



# Q&A

## Omega-3: general

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### What are omega-3s?

Omega-3 oils are a type of polyunsaturated fat that, like other polyunsaturated fats, reduce your risk of heart disease.

Omega-3 oils come from marine, animal and plant sources (see below). Aim to include all of these sources as part of a healthy eating pattern to lower your risk of heart disease.

#### Omega-3 marine source

Docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) are omega-3s that are found primarily in oily fish, such as Atlantic and Australian salmon, blue-eye trevalla, blue mackerel, gemfish, canned sardines, canned salmon and some varieties of canned tuna. Other fish such as barramundi, bream or flathead, and seafood such as arrow squid, scallops and mussels, are also good sources of omega-3.

#### Omega-3 animal source

Docosapentaenoic acid (DPA), along with smaller amounts of EPA and DHA, is found in animal products, such as free range eggs, chicken and beef.

## Omega-3 plant source

Alpha-linolenic acid (ALA) is derived from plants and is found mainly in fats and oils, such as canola oil and soybean oil, and in linseeds (flaxseeds) and walnuts.

## Key messages

- To reduce the risk of heart disease, the Heart Foundation recommends that Australian adults consume about 500 milligrams of omega-3 (marine source) every day. You can achieve this by eating a combination of two to three 150 gram serves of oily fish every week and by supplementing your intake with fish oil supplements (capsules or oil) and omega-3 enriched food and drinks.
- The Heart Foundation recommends that people with heart disease consume about 1000 milligrams of omega-3 (marine source) every day. You can achieve this by eating two to three serves of 150 grams of oily fish every week and by supplementing your intake with fish oil and omega-3 enriched foods and drinks.
- In addition, the Heart Foundation recommends that all Australians consume at least 2 grams of omega-3 (plant source) every day. This can be achieved by eating two slices of soy and linseed bread spread with a canola-based margarine, 30 grams of walnuts or a variety of the foods that contain plant-based omega-3s (as listed in our review of evidence *Fish, fish oils, n-3 polyunsaturated fatty acids and cardiovascular health*, Appendix 2, at [www.heartfoundation.org.au/Professional\\_Information/Lifestyle\\_Risks/Nutrition](http://www.heartfoundation.org.au/Professional_Information/Lifestyle_Risks/Nutrition)).

## Frequently asked questions

### Why is the Heart Foundation recommending that Australians consume omega-3s?

The Heart Foundation's extensive scientific review found compelling evidence that consuming fish, fish oils and omega-3 polyunsaturated fats has many benefits to cardiovascular health and can decrease the risk of heart disease.

### How much omega-3 do I need?

For the adult population, the Heart Foundation recommends consuming about 500 milligrams of omega-3 (marine source) every day. On some days you may consume more or less omega-3s than on other days, but aim to consume about 3500 milligrams of EPA and DPA over the whole week.

We recommend that you achieve this amount by eating two to three serves of oily fish every week and supplementing your intake with fish oil and/or foods and drinks enriched with omega-3.

## **What do I need to do to make sure that I am consuming enough omega-3s?**

You might need to look at your meals and make a few small changes to them to make sure that you are including food that not only fits with your lifestyle, but also delivers the important omega-3 oils.

For example, you could try including a serve of canned salmon or sardines, which have very high omega-3 levels, and adding another serve of oily fish or seafood (either caught or bought) to your weekly eating plan to help you to reach your weekly omega-3 targets. Good sources of marine omega-3 include: Atlantic and Australian salmon (fresh or canned), gemfish, blue-eye trevalla, blue mackerel, oysters, arrow squid, canned sardines and some varieties of canned tuna.

If you're not eating enough of these fish or seafood, you may need to boost your intake with fish oil supplements and/or omega-3 enriched foods and drinks to reap the full benefits.

## **What do you mean by oily fish?**

Oily fish refers to fish that contain at least 10% fat, most of which are the healthier omega-3 oils. In Australia, the oiliest fish include: canned salmon and sardines, some varieties of canned tuna, Atlantic and Australian salmon, gemfish, blue-eye trevalla, blue mackerel, oysters and arrow squid. These fish are usually found in cold-water.

## **How much omega-3 is in a piece of fish?**

This varies widely depending on the variety of fish that you are eating. A 150 gram serving of Atlantic or Australian salmon or blue-eye trevalla may provide between 500–850 milligrams of omega-3 (marine source), while the same size serving of Ling may provide less than 160 milligrams of omega-3 (marine source). A 150 gram serving of some canned salmon or sardines may provide more than 2000 milligrams of omega-3 (marine source).

The Heart Foundation recommends that you eat fresh, frozen or canned fish with the highest levels of omega-3s two to three times a week, and then add supplements and/or foods and drinks enriched with omega-3 as needed.

For the Heart Foundation's list of fish and seafood with higher levels of omega-3s, see *Omega-3 levels in fish and seafood* at [www.heartfoundation.org.au/Professional\\_Information/Lifestyle\\_Risks/Nutrition](http://www.heartfoundation.org.au/Professional_Information/Lifestyle_Risks/Nutrition).

## **Omega-3s for families**

### **What are your recommendations for pregnant women, breastfeeding women and children?**

The Heart Foundation recommends that these groups of people consume about 500 milligrams of omega-3 (marine source) every day through a combination of fish, fish oil supplements and foods and drinks enriched with omega-3. We strongly advise them to follow the advice from Food Standards Australia and New Zealand on mercury in fish (see <http://www.foodstandards.gov.au/foodmatters/mercuryinfish.cfm>).

It is easy for children to meet recommended intakes of omega-3s. Based on recent Australian Government dietary intake recommendations,<sup>1</sup> one small serve (100 grams) of a fish such as flathead, plus two small cans of sandwich tuna a week, will provide a child up to age 14 with an adequate intake (AI) of omega-3s.

Note: Adequate intake is 40–70 milligrams per day up to 13 years of age.

### **My family will only eat flathead, so what can I do to boost their omega-3 intake?**

Flathead is a reasonable source of omega-3s, providing between 300 and 400 milligrams of omega-3s in one 150 gram serve. If you can serve it in a variety of ways up to three times a week, you can then supplement your intake with enriched foods or fish oil capsules as needed. Fish is very versatile. Enjoy it steamed, grilled, lightly pan-fried, baked or barbecued. Add the fish to stir-fries, casseroles, pasta and soups, or simply have it in a sandwich or in a salad.

Other fish that contain omega-3 and do not have a strong flavour include bream, snapper and gemfish. You might also like to try other good sources of omega-3s, such as arrow squid, green mussels or scallops.

## **People at risk of heart disease**

### **What does the Heart Foundation recommend for people at risk of heart disease or with lipid abnormalities?**

The Heart Foundation recommends that people with heart disease consume about 1000 milligrams of omega-3s (marine source) every day.

People with heart disease will need to supplement their two to three serves of fish every week with fish oil supplements and may wish to include omega-3 enriched foods and drinks to meet this recommendation.

People with high blood triglycerides should choose fish oil supplements and omega-3 enriched foods and drinks as an alternative to drug therapy. It is advised to start at 1200 milligrams of omega-3 (EPA and DHA) per day and then increase the dose to 4000 milligrams per day. Talk to your doctor before you start to take supplements.

### **How can I reach the required 1000 milligrams of omega-3s every day?**

You can reach this target by eating 150 grams of oily fish and/or seafood two to three times every week and by taking fish oil supplements and/or consuming omega-3 enriched foods and drinks on the other days.

For example, if you eat two serves of canned salmon or sardines in your weekly meal plan, you should reach the daily target on the days that you eat the canned salmon or sardines. On the days you don't eat the canned salmon or sardines, you'll need to add another serve of fish or take fish oil supplements and/or omega-3 enriched foods and drinks.

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<sup>1</sup> National Health and Medical Research Council: Nutrient Reference Values for Australia and New Zealand including Recommended Dietary Intakes, NHMRC, 2006.

Good sources of omega-3 (marine source) include: Atlantic and Australian salmon, gemfish, blue-eye trevalla, blue mackerel, oysters, arrow squid, mussels and some varieties of canned tuna (look for the Heart Foundation Tick for lower salt varieties).

## Eating plans

### How can I reach the recommended intake of omega-3s by eating fish every week?

To reach the recommended intake of omega-3s each week, you might need to make small changes to your meal plans so that you are including fish and/or fish oil options.

There are many good alternatives for sources of omega-3 (marine source) fish and seafood, including Atlantic and Australian salmon, blue-eye trevalla, blue mackerel, gemfish, oysters, arrow squid and some varieties of canned tuna.

You can reach the recommended intake of 500 milligrams of marine omega-3s by following any of the weekly eating plans below.

#### Weekly plan 1: approx 495 milligrams of omega-3 (marine source) per day

Fish	Serving size (g)	EPA and DHA (mg)
Canned, sardines in tomato sauce	110 g	2625
Fresh, blue-eye trevalla	150 g	840
<b>Total for the week</b>		<b>3465</b>

#### Weekly plan 2: approx 508 milligrams of omega-3 (marine source) per day

Fish	Serving size (g)	EPA and DHA (mg)
Canned, salmon, pink or red	150 g	2115
Canned, tuna (look for tuna with higher omega-3 levels)	100 g	600
Fresh, blue-eye trevalla	150 g	840
<b>Total for the week</b>		<b>3555</b>

#### Weekly plan 3: approx 520 milligrams of omega-3 (marine source) per day

Fish	Serving size (g)	EPA and DHA (mg)
Canned, red salmon	150 g	2115
Fresh, blue-eye trevalla	150 g	840
Fresh, gemfish	150 g	684
<b>Total for the week</b>		<b>3639</b>

#### Weekly plan 4: approx 532 milligrams of omega-3 (marine source) per day

Fish	Serving size (g)	EPA and DHA (mg)
Atlantic salmon	150 g	824
Canned, sardines in oil	85 g	1700
Canned tuna (2 x 95 g) (look for tuna with higher omega-3 levels)	150 g	1200
<b>Total for the week</b>		<b>3724</b>

**I am a vegetarian and I do not wish to include fish- or meat-based foods in my diet. Are there any other dietary sources of omega-3s?**

Fish and meat are not the only source of omega-3s. Plant-based omega-3 is found in canola- and soybean-based fats and oils, nuts (particularly walnuts) and linseeds (flaxseeds). Some omega-3 supplements are now derived from algae and are suitable for use by vegetarians and vegans.

**I'm concerned about the salt levels in some varieties of canned and smoked fish and seafood.**

The Heart Foundation recommends that you choose fresh fish and seafood, or frozen or canned fish and seafood that is preferably salt reduced or has the Heart Foundation Tick on its label. Fresh fish and seafood, and fish and seafood that is canned in spring water or oil, contain far less salt than fish and seafood that has been smoked or canned in brine.

Some flavoured varieties of canned fish and seafood have higher omega-3 levels, so look for higher levels of EPA and DHA on the label. It may not be the best option to choose 'low fat' or 'lite' canned fish and seafood because they may have lower omega-3 levels.

**Does it matter how the fish is cooked?**

Yes. The heart health benefits of eating fish depend on how it is prepared. Deep fried fish, usually found at your take-away outlet, is low in omega-3 and often cooked in unhealthy oils. Because of this, it's not associated with cardiovascular health benefits.

Fish is very versatile. Enjoy it steamed, grilled, lightly pan-fried, baked or barbequed or even raw as sushi or sashimi. Add fish to stir-fries, casseroles, pasta and soups, or simply have it in a sandwich or in a salad. For recipes and further information, see [www.heartfoundation.org.au/Professional\\_Information/Lifestyle\\_Risks/Nutrition](http://www.heartfoundation.org.au/Professional_Information/Lifestyle_Risks/Nutrition).

## **Health benefits and research**

**If I don't, or can't, get quite enough omega-3s, will I still get health benefits?**

Yes. To lower your risk of cardiovascular disease, the Heart Foundation recommends that you consume about 500 milligrams of omega-3 (marine source) every day. However, the Australian National Health and Medical Research Council (NHMRC) estimates that consuming at least 90 milligrams (for women) and 160 milligrams (for males) of omega-3 (marine source) every day is adequate for good health.<sup>2</sup>

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<sup>2</sup> National Health and Medical Research Council: Nutrient Reference Values for Australia and New Zealand including Recommended Dietary Intakes, NHMRC, 2006.

## **Can I get too much omega-3?**

Yes, it is possible, but you would have to consume a large amount of omega-3. The Australian National Health and Medical Research Council upper level of intake is 3000 milligrams per day.<sup>3</sup>

## **Omega-3s, fish and seafood**

### **With fish and seafood being so expensive, how feasible is this recommendation for people who are on a tight budget?**

The Heart Foundation recognises that fish and seafood can be expensive, so you need to choose varieties that best suit your budget and lifestyle. Canned fish and seafood are convenient and accessible to everyone. It is also an easy way to add more omega-3 (marine source) to salads, sandwiches and other meals. While fish and seafood is the best source of omega-3, it can also be obtained from enriched foods, such as eggs, bread and milk, and from lean beef and lamb. Supplements can also be useful to help boost omega-3 intake.

### **What about people in rural areas who can't access fresh seafood?**

High levels of omega-3 can be obtained from canned salmon, sardines and some tuna varieties, which are widely available, and from fish that live in cold rivers and lakes. Animal-based omega-3 can be obtained from lean beef, kangaroo, lamb and other bush meats. Plant-based omega-3 can be obtained from some non-animal products, including walnuts, canola oil, soy and linseed bread. Supplements can also be useful to help boost omega-3 intake.

## **Supplements and enriched foods**

### **Is it OK to use supplements rather than eating fish or enriched foods?**

The Heart Foundation recommends that you eat whole foods rather than using supplements to meet your nutrient requirements. We recommend that you eat two to three 150 gram serves of oily fish each week and boost your omega-3 intake with fish oil supplements and/or omega-3 enriched foods and drinks. However, you might need to take supplements to reach the higher recommended doses even if you eat two to three serves of oily fish each week. It depends on the type of fish or seafood you eat.

### **Which supplements do the Heart Foundation recommend?**

We recommend that you read the labels on supplements or consult with your local pharmacist or health professional to identify supplements that contain the correct levels of omega-3s.

Look for supplements with the highest EPA and DHA content. Many 1000 milligram capsules contain 180 milligrams of EPA and 120 milligrams of DHA, giving a total marine omega-3

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<sup>3</sup> National Health and Medical Research Council: Nutrient Reference Values for Australia and New Zealand including Recommended Dietary Intakes, NHMRC, 2006.

content of 300 milligrams. Therefore, to reach the 500 milligrams every day, you may need to have 1 or 2 capsules to supplement your dietary intake. Omega-3 supplements may be derived from either oily fish or microalgae.

## Mercury

### What about mercury levels in fish?

The evidence is clear that the health benefits of eating fish far outweigh any risks. The fish that the Heart Foundation recommends have higher omega-3 levels and safe mercury levels. The level of mercury in most fish that are caught and sold in Australia is low, which means we can all continue to get the many benefits from eating fish without concern. The Therapeutic Goods Administration requires all fish oil supplements sold in Australia to contain zero or near zero mercury levels.

For the list of fish that the Heart Foundation recommends, see *Omega-3 levels in fish and seafood* at [www.heartfoundation.org.au/Professional\\_Information/Lifestyle\\_Risks/Nutrition](http://www.heartfoundation.org.au/Professional_Information/Lifestyle_Risks/Nutrition).

### Can I still eat the fish that I catch locally?

Generally speaking, yes. The risk of environmental contamination of fish caught in Australia is very low. We recommend checking with local government authorities to identify any specific recommendations for consuming fish in your area, because conditions vary in each location.

People living in tropical reef areas, such as Queensland, the Northern Territory and Western Australia, need to be aware that some fish species found in these areas (for example, coral trout and Spanish mackerel) are known to have high levels of ciguatera. Ciguatera is a toxin commonly found in the flesh of progressively larger fish. If you eat just one large serve of infected fish, you can get ciguatera poisoning.

## Further information

For more information, please contact the Heart Foundation's Health Information Service on 1300 36 27 87 (for the cost of a local call), email [Heartline@heartfoundation.org.au](mailto:Heartline@heartfoundation.org.au) or visit [www.heartfoundation.org.au](http://www.heartfoundation.org.au).

For a detailed discussion of the evidence, please refer to the Heart Foundation's review of evidence *Fish, fish oils, n-3 polyunsaturated fatty acids and cardiovascular health*, available at [www.heartfoundation.org.au/Professional\\_Information/Lifestyle\\_Risks/Nutrition](http://www.heartfoundation.org.au/Professional_Information/Lifestyle_Risks/Nutrition).

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