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The safety of dental amalgam and alternative dental restoration materials for patients and users

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1 The safety of dental amalgam and alternative dental restoration materials for patients and users

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3 The European Commission asked its independent Scientific Committee on Emerging and Newly Identified
4 Health Risks (SCENIHR) to provide a risk assessment on dental amalgam and alternatives such as resin-based
5 composites, glass ionomer cements, ceramics and gold alloys to update the SCENIHR's 2008 Opinion in light of
6 new developments and data.

7

8 The updated 2015 Opinion on the safety of dental amalgam and alternative dental restoration materials for
9 patients and users has now been published and evaluates the scientific evidence concerning any possible links
10 between amalgam and amalgam alternatives and allergies, neurological disorders or other adverse health effects.

11

12 The SCENIHR found that results from numerous studies looking for links between mercury derived from dental
13 amalgam and various neurological and psychological or psychiatric diseases (including Alzheimer's,
14 Parkinson's, multiple sclerosis and kidney diseases) were inconclusive and contradictory. One difficulty faced
15 in finding a causal relationship between dental amalgam and diseases, is that mercury exposure is usually
16 expressed as the total amount of mercury in body fluids (primarily urine) and there is no differentiation between
17 exposure sources or between organic and inorganic mercury. This issue is relevant due to the different
18 toxicological profile of the two forms. Consumption of fish, which contains essentially but not exclusively
19 methyl mercury, is the leading source of mercury exposure for the general public, followed by dental amalgam,
20 which contains elemental mercury and inorganic mercury. The Opinion does not address the issues of methyl
21 mercury.

22

23 After evaluating inorganic mercury in food, the European Food Safety Agency recommended a tolerable weekly
24 intake of inorganic mercury of 4 µg/kg body weight. Tolerable limits for dietary exposures to mercury are
25 relevant to amalgam safety considerations, because inhaled elemental mercury (from dental amalgam) may add
26 to the total body burden of inorganic mercury. Although breath, blood and urine samples from people with
27 amalgam fillings show that their level of exposure is 5 to 30 times lower than that permitted for occupational
28 exposure, the European Food Safety Agency reported that people with many amalgam fillings still might be
29 exceeding the tolerable weekly intake for inorganic mercury due to this additional inhalation exposure. However,
30 evidence is weak and the data are mainly derived from model-based calculations. Studies on large patient

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