

Cadmium increases risk of fractures

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People who are exposed to higher levels of cadmium have an increased risk of osteoporosis and fractures. Cadmium also affects the kidneys. A doctoral thesis at Sahlgrenska Academy explored this issue in a study of over 900 older men.

We are exposed to low levels of the heavy metal [cadmium](#), daily. This occurs primarily through food, but smokers are also exposed from cigarette smoke. Cadmium in food and [cigarette smoke](#) is absorbed and stored by the body, primarily the kidneys.

It has long been known that exposure to high levels of cadmium can cause severe damage to the skeleton and the kidneys, but the effects of low levels have not been studied as thoroughly.

900 older men

In her thesis, Maria Wallin, MD and PhD student at Sahlgrenska Academy, University of Gothenburg, studied over 900 [older men](#).

"Those with [higher levels](#) of cadmium in their urine had lower bone mineral density and an increased risk for future fractures. The increased fracture risk applied to osteoporosis related fractures of the hip, pelvis, forearm and shoulder," says Maria Wallin.

Kidney donors

In another study, the effects of cadmium on the kidneys of 109 healthy

[kidney donors](#) were examined.

"In this study, we had access to biopsy material from the kidneys, which is unique as normally you are unable to measure [cadmium levels](#) in kidneys. The results showed that persons with higher cadmium exposure had an increased excretion of calcium in their urine, which could be due to effects on the skeleton or on the kidneys. These persons also had increased excretion of small proteins in their urine," says Maria Wallin.

Must be reduced

The studies indicate that cadmium can affect the skeleton and maybe also the kidneys, at the low levels found in the Swedish [general population](#).

"The spread of cadmium in the environment must be reduced," believes Maria Wallin.

Cadmium facts

Cadmium is a heavy metal that occurs in our environment, both naturally and as a contaminant resulting from agricultural and industrial activities. Cadmium can be found in phosphate fertilizers, but is also spread to agricultural soil by air deposition. Many plants easily absorb cadmium from the soil, which causes cadmium to end up in our crops and tobacco. For the general population, food and cigarette smoking are the two main sources of cadmium.

More information: Cadmium, Kidney and Bone: gupea.ub.gu.se/handle/2077/39550

Provided by University of Gothenburg

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