



WHO Guidance Document on the
Development of Public Health Strategies in the
Context of the Minamata Convention



Fish consumption, mercury risk and perception among indigenous people in the Brazilian Amazon

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IMPACTO DA EXPOSIÇÃO DE POPULAÇÕES TRADICIONAIS MERCURIO NA AMAZONIA

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Sources of Mercury in the Amazon Basin contribute to the Hg load

- Deforestation
- Biomass burning (forest)
- Road construction, soil erosion
- Agriculture and livestock
- hydroelectric reservoirs
- ASGM – It is the leading source of mercury emissions, responsible for a production of 30 t of golden/yr, mainly from Tapajós Rivern
- Since the 1980s, studies in the Amazon show evidence of contamination in the rivers and riverine, indigenous and in same urban people. Illegal gold mining has expanded 18% annually in the Amazon in the last decade (Swenson et al. 2011)
- This expansion is driven by the increase in gold price in international markets (Alvarez-Berríos and Aide 2015; USGS 2020) (Asner et al. 2013; Alvarez-Berríos and Aide 2015; Asner and Tupayachi 2016)



Exposure Assessment of Mercury

- In the Brazilian Amazon, greater than 90% of mercury in fish is methylmercury
- The Hg concentration in fish depends on the trophical level and characteristics of the site
- Risk analysis is an important tool to achieve consumer protection and ensure the benefits of fish consumption, especially for those who depend on fish as their only source of protein
- Fish consumption by indigenous and riverine communities can exceed 300 g per day, resulting in an average annual consumption of 100 kg per capita
- For indigenous the fish consumption depends on the gender, age, location of the indigenous land



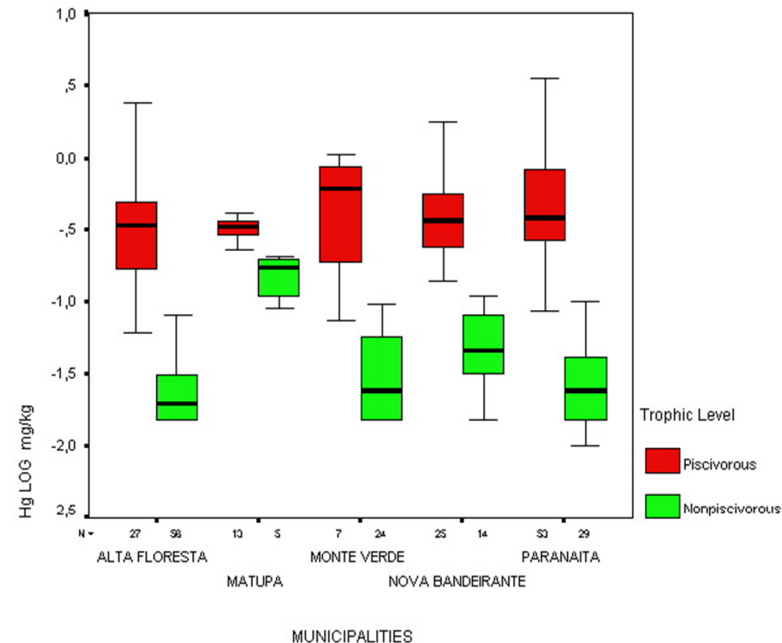
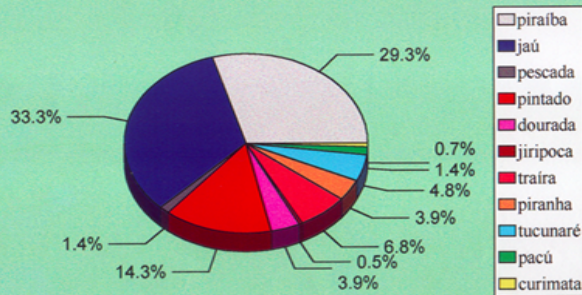
Fish Exposure in Urban Areas of Amazon

Urban areas in the Amazon offer a greater variety of species, the main preference is for carnivorous fish that can reach 20 kg and Hg concentration ranging from 1 to 6 kg /mg

Depending on the fish consumption in their diet it can pose a major health risk, as the preference in urban areas is for large carnivorous

This scenario represents a risk situation mainly for pregnant women, children and women of reproductive age

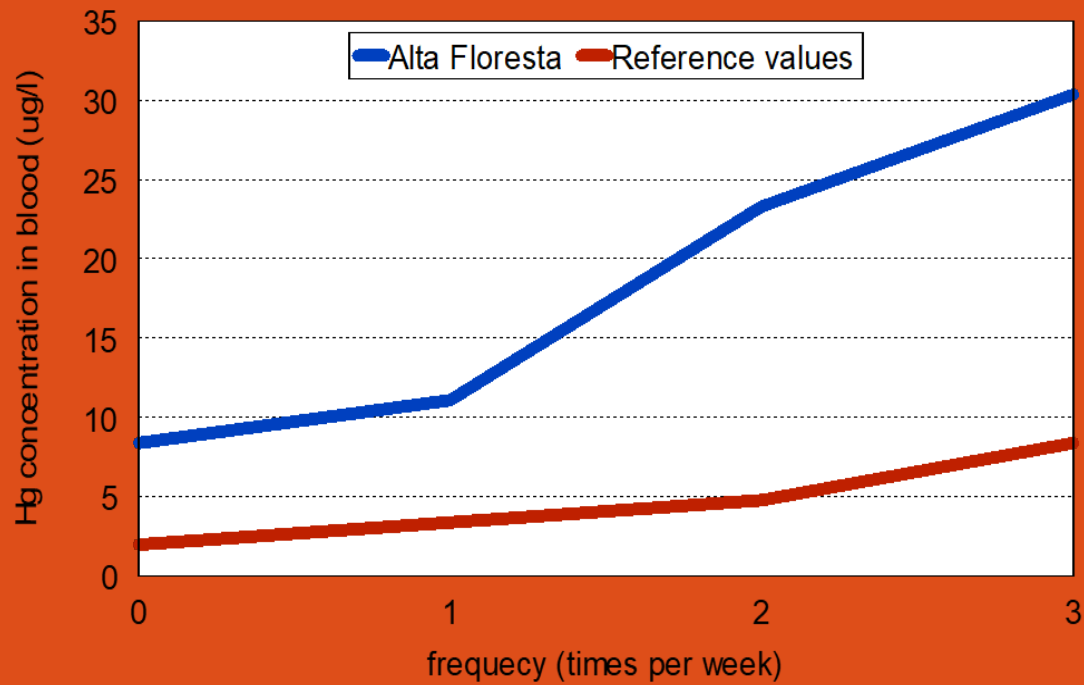
Consumo de Peixes pela População Urbana de alta Floresta



The perception of indigenous people in relation to the risks of exposure to the consumption of contaminated fish

Total Hg in Blood Samples

as a function of frequency of fish consumption



Indigenous people who live near rivers and consume fish have a good perception of the meaning of Hg contamination for their health. However, they usually live in remote areas, far from urban centers, and have many difficulties in obtaining other sources of food, and even knowing that fish pose health risks, they consume, not always fishing fish with lower concentrations of Hg

Delivery of Mercury reports and explanation of hair concentrations

Risk Assessment for several communities

Seu resultado de Mercúrio no Cabelo

Participante: XXXXXXXXXXXXXXXXXXXXXXXXXXXX
 SEXO: XXXXXXXX IDADE: XX DATA DE COLETA: 24/09/2015 SEU CÓDIGO: XXXXXXXX

1 Seu resultado de mercúrio no cabelo.
 A medida de mercúrio no cabelo significa a quantidade de mercúrio que é absorvida pelo organismo humano com a ingestão de peixe, principalmente os peixes carnívoros.

2 Seu Resultado Concentração de mercúrio no cabelo **SEU RESULTADO**
 2,04 µg g⁻¹ Aceitável

Risco para a saúde

Baixo	Aceitável	Médio	Alto
< 2 µg g ⁻¹	2 - 6 µg g ⁻¹	6 - 10 µg g ⁻¹	> 10 µg g ⁻¹

Valor de mercúrio em cabelo humano aceitável.

3 Os peixes mais consumidos na sua comunidade são:

Concentração de mercúrio	Baixa (< 0,1 µg g ⁻¹)	Aceitável (0,1 - 0,5 µg g ⁻¹)	Alta (> 0,5 µg g ⁻¹)
Nome dos Peixes	Pacu Branquinha Pirapitinga	Tambaqui Curimatã Mandi	Dourada Barbo-Chata Surubim

* Estudos recentes em peixes do Rio Madeira (2012-2013).

O que posso fazer agora?

Dê preferência para comer peixes não carnívoros e pequenos. Espécies de peixes apresentam menores concentrações de mercúrio.

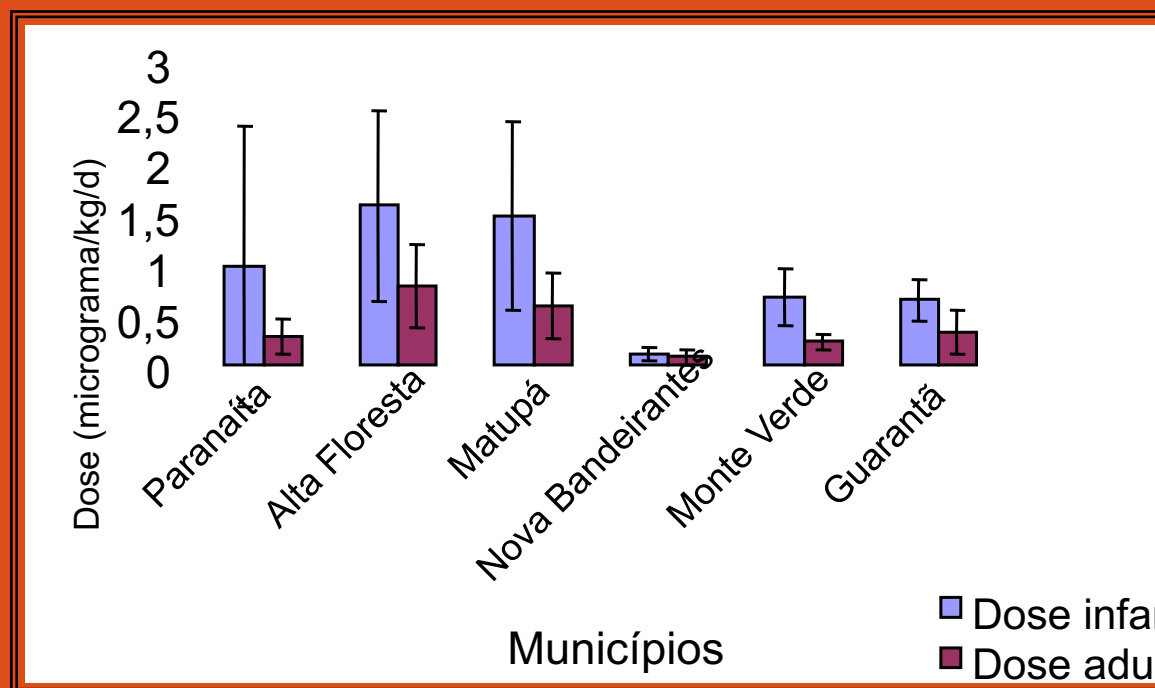
Os peixes são alimentos nutritivos, ricos em vitaminas, minerais e gorduras saudáveis. Não deixe de consumir peixes, contendo o consumo de peixes com altas concentrações de mercúrio para 3 vezes na semana.

Você é mulher e está grávida, não deixe de fazer seu pré-natal. Acasalhamos que você leve este laudo ao médico que está fazendo seu pré-natal para receber orientações nutricionais específicas, pois você precisa se alimentar muito bem nesta fase.

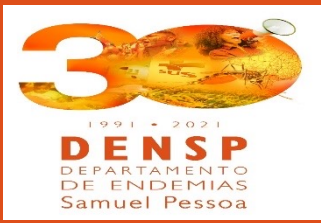
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 DO RIO DE JANEIRO



RfD=0.1µg/ kg/ d



Thank you
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