Iron, Zinc, Nutrient deficiency.

Introduction

Fish and fisheries are crucial components of many disadvantaged population groups' diets, means of subsistence, and sources of income in riparian and coastal regions with abundant fish resources in developing nations. These populations frequently experience vitamin and mineral deficiencies [1]. As fish collected, consumed, and sold within these groups are frequently excluded from official data on fish catch, production, and consumption, the advantages of fish are poorly understood and may even be greatly overestimated. The fact that fish are a good source of animal protein is widely acknowledged; yet, their importance as a source of vitamins and minerals in underdeveloped nations is frequently disregarded. In order to determine the role fish can play in food-based methods to treat vitamin A and mineral deficiencies in developing nations, it is required to quantify the nutritional contribution from fish in low-income, rural households. The findings of initiatives focusing on capacity-building and research on fish consumption in rural Bangladesh and Cambodia are described in this article. There are descriptions of the vitamin A, calcium, iron, and zinc content, nutritional bioavailability, and contribution of these fish to the intakes of these essential, limiting nutrients. The

ability of these fish to satisfy dietary requirements for certain nutrients is also highlighted [2].

Mineral and vitamin content in fish species.

For nutrient evaluations, fresh samples of a few popular fish species were gathered from landing sites, local markets, fishermen, and farmers. Subsamples of raw, cleaned sections were acquired by having the fish cleaned by local women in accordance with their customs. High-performance liquid chromatography was used to examine vitamin A components in fish samples. Atomic absorption spectrometry was used to determine the amounts of calcium, iron, and zinc. The commonly known ferrozine colorimetric method was used to calculate the amount of nonheme iron present. This fraction is known as inorganic iron because it does not contain a high-molecular-weight subpool of complex-bound nonheme iron like ferritin or compounds that resemble it [3].

Fish which is often eaten is nutrient-rich.

The amounts of vitamin A, calcium, iron, and zinc in a few types of fish that are popular in Bangladesh and Cambodia. Some common SIS are high in preformed vitamin A, primarily in the form of retinoids and dehydroretinoids,

*Correspondence to: Frank Caron, Department of Human Nutrition, The Royal Veterinary and Agricultural University, 1958 Frederiksberg, Denmark, E-mail: c_frank@hotmail.com

Received: 26-Oct-2022, Manuscript No. AAINM-22-79060; Editor assigned: 28-Oct-2022, PreQC No. AAINM-22-79060(PQ); Reviewed: 11-Nov-2022, QC No. AAINM-22-79060;

Revised: 15-Nov-2022, Manuscript No. AAINM-22-79060(R); Published: 22-Nov-2022, DOI: 10.35841/ainm-6.6.129

which are primarily found in the viscera and eyes. Species differ greatly in the ratios of vitamin A₁ and vitamin A₂. For instance, vitamin A₁ makes up 20% of darkina and chanda's total vitamin A content, defined as retinol activity equivalent. Since many SIS are consumed whole, including the bones, they are an excellent source of calcium. Because their bones are not consumed and are instead removed as plate waste, large fish do not contribute to calcium intake [4].

Dietary value of fish.

It is crucial to keep track of cleaning procedures, analyse the nutritious composition of samples of raw, cleaned fish parts, ready for cooking, and monitor plate waste in order to determine the nutritional worth of a particular fish species. According to the aforementioned survey conducted in the Cambodian region of Kandal, the majority of households prepared the common fish, trey changwa plieng, with the head on. In comparison to samples where the head was removed during cleaning, the raw, cleaned samples with the head had much more calcium, iron, and zinc [5].

Conclusion

To estimate the current and potential contribution of fish to vitamin A and mineral requirements, information on fish intake at the species level and evaluations of the nutrients in popular fish species and fish dishes are needed. Households should be made more aware of the value of nutrient-dense fish

species in preventing vitamin A and mineral deficits, as well as at all levels in the agriculture, health, and nutrition industries. It is important to encourage the use of suitable, nutrient-rich fish species in Bangladeshi aquaculture. It is important to safeguard and improve access to these fish through effective management of fisheries resources, including open-water fisheries. These actions may result in the use of nutrient-rich fish in dietary approaches to address vitamin A and mineral deficiencies.

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