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Relationship between chronotype and quality of sleep in medical students at the Federal University of Paraiba, Brazil

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The aim of this study was to identify chronotypes of medical students at the Federal University of Paraíba (UFPB) and its relationship to quality of sleep, daytime sleepiness, age, sex and season of birth. The sample consisted of 221 students, assessed by four questionnaires: demographic questionnaire, Morningness–Eveningness Questionnaire (MEQ), Pittsburgh Sleep Quality Index (PSQI) and Epworth Sleepiness Scale (ESS). There was a statistically significant difference between groups with respect to chronotypes and PSQI score ($p=0.0005$) but not with excessive daytime sleepiness. A significant negative correlation was found between the scores of MEQ and PSQI ($\rho=-0.3$, $p=0.0005$) demonstrating that the greater the eveningness, the worse the sleep quality. It was observed that 51.6% of students were classified as indifferent chronotype, 61.5% had poor quality of sleep while 42.1% had excessive daytime sleepiness. Sex and season at birth did not differ between chronotypes. These findings demonstrate that the evening chronotype was associated with poor quality of sleep in medical students but not with increased daytime sleepiness with potential impairment to their academic performance and quality of life.

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The influence of body position on the electro-myographic activity of obligatory and accessory respiratory muscles in subjects with different breathing typ

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Effect of body position on electro-myographic activity has been studied in the cranio-cervical-mandibular muscles, but its effect on the activity of respiratory muscles in subjects with different breathing types has not yet been elucidated. This study included two groups of twenty male subjects each, one with upper costal and the other with costo-diaphragmatic breathing types. Electromyographic activity was recorded using bipolar surface electrode technic. Electrodes were placed on the sternocleidomastoid, diaphragm, external intercostal and *Latissimus dorsi* muscles. Electromyographic activity was recorded in standing and lateral decubitus positions, during the following tasks: [1] Normal quiet breathing; [2] speaking the word “Mississippi”; [3] forced deep breathing. Electromyographic activity of the diaphragm and external intercostal muscles was higher during standing than in the lateral decubitus position, in both breathing types. Electromyographic activity of the diaphragm was significantly higher in subjects with upper costal than in subjects with costo-diaphragmatic breathing type in the standing position during all tasks and also in the lateral decubitus position during tasks 1 and 2 ($P<0.05$). Electromyographic activity of sternocleidomastoid, external intercostal and *Latissimus dorsi* muscles was similar in both breathing types at any body position ($P>0.05$). The higher electromyographic activity observed in the standing than in the lateral decubitus positions, in both breathing groups, suggests differences in the respiratory effort depending on the body position. The higher electromyographic activity observed in the diaphragm of subjects with upper costal than costo-diaphragmatic breathing types, suggests differences in the respiratory effort depending on the breathing type.

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