

## A Controlled Trial of the Litebook Light-Emitting Diode (LED) Light Therapy Device for Treatment of Seasonal Affective Disorder (SAD)

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### Background

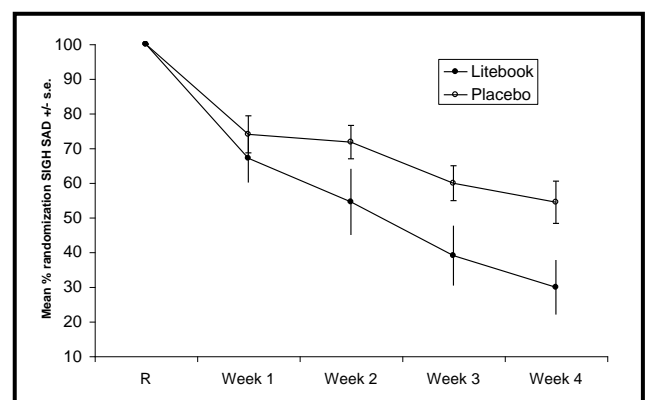
Recent research has emphasized that the human circadian rhythm system is differentially sensitive to short wavelength light. Light treatment devices using efficient light-emitting diodes (LEDs) whose output is relatively concentrated in short wavelengths may enable a more convenient effective therapy for Seasonal Affective Disorder (SAD).

### Methods

The efficacy of a LED light therapy device in the treatment of SAD was tested in a randomized, double-blind, placebo-controlled, multi-center trial. Participants aged 18 to 65 with SAD (DSM-IV major depression with seasonal pattern) were seen at Baseline and Randomization visits separated by 1 week, and after 1, 2, 3 and 4 weeks of treatment. Hamilton Depression Rating Scale scores (SIGH-SAD) were obtained at each visit. Participants with SIGH-SAD  $\geq 20$  at Baseline and Randomization visits were randomized to active or control treatment: exposure to the Litebook LED treatment device (The Litebook Company Ltd., Alberta, Canada) which delivers 1,350 lux white light (with spectral emission peaks at 464 nm and 564 nm) at a distance of 20 inches or to an inactivated negative ion generator at a distance of 20 inches, for 30 minutes a day upon awakening and prior to 8 A.M.

### Results

Of the 26 participants randomized, 23 completed the trial. Mean group SIGH-SAD scores did not differ significantly at randomization. At trial end, the proportions of participants in remission (SIGH-SAD < 9) were significantly greater (Fisher's exact test), and SIGH-SAD scores, as percent individual score at randomization, were significantly lower (t-test), with active treatment than with control, both in an intent-to-treat analysis and an observed cases analysis. A longitudinal repeated measures ANOVA analysis of SIGH-SAD scores also indicated a significant interaction of time and treatment, showing superiority of the Litebook over the placebo condition.



### Conclusions

The results of this pilot study support the hypothesis that light therapy with the Litebook is an effective treatment for SAD.

**Trial registration:** Clinicaltrials.gov: NCT00139997

[www.biomedcentral.com/1471-244X/7/38](http://www.biomedcentral.com/1471-244X/7/38)



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Additional Completed & Ongoing Research:

- **Moderate Exercise and Bright Light Treatment in Overweight and Obese Individuals – Drs. Colin Shapiro, Robert Levitan et al. (PUBLISHED)**
  - Journal of Obesity Vol. 15, No. 7 July 2007
  - Toronto Western Hospital, University of Toronto
- **Adjustment of shift-workers to night shift on North Sea drilling platform – Dr. Josephine Arendt, Ph.D. (COMPLETED)**
  - University of Surrey, Surrey, United Kingdom
- **Effect of an intervention on melatonin secretion during night shifts in police officers – Dr. Diane Boivin, Ph.D. (COMPLETED)**
  - Douglas Mental Health University Institute, McGill University, Montreal, Canada
- **Effect of light therapy on sleep and ‘chemobrain’ in breast cancer patients undergoing chemotherapy – Dr. Sonia Ancoli-Israel, Ph.D. (COMPLETED)**
  - UC San Diego, San Diego, CA – Litebook Research Grant (2007)
- **‘Bright Light: A Novel Treatment for Post-Traumatic Stress Disorder (PTSD)’ – Dr. Shawn Youngstedt, Ph.D. (COMPLETED)**
  - University of South Carolina, Columbia, SC
- **‘Using Bright Light to Reduce Anxiety in People with High levels of Anxiety’ – Dr. Shawn Youngstedt, Ph.D. (COMPLETED)**
  - University of South Carolina, Columbia, SC – Litebook Research Grant (2006)
- **‘Bright Light Treatment in combination with Moderate Exercise in Obese and Overweight Individuals: A follow-up study with exploration of mechanisms.’**
  - Dr. Colin Shapiro Ph.D., Toronto Western Hospital
  - Litebook Research Grant (2008) – Follow-up to published pilot study
- **‘Chronobiology of Menopausal Depression’ – Dr. Barbara Parry M.D.**
  - Dept. of Psychiatry, UC San Diego, San Diego CA
- **‘A Controlled Trial of The Litebook LED Light Therapy Device for Treatment of Seasonal Affective Disorder (SAD)’**
  - Drs. Paul Desan (Yale), Raymond Lam (UBC), Norman Rosenthal (CCRA), Martin Teicher (McLean-Harvard), Robert Levitan (CAMH-Toronto)
  - Follow-up to published pilot study

Litebook Research Grant:

Established in 2005, the Litebook Research Grant is awarded on an annual basis for research on a novel or emerging application of light therapy using Litebook devices. Applications are accepted from researchers worldwide, and the recipient is chosen by an independent Selection Committee comprised of leading light therapy researchers. The grant is presented at the annual meeting of the Society for Light Treatment & Biological Rhythms ([www.sltbr.org](http://www.sltbr.org)). **Effective 2008, the Research Grant was increased to US\$50,000.**

Scientific Advisory Board:

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