



INTRODUCTION

Seafood is an important source of nutritious food in Europe. Seafood plays a vital role in a balanced diet as it is a good source of high-quality proteins, vitamins (especially vitamin B12 and vitamin D), minerals (particularly iodine, iron and selenium) and contains a unique type of fat and omega-3 fatty acids, which have many health benefits. Most governments and health organisations recommend eating two portions of seafood per week. However, like any other food type, seafood can also be a source of harmful contaminants with the potential to impact human health negatively. Nevertheless, for most people, the overall benefits of seafood consumption (following the official recommendations) outweigh potential food safety risks.

As the global demand for food increases, now more than ever, there is a need for high-quality food that is socially, economically and environmentally sustainable. SEAFOOD^{TOMORROW}, an EU-funded project, has generated new knowledge and innovative solutions to help meet this demand and to improve the dietary value and safety of seafood. The project's results benefit both the seafood industry and consumers.

There is growing evidence that specific subsets of the population, namely pregnant women, children and older adults, benefit from eating seafood as it meets their specific dietary requirements and needs.

This factsheet outlines the health benefits that seafood offers for children, aspects that parents should consider and what they can do to minimise any potential risks from their children's seafood consumption. We also highlight relevant research findings from the SEAFOOD^{TOMORROW} project, including tasty recipes designed to make seafood more appealing for children.

SEAFOOD FOR CHILDREN

Children's seafood consumption patterns are closely related to parents' choices. Encouraging children to eat seafood promotes **healthy eating habits**. Young children in particular benefit from the nutritional value of seafood. One in three children aged 6-9 are overweight or obese in Europe. Seafood is an excellent source of lean **high-quality proteins**, providing **essential nutrients for growth (omega-3's, vitamin B12, vitamin D, iron and iodine)** and can be an important part of a balanced diet for growing children.

- **Proteins:** seafood is naturally high in the lean protein that is needed by growing children to help them build and repair cells, enzymes and hormones. Protein is vital for the growth and development of every child.
- **Omega-3 fatty acids ("healthy fats"):** are important for maintaining children's overall health. Omega-3's are especially beneficial for children's brain health and are key to developing the central nervous and cardiovascular systems. They also support eye function, and there is some evidence that they may reduce symptoms of both asthma and behavioural problems.
- **Vitamin B12:** is important for the functioning of the central nervous system, forming red blood cells and converting food into energy. It also helps the body make new cells and supports the normal function of the immune system.
- **Vitamin D:** as a major regulator of bone formation and calcium absorption, vitamin D is vital for growing children. Vitamin D deficiency in children can cause rickets, delayed motor development, muscle weakness, aches, pains and fractures. Ensuring that children have adequate vitamin D in their diet is difficult because it is not found in many foods. Seafood contains more vitamin D than any other type of food.
- **Iron:** is an important mineral for growing children as it supports the production of new red blood cells that carry oxygen from the child's lungs to the rest of the body. Babies are born with iron stores that last for about 6 months. After that, children need iron in their diet.
- **Iodine:** About 2 million children a year have stunted physical growth and cognitive impairment due to iodine deficiency. Seafood is naturally rich in iodine that is essential for the production of thyroid hormones that control metabolism, physical growth and mental development.



RECOMMENDATIONS FOR CHILDREN

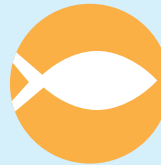
- Children should eat **two to three small servings** (35-70g approximately per serving) of seafood per week, one of which should be an oily fish product (e.g. salmon, mackerel, sardines).
- Excessive consumption of mercury-contaminated seafood can severely impact a child's development. Children should eat seafood products that are **low in mercury** (e.g. cod, salmon, herring, mackerel, perch, trout)
- Fish bones may be a choking hazard for small children. **Mashed seafood** is a good option.
- Supporting future generations of seafood-eaters, the best products to eat are those from **sustainable sources!**

SEAFOOD TOMORROW RESULTS FOR CHILDREN

FishChoice: a tool to assess the benefits and risks of seafood consumption

SEAFOOD TOMORROW has developed an improved version of the FishChoice tool to help inform consumers about their seafood consumption. Highlighting children aged 3 – 9 as a specific group, the tool guides parents to make informed decisions about how their children can gain the most nutritional benefits from their seafood consumption, while reducing exposure to chemical contaminants.

FishChoice compares the user's intake of nutrients and contaminants with the corresponding recommendations set by the European Food Safety Authority (EFSA). The tool then warns the user if their intake of nutrients is below the minimum recommended or above the maximum tolerable intake of contaminants. FishChoice is free to use and available at fishchoice.eu. An App version is also available for iOS Apple and Android from your app store.



Reduced sodium seafood products

There is evidence that high sodium intake in early childhood may predispose children to developing high blood pressure, osteoporosis, respiratory illnesses such as asthma, stomach cancer and obesity in later life.

SEAFOOD TOMORROW has developed new ways of producing two different seafood products: smoked salmon and salmon pâté that have reduced sodium content (by at least 25%), but don't compromise on quality, taste or food safety. Salmon pâté is versatile and, as a bone-free, ready-to-eat product, it is suitable for children and it is convenient for parents.

It is hoped that the **SEAFOOD TOMORROW** formulas will be taken-up by seafood producers and processing companies and reduced sodium content products, suitable for children, will soon be available on your local supermarket shelves!





SEAFOOD RECIPES FOR CHILDREN

In collaboration with research and industrial partners and culinary schools from Belgium, France, Poland, Portugal, Spain and Sweden, **SEAFOOD TOMORROW** has created new, innovative seafood dishes using sustainable and lesser-known seafood species. Each dish was specifically developed to meet the nutritional needs of pregnant women, children and older adults: groups known to benefit from seafood consumption. The dishes were judged on their nutritional quality, feasibility of scaling for use in restaurant and catering environments, and of course taste! The winning recipes have been published in the **SEAFOOD TOMORROW** E-Recipe Book which is available to download at: seafoodtomorrow.eu



CARP SAUSAGES WITH BROCCOLI AND CARROT

by the Zespół Szkół Nr 6, Szczecin, Poland

Species: Common carp (*Cyprinus carpio*)

Recipe for 4 people

INGREDIENTS

Sausages

- 400 g of carp fillets
- 60 g of broccoli (boiled)
- 60 g of carrot (boiled)
- 10 g of chicken liver
- a pinch of dried seaweed

Salad sauce

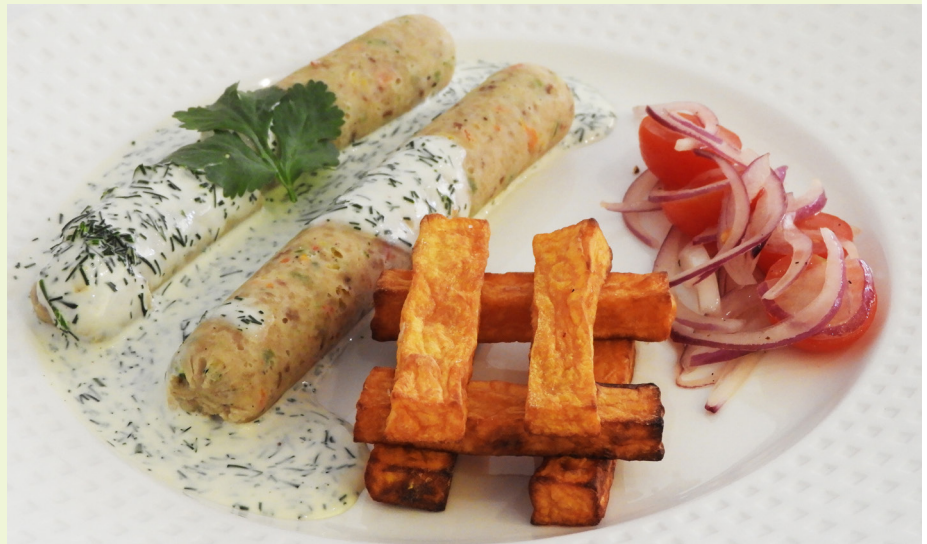
- 160 g of natural yogurt
- 50 g of mayonnaise
- 50 g of French mustard
- 15 g of iodized salt
- A pinch of pepper
- 110 g of cherry tomatoes
- 30 g of red onion
- 380 g of sweet potatoes
- 2 tablespoons of rapeseed oil

METHOD

1. Grind the carp fillets, chicken liver and pre-boiled vegetables.
2. Mix all sausage ingredients together.
3. Form and cook sausages in hot water (70–75 °C) for 25–30 minutes.
4. Prepare the salad sauce: mix natural yogurt, mayonnaise, French mustard, iodized salt and pepper.

5. Cut the cherry tomatoes and red onions.

6. Cut the sweet potatoes and roast them in rapeseed oil at 180–200°C for 30 minutes.



Suggestions

To increase vitamin D and omega 3, you can replace chicken liver by cod liver oil in the sausages (around 0,5 g per plate). To reduce the fat, you can use light mayonnaise in the sauce. If you prefer to avoid additives that are commonly found in light mayonnaise, you can also eliminate the mayonnaise and adjust the quantity of mustard.



BIB AND QUINOA BALLS, SWEET POTATOES AND BANANA PURÉE

by the Lycée & CFA Hôteliers, Marseille, France

Species: Bib or pouting
(*Trisopterus luscus*)

Recipe for 4 people

INGREDIENTS

- 800 g of bib
- 720 g of sweet potatoes
- 400 g of banana
- 140 g of quinoa
- 60 g of egg yolk
- 20 g of icing sugar
- 4 g of olive oil
- 40 g of butter
- 160 g of cream
- 40 g of ketchup



METHOD

1. Clean, scale and fillet the fish. Poach and allow to cool before crumbling the flesh.
2. Cut, cook and mash the sweet potatoes.
3. Finely slice the banana, coat in icing sugar and then dry in a low heat oven at 90°C for 1 hour.
4. Cook the quinoa, and then blend the fish, cooked quinoa and other ingredients together. Thicken with the egg yolk and season. Using a piping bag, pipe the mixture onto a baking tray before shaping the balls. Bake the fish balls for 15-20 minutes at 150 °C.
5. Mix the mashed sweet potatoes with banana, add cream and season.
6. Dress and decorate with banana crisps, ketchup and olive oil.

Suggestions

To enhance the content in vitamin D and omega 3, you can replace olive oil in the fish balls with cod liver oil.

You can reduce fat in the dish by replacing cream by milk in the purée, and reduce butter.