

Estrogen treatment with no side-effects in sight

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Oestrogen treatment for osteoporosis has often been associated with serious side-effects. Researchers at the Sahlgrenska Academy, University of Gothenburg, Sweden, have now, in mice, found a way of utilising the positive effects of oestrogen in mice so that only the skeleton is acted on, current research at the Academy shows.

The study is presented in the respected journal *PNAS* ([Proceedings of the National Academy of Sciences](#)).

Many women are affected by osteoporosis after the menopause, when the body's production of oestrogen decreases. Oestrogen is the hormone that principally strengthens the bone mass in women, and it is also of significance for the [skeleton](#) in men. Treatment of osteoporosis with oestrogens is, however, associated with serious side-effects such as [breast cancer](#) and [blood clots](#). In order to develop an oestrogen treatment that utilises the favourable effects of the oestrogen but not its side-effects, the researchers have analysed which parts of the oestrogen receptor is most important in enabling oestrogen to act on bone tissue and other tissues.

Oestrogen has recipient molecules known as oestrogen receptors, which cause the body to respond to oestrogen.

"This is the first study to analyse the significance of different parts of a particular type of oestrogen receptor through studies in mice. It enables us to differentiate the favourable effects of oestrogen in bone tissue

from the adverse effects in other tissues," says Anna Börjesson, a PhD student at the Centre for Bone and Arthritis Research at the Sahlgrenska Academy.

This knowledge improves the prospects of being able to develop new, safer oestrogen treatments in the future.

"The development of special oestrogens that are tailored to bone and only affect a particular part of this type of oestrogen receptor may lead to a more targeted and effective treatment for [osteoporosis](#) with minimal side-effects," Professor Claes Ohlsson explains.

Provided by University of Gothenburg

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