

Topic: 8 Basic sleep science - Behavior

Title: **Glucose tolerance following a 6-week sleep extension protocol in overweight short sleepers.**

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Text: **Objectives / Introduction:** The evidence suggests that weight gain can, in part, be mediated by impaired glucose tolerance resulting from chronically restricted sleep. Less experimental attention has been paid to the hypothesis that sleep extension, by positively impacting glucose handling, could provide a pathway to improved metabolic health and weight loss. We examined the feasibility of delivering a practical sleep extension protocol which significantly increased sleep duration, and impacted glucose tolerance among overweight 'short sleepers' at increased risk of diabetes. Following screening, 22 men (mean age = 42.2, SD = 8.8; BMI = 29.65, SD = 2.93) were randomised to an intervention sleep extension condition, or the control condition.

Methods: Following baseline assessment, intervention participants were provided with personalised guidance in a 1-to-1 session. Opportunities for extending the sleep period were identified and agreed. Access to online resources (specifically addressing sleep hygiene, relaxation procedures, and cognitive strategies) was provided. The 6-week sleep extension period which followed aimed to increase total sleep time from baseline by one hour. A helpline number/email was provided for this period.

For both groups a 3-hour meal tolerance/insulin sensitivity test procedure was employed at baseline and 6 weeks. Total sleep time (TST) was recorded daily on a personal sleep diary. Actigraphic sleep measures continued for both groups throughout the trial.

Results: At baseline, there was no difference in TST between the intervention and control group (Control 5.62h; intervention 5.64h). After 6 weeks of sleep extension, the intervention group reported a total sleep time of 7.05h, compared to the control group who reported total sleep time of 5.83h. These differences were corroborated by actigraphy.

There was no difference in insulin response between the two groups at baseline ($t(10)=0.98$, two-tailed). However, when the test was repeated at 6 weeks, the intervention group showed significantly lower insulin concentrations (mU/L) relative both to the control group ($t(10)=0.03$, two-tailed), and their own baseline ($t(10) = 0.05$, two-tailed).

Conclusions: These findings are consistent with improved glucose tolerance following the implementation of a successful sleep extension protocol in overweight habitually short sleepers.

Disclosure: Nothing to disclose