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CIRCADIAN RHYTHM IN PHYSICAL EDUCATION

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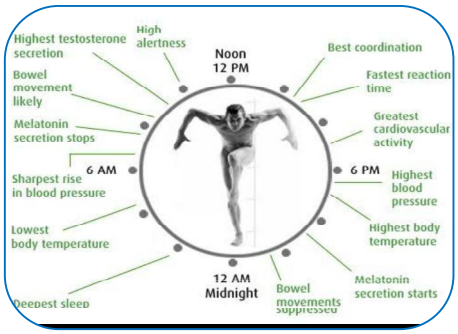
ABSTRACT:

Background:

The circadian rhythm regulation plays a crucial role in people's healthy lives affected by factors consisting of cosmic events related to the universe and earth, environmental factors (light, night and day duration and seasons) and lifestyles. These factors changes lead to disturbance of circadian rhythm and it causes increasing the incidence of mental diseases like depression and physiological problems like cancers, cardiovascular disease and diabetes.



KEYWORDS: *circadian rhythm , environmental factors.*

BIOLOGICAL CLOCK

A biological clock is a self-sustained interval timing mechanism that controls cyclic patterns or rhythms of a living organism. By providing temporal information, such as the time of day, month or season, nearly all organisms are adapted to events in either internal or external environments.

BIOLOGICAL CLOCK IN MAN

Circadian rhythms are known to rephrase when a person flies across many time zones in a day. On reaching his destination, the traveller is under a new local time, but is takes a few days for his body to get used to it.

HUMAN CIRCADIAN RHYTHM

Body temperature falls to a minimum during sleep at around 04:00 hours and begins to rise before wakefulness. The rise usually continues until the acrophase or the rhythm is reached at around 18:00 hours. The amplitude of the body temperature rhythms 0.4 to 0.5 degree centigrade in young adults. There is considerable evidence that the endogenous component of the temperature rhythm is large in isolation and in constant routine studies, the amplitude of the rhythm is not markedly reduced. The major exogenous influence on body temperature is sleep and exercise. Akerstedt reported that the peak non adrenergic activity occurs at about 12:00 hours. At this time, the dissipation of heat would be counteracted and deep body temperature rises as a consequence.

CIRCADIAN VARIATION AND SPORTS PERFORMANCE

The indirect evidence that sports performance capability is highest close to the time. World records in sports events are usually broken by athletes competing in the early evening, the time of the day at which body temperature is highest. In the mid-eighties, series of middle distance records were broken by the British runners. Illustrate this, since all were set between 19:00 to 23:00 hours. When the frequency of trials is standardized at different times of day in simulated competitions, weight throwers also perform better in the evening than in the

morning.

ROLE OF PHYSIOLOGICAL VARIABLES AND SPORTS PERFORMANCE

Reilly and Brooks (1986) reported that circadian rhythms if the physiological responses to exercise are maintained in amplitude, some disappear, whereas others become more marked during exercise, since fluctuations in body temperature are believed to mediate many circadian rhythms in performance. The characteristics of rhythm during exercise are important in that the acrophase and amplitude of the rhythm in rectal temperature remained unchanged during exercise.

More House and Miller (1976) state that the distension of the arterial walls at the beginning of systolic ejecting of blood which is not confined to aorta but travels down the arteries as a wave followed by a wave of recoil is known as the resting pulse. The arteries that lie close to the body such as radial artery of the wrist, the arrival of the wave of distension and subsequent recoil may be felt as a pulse which offers a convenient method of counting their pulse rate.

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