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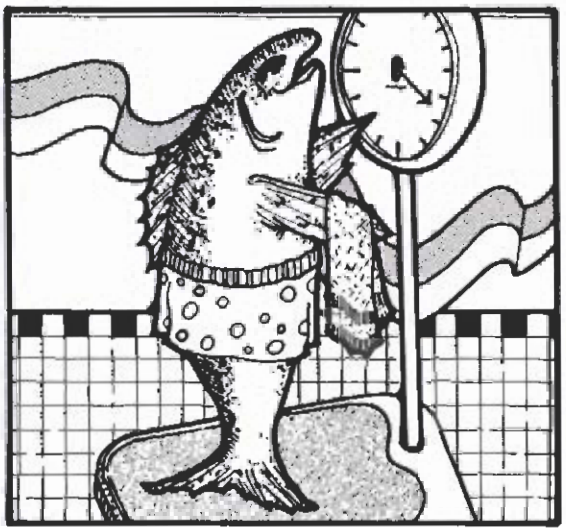

LOW IN CALORIES, HIGH IN NUTRITION

by David A. Stuiber

Seafoods have always been held in high esteem as an entree on restaurant menus, but in recent years an increasing number of people have begun to include more fish and seafood as a regular part of their home menus—and with good reason.

Besides being economical and easy to prepare, fish and seafoods are easy to digest, low in sodium and high in protein, yet contain far fewer calories and less fat than comparable servings of red meats. This has prompted many health- and weight-conscious Americans to adopt fish and seafoods as true "lean cuisine."

Fish and seafood products are also excellent sources of B-complex vitamins and essential trace minerals, including potassium, iron, phosphorus, copper, iodine, manganese, cobalt and selenium. Fatty species of fish—salmon, whitefish and mackerel, for example—are also rich in vitamins A and D. Some species of shellfish are good sources of zinc and bone-building calcium.

Recent studies indicate that a meal or two of fish each week may also help reduce blood cholesterol levels, a leading cause of atherosclerosis, commonly called hardening of the arteries. Atherosclerosis is a major factor in the development of coronary heart disease, America's No. 1 fatal disease.

Low in Calories

Fish offers high-quality protein with fewer calories than a similar-sized portion of meat (see table). For example, both haddock and ground beef are about 18 percent protein. But the haddock will have only about 22 calories per ounce, while regular ground beef has about 80 calories per ounce.

The total number of calories in a seafood meal depends on your choice of seafood and your method of preparing it. A 3.5-ounce serving of perch, for example, has far fewer calories than an equivalent serving of chinook salmon or sturgeon caviar. And frying, due to the uptake of frying oil, will add more calories to a serving of fish than will broiling, poaching or steaming it. A serving of deep-fried perch, for example, will have far more calories than a similar serving of poached perch.

Condiments like butter and tartar sauce also add a lot of calories to a serving of fish. Dieters can easily avoid the hundreds of calories in tartar sauce and butter by using just a few fresh herbs and spices—such as sweet basil, curry powder or paprika—or a sqeeze of lemon or lime juice to enhance the delicate flavors of fish or seafood.

Nutritional

Doctors and nutritionists nationwide are beginning to recommend more fish and seafoods in the diet, based on scientific research on the beneficial roles of fish and fish oils in human nutrition and general health.

While many aspects of fish and nutrition are still under investigation, much of the current research effort is focused on the various kinds of lipids in fish, particularly the long-chain omega-3 fatty acids, which are unique to fish and fish oils. Trout and salmon in particular are high in omega-3 fatty acids.

Recent research indicates a diet containing fish or fish oils rich in omega-3 fatty acids has beneficial effects on such health problems as hardening of the arteries (atherosclerosis), high levels of cholesterol (blood lipids) and high blood pressure (hypertension), and perhaps even arthritis.

Atherosclerosis, hypertension and obesity are the three major diet-related factors involved in an increased risk of developing coronary heart disease, the cause of nearly half of all deaths in the United States today. On average, one in five Americans has a problem with atherosclerosis or high blood lipids. A diet generally high in fat content seems to increase blood cholesterol, and a diet high in saturated fats increases blood cholesterol in some people. Seafoods are generally low in cholesterol and fats, and 60 to

(continued on page 4)

CALORIE, FAT AND PROTEIN CONTENT OF FISH AND SEAFOODS

This table includes saltwater and freshwater species of sport and commercial fish and shellfish commonly available in the Midwest. It is based on a 3.5-ounce (100-gram) portion of raw (uncooked) product unless indicated otherwise.

Fish or Seafood	Calories	% Fat	% Protein
Bass (Small & Largemouth)	104	2.6	18.8
Blackfish (see Tautog)			
Bluefish	117	3.3	20.5
Buffalofish	113	4.2	17.5
Bullhead	84	1.6	16.3
Burbot (Lawyer)	82	0.9	17.4
Butterfish	169	10.2	18.1
Carp	115	4.2	18.0
Catfish (freshwater)	103	3.1	17.6
Caviar[1] (Sturgeon)	262	26.9	15.0
Chinook Salmon (see Salmon)			
Chub	145	8.8	15.3
Cisco (see Lake Herring)			
Clam[2] (meat only)	82	1.9	14.0
Cod	78	0.3	17.6
Coho Salmon (see Salmon)			
Crab (cooked, steamed)	93	1.9	17.3
Crappie	79	0.8	16.8
Crayfish (freshwater)	72	0.5	14.6
Croaker	96	2.2	17.8
Cusk	75	0.2	17.2
Dogfish, Spiny (Grayfish)	156	9.0	17.6
Drum, Freshwater (Sheepshead)	121	5.2	17.3
Eel, American	233	18.3	15.9
Fish Sticks[3] (frozen)	176	8.9	16.6
Flounder	79	0.8	16.7
Frog (legs)	73	0.3	16.4
Grouper	87	0.5	19.3
Haddock	79	0.1	18.3
Hake	74	0.4	16.5
Halibut	100	1.2	20.9
Herring (Bismark) (pickled)	223	15.1	20.4
Lake Herring (Cisco)	96	2.3	17.7
Lake Trout	168	10.0	18.3
Lake Trout (Siscoette)			
Under 6.5 lbs.	241	19.9	14.3
Over 6.5 lbs.	524	54.4	7.9
Lawyer (see Burbot)			
Lingcod	84	0.8	17.9
Lobster (whole)	91	1.9	16.9
Mullet, Striped	146	6.9	19.6
Muskellunge (Muskie)	109	2.5	20.2
Mussels[2] (meat only)	95	2.2	14.4
Northern Pike (see Pike)			
Octopus	73	0.8	15.3
Oyster[2] (meat only)	66	1.8	8.4
Perch			
Ocean	88	1.2	18.0
Yellow (Lake Perch)	91	0.9	19.5
Pike			
Northern	88	1.1	18.3
Walleye	93	1.2	19.3
Pollack	95	0.9	20.4
Pompano	166	9.5	18.8
Porgy and Scup	112	3.4	19.0

Fish or Seafood	Calories	% Fat	% Protein
Red, Gray Snappers	93	0.9	19.8
Redfish (see Perch, Ocean)			
Redhorse, Silver	98	2.3	18.0
Rockfish (Black, Canary, Rasphead, Yellowtail & Bocaccio)	97	1.8	18.9
Roe			
Carp, Cod, Haddock, Herring, Pike & Shad	130	2.3	24.4
Salmon, Sturgeon & Turbot	207	10.4	25.2
Sablefish	190	14.9	13.0
Salmon			
Atlantic	217	13.4	22.5
Chinook (King)	222	15.6	19.1
Coho (Silver)	136	5.7	21.5
Pink	119	3.7	20.0
Sockeye (Red)	143	6.9	20.3
Sardine[4]	203	11.1	24.0
Sauger	84	0.8	17.9
Scallop (Bay and Sea)	81	0.2	15.3
Scup (see Porgy)			
Seabass (White)	96	0.5	21.4
Sheepshead (see Drum)			
Shrimp	91	0.8	18.1
Siscoette (see Lake Trout)			
Skate	98	0.7	21.5
Smelt	98	2.1	18.6
Snail	90	1.4	16.1
Sole	79	0.8	16.7
Spanish Mackerel	177	10.4	19.5
Squid	84	0.9	16.4
Sturgeon (see also Caviar)	94	1.9	18.1
Sucker	104	1.8	20.6
Swordfish	174	6.0	28.0
Tartar sauce[5]	531	57.8	1.4
Tautog (Blackfish)	89	1.1	18.6
Tilefish	79	0.5	17.5
Tomcod	77	0.4	17.2
Trout			
Brook	101	2.1	19.2
Rainbow (Steelhead)	195	11.4	21.5
Tuna (raw)	145	4.1	25.2
Canned in oil (solids + liquids)	288	20.5	24.2
Canned in water (solids + liquids)	127	0.8	28.0
Turtle	89	0.5	19.8
Walleye (see Pike)			
Weakfish	121	5.6	16.5
Whitefish, Lake (freshwater)	155	8.2	18.9
Whiting	105	3.0	18.3

Table Footnotes

1 The fat, calorie and protein content of caviar will vary with the type of roe used in its production (see roe).

2 Mollusks—clams, oysters and mussels—contain carbohydrate material not included as part of the tabular information.

3 A variety of fish species are used in the production of fish sticks or fish portions. The caloric value of these products will vary with the amount of batter or breading applied to the product.

4 The data presented represent drained sardines canned in oil; the figures are for the solid product only.

5 The data for tartar sauce are included here because it is often added to seafood dishes when they are served.

80 percent of the fat in seafoods are polyunsaturated fatty acids, like those in vegetable oils.

More than 60 million Americans suffer from hypertension, and restriction of the amount of sodium in the diet is often part of the treatment for it. Another important aspect of the dietary management of hypertensive patients is maintaining their potassium levels when certain diuretics are part of the treatment. Freshwater and saltwater species of fish alike are both low in sodium and good sources of potassium. However, the use of brine in processing pickled, smoked and some frozen fish and seafood products can increase the sodium content more than threefold: Read the package label carefully.

Lemon and lime juice are good substitutes for salt in seafood dishes, and tarragon, basil, paprika, garlic, mushrooms and onions all enhance the flavor of seafood dishes without raising the sodium or caloric content significantly.

Economical

Besides tasting good and being good for you, fish and seafoods have two other special attractions as home menu items: They are quick and easy to prepare.

Generally speaking, any method used to prepare meat dishes can also be used with seafoods, including baking, broiling, grilling and frying. Unlike many meats, however, fish and other seafoods do not require a lot of cooking to make them tender. In fact, your main concern should be to avoid cooking them too long: Fish steaks and small whole fish can be broiled, steamed, poached or fried in only a few minutes.

And while fish and seafoods generally cost more per pound than red meats, there is little or no bone and fat to trim away and less shrinkage during cooking, so less is wasted.

RELATED SEA GRANT PUBLICATIONS

Home Freezing of Fish by David Stuiber. University of Wisconsin Sea Grant College Program Publication No. WIS-SG-84-150 (30¢)

Home Smoking of Fish by David Stuiber, Mary Mennes and C.E. Johnson. University of Wisconsin Sea Grant College Program Publication No. WIS-SG-84-144 (25¢)

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Fish Recipe Cards (set of 7) by the University of Wisconsin Sea Grant Institute Communications Office staff. (Single sets free; quantities 10¢ per set)

Fish and Seafoods: Dividend Foods by Charlotte Dunn. University of Wisconsin Sea Grant Publication No. WIS-SG-74-118 (25¢)

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Eating Lake Michigan Fish fact sheet. University of Wisconsin Sea Grant College Program Public Service Publication (free)

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