

FATS OF LIFE NEWSLETTER

Volume 4 • Issue 4

December 2009 Contents

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HEART HEALTH

Fish or Long-Chain Omega-3s May Not Affect Chance of Developing Heart Failure

Long-chain omega-3 fatty acids reduce the chance of dying from heart disease and having a second heart attack, while improving how the arteries function. It is not clear whether they can lower the chance of developing heart failure. A study from the Netherlands gave mixed results.

1 gram/day of the long-chain omega-3s (omega-3s) found in fish oil. These fatty acids are involved in many aspects of heart health, improving arterial function and helping protect against heart attacks and sudden death from heart disease. The evidence for these benefits is abundant and convincing.

When it comes to the specific details of heart health, however, omega-3s have varying effects and sometimes no effect at all. If the disease is too advanced, omega-3s may be of little help. Heart failure—the inability of the heart to pump enough blood to supply the tissues—may be one of those conditions. Only a few studies that have looked at whether omega-3s have an effect in this condition and this report is the most recent to do so.

Previous studies suggested that in older adults, eating dark meat or fatty fish is linked to a 20% to 30% lower likelihood of developing heart failure. Another study suggested a similar effect, but the results did not achieve statistical significance, meaning they could have been due to chance. Here, a group of Dutch researchers looked at the risk of developing heart failure in over 5,000 men and women who averaged 68 years of age and did not have heart failure when they enrolled in the study.

By now, most people have heard that eating fish regularly or taking fish oil supplements can lower the chance of dying from heart disease by as much as 50% in the absence of heart disease. Even those who have suffered a heart attack are less likely to have a second one if they consume about



fish. However, when the investigators looked separately at participants with diabetes, the chance of developing heart failure was lowest in those with the disease and the highest intakes of omega-3s. As intakes of omega-3s increased, the trend for less heart failure increased, but was not quite statistically significant. Findings such as these suggest two contrasting conclusions. One is that fatty fish or omega-3s might not affect the chance of heart failure in older adults. The other suggests that in older people with diabetes, who are at increased risk of heart disease, higher intakes of fish oils or omega-3s might be linked to a lower chance of heart failure.

Like all epidemiological studies, these results do not show causation and in this case are inconclusive. With this study, the conflicting picture of whether long-chain omega-3s might be helpful in heart failure remains uncertain, but the findings hint at benefits in people with diabetes. The original question is still worth pursuing.

Higher Omega-3s in Carotid Artery Plaque Linked to Fewer Neurologic Symptoms

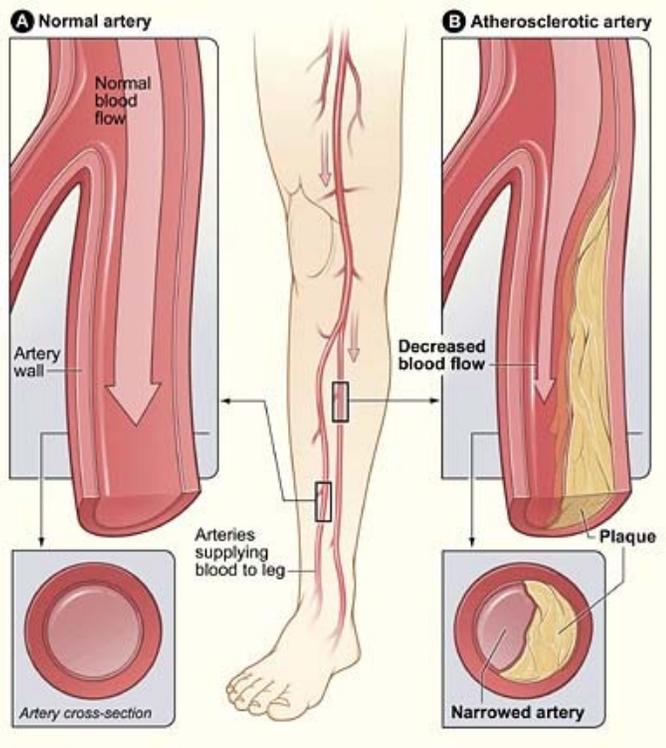
One of the ways long-chain omega-3 fatty acids (omega-3s) might protect against heart attacks is by increasing the stability of arterial deposits known as plaque (Illustration). These not only narrow blood vessels, but can rupture and precipitate a heart attack or stroke. Some research suggests that the consumption of omega-3s increases the stability of arterial plaque.

However tantalizing, the evidence is too sparse to be conclusive. A research group at the New Orleans School of Medicine, USA, investigated this question in patients whose carotid arteries were at least half blocked with plaque. The patients underwent surgery to remove plaque from these arteries.

Over 11 years, the participants who ate fish or had higher intakes of omega-3s were just as likely to develop heart failure as those who did not eat

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plaque of patients free of symptoms. These observations suggest that omega-3s and inflammation could be related, with low omega-3 levels likely indicative of more severe disease. There is considerable evidence that links omega-3s with lower levels of inflammatory markers, especially in patients with heart disease.

Although this study could not demonstrate improved plaque stability in patients with advanced carotid artery narrowing, it provides a link between higher levels of omega-3s and fewer symptoms of artery blockage. This functional approach suggests at least one of the practical effects of omega-3s in promoting arterial health.

Eating Fatty Fish Linked to Lower Chance of Heart Problems in Heart Attack Survivors

Acute coronary syndrome is a medical phrase applied to heart disease patients who have survived a heart attack or have frequent chest pain (angina) because of insufficient blood flow to the heart. This category includes the majority of heart disease patients, although each condition may respond to interventions differently. With regard to long-chain omega-3 fatty acids (omega-3s), there is good evidence that increased consumption of omega-3s reduces the chance of having a second heart attack and dying from heart disease. The evidence is less clear for patients with angina. One study suggested that high levels of omega-3s were not associated with fewer cardiac events or heart disease mortality.

Following surgery, the researchers examined the plaque tissue for its content of omega-3s and for evidence of inflammation. They considered the patients who had neurologic symptoms of reduced blood flow separately from those without such symptoms. The presence of inflammation increases the risk of heart and cerebrovascular disease and mortality.

In this study of patients with neurologic symptoms of carotid artery narrowing, those who had the highest levels of omega-3s in their arterial plaque were the least likely to have neurologic symptoms. They also had fewer markers of inflammation.

The results showed that patients without symptoms had significantly higher concentrations of omega-3s in their carotid plaque compared with patients who had neurologic symptoms. Moreover, the researchers found evidence of increased inflammation in the



A group of researchers in Greece, where eating small fatty fish such as sardines is greatly enjoyed, examined the occurrence of cardiovascular events—for example another heart attack, coronary bypass surgery or angioplasty (unblocking the coronary arteries)—in patients with acute coronary syndrome. They focused on the 30-day period immediately

plaque of symptomatic patients compared with the

following the patients' admission to hospital for acute



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coronary syndrome. This is the critical window when heart problems are most likely to occur. In fact, a quarter of the patients in this study experienced some type of heart event during this period.

Patients with either a heart attack or frequent chest pain who consumed fish nearly every day were 83% less likely to develop heart problems in the 30 days after hospital admission.

The investigators assessed the participants' food and fish intake using a food frequency questionnaire. They noted that fish intake was unrelated to whether the patients had myocardial ischemia (insufficient blood flow to the heart) or unstable angina. But in those

who ate fish often—7 portions a week—the likelihood of having heart problems during the first 30 days after hospital admission was 83% lower compared with patients who did not eat fish. High intakes of omega-3 and omega-6 fatty acids were both associated with a significantly lower chance of heart problems (83% and 79%, respectively).

Like all epidemiological studies, the findings from this one cannot establish that fish or omega-3 intake caused the decrease in heart problems among those who ate fish virtually every day. However, these findings are consistent with other observations in patients with heart failure. They are noteworthy because the results occurred during the most vulnerable period after a heart attack when a patient most needs protection.

MOTHERS AND INFANTS

Long-Chain Fatty Acids Linked to Greater Problem-Solving Ability in Term Infants

It is generally agreed that providing long-chain omega-3 fatty acids (omega-3s) to preterm infants contributes to their mental development and learning. Long-chain fatty acids of both the omega-3 and omega-6 families are needed for optimum brain development, but those of the omega-3 family are more likely to be in short supply. In healthy infants born at term, the findings

about omega-3s are less clear. That is partly because term infants have received omega-3s during the last trimester of pregnancy, whereas preterm infants have been shortchanged in this regard. Several reviews of the omega-3 supplementation studies in term infants have reported that these fatty acids were not linked to physical, visual or cognitive benefits.



In a recent study from Texas, researchers looked at the problem-solving ability of 9-month-old term infants who were breastfed for various periods of time or fed formula from birth. After

weaning, the infants consumed either a standard unenriched formula or one enriched with long-chain fatty acids. The problem for the infants to solve was to retrieve a rattle concealed under a blanket just out of reach. The infant had to pull the cloth toward him or herself, remove the cover and retrieve the rattle.

Healthy term infants fed long-chain fatty acids from birth or after 6 weeks or 4 to 6 months of breastfeeding had higher problem-solving scores than infants weaned to unsupplemented formula after 6 weeks.

Infants who had the highest problem-solving scores were those weaned to the long-chain fatty acid formula after 6 weeks or 4 to 6 months of breastfeeding and those fed the supplemented formula from birth. Infants weaned to standard formula after 4 to 6 months of breast-

feeding scored as well as those weaned to the supplemented formula after 6 weeks. What is puzzling, however, is that the infants weaned to the unsupplemented formula after 6 weeks did significantly poorer than those weaned to the supplemented formula. Why they did poorly is unclear because they would have received long-chain fatty acids from breast milk during their first



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6 weeks after birth. Infants who were fed the supplemented formula from birth had higher scores than all other groups. The catch is that we do not know the level of long-chain fatty acids in the breast milk, so we do not know how this compared with the amount in the supplemented formula.

These comparisons suggest that having an adequate supply of long-chain fatty acids from birth might favor the cognitive development of healthy term infants at 9 months of age. Whether such an advantage, if confirmed, extends into later childhood is an unanswered question, though some studies suggest that it might.

VISION

High Intakes of Omega-3s Linked to Lower Progression to Advanced AMD

A 12-year study of people with intermediate AMD reported that those with the highest consumption of long-chain omega-3s were 30% less likely to progress to advanced AMD.

Age-related macular degeneration (AMD) is the leading cause of vision loss and preventable blindness in adults aged 60 or more. It begins with impaired or hazy central vision that robs a person of the ability to read and drive. Researchers believe the chance of developing the condition can be reduced if appropriate steps are taken before

symptoms appear. For example, smoking increases the chance of developing AMD, while a diet rich in dark green leafy vegetables provides nutrients that specifically aid the macula in the retina. One can't do anything about the other conditions linked to AMD: age, sex, ethnic background or a family history of the disease.

A growing number of studies are showing that fish consumption might reduce the progression of AMD to its advanced forms. Australian research has suggested that eating fish weekly is linked to a 30% lower chance of early AMD (Figure). Because DHA (docosahexaenoic acid), a long-chain omega-3 found in fish, is essential

for optimal retinal function, there is good reason to think it may be involved in reducing the likelihood of developing AMD as well. However, few studies are available to shed light on this possibility.

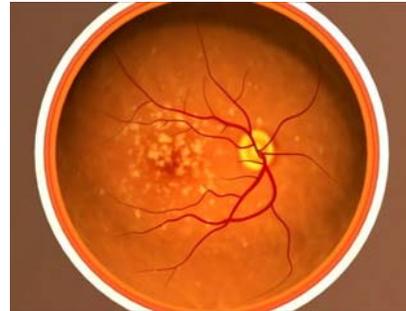


Figure. Image of the retina showing the macula (dark yellow spot) and yellow drusen, deposits characteristic of early AMD. Image courtesy of the National Eye Institute.

Information from a continuing US study of people with early or intermediate AMD has examined the possible connection between the consumption of long-chain omega-3 fatty acids (omega-3s) and the chance of developing neovascular or "wet" AMD, an advanced form of the disease

characterized by bleeding. The study participants were all at moderate-to-high risk for advanced AMD and were monitored for 12 years.

During that time, about a third of the participants progressed to neovascular AMD and a fifth progressed to the advanced form of "dry" (non-bleeding) AMD. Those who developed neovascular AMD were more likely to be older, female and without advanced AMD when they enrolled. When the investigators compared the chance of developing these advanced forms of AMD in those with the highest consumption of omega-3s and those with the lowest intakes, they observed a 30% lower chance of developing advanced disease in the high omega-3 group. The investigators also reported that a history of smoking was linked to greater progression of the disease and went along with having a lower consumption of omega-3s.

This report supports other evidence that DHA is involved in the optimal function of the retina. Although we do not know exactly how DHA or the lack of it affects the development of AMD, this study suggests that DHA, along with other dietary substances and avoiding smoking, is important for seeing clearly.



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Different Omega-3s May Have Dissimilar Effects on Risk of AMD in Older Women

Total fat intake, saturated fat and mono- and polyunsaturated fat were unrelated to the chance of developing AMD in older women. Total omega-3s were linked to a higher risk.

leading cause of impaired vision and blindness. Mounting evidence suggests that several nutrients might slow progression of the condition to its more serious advanced forms. These nutrients include high-dose antioxidant vitamins, zinc, lutein and zeaxanthin (plant pigments) and possibly long-chain omega-3 fatty acids (omega-3s).



The question of whether the amount and type of fat we eat affects the chance of developing age-related macular degeneration (AMD) as we get older has not been completely answered. This disease usually afflicts adults over the age of 65 and is the

Factors that increase the odds of the condition are smoking, cardiovascular disease and genetics. Much less is known about ways to prevent the development of AMD.

What contribution dietary fat may have, if any, has not been well studied. However, some studies suggest that the consumption of fish or the omega-3s they contain is linked to a lower chance of developing AMD. A few studies also suggest that high intakes of linoleic acid, the major omega-6 fatty acid in the diet might over-ride the effects of omega-3s.

In the study described here, investigators examined the effect of increasing intakes of total dietary fat and those of specific types of fatty acids, including omega-3s and omega-6s, on the likelihood of developing intermediate AMD in women aged 50 to 79 years. The women's AMD status was assessed from photographs of their retinas evaluated by standardized criteria.

The researchers found that how much fat the women ate had no effect on their chances of developing AMD after they took into account several potential confounding factors. This observation was also true for saturated, monounsaturated, polyunsaturated and omega-6 fatty acids. However, the total amount of omega-3s they consumed was, unexpectedly, associated with a greater risk of AMD.

Higher intakes of the short-chain omega-3 alpha-linolenic acid were linked to a 3-fold greater chance of developing AMD. Seafood omega-3s (long-chain) did not affect the likelihood of developing AMD in older women.

To understand what might be happening with omega-3s and AMD, the researchers looked at the risks of AMD with increasing consumption of just the short-chain omega-3 fatty acid, alpha-

linolenic acid. They also looked separately at the link between intakes of the long-chain or seafood omega-3s and AMD. The short-chain omega-3 forms the largest portion of all the omega-3s consumed in western diets. These analyses showed that higher intakes of short-chain omega-3s (alpha-linolenic acid) were linked to a nearly 3-fold greater risk of intermediate AMD than lower intakes. In contrast, the consumption of long-chain omega-3s had no effect on the likelihood of developing AMD.

As for the omega-6s, the study hinted that higher intakes of omega-6s along with lower intakes of omega-3s were linked to a higher risk of AMD. This relationship was diminished when other factors were taken into account in the analysis, and therefore cannot be considered a firm finding. Perhaps the most intriguing suggestion from this study is that high intakes of alpha-linolenic acid might increase the likelihood of developing AMD. This possibility needs to be evaluated in studies where blood levels of omega-3s have been measured and the effect of seafood omega-3s analyzed separately from that of alpha-linolenic acid. This study is another reminder that not all omega-3s behave similarly.



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MENTAL HEALTH

Antidepressant Drug Effects Not Enhanced by Omega-3s in Heart Disease Patients

People with heart disease who have depressive symptoms face a greater risk of mortality and a lower quality of life. Long-chain omega-3 fatty acids, which may be effective in either condition, might improve the wellbeing of these patients.

People who develop heart disease are more likely to have depressive symptoms, a situation that undermines their prognosis and quality of life and increases the likelihood of dying. Similarly, patients with depressive symptoms have a higher risk of heart disease. One feature common in both conditions is a low level of red blood cell long-chain omega-3 fatty acids (omega-3s).

Increasing the intake of these fatty acids lowers the risk of heart disease and death. In some studies of patients with depression, they are also linked to improved symptoms.

Studies are emerging to suggest that omega-3s might enhance the effectiveness of certain medications used to treat depression. For example, one study reported that giving patients both fluoxetine (Prozac) and eicosapentaenoic acid (EPA) a long-chain omega-3 was more effective in diminishing depressive symptoms than either substance alone. However, there has been little investigation of the effects of omega-3s in the

treatment of people who have both heart disease and depressive symptoms. The study described here addresses that question in heart disease patients who had at least half of their arteries blocked by plaque and exhibited symptoms of major depression.

All patients were treated with sertraline, an antidepressant, and two

subgroups were given either omega-3s or a placebo. Those given the omega-3s consumed 2 grams a day of these fatty acids, somewhat more than is found in a generous serving of salmon. The study was carried out for 10 weeks. At the end, patients' scores on ratings of depressive symptoms were compared among the groups.

Patients consuming the placebo and those taking the omega-3s improved to a similar extent. The occurrence of heart events was also similar in the two groups. These observations suggest that the improvements were due to the sertraline and that omega-3s did not further affect the patients' symptoms.

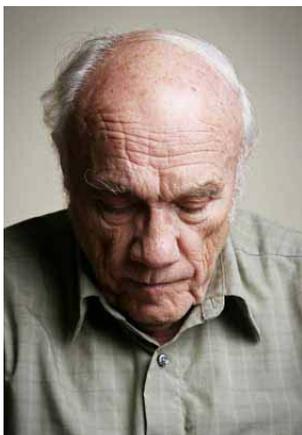
Adding omega-3s to the sertraline treatment of depressive symptoms in heart disease patients was not associated with additional improvements.

Related to this controlled study is another recent report that examined the prevalence of depressive symptoms in patients with stable heart disease. These investigators noted that as the concentration of omega-3s in the participants' red blood

cells fell, the chances of having depressive symptoms increased. However, as happens in many observational studies like this one, once the investigators accounted for confounding variables, such as marital status, ethnic background, level of education and income, the relationship between omega-3s and depressive symptoms disappeared. As common experience tells us, many circumstances contribute to the health of heart and mind, even though nutrition affects both conditions. Yet, the occurrence of low omega-3 status in these situations remains intriguing.

Eating Fatty Fish Unrelated to Cognitive Changes in Aging US Men

A pressing issue in preserving mental function as we age is whether consuming fatty fish or long-chain omega-3 fatty acids (omega-3s) might slow the loss of cognition. Not everyone loses cognitive function as they grow older, but many do. If other diseases such as diabetes are present, memory loss and slower





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information processing may be worse. Because of the huge toll exacted by cognitive decline in the elderly, several studies are monitoring various population samples to understand

better which factors might be linked to healthy cognition. Some studies have reported less cognitive decline and better mental function in elderly people who eat fish.

The possible connection between fish consumption and cognition in aging was examined in a long-term study of US men without heart disease or other major health problems at the time of enrollment. The men averaged 68 years of age when the study began. The investigators assessed the participants' cognitive ability, memory, language and other aspects of mental function at the beginning of the study. They also collected food consumption information, paying special attention to the frequency of eating fish and the types of fish consumed.

On average, the men ate fish a little more than twice a week with fatty fish comprising just over one serving a week. This level of fish consumption provided nearly 3 times the US average amount of omega-3s, about 280 mg, which is still less than the 400 to 500 mg recommended.

Over the course of 6 years, the men's cognitive abilities were unrelated to their fish consumption, regardless of the type of mental task

assessed. Thus, men who ate fish twice a week had assessment scores that were no different from those in

men who ate little or no fish. While this study bolsters others with similar findings, it provides no plausible explanation for why its observations differ from studies linking fish consumption to slower cognitive decline in older adults. Finding ways to maintain one's mental abilities remains a brain teaser.

No Link Between Omega-3 Status and Chance of Major Depression

Low blood omega-3 levels have been reported in patients with depressive symptoms. In this study, omega-3s were unrelated to the onset of depressive illness in middle-aged men and women over an 8-year period.

The scientific findings relating a person's omega-3 fatty acid status or fish consumption to the likelihood of developing depressive symptoms are contradictory. Some reports suggest that having low concentrations of long-chain omega-3 fatty acids (omega-3s) in one's red blood cells is associated with a greater chance of developing

depressive episodes. Other studies have not found such a link. Likewise, some investigators have observed improvements in depressive symptoms following supplementation with omega-3s. Others have not. Because omega-3s are important in the structure and function of the brain, there is good reason to explore their potential effects in various mental health conditions.

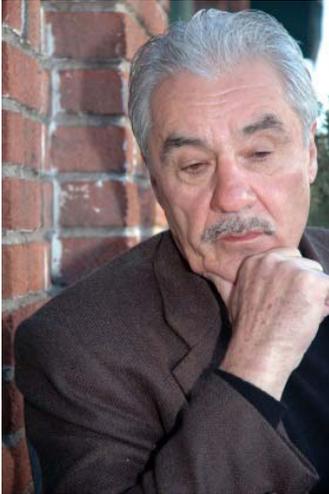
The opportunity to explore the relationship between the concentration of fatty acids in the blood and the occurrence of depressive episodes occurred as part of a large study on preventing heart disease and cancer. Middle-aged participants who had at least two prescriptions for antidepressant medication with or without a history of depressive episodes were selected for the study. A comparison group from the same study included patients with no history of depression or prescriptions for antidepressants. The investigators measured the blood fatty acids at the beginning of the study and for 8 years, monitored the participants monthly for depressive episodes.

Older US men who ate fish twice a week did not differ in their cognitive assessment scores from men who ate little or no fish. This study adds to the puzzling and contradictory findings on this topic.



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Participants who developed depressive symptoms during the study showed no differences in their blood levels of omega-3s from the comparison group without depressive symptoms. However, other fatty acids differed between the two groups. Linoleic acid, the major omega-6 fatty acid we consume, was lower in the participants who developed depressive symptoms. Mead acid, a

fatty acid not usually found in healthy people, was higher. Mead acid is considered an indicator of essential fatty acid deficiency. These observations occurred only in participants with a history of depressive illness. Such findings suggest that essential fatty acids, but not omega-3s, might be involved in the development of depressive illness. However, the authors concluded that there was no consistent relationship between depressive symptoms and blood fatty acid levels. Observational studies, by the nature of their design, cannot show cause and effect.

A puzzling aspect of this report is that it contradicts earlier findings in the same participants. The authors previously observed that participants who consumed more than 0.1% of their total energy from omega-3s were much less likely to have depressive episodes over the 8-year period compared with those who consumed less omega-3s. One reason for the difference could be the measurements. Estimates of dietary intakes from questionnaires are notoriously variable, but you can't fool blood measurements. The conundrum remains.

CLINICAL CONDITIONS

Type 2 Diabetes

Do Omega-3s Increase the Chance of Developing Type 2 Diabetes?

Obesity is the most important factor in the development of type 2 diabetes (diabetes). Other lifestyle habits, such as physical inactivity, smoking, too much alcohol and

In contrast to their beneficial effects on several risk factors for heart disease in people with diabetes, omega-3s were linked to a greater chance of developing the disease in the first place. No one knows why.

unhealthy eating habits contribute to making this disease more likely. In the U.S., just under 24 million adults and children have the disease, with 1.5 million new cases in adults over 20 being added every year. People with diabetes have 2 to 4 times greater likelihood of developing heart disease or stroke compared with nondiabetics. The connection between

omega-3 fatty acids (omega-3s) and diabetes comes mainly through reductions in several risk factors for heart disease. What is not known is whether omega-3s affect the chance of developing diabetes in the first place.

To find out whether consuming fish or omega-3s is related to the chance of developing diabetes, researchers looked at fish and omega-3 intakes in three large studies of diet and health and the occurrence of diabetes 14 to 18 years later. Fish intakes ranged from less than once a month to 5 or more times a week. In 2 of the 3 studies and in the combined analysis of all 3 studies, the more fish or omega-3s the participants ate, the greater their chance of developing diabetes. When the investigators compared the odds of developing diabetes in the highest omega-3 group with the lowest intake group, the chance was increased by 12% to 25% in the 3 studies. The odds fell when the analysis looked at individual categories of

fish, ranging from 6% to 14% for shellfish and canned tuna, respectively.

Observations from 3 large epidemiological studies suggest that greater fish consumption was linked to an increased chance of developing diabetes. Whether these observations have clinical relevance is unclear.

These findings agree with a modest increase in diabetes risk reported from an Iowa study, but contrast with other epidemiological studies in which diabetes risk was



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not associated with eating fish or was slightly reduced. These inconsistencies raise questions about the accuracy of estimating dietary intakes from questionnaires, especially for small quantities.

Readers should not race to conclusions about what this study means. It is not certain these results have any clinical significance. These findings do not suggest that eating fish “causes” diabetes. In fact, people with diabetes who consume fish regularly have substantial improvements in their blood lipid values, e.g., lower triglycerides (fats), lower markers of inflammation and increased high-density or “good” cholesterol values. Nevertheless, an explanation for these observations or what they mean remains to be determined.

Eating Fish, But Not Fatty Fish, Linked to Higher Chance of Diabetes



Seeking an answer to the same question addressed in the preceding article, investigators in the Netherlands monitored the fish consumption and development of type 2 diabetes

(diabetes) in a large sample of older adults. They were curious whether eating fish was related to the chance of developing diabetes. None of the participants had diabetes when they enrolled in the study. The researchers followed the health history and occurrence of diabetes in the participants for 15 years and related the medical events to the amount and type of fish the participants ate at the beginning of the study. They noted that 30% of the men and women did not eat fish.

Unexpectedly, the chance of developing diabetes increased with greater fish consumption. Compared with those who did not eat fish, fish eaters were 30% more likely to develop diabetes. However, when the investigators examined the chance of developing diabetes according to the type of fish the participants ate, those who consumed fatty fish experienced no higher occurrence of the disease

than those who did not eat any fish. Similarly, the highest intakes of long-chain omega-3 fatty acids (omega-3s), the kind found almost exclusively in fish, were not linked to a greater chance of developing diabetes. All analyses took into account potentially confounding variables to reduce the possibility that the results were due to chance.

The analysis was intriguing from another point of view. Although most of the fish eaten was of the lean sort, e.g., cod, plaice and perch, consuming a modest amount of fatty fish was sufficient to lower the chance of diabetes. The amount of omega-3s consumed by the fatty fish eaters was relatively small, about 90 mg, which is much less than the amounts recommended for protecting heart health (400 to 500 mg/day).

In older Dutch adults, greater consumption of total or lean fish was linked to a 30% higher chance of developing type 2 diabetes. But those who ate fatty fish were not more likely to develop the disease.

These findings agree in part with the preceding study in that they confirm the relationship between total fish consumption and a greater chance of developing diabetes. However, upon closer inspection, those who ate fatty fish did not experience a higher risk of

the disease. This suggests that omega-3s could be the active component in the fish linked to a lower chance of diabetes. Thus, the type of fish a person consumes, that is, fatty fish, may outweigh the effects of eating fish in general.

Given the many other health benefits associated with fish consumption, especially fatty fish, and the numerous other factors associated with the development of type 2 diabetes, these observational studies suggest that restricting one’s fish consumption in order to avoid type 2 diabetes is without merit.

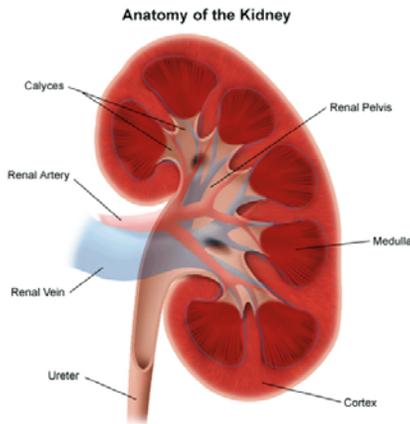
Chronic Kidney Disease

Long-Chain Omega-3s Improve Blood Pressure and Heart Rate in Kidney Disease

One of the possible consequences of advanced diabetes or high blood pressure is chronic kidney disease.

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Structure of the kidney. Image courtesy of Boston Children's Hospital, www.childrenshospital.org.

Eventually this can result in kidney failure. Because the prevalence of diabetes has been increasing rapidly for more than 10 years, chronic kidney disease has also risen. In addition to the dangers of the condition itself, kidney disease increases the likelihood of heart disease by 2 to 50 times. For these reasons,

the management and control of diabetes and blood pressure are of utmost importance. Dietary strategies and medications are used to manage these conditions.

There is good reason to think that patients with chronic kidney disease might benefit from consuming fish oil or long-chain omega-3 fatty acids (omega-3s). These fatty acids improve many factors related to heart disease and have been linked to better kidney function in some studies. They appear to improve the function of the arteries and have modest blood pressure-lowering effects.

To find out whether omega-3s might be beneficial in patients with chronic kidney disease, a team of investigators in Australia selected a group of patients with moderate to severe chronic kidney disease, but without diabetes. They divided the patients into 4 groups, each receiving one of the following treatments: omega-3s, an energy-linked enzyme, both omega-3s and the enzyme,

or a control supplement. The dose of omega-3s was relatively high at 4 g/day. The patients took their assigned capsules for 8 weeks and were monitored every 2 weeks to assess their health and ensure compliance with the study.

Patients with chronic kidney disease who consumed a high dose of omega-3s for 8 weeks had significantly lower blood pressure and blood triglycerides compared with control patients. The function of their large arteries also improved.

At the end of the study period, the patients consuming the omega-3s had significant reductions in their systolic and diastolic blood pressures and their heart rate. The investigators also observed an improvement in the omega-3 patients' arterial function. This change

reflects a greater ability of the large arteries to respond to changes in blood pressure. In addition, the omega-3 patients experienced a 24% drop in their blood triglycerides (fats) that none of the other groups had. The patients who consumed only the enzyme did not exhibit improved blood pressures or heart rates.

These findings suggest that omega-3s might be a useful adjunct to the treatment of chronic kidney disease patients. Some researchers have observed that blood pressure is more difficult to control in this condition, a situation suggesting that omega-3s would be worth including in disease management. Moreover, omega-3s improved the function of the large arteries, reduced blood triglycerides and might have had other benefits associated with a lower risk for heart disease.

