TRAINING EFFECT DURING THE MIDNIGHT SUN PERIOD IN DIFFERENT CHRONOTYPES.

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Introduction: Our research takes place at 70°N. Where the sun is above the horizon for 8 weeks during summer, midnight sun and below the horizon for 8 weeks during winter, polar night. Earlier we found that adults with different chronotypes responded differently to exercise performed in day-light or darkness. During the polar night evening (E) and neither (N) -types respond to training better than morning (M) –types. This study reports the effect of training during the midnight sun period in individuals with different chronotypes.

Method

Internett:
262 persons chronotype
(MEQ: 16-41 E; 42-58 N; 59-86 M)

Excluded:
trained organized, health problems:


Results: All participants except one E-type, showed a decrease in VO₂max from May to August. This participant increased the VO₂max to 51ml/min x kg from 38 ml/min x kg. We suspect that the result in May is too low, or that the result in August is wrong. If we exclude this person from the study, we have only 1 E-type, 3 N-types and 6 M-types. It seems as if it is difficult to get and keep the E-types as participants in the study. The training logs showed that the participants had been active, but not in the organized training activity. The heart rate recordings were insufficient.

Conclusion: Participating in organized training seems to be hard during the midnight sun period. Continuous follow-up and motivation is necessary to keep subjects in a study were training is required. Especially E-types seem to need special follow-up. Even if the participants claimed they were active during the 10-week training period, we could not observe any positive training effect. It seems that the participants have more choices for activity like hikes, fishing and other out-of-doors activity. These activities might not have the intensity required to increase physical fitness, no matter what chronotype the subject belongs to. During the midnight sun period, the biggest challenge is to get people to choose activities that give high enough intensity to get a training benefit. The group size is a limiting factor.

References:
1. Rossi, A. et al (2013). The chronotype can influence the perceived exertion during self-paced exercise performed at different times of day. Sport sciences for health, 9(Suppl. 1), 55-56.