Seafood and your health

CESSH
CENTRE OF EXCELLENCE
SCIENCE SEAFOOD HEALTH

ARTHRITE
Evidence shows that eating a balanced diet high in seafood will reduce your risk of some chronic conditions, or help you manage your symptoms.

This booklet will help guide your food choices and includes a 14-day meal planner specifically designed for people at high risk of developing arthritis.
How can seafood help with arthritis?

A healthy diet high in seafood can help reduce symptoms of rheumatoid arthritis and help you to manage your condition. These benefits include reduced joint tenderness, a reduction in morning stiffness and reduced use of analgesic anti-inflammatory drugs. Rheumatoid arthritis may also increase your risk of heart disease. Research has shown that a diet high in seafood such as oily fish can help reduce the risk of heart disease.

Selecting seafood is also a smart choice for lowering cholesterol. In addition to omega-3s, seafood contains many other nutrients beneficial to health, including selenium, iodine, zinc, calcium and vitamin D.

It’s also low in saturated fat, high in protein, and a good source of energy.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron</td>
<td>Iron is important for maintaining energy levels and a strong immune system. Mussels, oysters and tinned sardines are good sources of iron.</td>
</tr>
<tr>
<td>Iodine</td>
<td>Iodine is important for growth and seafood is the best natural source of iodine. Oysters, mussels and scallops are good sources of iodine.</td>
</tr>
<tr>
<td>Folate</td>
<td>Folate aids the prevention of neural tube defects in growing babies. Oysters and mussels are sources of folate.</td>
</tr>
<tr>
<td>Vitamin B12</td>
<td>Vitamin B12 helps the brain to work normally. Sardines, mussels and tuna are good sources of vitamin B12.</td>
</tr>
<tr>
<td>Vitamin D</td>
<td>Vitamin D is good for the immune system and strong bones and muscles. Australian salmon, Atlantic salmon and tuna are good sources of vitamin D.</td>
</tr>
<tr>
<td>Vitamins A and E</td>
<td>Vitamins A and E are powerful antioxidants which help the immune system and eye health. Mussels are the richest seafood source of vitamin A. Atlantic salmon and sardines are good sources of vitamin E.</td>
</tr>
<tr>
<td>Calcium</td>
<td>Calcium is important for maintaining healthy teeth and bones. Australian salmon and sardines are rich sources of calcium.</td>
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</tbody>
</table>

How much seafood do I need to stay healthy?

Evidence suggests that we should aim to consume 600mg of omega-3s per day for men, and 500mg for women.

Some types of seafood contain higher levels of omega-3s than others so the number of serves of seafood you need to eat each week to maintain good health depends on the type of seafood you eat. Generally, one serve of seafood is around 150g.
Adults should aim to include 3500 - 4000mg of omega-3s in their diet each week. This table shows you how much omega-3 is in a 150g serve of a variety of fish and seafood:

<table>
<thead>
<tr>
<th>How much omega-3?</th>
</tr>
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<tbody>
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<td>Adults should aim to include 3500 - 4000mg of omega-3s in their diet each week. This table shows you how much omega-3 is in a 150g serve of a variety of fish and seafood:</td>
</tr>
<tr>
<td>Sardine - canned in oil (3766mg)</td>
</tr>
<tr>
<td>Australian salmon - canned (3684mg)</td>
</tr>
<tr>
<td>Atlantic salmon (3472mg)</td>
</tr>
<tr>
<td>Farmed rainbow trout (2941mg)</td>
</tr>
<tr>
<td>Sardine - canned in sauce (1323mg)</td>
</tr>
<tr>
<td>Bream (1271mg)</td>
</tr>
<tr>
<td>Oyster (1085mg)</td>
</tr>
<tr>
<td>Mussel (1077mg)</td>
</tr>
<tr>
<td>Mullet (1040mg)</td>
</tr>
<tr>
<td>Squid / calamari (876mg)</td>
</tr>
<tr>
<td>Smoked salmon (769mg)</td>
</tr>
<tr>
<td>Tuna (631mg)</td>
</tr>
<tr>
<td>Snapper (628mg)</td>
</tr>
<tr>
<td>Flathead (619mg)</td>
</tr>
<tr>
<td>Barramundi (414mg)</td>
</tr>
<tr>
<td>Prawn (330mg)</td>
</tr>
<tr>
<td>Lobster (267mg)</td>
</tr>
<tr>
<td>Basa (115mg)</td>
</tr>
</tbody>
</table>

Omega-3 fatty acids (omega-3s) are essential to our health. Our bodies cannot produce these fatty acids and so we need to eat foods that contain them. The best source of omega-3s is seafood. In fact, the regular intake of omega-3s as part of a healthy diet provides health benefits for conditions such as diabetes, heart disease, arthritis and some cancers.
Which fish to choose?

Examples of seafood that are excellent, very good, or good sources of omega-3s.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent sources of omega-3s</td>
<td>Very good sources of</td>
<td>Good sources of omega-3s</td>
</tr>
<tr>
<td>Atlantic salmon</td>
<td>Bream</td>
<td>Barramundi</td>
</tr>
<tr>
<td>Trout</td>
<td>Mussels</td>
<td>Snapper</td>
</tr>
<tr>
<td>Sardines</td>
<td>Oysters</td>
<td>Smoked salmon</td>
</tr>
<tr>
<td>Canned salmon</td>
<td>Mullet</td>
<td>Canned tuna</td>
</tr>
</tbody>
</table>
14-day meal planner

This 14-day meal planner has been developed with a dietitian for people at high risk of developing arthritis.

Menu suggestion: week one
(Choose one item for each meal)

**Breakfast**
Cereal and reduced fat milk
Poached eggs on toast
Egg white omelette with smoked salmon

**Lunch**
Tuna and bean salad
Canned salmon salad
Tuna Caesar wraps
Smoked salmon wraps
Tuna and green bean sushi rolls

**Dinner**
Grilled salmon with potato and green bean salad
Salmon, leek and potato soup
Steamed trout with spring vegetables and salsa verde
Baked bream with spinach pasta and green salad

**Dessert**
Fruit (2 pieces)
Low fat yoghurt (200ml tub)
Small bowl of low fat ice-cream
A handful of nuts
Menu suggestion: week two
(Choose one item for each meal)

**Breakfast**
Cereal and reduced fat milk
Sardines on toast
Boiled eggs and tomato slices on toast

**Lunch**
Tuna and salad roll
Potato salad
Coleslaw and bean salad
Caesar salad (no dressing)
Smoked salmon sushi rolls

**Dinner**
Salmon pasta with fresh garden salad
Grilled mullet with BBQ vegies
Steamed bream with honeyed vegetables
Garlic prawn skewers

**Dessert**
Fruit (2 pieces)
Small bowl of low fat custard
Low fat yoghurt (200ml tub)
A handful of nuts
Salmon, leek and potato soup
(Serves 4)

**Ingredients:**
- 150g smoked salmon, chopped
- 2 large potatoes, chopped
- 2 medium leeks, sliced finely
- 2 spring onions, sliced finely
- 3 cups chicken stock
- 1 cup low fat milk
- 1 tbsp canola oil
- 1 tbsp fresh chives, chopped
- Salt and pepper

**Method:**
1. Heat oil in a large pan. Add leeks and cook over medium heat for 5 minutes or until soft. Add the potatoes and stock. Simmer for 20 minutes, or until the potatoes are tender. Stir in the milk and season with salt and pepper.
2. Allow the soup to cool slightly, then puree until smooth. Return the soup to the pan and stir through half the salmon, the spring onions and chives.
3. Toast the bread until golden and top with the remaining salmon. Cut the toast into fingers and serve with the soup.

Grilled mullet with BBQ vegies
(Serves 2)

**Ingredients:**
- 2 mullet fillets (150g each)
- 1 tbsp olive oil
- Juice of ½ lemon
- 1 large red onion, cut into 4 wedges
- 2 flat mushrooms, sliced thick
- 1 baby eggplant, halved lengthways
- 1 baby zucchini, halved lengthways
- 1 red capsicum, seeded and cut into two
- 1 yellow squash, halved
- 1 firm ripe tomato, halved
- Olive or canola oil spray

**Method:**
1. Combine oil and juice in a small bowl. Brush vegetables with the mixture. Heat barbecue and lightly spray with oil.
2. Barbecue vegetables until tender (about 10 minutes depending on thickness), turning after 5 minutes.
3. Once the vegetables have been turned, grill the mullet fillets on the barbecue for about 2 minutes each side or until cooked through (thicker fish pieces may need a little extra time).
BBQ garlic prawn skewers
(Serves 2)

**Ingredients:**
- 12 prawns
- 1 garlic clove, minced
- 1 tbsp olive oil
- ¼ zucchini, sliced
- 4 small mushrooms, sliced
- 8 cherry tomatoes
- ¼ red capsicum

**Method:**
Pre-heat the BBQ. Soak prawns in garlic and olive oil while you chop vegetables. Thread prawns and vegetables onto skewers, and BBQ until prawns turn pink.

Tuna and bean salad
(Serves 2)

**Ingredients:**
- 1 small tin tuna
- 1 small tin 4 bean mix
- 5 cherry tomatoes, quartered
- 1 red capsicum, diced
- 1 red onion, diced
- Low fat mayonnaise

**Method:**
Drain tuna and beans. Combine in a bowl and mix through diced vegetables. Add low-fat mayonnaise to taste.

Smoked salmon wraps
(Serves 2 – 4)

**Ingredients:**
- 100g smoked salmon
- 2 hard boiled eggs
- 2 slices wholemeal lavash bread
- 2 tbsp low fat mayonnaise
- 1 tbsp capers, chopped
- 1 tsp fresh chives, chopped
- 25g baby English spinach

**Method:**
1. Peel and mash the eggs. Add the mayonnaise, capers and chives and mix to combine.
2. Lay the lavash on a flat surface. Spread the egg mixture over the centre of the lavash and top with the spinach and smoked salmon.
3. Roll up to enclose the filling. Cut into thick slices to serve.
Steamed trout with spring vegetables and salsa verde  
(Serves 2)

**Ingredients:**
- 4 x 150g pieces of trout
- Salt and pepper
- Sprigs of fresh dill
- 1 cup fresh basil leaves
- Sprigs of fresh rosemary
- 4 baby carrots
- 2 whole florets of broccolini
- 2 small spring onions, trimmed
- 4 small new potatoes
- 2 baby zucchinis
- Handful of snow peas or green beans

**Salsa Verde***:
- 1 cup chopped fresh parsley (or use a mix of parsley and basil)
- 1 clove of garlic
- 2-3 anchovies in oil, drained
- 1 tbsp drained capers
- 1 tbsp white wine vinegar or freshly squeezed lemon juice
- 3-4 tbsp extra virgin olive oil

*Place everything in a mortar or food processor and process to a chunky paste

**Method:**
1. Place fish pieces in the centre of oiled cling wrap. Sprinkle with salt and pepper and place dill sprig on top. Roll up, pierce all over with the point of a sharp knife, and set aside.
2. Place the basil leaves and rosemary sprigs in the bottom of a steamer and add about 4cm of water. Bring to the boil. Then arrange the vegetables in the steamer. Cover and steam for about 6 minutes.
3. Make the salsa verde.
4. Push the vegetables aside and nestle the wrapped fish amongst them, then steam a further 6 minutes, or until the fish and vegetables are tender.
5. Unwrap the fish and serve surrounded by the steamed vegetables, and drizzle with salsa verde.
Steamed bream with honeyed vegetables
(Serves 2)

**Ingredients:**
- 2 bream fillets (150g each)
- Oiled cling wrap
- Salt and pepper
- Sprigs of dill
- 1 cup broccoli, chopped
- 1 cup of carrots, chopped
- 1 cup of pumpkin, chopped

**Dressing:**
- 1 tbsp of honey
- 1 tbsp of vinegar
- ½ tsp of olive oil
- ½ tsp of reduced salt soy sauce
- ¼ tsp of ginger, finely chopped
- ¼ tsp garlic, finely chopped

**Method:**
1. Place fish pieces in the centre of oiled cling wrap. Sprinkle with salt and pepper and place dill sprig on top. Roll up, pierce all over with the point of a sharp knife, and set aside.
2. Slice vegetables to the same size for even cooking. Steam vegetables for 6-8 minutes or microwave on HIGH for 3-4 minutes until crisp but tender.
3. Place dressing ingredients in a saucepan and simmer over a low heat until honey dissolves, or microwave on HIGH for 1 minute.
4. Use a saucepan which fits metal or bamboo steamer comfortably. Fill saucepan half full with water, bring to the boil, then turn down to a steady bubble or fast simmer. Place fillets in steamer and cover. Steam for 5 minutes.
5. To serve, drain vegetables and toss through dressing. Unwrap fillets from cling wrap onto plates and serve with vegetables.
For more information on seafood and health please visit www.cessh.curtin.edu.au

For more information on arthritis visit:

Arthritis Australia
www.arthritisaustralia.com.au

Arthritis Foundation WA
www.arthritiswa.org.au