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Lead content in game meat - is there an impact of ammunition?

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The uptake of lead via food consumption can have a detrimental effect on health. In 2010 EFSA concluded that it would not be appropriate to derive a provisional tolerable weekly intake (PTWI) for lead as no threshold for a number of critical endpoints could be elicited.

Game meat has been identified as a source of lead intake and additional regular and high consumption of meat from animals killed with lead-based ammunition can potentially lead to a considerable increase in the lead levels of certain subgroups. A project on "Food Safety of Game Obtained Through Hunting" was initiated in Germany as a cooperation between the Federal Institute for Risk Assessment, the ministry, Federal States, hunting associations and the game meat association to obtain more data on the concentration of lead in game meat and factors contributing to the lead burden. In this project animals from three regions with different soil lead content were shot with either lead-based or lead-free ammunition. Mainly roe deer (n= 1254) but also wild boar (n = 854) were investigated and samples were taken from the haunch, saddle as well as meat close to the wound channel, which is still marketable. Because of the high number of samples which were below detection levels, tobit regression was used to deal with the excess number of zeros. Results showed that lead content in game meat shows considerable variation, especially in animals shot with lead ammunition. Here, very high values could be occasionally found especially in samples close to the wound-channel. The lead levels were found to be lowest in the haunch, higher in the saddle and highest close to the wound channel. Overall, a statistically significant difference was found between the game meat obtained with lead-based and lead free ammunition taking into account different background levels. As a result, there is a potential risk for a subgroup of children and pregnant women who consume a large amount of game meat shot with lead-based ammunition.