

Industry Guidance Note

Anisakis in salmon

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What is anisakis?

Anisakis is a marine [parasitic](#) worm (nematode) which is most commonly found in fresh water and anadromous fish, like wild salmon, which are born in fresh water, migrate to the ocean, then return to fresh water to reproduce. It is also common in certain small salt water fish, such as herrings and sardines. However, anisakis is rare in other salt water fish, such as tuna, swordfish and farm-raised salmon.

Eating seafood infected with anisakis could cause [Anisakiasis](#). This is a parasitic infection of the gastrointestinal tract caused by the consumption of raw or undercooked seafood containing larvae of the nematode. For the worm, humans are a dead-end host. Anisakis larvae cannot survive in humans and eventually die within a few weeks. But for the short time that it lives, it causes stomach pain and nausea.

According to an FSA note freezing, and or cooking, kills this worm, however if wild salmon is to be eaten raw, or almost raw, it should be frozen in all parts for at least 24 hours, at a temperature of -20°C or colder. This will ensure that any non-visible parasites or undetectable larvae of nematodes are destroyed. Where it is not possible to carry out adequate freezing it is advisable to cook the wild salmon. Cooking at temperatures greater than 70°C for two minutes will kill the anisakis parasite¹. Anisakid larvae are very likely to be present in wild salmon, but very unlikely to be present in farmed salmon as the fish do not have ready access to any shrimp like creatures that act as a vector to the nematode. Farmed salmon are exclusively pellet fed reducing risk further.

Incidences

Among farmed Atlantic salmon examined in British Columbia, Canada², 1 in 894 (0.11%) had an anisakid larva partly embedded in the wall of the intestine. An estimate in this study of its prevalence in muscle showed that the risk ratio of anisakid parasites in commercial product is 570 times less in farmed than in wild Atlantic salmon.

Véronique and Brasseur³ examined 3700 fillets of farmed Atlantic salmon (2–3 kg and 3–4 kg) from Norwegian and Scottish farms using a candling method. No anisakid larvae were found using this procedure. A survey of anisakid nematodes in Scottish farmed salmon concluded that Scottish farmed salmon were not found to be parasitised by larval anisakids within the muscle. This suggests that salmon farmed in Scotland and fed controlled, pelleted feed do not present a significant risk to the consumer of the ingestion of these parasites.

References

1. FSA. Guidance concerning Wild Salmon and the Anisakis parasite. FSH/0015. Sept 2007.
2. Gary D. Marty. Anisakid larva in the viscera of a farmed Atlantic salmon (*Salmo salar*). Aquaculture Volume 279, Issues 1-4, 2 July 2008, Pages 209-210.
3. Véronique Angot and Philippe Brasseur. European farmed Atlantic salmon (*Salmo salar* L.) are safe from anisakid larvae. Aquaculture Volume 118, Issues 3-4, 15 December 1993, Pages 339-344.

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