SEAFOODS AND HEALTH

FISHERY MARKET DEVELOPMENT SERIES NO. 17

by
Dr. Bruce R. Stillings
and
Mary H. Thompson

Dr. Stillings is a Supervisory Research Chemist at the National Marine Fisheries Center for Fish Protein Concentrate at College Park, Maryland. Mrs. Thompson is Program Leader at the Tropical Atlantic Biological Laboratory, Miami, Florida.
OIL IN FISH AND SHELLFISH CAN PLAY A SIGNIFICANT ROLE IN HUMAN HEALTH. A great deal of attention has recently been given to the relationship between the amount of fat in the diet and the incidence of heart disease. This relationship has not been conclusively established—though evidence does suggest that a high intake of meat fat may be one of the predisposing factors contributing to heart disease. Because fat in fish and shellfish has a unique chemical nature, these products are often recommended in diets designed to minimize the risk of heart disease.

Two dietary modifications are often recommended to reduce the risk of heart disease among vulnerable groups. The first is to reduce the fat content and the total caloric content of the diet. The second is to partially substitute polyunsaturated fatty acids for saturated fatty acids.
Not only do fish contain high proportions of polyunsaturated fatty acids, but they also contain relatively small amounts of cholesterol. Fishery products generally contain about as much cholesterol, or cholesterol-like compounds, as meat and milk products. Certain cuts of beef and some egg products, however, contain up to 10 times as much cholesterol as is found in fish and shellfish.

Reducing the total intake of calories, however, is often as important as including liberal quantities of polyunsaturated fatty acids in the diet. In this case, fish that are low in oil can form the main entree of a meal. Total caloric intake will be reduced, while still providing adequate protein to meet the body's requirements. Low-fat fish and shellfish normally contain less than 100 calories in a 4-ounce serving. On the other hand, a 4-ounce serving of good-quality beef may supply well over 300 calories. For those who are calorie conscious, substituting seafoods offers a distinct advantage over meats that are high in fat.

**FISHERY PRODUCTS ARE GOOD SOURCES OF SEVERAL VITAMINS.** We can divide the 13 common vitamins into two major groups, fat-soluble vitamins and water-soluble vitamins. In fishery products, fat-soluble vitamins are found in oil. Vitamins in the water-soluble group are in the water that is dispersed throughout. In the history of vitamins, it was early recognized that fish liver oil was a rich natural source of fat-soluble vitamins, especially vitamins A and D. Although fish liver oil is an extremely rich source of fat-soluble vitamins, the flesh of fish contains relatively small amounts. Fish oil generally has a higher content of fat-soluble vitamins than the fat of land animals. In turn, it should not come as a great surprise to learn that fatty fish contain more of these vitamins than does lean fish. Some fatty fish are an excellent source of vitamin D; lean fish contain very small amounts. The vitamin A content of the flesh of most fish is relatively low. It has been reported, however, that swordfish and whitefish contain high amounts of vitamin A.

As for water-soluble vitamins, four of the eight members of the vitamin B family can be supplied in adequate amounts by fish and shellfish. These four vitamins are B12, B1, biotin, and niacin. The remaining four B vitamins are found in fishery products, but generally are not present in appreciable quantities. Larger amounts of B vitamins are usually found in high-fat fish than in lean-fat fish. It has also been found that the B vitamin content of the dark meat of fish is many times higher than that of the white meat. The B vitamin content of fish is about the same as that of meat from land animals.

**FISHERY PRODUCTS ARE ALSO A VALUABLE SOURCE OF MANY ESSENTIAL MINERALS.** It is well established, for example, that fish contain relatively large amounts of calcium, potassium, and iodine. Conversely, the sodium and chlorine content of fish is relatively low, despite the relative richness of sea water in sodium chloride.

Since the advent of the low-sodium diet, much attention has been focused on the sodium content of fish and shellfish. Occasionally, doubt is expressed about the advisability of using fish in low-sodium diets that are prescribed for people suffering from hypertension. This doubt is not well founded, even in the case of salt-water fish.

With the exception of most shellfish, fish are low in sodium and can be freely used in low-sodium diets. Fresh oysters and soft clams are also low in sodium and can be used in these diets. Other shellfish often contain large amounts of sodium and are not recommended for low-sodium diets. Also, if salt has been added during processing, fish will contain sodium levels in excess of the maximum permissible level. Since fish vary considerably in flavor and texture, they offer the possibility of variety and diversification in low-sodium diets.

Fishery products are noted for a high content of minerals, or "trace minerals," such as iodine and fluoride. Because trace minerals perform vital functions, fish and shellfish are viewed with special interest. Most essential trace minerals are present in fishery products in amounts at least equivalent to those in meat, and usually in much higher amounts than in vegetables and dairy products.

**FISH AND SHELLFISH CAN ALSO CONTRIBUTE TO THE ENJOYMENT OF EATING,** as well as providing good nutrition. Over 150 varieties—either fresh or processed—are available to the consumer. With this multiplicity of choice, it is possible to find fishery products to please even the most discriminating palate. Seafood, however, is a most delicate food and must be handled with care from the time it is caught until it is placed on the table. Natural goodness and taste is easily lost if improper preservation and processing techniques are used. Whereas meats tend to improve with "aging," fish and shellfish are at their best when freshly caught.

The methods used in preparing fish and shellfish for the table are especially important. Good fish can be easily spoiled if improperly cooked. The flesh of fish may be likened to egg white. Fish should be cooked only until the flesh "sets" and can be easily flaked from the bones. Fish may be baked, broiled, boiled, or fried. Certain types of fish are more suitable for particular methods of cooking. For example, fatty fish are considered better for broiling and baking, and lean fish are more appropriately broiled, boiled, or steamed. The important point to remember is that overcooking should be avoided to preserve the natural texture and flavor.

Fish and shellfish can be delicious in taste and prepared with ease. They should be thought of as more than a substitute for meat. They can be used as a main course or an appetizer or as the main attraction. Even the most discriminating connoisseur can find the right seafood to suit his particular purpose and taste. When cooked and flavored with appropriate herbs and spices — and consumed with a special vintage wine—seafoods can be a truly enjoyable experience in eating.