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PRESS RELEASE

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BLINDNESS DISRUPTS BODY CLOCKS

People who are blind often do not get a good night's sleep because the synchrony of their biological day-night cycle to the environmental light-dark rhythm is disrupted. This is, in part, the result of the role of light, particularly blue light, on the timing of our internal body clock, including the release of melatonin, a 'night-time' hormone.

Vision plays an important role in the regulation of our body clocks – the circadian rhythm - to the environmental day-night, or light-dark schedule. Consequently, light, particularly in the late evening and early morning can influence our sleep.

Presenting at the FENS Forum for European Neuroscience in Copenhagen today (3 July), **Dr Sébrina Aubin** from the University of Montreal, said, "We were interested in studying the quality of sleep and the sleep-wake pattern in blind people, those blind from birth as well as those who had become blind during their life. People who are blind seem to have a 'free-running' circadian rhythm where the internal body clock runs at its own natural pace, different from the environmental light-dark cycle".

The study was carried out in collaboration with Professor Poul Jennum, Dr Ron Kupers, and Dr Maurice Ptito from the University of Copenhagen.

To find out more about the variation in sleep patterns, 11 blind people and 11 normal-sighted people took part in a study where there sleep-wake cycle was recorded over 30 days. Each person wore an actigraph, a device worn like a wrist-watch which measures activity. Daily periods of sleep and wake during the night and day were analysed. Sleep efficiency, the ratio of the total time spent asleep to the time spent in bed, was also determined and analysed across the 30 day period. The participants also answered a questionnaire on sleep quality[1], and the scientists examined their chronotype[2] - whether someone is a 'morning' or a 'night' person': a lark or an owl.

"We found greater variation in the timing and efficiency of sleep in blind people compared with normal-sighted individuals," she said. "During the 30-day study, the blind people experienced both nights of good and poor sleep, while for the sighted people, the sleep patterns were more stable."

The results confirmed that, on average, totally blind individuals report more sleep disturbances as compared to normal-sighted individuals. Increased sleep disturbance was associated with increased variability in the timing and efficiency of their night-time sleep period.

Melatonin is often prescribed to provide relief for poor sleep, particularly for misaligned circadian rhythms. However, other simple measures could further help a person get a good night's sleep, such as keeping a regular sleep schedule.

"This marks a first step in a research project investigating the sleep of blind people". Dr Aubin said. She and her colleagues plan to investigate further various aspects of the sleep of blind people in order to better understand how the absence of vision can modulate sleep. These will

include measures of melatonin and cortisol levels, components of sleep, including differences in REM and non-REM sleep, as well as the dreams of blind people.

END

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Poster: Increased variability in the timing and efficiency of sleep in the absence of vision

Contact
FENS Press Office and all media enquiries:
Elaine Snell, Snell Communications Ltd, London UK *(English language)*
tel: +44 (0)20 7738 0424 (*before 1 July and after 10 July);* or mobile +44 (0)7973 953 794
email: *Elaine@snell-communications.net*

Metha Loumann, methamedia, Copenhagen, Denmark *(Danish language)*
tel: +45 60 82 04 03
email: *ml@methamedia.dk*

NOTES TO EDITORS
[1]Quality of sleep was measured using the Pittsburgh Sleep Quality Index

[2]Chronotype was measured using the Morningness-Eveningness Questionnaire

The 10th FENS Forum of Neuroscience, the largest basic neuroscience meeting in Europe, organised by FENS and hosted by the Danish Society for Neuroscience will attract an estimated 6000 international delegates. FENS mission is to advance research and education in neuroscience within and outside Europe, to facilitate interaction and coordination between its members. FENS represents 43 national and single discipline neuroscience societies with about 24,000 member scientists from 33 European countries. http://www.fens.org/