

The impact of travelling to high altitude in the Himalayas on self-reported appetite

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Aims

To assess whether self-reported appetite is influenced by altitude accounting for physical exertion, age, gender, duration at altitude, physical fitness, illness and medication.

Methods

Ethical approval for the research project was obtained from the Biomedical and Scientific Research Ethics Committee (BSREC: REGO-2017-2071) and the Nepal Health Research Council (NHRC: 280-2017). Resident lowland trekkers in the Himalayan region of Nepal were invited to take part in the study on a voluntary basis. All participants were given a participant information sheet and signed a written consent form before starting the study. To assess current appetite participants were invited to complete a published appetite questionnaire on paper consisting of eight items with visual analogue scales. Questions about illness, physical exertion, physical fitness, age, sex, food and water consumption times and quantity, and altitude profile were added. Participants only completed the questionnaire once at a single altitude. This process was repeated at seven altitudes ranging from 2,600 m to 5,200 m during the period 04–18 October 2017. Data was extracted from the paper questionnaires to a digital format and analysed with Excel and SPSS software.

Results

A total of 149 questionnaires were completed. Data for all categories was shown to be significantly different to a normal distribution using the Kolmogorov-Smirnov test. Non-parametric correlations using Spearman's rho were conducted. Appetite strongly reduced up to 2 hours after eating. Therefore, to exclude postprandial influence on appetite, participants who ate within 2 hours were excluded for further analysis leaving n=106. In response to 'how much can you eat?' participant score decreased significantly with increasing altitude. Whereas responses to both 'how full are you?' and 'how satisfied are you?' increased significantly with increasing altitude. Every variable that had a significant positive correlation with increasing appetite, such as 'how long since you last ate?', simultaneously had a negative

correlation with satiety questions, and vice versa. There were no significant correlations between appetite and illness status, age, medication or sex. Linear regression showed no individual significant factors with appetite.

Conclusion

The objectives for this project have been achieved; the authors have the opinion that this study shows as resident lowlanders travel to higher altitude their appetite is reduced and satiety is increased. This study found a combination of variables likely influences appetite since linear regression highlighted no individual significant factors with appetite. These findings are consistent with existing literature and support the hypothesis of an anorexic link with increasing altitude. Furthermore, this study shows for the first time that appetite declines with a graded response with increasing altitude. The implications of this investigation are that satiety mechanisms are increasingly active with increasing altitude. Interventional studies are needed to isolate anorexic factors that can be used therapeutically to inhibit appetite and therefore help alleviate sequelae of excess energy consumption such as obesity and diabetes. ■

Conflict of interest statement

None declared.

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