

By Xavier Bazin

Stop eating fish (seriously)

Fish has become one of the most polluted foods in existence.

It is high time to dot the i's with fish:

- We owe the truth to **children and teenagers**, who could end up with diabetes at the age of 40, simply because they have eaten too much fish, believing it to be a healthy and unimpeachable food;
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- We owe the truth to **pregnant women**, whose children could be irreparably damaged or even disabled by the toxins contained in most fish;
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- We owe the truth to those with **fragile health**: for them, even in small doses, heavy metals and pollutants in fish could tip them over the edge (hormonal disruption, autoimmune disease, even cancer);
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- And we owe the truth to all those who **intend to live to a ripe old age** , free of Alzheimer's and chronic disease - and for that it is best to protect ourselves from the toxins that slowly but surely build up in our bodies over the years...

This truth about fish is not "hidden". It is based on scientific studies published in leading journals, which have often been reported in the media.

The problem is that the information on this subject is like the pieces of a jigsaw puzzle in disarray: it is scattered, confused, and can seem contradictory.

When you put all the pieces together, the picture that emerges is clearly disturbing.

Let's find out.

The strange suicidal dance of the Minamata cats

It all began in 1950 in Minamata, a small coastal town in southern Japan.

The inhabitants then witness an astonishing sight. First, dead fish wash up on the beach. Then seagulls and crows, unable to fly away.

Soon the cats are in spasms. Many are carried away in a dance

macabre which leads them directly into the sea, to commit suicide.

In May 1956, four inhabitants of Minamata were hospitalised for disconcerting disorders: loss of speech, convulsion, hallucinations, inability to walk, coma. All of them die. They were soon followed by hundreds of other inhabitants of Minamata and the surrounding fishing villages.

The Japanese eventually discovered that a large local factory was dumping huge amounts of **mercury** into the sea. This mercury was ingested by fish, which eventually contaminated animals and then humans.

Officially, 900 people died. 2,265 were formally recognised as victims of mercury poisoning, with terrible after-effects.

Some women have never shown any symptoms at all... but have given birth to severely disabled children.

It is one of the greatest environmental and health disasters in history.

And I fear that we are in the process of repeating it, on a smaller scale.

Almost all fish are contaminated with mercury

Of course, you will never find fish as contaminated as those from Minamata on the market, far from it - and fortunately! But that does not mean that they are harmless.

All fish, without exception, contain mercury . Partly for natural reasons: there has always been some mercury at the bottom of the seas and oceans.

But above all because man has been polluting the oceans, seas, lakes and rivers for over a century. According to scientists from the **GEOTRACES** programme, the concentration of mercury in the oceans has tripled since the industrial revolution.

This is due in particular to coal plants and waste incineration: the mercury emitted into the air ends up back on the ground... and on the seabed.

It is then absorbed by plankton and small plants on the sea floor. These are eaten by small fish, which accumulate the mercury in their fat... and which are themselves eaten by large carnivorous fish, which concentrate the highest dose of mercury.

The "mercury" classification: beware of predators !

The level of mercury poisoning therefore varies greatly between fish.

There are also big differences between fishing grounds. But to give you a general idea, here is a summary of the rankings of the French, European, Canadian and American health agencies:

Highly contaminated fish **Shark and swordfish;**

Highly contaminated fish : **bluefin tuna, yellowfin tuna, marlin, and, to a lesser extent, albacore tuna, grouper and hake ;**

Highly contaminated fish : **light tuna in conser ve (skipjack, tuna), sea bass, monkfish, pike, eel, sea bream, skate ;**

Fishmoderately contaminated **trout, herring, most salmon, whiting, sole, cod, crab;**

Fish with low contamination : **sardines, anchovies, mackerel, Alaskan wild salmon , oysters;**

Almost no contaminatedseafood **scallops, shellfish and shrimp.**

Caution: some of these fish contain other dangerous pollutants (e.g. **PCBs** in particular, discussed below).

But on the basis of their mercury contamination alone, it seems obvious to me:

- That you should never eat shark, swordfish, bluefin tuna, yellowfin tuna or marlin: they should simply be withdrawn from the market, especially as they are endangered species that should be protected;
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- That there is no good reason to risk eating tuna, grouper, hake, sea bass, monkfish, sea bream, skate (except for festivities or special occasions), and even less so eel and pike;
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- And that you should limit your consumption of trout, crab, herring, salmon (except Alaskan), whiting, sole and cod.

No one knows the exact dose at which mercury becomes toxic... If in doubt, it is better to avoid it as much as possible!

**You can never know the amount
your plate**

of mercury on

Especially since the amount of mercury in the same species of fish can vary greatly depending on where it is caught!

Trout, for example, have a good reputation. But trout from Canadian lakes are among the most mercury-contaminated fish in the world!

Even small fish, which contain the least amount of mercury, are not spared from these variations: 4 times more mercury is found in sardines and anchovies caught in the Mediterranean than in the Atlantic ... and 10 times more mercury in herring from the North Sea than in herring from St Pierre et Miquelon!

And please note that "organic" does not protect you from mercury... Sometimes the opposite is true! According to an analysis carried out by **60 million consumers** organic Norwegian salmon "Agir" contains seven times more mercury than "Pescanova" salmon, caught in the Atlantic and raised in Chile.

The most dangerous product is **scanned tuna**: many tuna cans in our supermarkets exceed half the regulatory limit for mercury, which is considerable.

Don't be fooled by the "risk" discourse

benefit-

So why do most health authorities still recommend eating two portions of fish per week?

Simply because oily fish (salmon, sardines, etc.) contain large quantities of omega-3 fatty acids, which are essential for the health of your heart and brain.

And since you are much more likely to die from heart disease than from mercury-related disease, the authorities prefer not to advise you against these fish, because the "benefit/risk" ratio is quite positive.

This is especially true for those who eat pizza, pasta, crisps and biscuits all day. For them, eating a little fish is a big step forward.

You should know that there is a third way. Wouldn't you like to have the benefits of omega-3 without the risks of mercury?

Well, this is quite possible if you regularly eat 'omega-3' eggs, which are eggs from **flax-fed poultry**.

On the other hand, don't rely solely on omega-3-rich cooking oils (rapeseed, flaxseed, walnut): they are valuable but cannot provide you with the animal-based omega-3s you need.

And in any case, you can also use omega-3 capsules as a food supplement.

All in all, it is clear that you will always benefit from eating oily fish if you do not consume any other omega-3s. But if you can find these precious fatty acids elsewhere, why take the risk of mercury?

The three lessons of the Inuit children

Pregnant women are particularly affected by this dilemma.

The brain of the foetus absolutely needs omega-3 to develop. But it also needs to be protected from the toxicity of mercury.

Until recently, the benefits of omega-3s were thought to outweigh the damage of mercury. But these 'hopes' have been swept away by the extensive study of the Inuit tribes of Nunavik, who consume a lot of fish rich in omega-3 and mercury.

First, researchers showed that Inuit children who were born with high levels of mercury and lead in their blood were three times more likely to suffer from attention deficit hyperactivity disorder.

Then they found that, among these same children, those with high mercury levels at birth had an average IQ that was 5 points lower than those without - proving just how much mercury damages fetal brain development!

And don't imagine that these children had much higher levels of mercury than we do. The levels were broadly similar to those of Western populations who eat a lot of fish.

This is why I am convinced that pregnant women should take omega-3 capsules (like the vitamin B9 that they are systematically prescribed) and abstain completely from seafood.

And the same advice could apply to all of us who have poor health.

Eat fish... and get diabetes!

It is important to understand that, depending on our personal history and lifestyle, we are more or less vulnerable to mercury.

It is obvious that a 25 year old man in perfect health, who exercises 3 times a week, exposes himself to the sun regularly, eats a lot of anti-oxidant vegetables and does not suffer from any stress in his life will have absolutely no problem to be
In the case of sardines, they can "detoxify" from the small amount of mercury contained in them if they eat them 2 or 3 times a week.

But we are not all in the same boat.

Perhaps you have a porous gut, or an unhealthy liver. Or perhaps you have an unknowing genetic vulnerability that prevents you from easily eliminating heavy metals.

Take this recent study, in which researchers selected young adults and followed them for almost 20 years... They found that those who had swallowed the most mercury also had a 65% higher risk of developing type 2 diabetes!

These results are chilling, because they are the ones who had the healthiest lifestyle! They ate "well", did sport, were not overweight. But they ate too much fish.

And that's not all: another study published in 2015 showed that greater exposure to mercury is also associated with a higher risk of autoimmune disease.

Other, lesser-known pollutants also cast a shadow over the picture.

Starting with the dreaded **PCBs...**

PCBs, major unknown pollutants in fish

The great paradox with polychlorinated biphenyls (PCBs) is that they continue to poison us even though they have been **banned** for several decades.

Until the end of the 1970s, industry used these complex chemical compounds en masse. They were then released into waterways, contaminating rivers and coastlines. They were also released into the air... and fell to the bottom of the sea.

The big problem with PCBs is that they are not very biodegradable: once dispersed, they accumulate in the environment... and become food

in fish. Some is also found in meat and milk, but in smaller quantities.

In France, these poisons were banned in 1987... but as they were everywhere - in paints, asphalt, resins, textiles, adhesives - they continue to disperse slowly... and to accumulate in our environment!

This is why the French administration counted no less than 550 land sites polluted with PCBs in 2013, compared to 'only' 437 in 2011. This represents an increase of 25% in two years, even though they had been banned for more than 30 years!

The situation of our rivers and estuaries is dramatic. As early as 2010, an order from the prefecture of the Haute-Normandie region banned sardine fishing in the Bay of the Seine, between Dieppe and Barfleur, because of PCBs.

On 1 November 2015, France and Switzerland decided to ban the sale of large trout from Lake Geneva... again due to their high PCB content!

Because these PCBs don't just accumulate in nature: they also accumulate in your body and take years or even decades to be eliminated.

This is why the World Health Organisation (**WHO**) classifies PCB dioxins as proven endocrine disruptors, immune system saboteurs and even cancer-causing factors.

PCB classification: woe betide small oily fish!

Unsurprisingly, it is the fish in rivers and on the coast that are most affected by PCBs and other dioxins. Pike, catfish and eels are radically polluted and therefore **definitely unfit for human consumption**.

consumption . No regrets for these species already rich in mercury.

The tragedy is that the healthiest fish - because they are free of mercury and rich in omega-3 - are also the ones most affected by PCB pollution.

This is particularly true of sardines: according to a survey by the French Food Safety Agency (**ANSES**), sardines are the biggest contributor of PCBs (and other "persistent organic pollutants") in our food.

Unfortunately, this is quite logical: omega-3s are fats... and it is also in fat that pollutants are best inserted and accumulate.

This is true for fish (the fatter the fish, the more it accumulates PCBs from its environment), for mammals (toxins are concentrated in the fat of meat and milk)... and for humans (pollutants accumulate in your fat, hence **the interest in staying slim!**).

And quote the ANSES report, because it is a fact too often ignored:

"It should be noted that these species, in particular salmon, sardines and mackerel, are fatty fish and if they are good vectors While they have a high omega-3 content, they also have high levels of persistent organic pollutants (POPs) and are the main contributors to these exposures."

The report does not mention other small fish rich in omega-3, herring and anchovies. But herring is a risky choice: a **2002 INRA** report pointed to heavy dioxin and PCB pollution in herring.

Anchovies are the safest choice, probably because they have a very short life cycle: they die before they have had time to accumulate too many toxins.

Cadmium, Pesticides, Flame retardants the icing on the cake

According to the **ANSES**, sardines also contain high levels of lead, another reason for pregnant women to avoid them altogether. Excessive doses of lead have also been found in sole and cadmium in cod.

But the seafood products that contain the most of these two heavy metals (lead and cadmium) are not fish: they are **mussels, shellfish and squid**, mussels are also considerably polluted with PCBs.

Other pollutants frequently found in fish are pesticides.

In the US, an analysis of supermarket samples in Dallas found 24 out of 32 pesticides (such as DDT) in salmon and 17 out of 32 in cans of sardines - in addition to the high levels of PCBs they found in these samples.

Finally, "flame retardants" are also found in fish, sometimes in high doses. These toxic substances are particularly present in mussels, sardines, farmed salmon and catfish.

To avoid poisoning yourself

What to do?

This depends very much on your age, your situation (woman of childbearing age, etc.) and your state of health.

But in general, the following recommendations seem prudent and common sense:

- NEVER eat tuna, swordfish, eel or pike: these fish should be excluded from your diet, particularly because of their high mercury content;
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- EXCEPTIONALLY, for festive meals (if you like them!): grouper, hake, sea bass, monkfish, red mullet, sea bream, skate, sole, squid, cod, farmed salmon (even organic), mussels, shellfish, crabs;
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- ONE SERVING A MONTH, if you are so inclined, and check their origin: trout, crab, herring, whiting, mackerel, sardines, oysters;
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- ONE TO TWO SERVINGS PER WEEK: anchovies (from the Atlantic), shrimps (avoiding those from Asia!), scallops, wild Alaskan salmon.

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At the fishmonger's, if you hesitate between a small and a large fish of the same species, choose the small one: it will be less old and will have

less time to accumulate toxins in its fat.

You will benefit from avoiding the accumulation of heavy metals and chemical pollutants in your body for decades.

Filling up on omega-3s is crucial. If you don't eat Alaskan salmon (very expensive!) or copious amounts of anchovies (not to everyone's taste!) every week, eat "omega-3" eggs or take capsules as a supplement.

Also be careful not to miss out on selenium or iodine, essential minerals contained in fish (fortunately, scallops and shrimps are good sources).