



## ADJUSTING BODY TEMPERATURE TO IMPROVE SLEEP

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### Summary of companion video

The companion video introduces why an individual's core temperature is required to drop in order to facilitate a higher quality of sleep. The video goes on to discuss how to induce a drop in temperature and manage temperature needs over the sleep period. Additionally, it examines the effect that physical activity has on core body temperature and why this may affect your sleep. Finally it reviews existing products on the market that can help cool body temperature, and will provide some resources for additional information. Included in the video is a case study that will assist in providing contextualized perspectives on the effects that sleep deficiency can have on your life, and some suggestions to help modify temperature and induce sleep.

**Occupational Therapists** are often involved in the assessment and treatment of sleep disorders and difficulties. Sleep insufficiency can negatively impact an individual's participation in everyday occupations (Picard, 2012); thus, Occupational Therapists are an appropriate care provider to address these disturbances, as we are experts in occupational engagement. The main way in which Occupational Therapists can address sleep issues as a result of poor temperature regulation is to provide education, recommendations on environmental modifications, and evidence based interventions. Education includes a review of the physiology behind sleep and the role that temperature plays in this system along with the effects of heat exposure on the body. Recommendations regarding environmental modifications include bedding and cooling systems for the sleep environment. Interventions supported by evidence include a cooler temperature in the bedroom, taking a warm bath or footbath before bed, and avoiding exercise two hours before sleep.

### **Cooler Bedroom Temperature:**

Studies have found that heat exposure increases wakefulness, and decreases slow wave and REM sleep (Okamoto-Mizuno & Mizuno, n.d). To avoid overheating at night the National Sleep Foundation recommends a bedroom temperature between 15 to 19 degrees Celsius (National Sleep Foundation, 2012).

### **Taking a Bath Before Bed:**

Taking a bath or footbath before bed is believed to mimic the natural warming and cooling down of the body before sleep; thus, aiding sleep onset. Research suggests that taking a bath can not only objectively improve sleep quality but also increase a person's self-satisfaction with their sleep (Kanda, Tochiara, & Ohnaka, 1999).

### **Avoiding Physical Activity Before Bed:**

Physical activity, done shortly before bed, can raise the core temperature and be disruptive to sleep. However, some studies state that light exercise can induce sleep in the same way that a warm bath can artificially raise body temperature and then cause a cooling effect (Atkinson, & Davenne, 2007).

### **Further Resources on Sleep:**

Canadian Sleep Society - <http://www.css-scs.ca/>

National Sleep Foundation - <https://sleepfoundation.org>

American Sleep Association - <https://www.sleepassociation.org>

### **Key references** (see presentation for more extensive list):

Atkinson, G., Davenne, D. (2007). Relationships between sleep, physical activity and human health. *Physiology and Behaviour*, 90(2-3), 229-235. doi: 10.1016/j.physbeh.2006.09.015

Boyt Schell, B. A, Scaffa, M, Gillen, G, & Cohn, E. S. (2013). *Willard and Spackman's occupational therapy*. Philadelphia: Lippincott Williams & Wilkins.

Kanda, K., Tochiara, Y., & Ohnaka, T. (1999). Bathing before sleep in the young and in the elderly. *European Journal of Applied Physiology And Occupational Physiology*, 80(2), 71-75

Okamoto-Mizuno, K., Mizuno, K. (2012). Effects of thermal environment on sleep and circadian rhythm, *Journal of Physiological Anthropology*, 31(14), 1-9. doi:10.1186/1880-6805-31-14

Picard, M. M. (2012). Occupational Therapy's Role in Sleep (AOTA Consumer pamphlet) update 3/28/12 available at <http://www.aota.org/en/About-Occupational-Therapy/Professionals/HW/Sleep.aspx>