

Development of National recommendations for fish consumption in Portugal considering methylmercury exposure

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Introduction

Fish is an important part of the Portuguese diet and a major source of long-chain omega-3 fatty acids. However, it also represents the main dietary source of methylmercury (MeHg), a neurotoxic compound especially harmful during critical stages of development such as pregnancy and early childhood. In response to European Commission Recommendation EU 2022/1342, Portugal undertook a national initiative to assess MeHg exposure and derive population-based consumption guidelines.

Methodology

A multidisciplinary working group comprising six public institutions and coordinated by the Directorate-General for Food and Veterinary (DGAV) was established in 2018. The team performed a quantitative risk-benefit assessment (RBA) combining national data on MeHg, EPA, and DHA omega-3 fatty acids levels in commonly consumed fish species with food consumption data from the National Food and Physical Activity Survey (IAN-AF 2016). The assessment considered both the toxicological risks of MeHg and the nutritional benefits of omega-3 fatty acids.

Results

The RBA showed that, for the general population, the benefits of fish consumption outweigh the risks of MeHg exposure. However, for vulnerable groups — pregnant and breastfeeding women and children under 10 years — the risks were relevant. As a result, differentiated dietary recommendations were developed. For the general population, a frequency of 4 - 7 servings per week of any fish species was advised. For vulnerable groups, 3 - 4 servings per week of fish species with medium to low MeHg levels (forkbeard, canned tuna, cod, blackbelly rosefish, horse mackerel, mackerel, Atlantic horse mackerel, cuttlefish, meagre, gilthead seabream, pouting, grouper, sole, squid, perch, hake, octopus, European flying squid, turbot, ray, redfish, sea bass, brill, salmon, red mullet, Atlantic bonito, sardine, white seabream, plaice, monkfish, trout) were recommended, while species with high MeHg content (fresh tuna, dogfish, swordfish, blue whiting, blackmouth catshark, scabbardfish, and blue shark) should be avoided.



Fig.1: Risk-benefit assessment

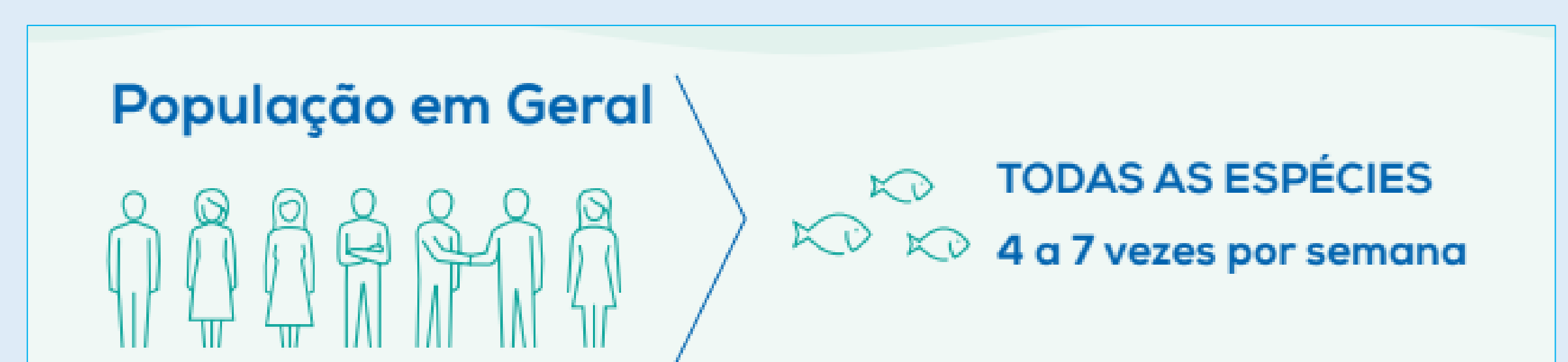


Fig.2: Recommendations for general population: for all species 4 – 7 meals a week



Fig.3: Recommendations for vulnerable population: for species with medium to low MeHg content 3 – 4 meals a week; for high MeHg content consumption must be avoided.

Conclusions

The resulting recommendations were disseminated through an infographic, public presentation, and press release. Additional outreach actions targeting health professionals and school meal providers are planned to increase awareness among at-risk populations.

Fig.4: Infographic produced by the working group and disseminated online. Focused on how generally eating fish is healthy, on explaining what mercury is, on the population groups and their recommended fish consumption and the list of species with medium to low mercury content and the species with high mercury content.