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TWILIGHT: FILTER THE BLUE LIGHT OF YOUR DEVICE AND SLEEP BETTER

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Twilight: sleep better

Key words: Sleep, Social media, Sports, Health promotion, Quality of life

Word Count: 577

Name

Twilight

Category

Health and Fitness

Platform

Android (2.2 or above)

Cost

Free; 'Pro' version available for €1.99/£1.99/US\$1.99

About the app

The Twilight app was created to help people mitigate sleep perturbations arising from the usage of self-illuminating electronic devices (e.g. mobile phones, tablets) prior to sleeping.[1] Blue light in the range of wavelengths 446–477 nm has been identified as the most potent light stimulus that suppresses melatonin production,[2] a hormone that plays a major role in the regulation of sleep and wake cycles.[3] Accordingly, Twilight filters the blue light emitted from mobile devices and protects the eyes with a soft red pellicle, potentially helping the user to fall asleep earlier and sleep better.[1 4 5] Based on the user's local geographic coordinates, which are taken by the app to automatically set sunrise and sunset times, the filter intensity is smoothly adjusted when darkness falls.

When the app is opened (Figure 1), it is possible to navigate through educational information about how the app might improve sleep or the process of screen color customization. Different combinations of color temperature, intensity, and screen dim can be previewed and set up, but no

guide is offered to help with finding the most effective pattern. **Moreover, how much blue light is restricted is unknown.** To enable automatic location updates, the device's GPS should be turned on, although it is also possible to manually edit the geographic coordinates. In "more settings", it is possible to personalize the interaction between Twilight and native functions of the Android operating system.

The Twilight app is free to download, with a paid 'Pro' version available. The 'Pro' version includes the possibility to set up more than 2 predefined screen color profiles, adjustable day/night transition time, and the option to turn off the Twilight service altogether during inactive times. **Also, a similar app for computer screens (f.lux) can be installed on jailbroken iOS devices or as a 'beta' version on some Android devices. Alternatively, a 'night shift' mode has been introduced in iOS 9.3.**

Use in clinical practice

High-quality sleep is critical for optimizing sports performance and recovery from training.[6] However, athletes frequently suffer from disturbed sleep, mainly during competition periods, where they appear to lose sleep because of anxiety, nervousness and/or environmental factors.[6] Due to the stimulating nature of games and **the need to be connected with friends and fans via social media**, mobile devices are often used for relaxation and coping with stress.[6] Unfortunately, **besides stealing sleep time**, using self-luminous devices prior to bed might lead to the unwanted side effect of further disturbing sleep quality.[1 4-6] In this regard, Twilight app may be particularly valuable, assisting athletes in avoiding blue light exposure; sleeping earlier and better as a consequence. Indeed, the protective effect of blue-light shields on sleep quality

has been previously demonstrated,[4 5] making the adoption of such technology promising. However, whether the Twilight app can actually improve athletes' recovery is another question, and requires new scientific investigations.

Pros

- ▶ Athletes might attenuate sleep disturbances arising from mobile device use;
- ▶ Wide range of screen color customization;
- ▶ Sunrise and sunset times automatically set with GPS synchronization;
- ▶ Users can easily find educational information about pre-sleep habits.

Cons

- ▶ No user guide to assist in establishing the optimal settings of screen color;
- ▶ **How much blue light is restricted is unknown;**
- ▶ Clinical effect on athlete's recovery remains to be shown;
- ▶ Android only, not available on iOS or Windows phones.

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Competing interests None declared

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Figure legends

Figure 1 – Twilight app main page.