

## **Circadian Typology and its Sleep - Wake Cycle Temporal Pattern Related in University Students**

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**Introduction:** Circadian typology is related to the sleep-wake timing.

**Objective:** To determine the circadian typology and to assess the sleep-wake timing associated with it in a sample of university students.

**Methodology:** 273 university students were evaluated by the Morningness Eveningness Questionnaire (MEQ) and the Munich Chronotype Questionnaire (MCTQ). The MEQ established the independent circadian typology variable and allowed the creation of three work groups: morning type (MT), indeterminate type (IT) and evening type (ET). The dependent variables were calculated from the MCTQ, we used sleep onset and sleep duration on days with classes and days free (SOW, SOF, SDW and SDF respectively), we also calculated the average weekly sleep duration (SDweek), the sleep debt (Sloss) and the social jetlag (SJL). In order to evaluate the phase of entrainment of sleep wake cycle (SWC) we determined two variables: midpoint sleep on free days (MSF) and midpoint of with sleep corrections (MSFsc).

**Results:** 183 subjects (67%) were classified as IT, 65 subjects (23.8%) as MT and 25 subjects (9.2%) as ET. The means of SOW, SOF and SJL were significantly different ( $p < .001$ ) among the three groups, the MT were the first to initiate sleep and had less social jetlag, a behavior exactly opposite were showed by ET. Likewise, to the average difference of SLoss and SDW between groups corresponded values of  $p = .013$  and  $p = .010$  respectively, were the MT those who slept more on the days with classes and conversely less SLoss developed and once again the ET were the opposite. There were no significant differences concerning groups by SDF ( $p = .454$ ) and SD week ( $p = .231$ ). Phase of entrainment of SWC disclosed significant differences ( $p < .001$ ) between the three groups and was manifested by earlier values of the MSF and MSFsc in MT and later values in ET.

**Conclusions:** The IT predominates and the ET is the least frequent. The CT established by the MEQ corresponds to well-differentiated temporal behavioral patterns of the SWC, it is remarkable in the sleep initiation schedules and in the social jetlag, to a lesser extent it affects the sleep durations on days with classes and sleep debt. The three CT are also clearly differentiated by the phase of entrainment of the SWC.

**Key words:** Circadian typology, sleep-wake timing, morningness eveningness questionnaire