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A review on possible acrylamide exposure and its effects during pregnancy

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The fact that the International Agency for Research on Cancer (IARC, 1994) classified acrylamide as group 2A (a possible carcinogen for humans) has led to an increase in studies on acrylamide worldwide. In a press release issued by the Swedish National Food Administration (SNFA) and the Stockholm University in April 2002, it was reported that acrylamide, which is a chemical substance with a rich carcinogen potential, has formed in high amounts in carbohydrate-rich fried or baked food. Acrylamide, which is widely used in the chemical industry, is known to be neurotoxic, carcinogenic and harmful to the reproductive system in animals. A large amount of acrylamide is formed by frying and baking the food at high temperatures and the individuals consuming this food are exposed to acrylamide in certain amounts every day. Acrylamide may cause damage to rodents during pre- and postnatal development by penetrating the placenta directly. Pregnant women are exposed to food-origin acrylamide during pregnancy and their babies are probably affected as well. Previous studies reported various findings on the mechanism of acrylamide formation, its negative effects on human health, and ways of reducing food-borne acrylamide formation. However, the possible effects of acrylamide on human health are not still fully known. Researchers have recently investigated the damage to the fetus caused by acrylamide biochemical and histologically and in depth, and the results of these research have demonstrated that dose-dependent acrylamide administration leads to severe morphological, biochemical and histological abnormalities in fetal life. To minimize the possible toxic effects of food-borne acrylamide on fetus development due to the fact that it is rather difficult to be protected against food-borne acrylamide toxicity in a world where fast food culture is prevalent, it is recommended that pregnant women should consume plenty of fresh vegetables and fruits daily.

Biography

Zeliha Selamoglu is a Professor in Medical Biology department at Ömer Halisdemir University, Turkey. She completed her PhD in Biology at Inonu University. She has published over 70 peer reviewed journal articles with over 500 citations and many technical reports. She is a member of Society for Experimental Biology and Medicine. She has served as an Editorial Board Member of many journals.

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