

New obesity treatment prevents bone loss during weight loss

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Using the intestinal hormone GLP-1 in obesity treatment prevents the loss of bone mass otherwise frequently associated with major weight loss. This is the finding of a new study from the University of Copenhagen, Hvidovre and Glostrup Hospital. According to the researchers behind the study, the results may have a significant bearing on future obesity treatment.

Rapid weight loss leads to a loss of [bone mass](#) and an increased risk of [bone fractures](#). New research shows that treating obesity with the GLP-1 hormone helps prevent loss of bone mass in addition to having a number of positive effects on the formation of new bone and on blood sugar levels.

"GLP-1 analogues like liraglutide are today widely used in the treatment of type 2 diabetes and have been shown not to increase the risk of bone fractures, unlike other diabetes drugs. Liraglutide has just been approved for obesity treatment because of its appetite-inhibiting effects, but its effect on the bones of overweight patients who are not suffering from type 2 diabetes has so far been unknown," says physician and PhD student Eva Winning Jepsen from the Department of Biomedical Sciences and the Novo Nordisk

Foundation Center for Basic Metabolic Research, University of Copenhagen.

The study looked at 37 women who achieved a large weight loss of 12 kg by eating a low-calorie diet. The women were divided into two groups: one which was given the GLP-1 analogue liraglutide, and a control group. Over a one-year period, the women were given frequent dietary advice to help them maintain their weight loss; and if they gained weight, they could replace up to two meals with a low-calorie powder. After a year, both groups had maintained their weight loss. The women in the control group had maintained their weight by replacing one meal a day with a low-calorie diet. The study showed that the liraglutide group had not lost any bone mass and had increased blood levels of bone formation markers as opposed to the [control group](#) which had lost bone mass.

"Menopausal women have an increased risk of osteoporosis and bone fractures. If they try to lose weight and thus lose even more bone mass, they are at an even higher risk. The study shows that overweight women can now lose weight with liraglutide without increasing the risk of losing bone mass. At the same time, they also achieve a number of other positive effects on their sugar metabolism which are not achieved through a diet-induced [weight loss](#) alone," says Associate Professor Signe Soerensen Torekov - who is heading the study - from the Department of Biomedical Sciences and the Novo Nordisk Foundation Center for Basic Metabolic Research, University of Copenhagen.

Significant bearing on future obesity treatment

The importance of intestinal hormones on bone formation and breakdown has long been a focus area. This study now opens up for exploiting the beneficial effect of intestinal hormones on the bones.

"Overweight is a protective factor for osteoporosis and bone fractures, but it increases the risk of other diseases such as cardiovascular diseases and type 2 diabetes. It appears that treatment with liraglutide makes it possible to [lose weight](#) and maintain the beneficial effect on the bones, while at the same time reducing the risk of cardiovascular disease and type 2 diabetes. This may have a significant bearing on our future approach to [obesity treatment](#)," says Signe Soerensen Torekov.

More information: The study has just been published in the *Journal of Clinical Endocrinology and Metabolism* and was presented at the major international conference 'American Diabetes Association' (ADA) in Boston on 6th June 2015.

Provided by University of Copenhagen

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