

# Larger waistlines are linked to higher risk of vitamin D deficiency

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Higher levels of belly fat are associated with lower vitamin D levels in obese individuals, according to data presented in Barcelona at the European Society of Endocrinology annual meeting, ECE 2018. The study reports that vitamin D levels are lower in individuals with higher levels of belly fat, and suggests that individuals, particularly the overweight with larger waistlines should have their vitamin D levels checked, to avoid any potentially health damaging effects.

Obesity is a global epidemic and contributes to an estimated 2.8 million deaths per year worldwide. Vitamin D deficiency is typically associated with impaired bone health but in recent years has also been linked with higher risks of acute respiratory tract infections, auto-immune diseases and cardiovascular diseases. Low vitamin D levels could therefore have wide-ranging and undetected adverse effects, although more research is required to confirm the role of vitamin D in these conditions. A link between low vitamin D levels and [obesity](#) has previously been reported but whether this effect is more associated with the type and location of fat was undetermined.

In this study Rachida Rafiq and colleagues from the VU University Medical Center and Leiden University Medical Center in the Netherlands examined how the amount of total body fat and [abdominal fat](#) measured in participants of the Netherlands Epidemiology of Obesity study related to their vitamin D levels. After adjusting for a number of possible influencing factors, including chronic disease, alcohol intake and levels of physical activity, they found that the amounts of both total

and abdominal fat were associated with lower vitamin D levels in women, although abdominal fat had a greater impact. However, in men abdominal fat and liver fat, was associated with lower vitamin D levels. In all cases the greater the amount of [belly fat](#), the lower the levels of detected vitamin D.

Rachida Rafiq comments, "Although we did not measure vitamin D deficiency in our study, the strong relationship between increasing amounts of abdominal fat and lower levels of vitamin D suggests that individuals with larger waistlines are at a greater risk of developing deficiency, and should consider having their vitamin D levels checked."

The researchers now plan to investigate what may underlie this strong association between vitamin D levels and obesity—whether a lack of vitamin D is predisposing individuals to store fat, or whether increased fat levels are decreasing vitamin D levels is not yet clear. However, this research points to a more important role for abdominal fat in the relationship, and a place to focus future studies on.

As Rachida Rafiq says, "Due to the observational nature of this study, we cannot draw a conclusion on the direction or cause of the association between obesity and vitamin D levels. However, this strong association may point to a possible role for [vitamin D](#) in abdominal fat storage and function."

**More information:** Abstract OC6.5: Associations of different body fat deposits with serum 25-hydroxyvitamin D concentrations

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