



Information Sheet

FISH ALLERGY



What is fish allergy?

Fish allergy means adverse reaction to some proteins found in different fish. The immune system of sensitised persons produces harmful IgE antibodies, which in turn release histamine and other substances from body cells. These substances cause allergic symptoms such as skin rash, nausea or asthma.

Worldwide fish and shellfish play an important role in human nutrition. The strong move to healthier eating habits and the substitution of meat with seafood in the diet has resulted in even greater demands for fish. However, fish may also be potent allergens in sensitised individuals and cause allergic reactions.

How common is fish allergy in South Africa?

Currently there is no exact data available as to how common fish allergy is in South Africa. Depending on regional diets certain fish are more implicated in reactions than other. Fish allergy is common in Spain and the Scandinavian countries affecting up to 1 in 1 000 individuals. In addition, international studies demonstrated that occupational asthma or eczema could affect up to 30% of workers in the various industries seafood processing industries.

A recent survey conducted in South Africa by UCT Allergology Unit (Groote Schuur Hospital) indicates that the incident of allergy to fish varies for some species. The most frequent fish species recorded with an allergic reaction were hake, followed by yellowtail, salmon, mackerel, kingklip, and only few subjects to snoek and tuna. Very often patients are only allergic to certain fish species but are able to eat other species without problems.

What are the fish allergens?

Very few allergens of fish have been studied in detail. The best-known allergen is the Allergen M from Cod, which has

also been found in other fish species e.g. Salmon. More recently additional allergens were discovered in Cod and fish products. The processing of fish can generate new allergens as well as storage of fish over several days on ice. Most of these allergens are very stable and are not destroyed by cooking or braaing.

Identification of fish species

In Southern Africa there are over 2 000 different species of fish. When patients identify the offending fish species, usually by common name, there is often confusion about common names or mislabeling of fish. For example in South Africa Herring is commonly called Pilchard; "Marsbanker" is actually a Mackerel; Haddock is Hake; Kob is Kabeljou; and Cape Salmon is not related to the fresh water Salmon (see Table 1). In particular our local Kob (*Argyrosomus hololepidotus*) must not be confused with Cob (*Gadus morhua*), a European fish species, used very frequently in blood tests for fish allergy. Furthermore, inaccurate marketing practices are frequently observed e.g. seven different tuna species are commonly labelled as "Tuna".

What are the symptoms of fish allergy?

Allergy to seafood can cause almost any allergic symptom and sign, but some are more common than others. The more common symptoms include skin-, stomach- and breathing problems. Respiratory symptoms are very common in sensitive subjects following breathing the steam of cooked or braaied fish. Some patients may have a single symptom, but more often there are simultaneous symptoms reported mostly within 2 hours after eating, smelling or handling fish.

Other adverse reactions to fish

Sometimes it can be difficult to diagnose a patient with allergy to fish if other non-allergic reactions are involved e.g. caused by fish poisoning. Scombroid Fish Poisoning occurs from the ingestion of spoiled fish, caused when fish is not properly

Table I. Allergenic fish commonly consumed, representative South African fish species with their scientific names, and the commercially available RAST tests for allergy testing.

Groups	Common names	Some South African species	Species used for commercial CAP-RAST tests
Estuarine Fishes	- Salmon (Geelbek) - Herrings (Pilchard) - Sardines - Anchovies - Flatfishes	- Cape Salmon: <i>Atractoscion aequidens</i> - Redeye (Round herring): <i>Etrumeus whitehead</i> - Sardine: <i>Sardinops sagax</i> - Cape anchovy: <i>Engraulis capensis</i> - East Coast sole: <i>Autroglossus pectoralis</i> - West Coast sole: <i>Autroglossus microlepis</i>	- Atlantic Salmon: <i>Salmo salar</i> f41 - Herring: <i>Clupea harengus</i> f205 - Sardine/Japanese Pilchard: <i>Sardinops melanosticta</i> f61 - Pilchard: <i>Sardina pilchardus</i> Rf308 - Anchovy: <i>Engraulis encrasicolus</i> Rf313 - Sole: <i>Solea solea</i> Rf337 - White sole/Whiff: <i>Lepidorhombus whiffiagonis</i> Rf311 - Halibut: <i>Hippoglossus hippoglossus</i> Rf303 - Plaice: <i>Pleuronectes platessa</i> f254
Demersal Fishes	- Cods, Hakes (Haddock, Stockfish), Pollocks, Whitings - Monk-, Anglefishes	- Cape Hake <i>Merluccius capensis</i> <i>Merluccius paradoxus</i> - Kingklip: <i>Genypterus capensis</i> - Monk fish: <i>Lophius spp.</i>	- Hake: <i>Merluccius merluccius</i> Rf307 - Cod: <i>Gadus morhua</i> f3
Pelagic Fishes	- Jacks - Kabeljou (Kob) - Mackerels (Marsbanker) - Tunas - Snoek - Billfishes - Swordfishes	- Elf: <i>Potamomus saltatrix</i> - Yellowtail: <i>Seriola lalandii</i> - Kabeljou (Kob): <i>Argyrosomus hololepidotus</i> - Cape horse mackerel: <i>Trachurus trachurus capensis</i> - Chub Mackerel: <i>Scombe japonicus</i> - Tuna/Bigeye: <i>Thunnus obesus</i> - Snoek: <i>Thyrstites atun</i> - Blue Marlin: <i>Makaira nigricans</i>	- Jack Mackerel/Scad: <i>Trachurus japonicus</i> f60 - Chub Mackerel: <i>Scomber japonicus</i> f50 - Mackerel: <i>Scomber scombrus</i> Rf206 - Tuna/Yellow fin: <i>Thunnus albacares</i> f41 - Swordfish: <i>Xiphias gladius</i> Rf312
Freshwater Fishes	- Trouts - Carps - Catfishes - Eels	- Rainbow trout: <i>Oncorhynchus mykiss</i> } } Not found in S.A. }	- Trout: <i>Oncorhynchus mykiss</i> f204 - Eel: <i>Anguilla anguilla</i> Rf264

refrigerated or when refrigeration is delayed. Fish species with brown meat are often involved such as yellowtail, tuna and mackerel. Allergy-like symptoms are usually experienced within 1-2 hours and include flushing, sweating headache, nausea, vomiting, diarrhoea and hives on the skin.

Another poisoning caused by fish is called Ciguatera Fish Poisoning. However, Ciguatera fish toxins are found mostly in reef fishes from tropical and subtropical waters, which would be found north of the Natal coast. Symptoms include tingling of the hands and feet, low heart rate and drop of blood pressure.

Recently allergic reactions have been described in people eating fish contaminated with a small parasitic worm called Anisakis. However, allergy-like symptoms are mostly reported after eating raw or undercooked fish.

How is fish allergy diagnosed?

A precise and detailed history is very important in allergy to seafood to indicate if a reaction is of an allergic nature or rather caused by toxins. The clinical evaluation should be supported by tests performed at a laboratory on a small blood sample. There are almost 20 CAP-RASTs of different fish species currently available (see Table II). In Southern Africa we have many fish species, which are not found in Europe. This can mean that commercial tests are not available. In the

case of a negative CAP-RAST result a skin test with extracts of the offending local fish species can give additional information.

What is to be done?

1. Patients have to know that fish allergies tend to persist over the years.
2. It is recommended that patients with confirmed allergy to a certain fish species are also tested for other species.
3. Avoid any possible direct or indirect exposure to the offending fish including handling or inhaling cooking vapours.
4. Take care of eating out as some foods could have been in contact with the offending fish (e.g. French fries and fish prepared in the same oil).
5. Wear a MedicAlert badge and very sensitised patients should also carry an injectable adrenaline syringe.

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See the ALLSA Internet site at:
<http://www.allergysa.org>

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