

Key nutrient found to prevent cataracts in salmon

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The role of a key nutrient which prevents cataracts in salmon has been revealed by eye specialists at the University of East Anglia. Research published in the *American Journal of Physiology -- Regulatory, Integrative and Comparative Physiology* shows how the nutrient histidine, when added to the diet of farmed salmon, stops cataracts (clouding of the lens in the eye) from forming. Credit: University of East Anglia

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Research published today in the [American Journal of Physiology - Regulatory, Integrative and Comparative Physiology](#) shows how the nutrient histidine, when added to the diet of farmed salmon, stops cataracts (clouding of the lens in the eye) from forming.

Following fears over BSE in the early 1990s, blood meal was removed from the diet of farmed salmon. This coincided with a large increase in the incidence of cataracts which cause economic losses and fish welfare problems.

Lead author Dr Jeremy Rhodes, from the Norwich Eye Research group at UEA, said: "The international research team of which we are a part have identified a key [nutrient](#) (histidine) that is present in high quantities in blood meal but was deficient in the post 1990s diet. We also found that by adding histidine to the salmon's diet, cataract could be prevented.

"During the life cycle of salmon the young salmon parr spend the early part of their life in fresh water before they enter the sea as salmon smolts where they grow to maturity before returning to fresh water to spawn.

"In this paper, the latest of several from the project, we show that histidine has a protective role in the lenses of salmon enabling them to withstand the considerable environmental stresses that their life cycle demands. When histidine is deficient in the diet, these environmental stresses lead to the development of cataract."

Salmon farming is worth \$11 billion worldwide and Norway is the largest producer with a 33 per cent share. [Fish farming](#) is Norway's third largest exporter after oil and metals.

A multi-centre collaboration between the research labs of the University of East Anglia's Norwich Eye Research Group and the National Institute of Nutrition and Seafood Research (NIFES) in Norway and industrial partners Biomar Ltd (Scotland) and Marine Harvest (Norway) was set up in 2004 to investigate the cause of the cataract outbreaks in farmed salmon.

The Norwich Eye Research Group at UEA has been a key member of this team and in addition to their vital research into the mechanism of the cataract formation has hosted scientists from the NIFES labs in Norway and sent scientists to Norway to help with collection of samples and the development of new techniques.

The work of this collaborative group has had a global impact on the salmon farming industry and the dietary histidine content of farmed salmon has been increased as a direct result of this work.

A synthetic histidine compound has recently been approved for use within the EU and work from the group was quoted in the conclusions of the European Food Safety Authority.

More information: The full paper is available at ajpregu.physiology.org/

Provided by University of East Anglia

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