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# Contribution of Fish in Human Nutrition

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## Abstract

In a world where nearly 30 percent of humanity suffers from malnutrition and more than 70 percent of the planet is covered by water, aquatic food especially fish forms an essential part in the human nutrition. This article reviews the nutritional composition of fish and therefore the health benefits of fish. In addition to the superior nutritional profile and benefits of fish, it play a crucial role within the nutrition of the poor as a reasonable and far needed source of top quality animal protein and essential amino acids, omega-3 fatty acids, vitamins, minerals, and trace elements. As one of the simplest aquatic animal food, fish from a nutritional perspective and the direct consumption of fish and fishery products should be encouraged and promoted to maintain a healthy life.

## Introduction

Fish makes an important contribution to the survival and health of a big portion of the world's population. Fish is particularly important for the developing world. Maximum people of Asia's poorest countries (Bangladesh, Cambodia) derive an amount of 75% of their daily protein from fish. In West Africa, fish accounts for 30% of animal protein intake, and this number would be larger if the poor could afford to shop for more.

Often referred to as "rich food for the poor," fish provides essential food, especially high-quality proteins and fats (macronutrients), vitamins and minerals (micronutrients). Secondly, for those involved in fisheries, aquaculture and fish trade, fish may be a source of income, which may want to purchase other additional food items. Though this brief emphasizes that fish contributes to food security as a crucial accompaniment to rice based diets in Asia and maize and cassava based diets in Africa, its consumption is decreasing. Fish supply in Africa has been declining for variety of reasons while the demand has been increased. Strategies to extend fish supply are being promoted globally for making the goal to reduce malnutrition.

Malnutrition remains a drag in many countries particularly in Africa. It's estimated that 47 million children under five years old are stunted in sub Saharan Africa, whereas in eastern and southern Africa the figure stands at 24 million. Micronutrient deficiencies of vitamin A, iron and iodine also are of public health concern within the whole African region. Their consequences include nutritional blindness, poor learning capabilities, poor growth and increased morbidity and mortality rates. Development and agricultural programs, like fisheries and aquaculture, which are the mainstream nutrition, will go a long way towards alleviating the question of malnutrition in this part of the world as well as in other countries.

## Macronutrients in Fish

### Proteins

**P**roteins are important for growth and development of the body, maintenance and repairing of wiped out tissues and for production of enzymes and hormones required for several body processes. The importance of fish is providing easily digested protein material of high biological value is well mentioned. Within the past, this has served as a justification for promoting fisheries and aquaculture activities in several countries. On a fresh weight basis, fish contains an honest amount of protein, roughly 18-20%, and includes all eight essential amino acids, including lysine-containing sulphur, methionine and cysteine. Fish also supplements cassava dependent diets that are typically low in protein.

### Fats

**T**he fat content of fish varies counting on the species also because the season but, fish have less fat than red meats. The fat content ranges from 0.2% to 25%. However, fats from fatty fish species contain the polyunsaturated fatty acids (PUFAs) namely EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) (omega 3 fatty acids) which are essential for correct growth of youngsters and aren't related to the occurrence of cardiovascular diseases like coronary heart condition. In pregnant women, the presence of PUFAs in their diets has been related to proper brain development among unborn babies. In other studies, omega 3 fatty acids have also been related to reduce risk of preterm delivery and low birth weight. The fat also contributes to energy supplies and assists within the proper absorption of fat soluble vitamins namely A, D, E, and K.

## Micronutrients in Fish

### Vitamins

**F**ish may be a rich source of vitamins, particularly vitamins A and D from fatty species, also as thiamin, riboflavin and niacin (vitamins B<sub>1</sub>, B<sub>2</sub> and B<sub>3</sub>) from lean species. Vitamin A is more readily accessible to the body from fish than from plant foods. Vitamin A is required for normal vision and bone development. Fatty fish have more vitamin A than lean fish types. Studies have shown that mortality is reduced for youngsters under five with a low vitamin A status. So vitamin A can be available in their body by eating the fish. Vitamin A can also help to improve or cure the eye problems in children as well as in adults. As sun drying kills most of the available vitamin A, better processing methods are required to conserve this vitamin.

Vitamin D present in fish liver and oils is crucial for bone growth, since it's essential for the absorption and metabolism of calcium. Thiamin, niacin and riboflavin are important for energy metabolism. If eaten fresh, fish also contains a touch vitamin C which is vital for correct healing of wounds, normal

health of body tissues and aids within the absorption of iron in the body.

### Minerals

**M**inerals in fish comprise iron, calcium, zinc, iodine (from marine fish), arsenic, selenium & fluorine. These minerals are highly 'bio-available' meaning that they're easily absorbed by the body. Iron plays vital role for the synthesis of haemoglobin in red blood cells which is important for transporting oxygen to all or any parts of the body. Iron deficiency is related to anemia, impaired brain function and in infants is related to poor brain and poor behaviour. Thanks to its role within the system, its deficiency can also be related to increased risk of infection.

Calcium is required for strong bones (formation and mineralization) and for the traditional functioning of muscle. It's also important within the blood coagulation process. Vitamin D is required for its proper absorption. The intake of calcium, phosphorus and fluorine is higher when small fish are eaten with their bones instead of being discarded. Deficiency of calcium could also be related to rickets in young children and osteomalacia (softening of bones) in adults and older people. Fluorine is additionally important for strong bones and teeth.

Zinc is required for many body processes, because it occurs alongside proteins in essential enzymes required for metabolism. Zinc plays a crucial role in growth and development also within the proper functioning of the system and for a healthy skin. Deficiency of it can lead to poor growth, skin problems and loss of hair among other problems.

Iodine, present in seafood, is vital for hormones that regulate body metabolism and in children it is required for growth and normal mental development. A deficiency of iodine may cause goitre (enlarged thyroid gland) and brain developmental retardation in children.

It has the evident that fish contribute more to people's diet. Fish can also be an essential part of the diet, avoiding starvation by making both macro and micro nutrients readily accessible to the body.

## Fish and Feeding of Young Children

**F**ish is soft, easy to cook and more easily digested than meat, even young children can fed with fish, contributing to improved nutritional intake. Fish also can be used as complementary foods especially in paste or powder form. These fish and fishery based products can enrich the maize and cassava based porridges with nutritional enhancement. Nonetheless, the challenge is to establish suitable fishery items to be used as alternative foods for young children. Older children can consume fish with no problems and if well cooked they will benefit tremendously from the tiny fish that are such a superb source of calcium and fluorine elements crucial for the development of strong bones and teeth for the young children.

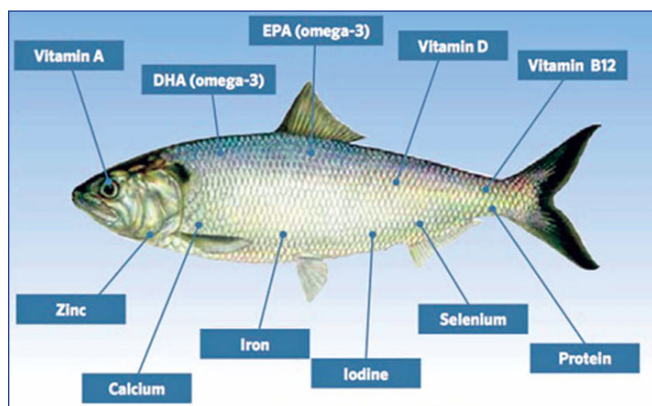


Figure 1: All nutritional benefits of eating fish



Figure 3: Delicious fish dish



Figure 2: Different types of fish for healthy diet

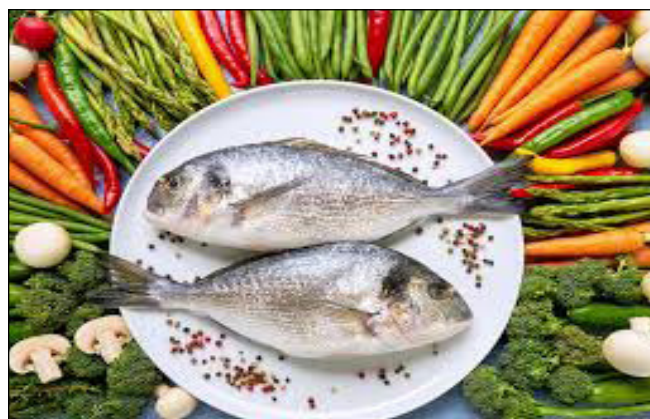


Figure 4: Fish gives supplemental nutrition with vegetables

## Conclusion

It is necessary for realizing the importance of fish to human nutrition, additionally to its role in reducing poverty and hunger. This might ensure a greater impact by improving the nutritional status of households, particularly those with young children. Research are getting to be undertaken to understand a much better understanding of the role of fish in decreasing malnutrition and improving the health of the sick.

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