



POSTER NO 3

Metabolic Risk for Diabetes with Short and Long Sleep

H. Klar Yaggi, MD, MPH, Andre B. Araujo, PHD and John B. McKinlay, PHD, "Sleep Duration as a Risk Factor for the Development of Type 2 Diabetes", **Diabetes Care** 29:657-661, 2006

OBJECTIVE

Short-term partial sleep restriction results in glucose intolerance and insulin resistance. The purpose of this study was to assess the long-term relationship between sleep duration and the incidence of clinical diabetes.

RESULTS

Men reporting short sleep duration (5 and 6 hours of sleep per night) were twice as likely to develop diabetes, and men reporting long sleep duration (> 8 hours of sleep per night) were more than three times as likely to develop diabetes over the period of follow-up. Elevated risks remained essentially unchanged after adjustment for age, hypertension, smoking status, self-rated health status, education, and waist circumference (RR 1.95 [95% CI 0.95–4.01] for 5 hours and 3.12 [1.53–6.37] for >8 hours). Relative Risks were altered considerably for the two extreme sleep groups when adjusted for testosterone (1.51 [0.71–3.19] for 5 hours and 2.81 [1.34–5.90] for > 8 hours), suggesting that the effects of sleep on diabetes could be mediated via changes in endogenous testosterone levels.

CONCLUSIONS

Short and long sleep durations increase the risk of developing diabetes, independent of confounding factors. Sleep duration may represent a novel risk factor for diabetes.

COMMENT

This observational study points up the relationship between both short and long sleep to diabetes. Within the context of liver glycogen plentitude during the night fast, we have an explanation as to why more than 8 hours of sleep, with increased release of adrenal stress hormones, contributes to an increased risk of diabetes. Liver glycogen depletion during long rest periods contributes to the release of those hormones and produces the associated detrimental effects. The adrenal hormone cortisol is the main hormone produced by the body that contributes to the development of insulin resistance and type II diabetes.

Replenishing the liver with honey prior to bed may reduce the release of these adrenal stress hormones overnight and thus diminish the risk for insulin resistance and type II diabetes.