

P-1349 - A BAD NIGHT'S SLEEP IMPAIRS MORNING GLUCOSE TOLERANCE IN HUMANS: ROLE OF SLOW WAVE SLEEP

N.Herzog¹, A.Friedrich¹, A.Richter¹, F.Hyzy¹, C.Benedict², K.M.Oltmanns¹

¹Psychiatrie and Psychotherapy, University of Luebeck, Luebeck, Germany, ²Neuroscience, University of Uppsala, Uppsala, Sweden

Introduction: Short nocturnal sleep impairs morning glucose tolerance, and this effect is thought to involve the lack of slow-wave sleep (SWS).

Objectives: So far, it has not been examined in humans whether the influence of poor sleep on morning glucose tolerance may emerge when non-SWS sleep is lacking.

Aims: To compare the influence of one night of slow-wave sleep suppression (SWSS) with that of one night of non-SWS suppression (NSWSS) on morning glucose tolerance in humans.

Methods: 16 normal-weight students [age 20-30 years] participated in a counterbalanced fashion in three experimental conditions: regular sleep, SWSS, and NSWSS. The suppression of sleep was performed by means of an acoustic tone (562 Hz) with gradually rising intensity. Glucoregulatory parameters were measured upon an oral glucose tolerance test (OGTT) the next morning.

Results: Following the oral glucose load, the serum insulin and plasma glucose responses were significantly greater after the nocturnal suppression of SWS, as compared with those after NSWSS and regular sleep, respectively ($P < 0.03$). In contrast, such effects did not emerge when comparing the NSWSS and regular sleep conditions ($P > 0.27$).

Conclusions: One night of SWSS is linked to an impaired glucoregulatory response to an oral glucose load. Since NSWSS, compared to regular sleep, did not influence the postprandial serum insulin and plasma glucose response, our data suggest that lacking slow wave sleep may be the driving force that underlies the association between poor sleep and impaired daytime glucose tolerance.