



FACULTY OF
**REHABILITATION
MEDICINE**
UNIVERSITY OF ALBERTA

Pursuing **your best**

Department of
Occupational
Therapy

TITLE OF PRESENTATION **AMBIENT LIGHT AND SLEEP**

Derek Robins
Chelsea Robinson
Matthew Scheffer
Brett Schmidt

MScOT STUDENTS

MARCH 26 2016

**A *SLEEP MATTERS* SERIES' PRESENTATION, DEPARTMENT OF OCCUPATIONAL THERAPY, FACULTY OF
REHABILITATION MEDICINE, UNIVERSITY OF ALBERTA**

This is summary of the companion presentation prepared by occupational therapy students Chelsea Robinson, Brett Schmidt, Matthew Scheffer, and Derek Robins. We will be discussing ambient light and its effect on sleep.

Topics covered in the companion presentation include:

- Defining and measuring ambient light
- Effects of ambient light on our bodies
- Manipulating ambient light to improve sleep

Sleep has an enormous impact on health and well-being (Brown, 2016-class notes). Since many people experience sleep difficulties, it is important to find ways to help individuals improve their sleep habits and sleep quality. This presentation focuses on the effect of ambient light on sleep and suggests several ways to manipulate ambient light exposure to improve sleep.

Ambient light is defined as the natural or artificial light present in a room or area (Definition of Ambient Light, 2014; Ambient Light, 2012). Ambient light plays an important role in regulating our circadian rhythm (Harb *et al* 2014; Engwall *et al.* 2014; Martinez-Nicolas, Madrid, & Rol, 2014). However, modern society has altered the patterns of ambient light exposure that humans experience (Smolensky, Sackett-Lundeen, & Portaluppi, 2015). Many people spend most of their day inside (either in classes or offices) with limited natural light exposure (Smolensky, Sackett-Lundeen, & Portaluppi, 2015). Additionally, many people expose themselves to light prior to sleep or during sleep which can decrease melatonin levels and circadian system timing (Smolensky, Sackett-Lundeen, & Portaluppi, 2015).

By manipulating the amount of ambient light we are exposed to during sleep and waking hours we can positively impact the quality of our sleep. In this presentation we will cover several techniques for manipulating ambient light. Specifically, we will utilize a case study to exemplify how you can increase your ambient light exposure during the day, decrease light exposure prior to sleep and decrease light exposure during sleep.

For more information on the importance of sleep, apps mentioned in this presentation, or for more tips on how to manipulate ambient light to improve your sleep please visit the following websites:

- Canadian Sleep Society <http://www.css-scs.ca/menu/education-and-information/brochures>
- National Geographic: <http://channel.nationalgeographic.com/sleepless-in-america/episodes/sleepless-in-america/>
- Google Play. (2016). Light Meter. Retrieved from: <https://play.google.com/store/apps/details?id=com.bti.lightMeter&hl=en>
- Google Play. (2016). Lux Meter. Retrieved from: <https://play.google.com/store/apps/details?id=com.notquitethem.android.luxmeter&hl=en>
- The National Sleep Foundation: <https://sleepfoundation.org/bedroom/see.php>

Key resources used in the creation of this intro and utilized in the presentation are listed below:

Ambient Light. (2012). Retrieved March 23, 2016, from: <http://www.mediacollege.com/lighting/ambient/>

Brown, C. (2016). Class notes from Sleep module, Dept. of Occupational Therapy, University of Alberta

The definition of ambient light. (2014). Retrieved March 23, 2016, from <http://www.dictionary.com/browse/ambient-light>

- Engwall, M., Fridh, I., Bergbom, I., Lindahi, B. (2014). Let There be Light and Darkness. *Critical Care Nursing*, 37(3), 273-298.
- Harb, F., Hidalgo, M. P., & Martau, B. (2015). Lack of exposure to natural light in the workspace is associated with physiological, sleep and depressive symptoms. *Chronobiology International*, 32(3), 368-375.
- Martinez-Nicolas, A., Madrid, J. A., & Rol, M. A. (2014). Day-night contrast as source of health for the human circadian system. *Chronobiology International: The Journal of Biological & Medical Rhythm Research*, 31(3), 382-393.
- Smolensky, M., Sackett-Lundeen, L & Portaluppi, F. (2015) Nocturnal light pollution and underexposure to daytime sunlight: Complementary mechanisms of circadian disruption and related diseases, *Chronobiology International*, 32:8, 1029-1048.