**Acute partial sleep deprivation increases food intake in healthy men**Laurent Brondel
**Introduction**
*This study investigates the affect sleep deprivation has on food consumption.*

**Methods**
This is a controlled, cross over trial wherein the researchers were investigating a comparison between two groups. One group slept a normal amount (7-8 hours) while another group slept a shortened amount (3-4 hours), then both groups switched (meaning, all the participants of the study had an opportunity to be involved in each intervention/sleep group).

*Participants*
There were 12 participants, normal weight, young men (18-29 years), 4 participants were smokers\*, participants were excluded from the study if they did night work, took excess stimulants (over 3 cups of coffee), or drugs.

\*Smoking may be a factor that may decrease appetite, therefor throwing off results if the smokers are not spread equally between the two groups, especially with a small sample size of 12.

*Study Design*
Participants were involved in a control period over two days wherein they practiced measuring food intake using a scale in a free living (not in the lab) situation. They also took account of the amount of sleep, as well as rated the quality of sleep, and other sleep, nutrition, and activity markers – these measures were simply to get the participants used to the study style.

Once the study began, it also lasted 2 days (then switched which group was sleep deprived after a 5 day washout/regular living period) wherein participant slept in the lab the first night and were either asleep at midnight/00:00 and slept until 08:00 (Normal Sleep Session/NSS), or went to bed at 02:00 and were awoken at 06:00 (Sleep Restricted Session/SRS). Food consumption was controlled for the dinner before the sleep restriction in the lab, which they ate at the same time (20:00/8pm). Food consumption was then measured after the sleep conditions, partly in lab and partly in free living (outside of the lab).

**Results**Figure 2
*Background*: This figure shows the ratings of sleepiness (2A), motivation to be physically active (2B), and hunger (2C) between the sleep deprived (SRS) and normal sleep (NSS) conditions after each intervention (sleep deprivation or not). Hashbars in 2C are windows of food consumption.

*Primary Results*
- Sleepiness was elevated across all times of the day in the sleep restricted group.
- No significant differences in motivation to be physically active.
- Increased hunger in the sleep restricted group.

Take Away: Sleep deprivation/restriction leads to greater sleepiness and greater hunger.

Note: The first hunger measure could be inaccurate (8 hours), because the sleep deprived group was awake an extra 2 hours.

Table 2
*Background*: This table shows the total energy/kcalorie intake and macronutrient breakdown across all meals on Day 1 (before sleep deprivation) and Day 2 (after sleep deprivation, in the Sleep Restriction group/SRS).

*Primary Results*
- No differences in kcalorie intake before sleep restriction.
- Kcalorie intake increases after sleep restriction.
- Increased dietary fat intake in sleep restriction condition.

Take Away: Sleep restriction leads to increased kcalorie/energy intake and may increase dietary fat intake (may be reason for increased energy intake).

Note: Keep in mind that the restricted group consumed almost no dietary fat (5%) for lunch, which may account for the dinner’s high intake of dietary fat, although likely not for the overall increase in dietary fat intake.

**Conclusions**
Sleep deprivation leads to greater sleepiness, greater hunger, no change in motivation to be active.

Sleep deprivation leads to greater kcalorie consumption; possibly, by slightly higher dietary fat intake, but also by overall more intake.