### BRIEF REPORT

## Personality Characteristics in a Population of Mountain Climbers

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**Objective.**—Mountaineering and mountain-related sports are growing in popularity and are associated with significant risk of injury. There is a perception that mountaineers possess unique personality characteristics that attract them to the sport. We aim to determine whether there are any identifiable differences between the personality characteristics of experienced mountaineers and a normal control population and to determine whether there is an association between specific personality traits and risk of injury.

**Methods.**—Questionnaires were utilized to obtain data on demographics, accidents, and personality characteristics from a population of experienced mountaineers. The Temperament and Character Inventory (TCI) was used, and the results were compared with normative data from age-matched controls.

**Results.**—Forty-seven mountaineers from 8 different countries enrolled in the study. The mean age was 33 years, and 44 (90%) had been mountaineering for more than 5 years. Twenty-three climbers (49%) had been involved in a total of 33 accidents. Mountaineers scored higher on novelty seeking (P < .05) and self-directedness (P < .05) and lower on harm avoidance (P < .001) and self-transcendence (P < .001). There was a significant association between the character measure of cooperativeness and the total number (-.33, P < .05) and severity (-.475, P < .05) of accidents.

**Conclusions.**—Mountaineering is associated with significant risk of injury. Wide variation in the scores of personality traits suggests that there is not a tightly defined personality profile among mountaineers. Scores on cooperativeness may assist in determining risk of injury in mountaineers.

Key words: mountaineering, personality, harm avoidance, novelty seeking, accidents

#### Introduction

Mountaineering is the sport of climbing mountains and often incorporates the skills of both alpine rock and ice climbing. It is a high-risk sport associated with frequent and often severe physical injuries and fatalities.<sup>1</sup> The popularity of mountaineering has continued to increase in the last 15 to 20 years, and it is now one of the fastest growing outdoor sporting activities.<sup>2</sup> Clarifying whether identifiable personality factors contribute to participation in the sport and to risk of injury may help the development of injury prevention strategies. The relationship between personality factors and injury in mountaineering has not been described in the literature.

A number of studies have investigated the relationship between personality traits and participation in high-risk physical sports, such as mountaineering. Sensation seeking is by far the most consistently studied personality factor in the literature. The majority of the research to date has focused almost exclusively on this particular personality trait, and most of these studies have found that high-risk sports participants (including mountaineers) tend to score higher on the Zuckerman Sensation Seeking scale compared with low-risk sports participants and control groups.<sup>3</sup> In our opinion, this approach is far too narrow because it only provides information about one aspect of personality. Accounting for other important personality factors that may contribute to participation in such sports offers a greater understanding

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of the motivation for sports risk-taking behavior in general.

#### CLONINGER'S TEMPERAMENT AND CHARACTER INVENTORY

Cloninger's Temperament and Character Inventory (TCI) provides broad information on personality characteristics. It is a 235-item self-report personality questionnaire that accounts for both normal and abnormal variations in the 2 major components of personality: temperament and character. The questionnaire is designed to assess differences among people in 7 basic dimensions.

Temperament refers to the automatic emotional responses that are thought to be moderately heritable, independent, genetically homogenous, and stable over time. There are 4 temperament dimensions: 1) novelty seeking is the tendency to activate or initiate new behaviors with a propensity to seek out new experiences with impulsive decision making, extravagance, quick loss of temper, and active avoidance of frustration; 2) harm avoidance is the tendency to inhibit behaviors and the propensity to worry in anticipation about future problems with fear of uncertainty, rapid fatigability, and shyness in the company of strangers; 3) reward dependence is the tendency to maintain behaviors manifested by dependency on the approval of others with social attachments and sentimentality; and 4) persistence is the tendency to be hardworking, industrious, and persistent despite frustration and fatigue.<sup>4</sup>

Character refers to self-concepts and individual differences in goals and values that can be influenced by social factors, learning, and the process of maturation. The character dimensions are as follows: 1) self-directedness, which refers to self-determination, personal integrity, self-integrity, and willpower; 2) cooperativeness, which refers to individual differences in identification with and acceptance of other people; and 3) self-transcendence, which refers to feelings of religious faith or viewing oneself as an integral part of the universe in other ways.<sup>4</sup>

Extensive data on the reliability and validity of the TCI in the English language have been reported, and the TCI has been shown to have sound psychometric characteristics.<sup>5</sup> To date, the TCI has not been utilized to evaluate mountaineers. However, the authors have used this model to study a large population of extremely high risk-taking adventure sport participants—BASE (an acronym for building, antenna, span, Earth [cliff]) jumpers—and found that BASE jumpers score higher on measures of novelty seeking and self-directedness and lower on measures of harm avoidance, reward dependence, and self-transcendence.<sup>6</sup>

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The aims of this study were to explore whether particular personality factors correlate with participation in serious mountaineering and to determine whether these personality variables are associated with a higher risk of climbing accidents, using the TCI.

#### Methods

#### SAMPLE AND PARTICIPANT SELECTION

Participants had to be involved in mountaineering or alpine rock climbing or both for at least 3 years. Subjects enrolled in the study on a volunteer basis. They were recruited from local Alpine Club group meetings, adventure magazine advertisements, and from personal communications among the climbing community. One of the authors (E.M.) is an experienced mountaineer, and his role ensured that the study captured an international population of high-performance independent climbers.

#### ETHICS

A formal report on the study method was sent to the local research ethics committee, the Canterbury Ethics Committee. A formal reply indicated that because of low risk of harm to or identification of participants, ethical approval was not considered necessary.

### STUDY/OUTCOME MEASURES

DEMOGRAPHICS, ACCIDENTS, AND CLIMBING CHARACTERISTICS. Demographic information and number of years involved in climbing were obtained. Subjects were asked whether they had ever climbed in high-risk situations. High risk was defined as knowingly climbing more than once in 1) dangerous terrain (eg, under unstable ice cliffs, over avalanche-prone terrain, or in crevassed glaciers); 2) dangerous weather conditions; or 3) situations in which the climber did not feel fully confident in his or her abilities and where a mistake would lead to significant risk of serious injury or death. These high-risk situations are equivalent to scores of III or IV on the fatality risk classification of the Injury and Illness Severity Classification (IIC) of the International Mountaineering and Climbing Federation (Union Internationale des Associations d'Alpinisme [UIAA]) Medical Commission score.

Subjects were also asked to report all significant climbing injuries, and these were rated according to the IIC UIAA Medical Commission score, which identifies the anatomical site of injury and assigns a numerical score from 0 to 6 for severity.<sup>7</sup>

Climbing grades were rated according to the UIAA system: 2 to 12 for rock climbing and I to VII for mountaineering.<sup>7</sup> Generally, the higher the grade, the greater the technical challenge and risk of accident.

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