# An academic vision of the Human Microbiota and its relationship with the hours of sleep in medical students

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***Mr. Editor.***

The human microbiota are microorganisms that live both inside and outside of an organism, which allow us to keep in balance the functions to perform optimally and these are according to the lifestyle of people and achieve a good state of health. (1) The biodiversity presented by the intestinal microbiota allows a stable relationship between pathogenicity and symbiosis that will depend on many factors that occur in an organism. (2)

The normal lifestyle of a person is reflected in their food, hygiene, exposure to different environments, food and others (1), which allows the human microbiota to be in a constant homeostasis, any alteration of these states can alter the balance of the microbiota known as Dysbiosis, resulting in a disease or different types of infections. (3)

The intestinal microbiota is acquired at the time of birth and varies according to the age and lifestyle of the person over time, the composition of the intestinal flora based on the microbiome shows a greater number of Bacteroids (37%), a Clostridium group (30%), lactobacilli, Enterobacteriaceae, among others not identified. (2)

The average of the sleep hours of a Human Medicine student is from 4 to 5 hours (4-7) and this is classified as poor quality of sleep (5). The Ministry of Health (MINSA) and the Organization of Health (WHO) recommend rest for at least six hours a day (8), a practice that is not adopted by students due to various factors such as schedules, academic load, among others. Recent studies let us know that a poor quality of sleep can cause subtle effects on the human microbiota, mainly in the intestinal flora, increasing different families of bacteria in the digestive tract like the firmicutes, actinobacteria, and bacteroidetes, which can reach cause alterations and metabolic pathologies such as obesity or metabolic syndromes (9).

Obesity and metabolic syndromes are becoming more frequent in medical students since they show an increase in the prevalence of both with an average of 30% in recent years (10-12).

Faced with this evidence, new habits should be taken into account for university students in order to have good control of sleep hours and thus prevent different disorders at the level of their intestinal microbiota, which could be reflected in a better quality of life and in better academic performance.

**gratitude**

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