Lay summary: Association between objectively measured sleep duration, adiposity and weight loss history

Reference: Larsen, S. et al. (2020). Association between objectively measured sleep duration, adiposity and weight loss history. *International Journal of Obesity* DOI: 10.1038/s41366-020-0537-3.

Why is this study important? While an association between sleep and obesity has been suggested in several studies, many previous studies have relied on self-reported sleep and on body mass index (BMI) as the only adiposity measure. Moreover, the relationship between weight loss history and attained sleep duration has not previously been explored.

What did we do? We included a included a total of 1202 men and women who had achieved a clinically significant weight loss (≥5 %) during the last 12 months and had overweight or obesity prior to their weight loss. We measured sleep duration across 14-days close to baseline examinations using the Fitbit Charge 2 device. Body weight, body composition, body fat distribution and weight loss history were assessed at baseline.

What did we find? After considering any influence from physical activity, perceived stress, smoking, alcohol consumption, education, sex and age, short sleep duration was related to a higher BMI, with similar associations for fat and lean mass. We found no association between sleep duration and body fat distribution, and no associations between weight loss history and attained sleep duration.

What do these findings mean? Our results build on the current evidence to suggest that short sleep duration is associated with a higher BMI. While most previous research has suggested that this relationship is driven by adiposity, our results suggests that the association also involves lean mass. The causal direction and the underlying mechanisms of these associations are yet to be determined, but we found no evidence of association between weight loss history and attained sleep duration.