Device and methodology to evaluate light exposure in everyday life

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The hypothalamus is involved in the weight gain effect of antipsychotic drugs, and it is the link between feeding and sympathetic activity regulation. These hypothalamic functions are known to be strongly correlated to the sleep-wake and light-dark cycles. Nevertheless, at present there is no clinical practice aimed to evaluate light exposure of patients during their daily activities. The aim of the present study was to develop a method to record the light intensity incoming to the eyes all over the day in everyday life, along with other indices of neuro-vegetative and neuro-endocrine functions. To this end, a small, portable electronic device has been realized that measures the light intensity through a photodiode attached to an eyeglass frame and stores the readings on a common micro-SD card. To test this device, healthy volunteers were asked to record their everyday life-light exposure for seven days, along with their heart beats, salivary-cortisol level, blood pressure, the Stanford Sleepiness Scale, the PANAS mood scale and the Digit Vigilance Test.

Four volunteers completed the protocol. The results of this preliminary study showed that the methodology proposed is easy to perform and is a promising tool to evaluate the influence of personal light-exposure habits on neuro-vegetative and neuro-endocrine functions.