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## **Insulin levels, blood pressure and sleep apnea.**

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This report concerns the relative contributions of body weight and sleep apnea to the following cardiovascular risk factors: blood pressure, fasting insulin and fasting glucose. We cross-sectionally examined the relationship of various levels of apneic activity [apnea-hypopnea index (AHI)] and a measure of obesity [body mass index (BMI)] to mean morning blood pressure and fasting serum insulin and fasting blood glucose concentrations sampled the morning after polysomnography. Subjects were 261 males (age 47 +/- 13 years, mean +/- SD), who were referred to a sleep laboratory for symptoms of sleep-disordered breathing. The dependent variables, mean morning blood pressure, insulin and fasting blood glucose (FBG) levels, were significantly related to both AHI ( $\eta^2 = 0.10$ ) and BMI ( $\eta^2 = 0.18$ ). AHI and BMI combined to account for approximately 30% of the variability in the best linear combination of these three factors. Further analysis indicated that mean morning blood pressure and fasting insulin levels each correlated positively with BMI and AHI, whereas FBG correlated only with BMI. We conclude that, although these data do not prove a causal relationship, there is evidence for an independent association between sleep apnea and not only blood pressure, but also fasting insulin levels.

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