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Nutritional and Medical Importance of Fish: A Mini Review

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Abstract:

In this era research regarding fish is as prominent as bright day light. Fish is greatly utilized throughout the world and is a stapled food item. On account of this very high consumption, fish is contributing to economic sector of many countries; even some people rely on fisheries sector for their income solely. Fish is consumed in enormous amount throughout the world and is on the edge to surpass beef as a chief food source. It is consumed due to its high nutritional and medical values. This article reviews some nutritional and medical aspects of fish.

KEY WORDS:

Fish, Stapled food, Economic, Nutritional and medical values.

INTRODUCTION:

Fish is a distinct group of aquatic vertebrates and is ectothermic in nature having backbone, gills and fins. It primarily depends on water as a medium to live in [1]. There are a number of fish species, having different sizes, shapes, colors and habits, and use to abode in varying habitats [2]. Approximately 39,900 vertebrate species have been identified throughout the world with 21,723 extant species [3]. Of all these, 95% are bony fishes – mostly toleosts, about fifty species of agnathas (Jawless fishes) and eight hundred cartilaginous fish species. Of the modern fish species, marine is contained of 58% while 41% are freshwater fish and the remaining 1.0% is diadromous [4]. At the present approximately 28,600 fish species are believed to be valid while it is estimated that the total number of fish species ranges from 30,000 to somewhat 35,000 [5]. This shows that fish represent a large part of all living vertebrates and comprise more than a half of the approximated 48,170 known living vertebrate species [6]. Currently fish base is embodied to 28,600 fish species [5].

Fish farming is one of the most key sectors of a country's economy. It is a rich source of protein which makes it an important component of diet throughout the world [7,8]. It has also got medicinal importance because fish liver oil is being used in many medicines [8,9]. Fish are not only useful on account of its utilization as a food source or its use in medicine or due to its economic output but it also plays a vital role in the second trophic level of the aquatic system [10].

NUTRITIONAL IMPORTANCE OF FISH

It has been estimated that fish farming is at the point to go past beef as a chief food source till the end of this decade [11]. On account of the augmented demand of animal protein, the world is greatly relying on oceanic fisheries and domesticating cattle. Both these natural systems have come up to their productive confines. In developing countries, of the total consuming fish yield, more than 30% is represented by aquaculture [12]. This production level can even be more enlarged by increasing the water surface area under fish farming and by growing production per unit area cultivated [13].

Fish is an important group of vertebrates influencing every niche of human life in many ways. It is a rich source of food and provides meat to mitigate the nutritional problems of man. Fish also provide several by- products such as fish meal, fish chum, fish oil, fish glue etc. Fish diet supply proteins, fats, vitamins A, D and E, and other macro nutrients [8]. It also consists of a great amount of principle minerals like Calcium, Magnesium, Iron, Sodium, Iodine, Phosphorus and other elements [14]. It is rich protein source. Protein is present in fish diet in the form of simple proteins with different essential amino acids, fats and traces of vitamin B Complex, and also in the form other non-protein nitrogenous forms [8]. They have fine taste, easily digestible and high growth upholding value [15].

Fish is the most significant and plentiful aquatic protein source [16]. It is a valuable source of high grade protein supply and other organic compounds [17]. Fish proteins are rich in particular amino acids that are short in plant proteins. The fish fats grant more energy as compared to other animals. In addition to protein and fats fish flesh also contain Vitamin D, generally missing from cattle meat [8]. Of the required Vitamins 14% can be attained from fish use. Different studies have shown that low fat fish meat is better than mutton, beef and even poultry for human health [18]. Small native fish species are the main source of protein and most of the fat soluble vitamins. Specifically in many countries of the world, the rural people are completely relying on this food source solely such as Bangladesh, where 80% of the entire population depends on this source [19].

MEDICINAL IMPORTANCE OF FISH

Fish are medically as important as economically and nutritionally because fish oil is used medicinally. Fish oil can be gained by consuming fish or taking supplements. There are different fish species that are especially rich in the beneficial oils known as omega-3 fatty acids (The most vital omega-3 fatty acids present in fish oil are Eicosapentaenoic acid (EPA) and Docosahexaenoic acid (DHA) [9]. These fish species are mackerel, salmon, tuna, sturgeon, bluefish, mullet, sardines, anchovy, menhaden trout, and herring. These fish are so rich in Omega-3 fatty acid that 3.5 ounces of fish provide 1 gram of omega-3 fatty acids. Fish oil supplements normally consist of little amounts of vitamin E to put off deterioration or spoilage. They might also be shared with calcium, iron, or vitamins such as A, B1, B2, B3, C or D [8].

Fish oil is used for a wide range of unhealthy or diseased conditions. It is most often used for diseases associated with heart and blood system [9]. Fish oil is used by some people to lower triglyceride levels or simply blood pressure. It has also been tried for putting off heart disease and stroke [20]. The scientific confirmations put forward that fish oil really lowers high triglycerides level. Studies showed that it also helps preventing heart disease and stroke when utilized in the recommended amounts [21]. Paradoxically, taking too much fish oil can actually boost the jeopardy of stroke. Fish have earned its reputation as “brain food” because some people use to utilize fish to cope with depression [22]. It is used for Alzheimer's disease, psychosis, attention deficit-hyperactivity disorder, abbreviated as ADHD, and other thinking disorders [23,24,25]. Some people use fish oil for dry eyes and glaucoma [26]. It is also used for age-related macular degeneration (AMD), which is a very common condition in aged people that lead to serious sight problems most of the times [27].

Women occasionally use fish oil to prevent painful periods and breast pain [28]. They also use fish oil for complications associated with pregnancy such as early delivery, miscarriage, and high blood pressure late in pregnancy [29,30,31]. Fish oil is used for diabetes, asthma, weak bones (osteoporosis), kidney disease, movement disorders, disorders, obesity, dyslexia, developmental coordination, certain diseases associated with pain and swelling including psoriasis, and avert weight loss caused due to use of some cancer drugs [32,33,34,35].

Fish oil is used after heart transplant surgery to preclude high blood pressure and kidney damage. These complications may be due to surgery itself or drugs used. It is also used for reducing the chances for the body to reject the new heart [36,37]. Sometimes it is used following coronary artery bypass surgery. It seems to help keeping the blood vessel that has been rerouted from closing up [36]. Natural Medicines Comprehensive Database rates efficacy based on scientific proofs in different scales. These scales are

ineffective, likely ineffective, possibly ineffective, possibly effective, likely effective, effective and Insufficient Evidence to Rate. There are many effectiveness ratings for fish oil.

Fish is effectual for heart diseases and untreated diabetes on account of having the property of lowering high triglycerides level [38]. Research suggests that consuming fish oil can be useful for keeping heart healthy and free of all types of disorders due to the presence of Statin like effects [39]. It is possibly helpful to cope with high blood pressure [36], Attention deficit-hyperactivity disorder (ADHD) in children, Menstrual pain (dysmenorrheal), Rheumatoid arthritis, Weak bones (osteoporosis), Raynaud's syndrome and Stroke [40]. It also assist Hardening of the arteries (atherosclerosis), bipolar disorders, psychosis and kidney problems [41]. It is handy for endometrial cancer and weight loss [8]. It reduces the risk of blood vessel re-blockage after heart bypass surgery or "balloon" catheterization (balloon angioplasty) and Age-related eye disease (age-related macular degeneration, abbreviated as AMD) [36,42]. It is efficient for recurrent miscarriage in pregnant women with High blood pressure, anti-phospholipid syndrome, and kidney problems after heart transplant [9,36]. It also put off damage to kidneys and high blood pressure caused by cyclosporine drug. It is useful for movement disorders in children, known as dyspraxia [40]. It is often time used for preventing blockage of grafts used in kidney dialysis, developmental coordination disorder and Psoriasis [35]. It is extensively used to lower high cholesterol level, coronary artery bypass surgery, Asthma and cancer-related weight loss [36,43,44,45].

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