

Study suggests that night work may impair glucose tolerance

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A new study suggests that night work may impair glucose tolerance, supporting a causal role of night work in the increased risk of Type 2 diabetes among shift workers.

Results show that peak [glucose levels](#) were 16 percent higher during one night of simulated shift work, compared with one day of a simulated daytime work schedule. Compared with the daytime protocol, insulin levels during the [night shift](#) protocol were 40 to 50 percent higher at 80 minutes and 90 minutes after a meal.

"It is surprising that just a single night shift can significantly impair [glucose tolerance](#) and increase [insulin levels](#)," said lead author Christopher Morris, PhD, postdoctoral research fellow in the Medical Chronobiology Program of the Division of [Sleep Medicine](#) at Brigham & Women's Hospital and Harvard Medical School in Boston, Mass. "These findings are important because they demonstrate, under highly-controlled lab conditions, that acute exposure to night work impairs glucose tolerance. Chronic impaired glucose tolerance is likely to lead to Type 2 diabetes."

The research abstract was published recently in an online supplement of the journal *Sleep*, and Morris will present the findings Tuesday, June 4, in Baltimore, Md., at SLEEP 2013, the 27th annual meeting of the Associated Professional Sleep Societies LLC.

The study group comprised 13 healthy, non-obese adults without significant [shift work](#) history, who completed two, eight-day, in-laboratory protocols in random order, one including day work and the other night work. Each condition included four baseline days, followed by either day or night shifts. The diet was isocaloric, identical between conditions, and included standardized mixed meals on Days 1 and 3 of day/night work to assess serum glucose and insulin responses. Subjects began eating at 8 a.m. (day work) or 8 p.m. (night work)

and were required to finish eating in 20 minutes. A fasting blood sample was taken before the meal, and then additional blood samples were drawn every 10 minutes for 90 minutes, then every 30 minutes for 90 minutes. Only results pertaining to mixed meals consumed on Day 1 of day work and night work were included in the current analysis.

According to the authors, about 8.6 million Americans regularly perform night work, which is associated with [Type 2 diabetes](#) risk in epidemiologic studies.

Provided by American Academy of Sleep Medicine

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