Is Tilapia Healthy?

By: Dr. Chilton, The Gene Smart Diet

Tilapia is a staple at thousands of restaurants across America. In fact, it's one of the most popular fish eaten in our country every day. However, just because everyone seems to be eating it, doesn't mean that Tilapia is healthy.

The following excerpt from Dr. Chilton's anti-inflammatory diet book, The Gene Smart Diet, discusses tilapia nutrition and explains the answer to the question, "Is Tilapia Healthy?"

Is Tilapia Healthy? An Excerpt from The Gene Smart Diet

Dr. Chilton writes ...There's another threat to our omega-3 fat consumption, and that's the presumption that those beneficial long-chain omega-3s are actually in the fish. Changes in the food supply, however, make that a more dubious claim.

In the 1970s, the demand for fish began to outstrip what we could reasonably catch. Public awareness of the health benefits exacerbated the shortage, and (forgive the pun!) spawned a tremendous expansion in aquaculture and fish farming. It is now the fastest-growing form of producing food on the planet, expanding at a rate of 10 percent per year since 1990.

My laboratory has spent the last few years monitoring what the explosion in aquaculture—as it is currently practiced—has done to our fat ratios, and it is nothing short of a disaster. The focus of the concern so far has been on mercury and PCBs in our fish supply; these make the editorial pages on a regular basis. But without sounding like an extremist, I believe that the threat doesn't even approach the gravity of the problem we're looking at, with the altered concentrations and ratios of omega-6s to omega-3s in our most popular fish. Fat is never far off the media radar, and I am convinced that the realization of the terrible damage that our consumption of long-chain omega-6 fats is doing to us will be the next big "bad fat" story.

Tilapia is one of the most widely farmed fish on the planet. It's inexpensive, and it doesn't smell or taste strongly "fishy," which is why the market for it is one of the fastest growing. Consumption of tilapia is projected to increase from 1.5 million tons in 2003 to 2.5 million tons by 2010; experts expect that it will surpass farm-raised Atlantic salmon as the most eaten farmed fish in the United States within a few years. Similarly, consumption of farmed catfish has dramatically increased, from 0.3 million metric tons in 1994 to 0.7 million metric tons in 2003.

Is Tilapia Healthy? Omega-3 and Omega-6 Fatty Acids

But my laboratory has recently shown that tilapia and farmed catfish have several fatty acid characteristics that would generally be considered by the scientific community and doctors as detrimental. This paper was published in the Journal of the American Dietetic Association in 2008.

First, they have much higher saturated and monounsaturated fat to PUFA ratios than other farmed or wild fish. Ratios this high in diets have been shown to be directly associated with increases in cholesterol and atherogenesis (the development of arterial plaques) in both humans and non-human primates.

Perhaps more importantly, the concentrations of long chain omega-6 PUFAs—and more specifically, the long-chain omega-6 PUFA, Arachidonic Acid (AA)—are high. In fact, these fish contain some of the highest levels of AA found in the human food chain. Long-chain omega-6 fatty acids alter gene expression in such a way that it upends blood lipids (cholesterol, LDL and HDL, and triglycerides) and induces whole-body inflammation by producing several families of messengers that markedly exacerbate inflammation and inflammatory disease.

In isolation, this would be problem enough. But the inflammatory danger we face from the long-chain omega-6s is largely exacerbated by the fact that there are so many long-chain omega-6s in the Western diet when there are so few long-chain omega-3s. When the ratios of the two primary long-chain omega-6 and omega-3 PUFAs (AA and EPA, respectively) were examined, both farmed tilapia and catfish contained high AA/EPA. While there was a great deal of variability in the AA/EPA ratio in farmed raised tilapia, the average ratio was approximately 11:1. Two fish samples harvested in Central America had over 20 times more AA than EPA.

This is very far away from what is optimal for our cells; the science to support the connection between an imbalance in our fatty acid concentrations and ratios and our ill health is convincing. Hundreds of clinical trials, including six from my own lab, support the connection between an imbalance in certain types of fatty acids and inflammatory disease.

By replacing beneficial long-chain omega-3s with long-chain omega-6s in these fish, we wreak havoc in our bodies—all the while believing that we have done something very beneficial for ourselves by eating the fish.

The problem, as it was with the cows, is what the fish are eating. Tilapia are incredibly hardy, which means that you can feed them just about anything as a fat source. What we're feeding them is corn oil, or soy, or whatever the cheapest commodity is at the time, packed with short-chain omega-6 fats that they convert to the dangerous long-chain omega-6 fats. Normally herbivore fish eat algae, which contain medium-chain omega-3 fats that they convert to the very beneficial long chain omega-3s. Carnivorous fish then eat those fish as their source of omega-3 fats. Humans eat both types of fish.

In the best-case scenario—if we were eating wild fish, like our ancestors would have—eating fish would provide us with by far our richest source of health-giving bioactives, long-chain omega-3s. But if the fish we're eating have been raised on corn or other omega-6 rich oils, or if

the fish we eat have eaten fish raised on these, then one of our healthiest foods becomes a major health problem.

All this is taking place unbeknownst to the consumer. Without knowing which fish to avoid, the general population is likely to purchase the fish (a) that is most readily available at the supermarket, or (b) that costs the least. Farmed tilapia, unfortunately, dominates both categories. Since 2000, shipments of frozen tilapia fillets from China to the United States (representing 66 percent of imports) have risen from 4 million to 140 million pounds. These Chinese tilapia fillets averaged $1.38 per pound in 2006, about even with the previous 2 years. Of course, convenience and price are important drivers in the marketplace, but the drastically different nutritional profiles are creating an absolute disaster for our health, especially when we subscribe to the widely held belief that eating any fish is beneficial.