



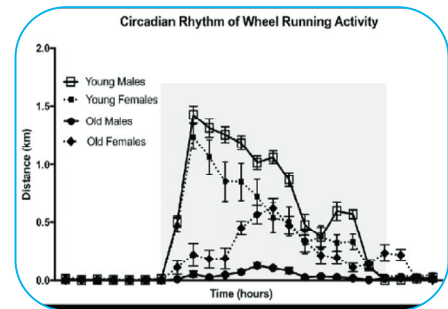
CIRCADIAN RHYTHM IN MIDDLE AND LONG DISTANCE RUNNERS

Shahajahan D. Dange

**Physical Education Director ,
Government First Grade College Kalaghatagi , Dist: Dharwad.**

CIRCADIAN RHYTHM OF MIDDLE AND LONG DISTANCE RUNNERS:

1. Human being living with its own body clock, sometime accelerating sometimes slowing down.
2. The performance rhythm of middle and long distance runner remains highest load between 12:00 hrs to 21:00 hrs are slows down gradually so their high intensity work out and time trails can be planning during these hours.
3. Middle and long distance runner physiological factors are better in the evening than in the morning. Their aerosol level, blood composition, aerobic and an anaerobic power. So plan their training plane accordingly.
4. According to the research finding, the maximum level and an aerobic power capacity of middle and long distance runner remains highest rate in the day and fatigue level is low in the evening.



STATEMENT OF THE PROBLEM

The purpose of the study was to find the 'effect of circadian rhythm' in middle as long as distance runner performance.

DILIMITATION

Although the performance of long distance run depends upon other factors. Such as physical, morphological psychological, elinical etc, yet the present study is two

1. The influence of circadian rhythms in long distance running.
2. The study is confirmed to 'Elite level' long distance runners

LIMITATIONS

This study has some limitation of its own

1. The available duration for the project work was very short for such study
2. The data's collected exclusively from the available literature in the library of "SPORTS AUTHORITY OF INDIA SOUTHERN CENTRE BANGLORE"

SIGNIFICANCE OF THE PROBLEM

Basically this study will help the coaches and physical educators to understand the importance of circulation rhythm. The study may help to improve the standard of the training plan. This may help to improve the performance in training and competition.

TERMINOLOGY**DEFINITION**

- (1) Endurance:- Ability to resist against fatigue or , capacity of organism to carry out work for long duration.
- (2) Enzyme :- Protein compound that speed up a chemical reaction.
- (3) Hemoglobin:- Protein of the red blood cells containing iron and capable of combining with oxygen.
- (4) Red blood cells:- Blood cells that carry hemoglobin and get oxygen from the lungs to the tissues.
- (5) Vo2 max:- Maximum oxygen uptake
- (6) Volume :- The amount of work done in a session or for the duration of training period.
- (7) Aerobic power:- Physiological index expression of total body endurance same as maximal o2 uptake, maximal o2 consumption and cardiovascular endurance capacity.
- (8) Aerobic:- Refers to the utilization of oxygen.
- (9) Anaerobic:- Refers to the absence of oxygen.
- (10) Fatigue:- State of decreased capacity for work due to previous work load.
- (11) Intensity:- The pace of doing work or increase or decrease in resistance of exercise.

DEFINITION

According to Alkinson. G. circadian Rhythms means different biological Rhythm of living organism in a day (during 24 hours)

The biological characteristics of human body differs during different times in a day- like body temperature heart rate, blood pressures, hormonal level, sleep wake cycle, personality cognitive performance.

REVIEW OF RELATED LITRATURE

1. According to Alkinson .G. and T. Water house (1989) circadian rhythms influence biological function. They can have a profound impact on the performance of physical activity and athletics skills. The major determinant of the rhythms is the spin of the earth about vertical axis. Human have adapted to this over the ages by timing the alternation of sleep and wakefulness to coincide with the periods of darkness and light respectively.
2. According to Reilly .T. & Walsh T.J (1981) Those human circadian rhythms that from changes in the environment are referred to as exogenous .The most prominent environmental changes are alternating day and night. The Solar day dictates habits of sleep, rest and activity as well as a work and leisure time social activity, ambient temperature varies with the time of day potentially accentuating rhythms in physiological processes that are temperature dependant. Light is also an important factors in defining rhythms characteristics and it can be manipulated to alter certain circadian rhythms. These external factors serve to fine –tune rhythms into 24-hr period and are referred to as Zeitgebers or time givers.
3. Arendt j. (1989)says that there is a time window close to the aerophase of body temperature in which optimal performance in sports involving gross motor tasks can be attained. This can extend for 4-6 hr provided that meals and rest are suitably fitted in during the daily routine, sports requiring fast explosive effort tend to peak earner and may be related to the sleep. Wake clock rather than to body temperature consequently, practices. Were skill have to be acquired should be conducted early in the day or around midday, but more severe training drills, and pressure training practice are best timed for later in the day.
4. ALKINSON .G.(1992) States that many physiological parameters known to show circadian rhythmicity. They include metabolic cardiovascular and endocrine functions. The metabolic functions showing cyclical changes include oxygen consumption (VO₂) , carbon dioxide production (VCO₂) and minute ventilation (V_e). The rhythms in VO₂ and VCO₂ have amplitude of about 7 percent of their mean resting value.
- V. According to procacci and corte M.D.(1989) There is also a circadian variation in pain perception that might be relevant in the context of sports injury. Self –ratings of pain intensity in patients with

pain full conditions shows definite patterns through out the waking day. Minimum levels of pain are noted in morning , with the more or less steady increase during the day to peak during the evening.

- VI. Baddeley. A. D.(1966) states that estimation of how judiciously time passes is also influenced by the time of day. The usual method of time estimation is to ask subjects to count to themselves at 1-S rate for 60sec. the rhythm is subjective time perception is related to a chemical clock hypothesis, the higher the body temperature the quicker the chemical reaction , and faster the internal clock the faster the speed of counting.

CONCLUSION AND RECOMMENDATION

- This study will be very useful for the sports person , coaches and physical education teacher to understand about the performance of a sports persons.
This study deals about the day and performance factors,
- Allows us our human body like a physiology characteristics,
- body temperature, heart rate, blood pressure, harmonic level
- sensitivity to body pain and its response.
- This study deals about the biological rhythm and different components. Influences out sports performances. If we know about we can able to achieve high level performances.

RECOMMENDATION

- Similar studies can be conducted in experimental basis for different group of sports person.
- Similar studies can be carried out on women athletics.
- Comparative studies can be made between Olympic and usual performance.

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