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MENTAL STRATEGIES OF ELITE MOUNT EVEREST CLIMBERS

by

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B.A. McGill University, 2001

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in partial fulfillment of the requirements

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Abstract

Elite athletes use mental strategies in a wide variety of sports to enhance performance (Cancio, 1993; Orlick & Partington, 1999; Schomer, 1987; Tammen, 1996). High-level athletes have been found to use mental strategies before, during, and after competition (Orlick, 2000). Little research has been conducted to explore the mental strategies used by high altitude climbers. Elite high altitude climbers are a special population of athletes who perform in extremely adverse situations. The question of how these climbers prepare for the climb and what types of mental strategies they use to overcome obstacles on the mountain has not been addressed in the literature. The objectives of this study on the use of mental strategies by elite Mount Everest climbers were twofold: a) to explore how elite Mount Everest climbers mentally prepared for the climb and b) to explore the mental strategies they utilized to overcome obstacles on the mountain to successfully reach the summit. The main areas addressed include detailed planning, mental toughness, imagery, focus, short-term goal setting, drawing on past experiences, feeling support from other climbers', belief in personal capacities, and connecting with one's body. There were commonalities among the participants in terms of the application of these strategies but also uniqueness in the way each participant described the various mental strategies. The findings of this study provide valuable information that could help future high altitude climbers reach their goals, as well as expedition leaders and sport psychologists to work more effectively with climbers to prepare them for the climb and the potential obstacles that can hinder success on the mountain.

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Introduction

The number of athletes partaking in extreme sports is continually rising (Shoham, Rose, & Kahle, 2000). Extreme sports, such as high altitude climbing, deep sea diving, and skydiving include a high level of physical risk. In such sports, the consequences of error or adversity can be fatal. According to Kerr (1991), risk or adventure sports are defined as those leisure activities that expose the participant to real or perceived physical danger usually in an outdoor natural setting. High-risk sports differ from other sports in that consumers knowingly face the risk of a serious injury and even death when judgment or equipment fails (Lyng, 1990). The physical and mental demands of high-risk sports are great (Ryn, 1988). Many of these sports involve dangerous elements, such as severe weather or high speeds. These dangers create intense challenges for the athlete. An increasing number of people are becoming attracted to the risks and the physical and mental tests associated with extreme sports. The rise of active participation in extreme sports is reflected through the mass media. New television shows such as Extreme 180 are gaining popularity, and magazines such as Rock and Ice, and Extreme Skiing can be found on the shelves of magazine stores.

High altitude climbing is a primary example of an extreme sport that has become an appealing challenge for an increasing number of people (Ryn, 1988). For instance, during the past few decades, high altitude climbing without supplementary oxygen has become one of the most fascinating adventures for an increasingly large number of mountaineers, since an elite group of climbers conquered all 14 of the 8000 meter (m) peaks in the world (Cavaletti & Tredici, 1992). It is widely recognized that high altitude alone exacts a very heavy toll from a person's energy and resources, both physical and mental (Emerson, 1966). According to Bahrke and Shukitt-Hale (1993), lassitude, weakness, breathlessness, and retardation of thought and

action are the principal effects of high altitude, and are always present over 5485 m.

Furthermore, climbers who attempt to summit an 8000 m peak may be exposed to environmental obstacles such as avalanches, extreme weather conditions, and high altitude demands. They may also be faced with internal barriers such as fatigue, intimidation, and loss of focus or will. High altitude climbing is a complex, high risk, high endurance sport. It is assumed that mental strategies are required to stay alive and successfully complete the challenge.

Elite athletes across a wide range of sports have been found to possess certain mental strategies related to exceptional levels of performance. In a study carried out by Orlick and Partington (1988), statistically significant links were found between Olympic performance outcome and certain mental skills among elite athletes in 23 summer Olympic Games events. Common elements of success were identified as quality preparation/training, clear goal setting, imagery, simulation training, mental preparation for competitions, focus, and on going learning. In another study on psychological skills and exceptional athletic performance, Mahoney, Gabriel, and Perkins (1987) found that relative to their non-elite peers, national level athletes across 17 sports reported stronger skills in anxiety management, concentration, motivation, mental preparation, and self-confidence. According to Orlick (2000), there are seven critical elements of excellence that guide the pursuit of performance excellence on a consistent basis: commitment, focused connection, confidence, positive images, mental readiness, distraction control, and ongoing learning. These mental components have been found to help elite athletes excel in a variety of athletic domains and may provide valuable insight into the mental strategies used by high altitude climbers. Mount Everest climbers are a special population of athletes who perform at a high level. For the purpose of this study, an elite Mount Everest climber is defined as an individual who has successfully reached the summit of Mount Everest at least once.

The challenge of climbing Mount Everest, the highest mountain in the world (8848 m), has continued to gain popularity ever since Sir Edmund Hilary and Tenzing Norgays' first ascent to the summit in 1953. Every year, groups of mountain climbers from around the world set out to reach the top of the mountain; solo attempts are also made. An average climb to the top of Mount Everest takes two months, including periods for rest and acclimatization. It requires about a week of trekking through the mountains just to reach base camp. Once climbers have set up camp at the base of the mountain, they will go through four more camps (one, two, three, four) and then try to reach the summit. After reaching a camp (one, two, and three), the climbers will return to the previous one (for a couple of days) to allow their bodies to properly adjust to the altitude. The final push to the summit requires that the climbers wait for a window of opportunity, due to the weather, and attempt to climb from camp four to the summit. Only a small percentage of people who set out to climb Mount Everest successfully reach the summit. Some reasons for failure include death, high altitude sickness, loss of will, injury, fatigue, and extreme weather conditions. According to Egan (2001), over 300 climbers making this attempt died in pursuit of this dangerous test of skill and courage. With the inherent risk and potential for serious injury or death, it is assumed that tremendous physical endurance and mental strength are essential for such a climb to be successful.

Previous studies have largely ignored the mental strategies used by elite climbers to overcome the obstacles associated with high altitude climbing. The majority of research on mountain climbers has focused on sensation seeking needs (Breivik, 1996; Freixanet, 1991; Rössli & Cereatti, 1993) and on the personality profiles of climbers (Breivik, 1996; Freixanet, 1991), as well as on the psychological effects of high altitude (Ryn, 1988). Research on mental strategies used by high altitude climbers is lacking and warranted. By exploring the specific mental strategies used by elite Everest climbers, it was expected that insight would be gained that could help not only climbers, but also top performers in other high-risk, high demand domains.

Purpose of the Study

The purpose of this study was twofold. The first objective was to explore the mental strategies used by Mount Everest climbers to prepare for the climb. The second objective focused on exploring the mental strategies incorporated by these same climbers to overcome obstacles and successfully climb and descend the mountain. A qualitative interview methodology was employed. Mount Everest climbers who had successfully reached the summit of Mount Everest, at least once were interviewed using a semi-structured interview guide. Through this in-depth interview, the researcher explored the climbers' experience with: a) preparing for the overall challenge, b) making the ascent from base camp to camp 1, 2, 3 4, and reaching the summit, c) making the descent from the summit to base camp, and d) overcoming obstacles on the mountain. Furthermore, the impact that this experience had on the lives of elite Mount Everest climbers and advice they had for other climbers were addressed. To explore the mental strategies used by elite Mount Everest climbers the following main question guided the investigation. What mental strategies do elite Mount Everest climbers incorporate to prepare for and successfully climb the mountain?

Significance of the Study

Research on the role of mental strategies in high altitude climbing is virtually non-existent. This study attempted to fill this gap in the literature by providing insights on the mental strategies used by successful Mount Everest climbers. It was also hoped that this study would contribute to existing literature on mental strategies used in preparation for climbing high altitude peaks. It was anticipated that the insights of elite Mount Everest climbers would increase our understanding of the role of mental strategies in the achievement of difficult goals and on the process of overcoming significant obstacles faced by athletes in various high-risk sports. The insights gained may be of practical value for sport psychologists, expedition leaders, high altitude climbers, and other athlete performers in pursuit of excellence.

Review of the literature

A review of the literature revealed that specific research on mental strategies used by high altitude climbers is limited. An overview of the limited research that relates to high altitude climbing is provided. More specifically, research on personality profiles of elite mountain climbers and the psychological effects of high altitude are given. In addition, mental strategies used by elite athletes in various other sports that may relate to high altitude climbing are discussed. The purpose of this review of literature is to provide background information on topics that could in some way relate to elite climbers facing the challenge of climbing Mount Everest.

Psychological Studies of Mountain Climbers

Most of the psychological research on elite mountain climbers has focused on personality profiles. One area that stands out in the personality research is that high altitude climbers tend to be sensation seekers. High sensation seekers search for situations that are unfamiliar or risky (Breivik, 1996). Elite mountain climbers score high on Zuckerman's Sensation Seeking Scale (Breivik, 1996; Freixanet, 1991; Rossi & Cereatti, 1993). This Scale consists of four subscales of 10 items each, and a total score that equals the sum of scores obtained from items in each of the four subscales. The subscales include Thrill and Adventure (TAS), Experience Seeking (ES), Disinhibition (DIS), and Boredom Susceptibility (BS). This measure has been used across a wide range of studies to assess the sensation seeking needs of athletes in a variety of high-risk sports. According to Rossi and Cereatti, a sensation seeker is an individual characterized by a need for intense stimulation and new, complex, and varied experiences who, in the attempt to seek these kinds of experiences is prone to assume physical and social risks. High-risk sports, such as high altitude climbing, could be a means to meet sensation-seeking needs. Elite climbers may be challenged to fulfill sensation-seeking needs and in turn are willing to take the risks (Rossi & Cereatti, 1993).

Some researchers also examined the general personality profile of high altitude

participants. Findings indicate that a certain personality profile exists for mountain climbers. Climbers share similar characteristics of low anxiety, high sociability, and tough mindedness (Breivik, 1996; Freixanet, 1991; Magni, Rupolo, Simini, Leo, & Rampazzo, 1985). Breivik as well as Magni and colleagues, both examined the personality of Everest climbers using the Cattell 16 PF questionnaire. These researchers found that elite climbers score low on anxiety and super ego and high on emotional stability and dominance. The results are varied, however, with respect to extroversion. Breivik found that elite climbers score high on extroversion while Magni et al. found the opposite. Freixanet also examined the personality profiles of participants engaged in high altitude climbing using the Eysenck Personality questionnaire. Results indicated that participants were low in anxiety and neuroticism and high on extroversion and emotional stability.

Psychological Effects of High Altitude

High altitude is one environmental challenge encountered by elite climbers on their journey to the summit of Mount Everest. Clearly, there is a shortage of oxygen at high altitude (Ryn, 1988). At the altitude of 5000 m above sea level, oxygen pressure is lowered by half and at the altitude of 8000 m, it amounts to one third of the normal value. Shortages of oxygen may lead to secondary disturbances in brain circulation and metabolism (Cavaletti & Tredici, 1992). High altitude can affect a climber's physiological capacity and can also have a serious impact on the psychological frame of mind of participants (Missoum, Rosnet, & Richalet, 1992).

A relationship exists between impaired psychological functioning and high altitude environments (Bahrke & Shukitt-Hale, 1993; Missoum, Rosnet & Richalet, 1992; Ryn, 1988). In a study conducted by Missoum et al., the relationship between acute mountain sickness and certain psychological factors was explored. According to Missoum et al., acute mountain sickness (AMS) is defined as a pathological manifestation of the organism when exposed to lower atmospheric pressures. Using the Bortner's scale of behavioral adaptation to stress in subjects susceptible and not susceptible to AMS, Missoum et al. found that people susceptible to

AMS were significantly more anxious than the participants not susceptible to AMS. Climbers susceptible to AMS scored higher in regards to their level of stress just prior to the final push to the summit. Their state of anxiety rose greatly at elevations above 3500 m and they experienced AMS symptoms such as headaches, nausea, vomiting, insomnia, etc. The challenge of the final push to the summit is a crucial moment when there is a reduction of O₂ pressure in the air. It is possible that in order to cope with the anxiety mental strategies are required for those people who are susceptible to stress.

Based on past experimental research that was conducted during several expeditions to the Hindu Kush Mountains and to the Andes, Ryn (1988) analyzed mental disturbances under high altitude stress. The author based his conclusions on a group of 80 Polish alpinists who participated in four separate mountain expeditions. For each subject, average periods of stay at high altitudes in the zones 3000-4000 m, 4000-5000 m, 6000-7000 m, and over 7000 m above sea level were established for the research to be carried out. Psychiatric and psychological examinations, direct observation, and interviews were the main methods of data collection. Based on the results from the four expeditions, Ryn concluded that at the altitude of 3000-4000 m, 80% of the participants suffered from neurasthenic syndrome. According to Ryn, the neurasthenic syndrome had two forms: the apathetic-depressive form and the euphoric-impulsive form. Examples of symptoms of the apathetic-depressive form include a decrease of psychomotoric capacity, mental exhaustion, slowing down of thinking process, growing indifferent and disinterested, and lack of joy after reaching the top. In the euphoric-impulsive form, symptoms include mood of elation bordering on euphoria, the feeling of unexplained happiness, irritability, explosiveness, and episodes of floating anxiety, which can involve feeling nervous, jumpy, oversensitive, aggressive, and anti-social. Out of all 80 participants, 76 people suffered one or both forms of neurasthenic syndrome in alternate occurrence. Above 7000 m, 35% of the participants experienced acute organic brain syndrome effecting psycho-motoric drive, intellectual function, and disturbances of consciousness and orientation. According to Ryn,

examples of symptoms of acute brain syndrome include a decrease of motoric and mental activity, aversion or inability to perform even the simplest activities, weakening of defense mechanisms, slowing down of thinking processes, a decreased ability to evaluate critically the objective danger, and episodes of amnesia. A loss of consciousness was also found. Some participants experienced disturbances of consciousness, particularly during excessive periods of fatigue. Several climbers lost consciousness for up to a dozen minutes as they climbed.

In a review of the effects of altitude on mood, behavior, and cognitive functioning, Bahrke and Shukitt-Hale (1993) found similar results to those in the study conducted by Ryn (1988). Bahrke and Shukitt-Hale provided a synthesis of results based on numerous studies on the psychological functioning of individuals at high altitudes. At high altitude (above 5000 m), the majority of individuals were found to suffer mood, behavior, and cognitive changes. In a study conducted by Pugh and Ward (1956) in three separate Himalayan expeditions, lassitude, weakness, breathlessness, and retardation of thought and action were the principal effects and were always present over 5485 m. At 4270 m, McFarland (1937) found changes in mood and observed lassitude or euphoria. At 5490 m, sensory perception was decreased, the field of attention was narrowed, and judgment was impaired. Finally, above 6100 m, reaction times were slowed, awareness of the passage of time became inaccurate, and explosive emotional outbursts occurred.

Based on many studies on the effects of high altitude, it appears that high altitude causes mental disturbances that can be very detrimental to climbers' states of mind. At high altitude, stress may affect the mind, mental processes can slow down, and a person may experience either lassitude or euphoria. Furthermore, the effects of high altitude may increase a climber's overall anxiety level. It is possible that one's ability to effectively cope with the stressful environment induced by high altitude can help the climbers overcome the probability of failure.

Mental Strategies

Elite athletes use mental strategies in a wide variety of sports to enhance their

performance (Cancio, 1991; Mahoney, Gabriel & Perkins, 1987; Orlick & Partington, 1988, 1999; Patrick & Hrycaiko, 1998; Schomer, 1986, 1987; Silva & Appelbaum, 1989; Tammen, 1996; Ungerleider & Golding, 1991). Through their research and consulting experiences, Orlick and Partington (1999) have vividly identified important links between levels of performance achievement and certain key mental strategies. Elite world champion, national team, and university athletes were studied to compare the mental strategies used before, during, and after competitions. Pre-competition focus, pre-competition distraction control, competition focus, competition distraction control, and post-competition learning characterize the mental approach top performers bring to quality performance (Orlick & Partington, 1999). Furthermore, Orlick and Partington (1988) found that Olympians (n=235) used mental skills prior to the Olympics to achieve optimal levels of performance at the 1984 Olympic Games. Quality training, clear daily goals, imagery training, and simulation training were common elements of success. It is possible that the participants' mental approach found in Orlick and Partington's (1988, 1999) studies provides meaningful insight into how the high altitude climber prepares for and succeeds on the mountain.

Cancio (1991) did a pilot study to examine the coping strategies of 59 freefall parachutists in relation to the stress experienced in this endeavor. The stressors involved in this activity may include hypoxia, uncomfortable equipment, cold exacerbated by high winds, and fear of personal or equipment failure. A survey was developed to assess the parachuting experience, levels of perceived stress, sources of stress, and the incidence of trance or similar phenomena among skydivers. The subjects were found to use mental strategies to cope with the stress involved in this demanding activity. To prepare themselves, 81% of the subjects imagined themselves skydiving before the jump. A trance-like state was experienced by 36% of the subjects. Trance was defined as a state of increased relaxation and concentration and is considered similar to hypnosis. Finally, 34% of the subjects experienced an episode of altered consciousness, which was defined as any unusual mental state characterized by changes in

awareness or perception (Cancio, 1991).

Cancio (1991) suggested that psychological and physical stress facilitates the development of a hypnotic trance. It can be assumed that in order to cope with stressful situations commonly found in high-risk sports, athletes may disassociate from feeling overly anxious and this, in turn, may contribute to trance induced experiences. Just like freefall parachuting, mountain climbing, is a high-risk sport, which involves stress, some of which may be induced by the high altitude and some by the challenges or consequences of the climb itself. Both sports include the possibility of experiencing hypoxia, spatial disorientation, and fear of injury or death. As well, these sports are similar in that participants may suffer from sensory overload, disorientation, confusion, or fluctuating weather conditions. The study conducted by Cancio applies specifically to parachuting, yet it may provide useful information for understanding how the mind is used to deal with stress when climbing 8000 m peaks.

Associative strategy is related to enhanced performance in long distance running (Patrick & Hrycaiko, 1998; Schomer, 1986, 1987; Silva & Applebaum, 1989; Tammen, 1996). Long distance runners adopt the mental strategy of association to cope with the immense effort involved in completing a marathon (Schomer, 1986). According to Patrick and Hrycaiko (1998), associative strategy allows runners to focus on internal body sensations such as breathing, muscle tension, and race strategy. Tammen examined whether the pace of the run would influence the associative or dissociative coping strategies used. Eight long distance runners ran four trials at an increasing sub-maximal pace and one trial at maximal pace. Using the Mental Readiness Form and the Borg scale, Tammen found that as the pace of the subjects increased, the runners associated more and noticed that their thoughts changed. They focused more on their internal body sensations as feedback towards performance.

Schomer (1986) studied the relationship between associative thinking and the perception of training effort amongst marathon runners by examining the verbalized thought processes of three different groups of male runners. A microphone was attached to the front of each runner's

vest so that they could immediately record their mental strategies during their run. The Borg scale was printed on cardboard and shown to participants each time they had finished a mental strategy recording. This was done to facilitate the runners' rating of perceived exertion. The group was divided into novice, average, and superior marathoners.

The results obtained from Schomer (1986) study indicated that a strong relationship exists between associative mental strategy and perception of effort. High training effort can only be achieved and maintained safely and efficiently by adopting a predominantly associative mental strategy. All three groups used associative thinking during marathon training trials, however the groups differed on the subgroups of associative thinking. Novice runners focused mostly on feelings and affect, command and instruction, and pace monitoring. Average runners also focused on these same components yet they included body monitoring. Superior runners focused on body monitoring, command and instruction, and pace monitoring. According to Schomer (1986), the exacting body monitoring technique yields a substantial improvement in the athletes' capacity to heighten their training effort without risk of injury, and in the long term enhances their aerobic conditioning and race times.

The patterns of disassociation and association of Olympic marathon trial contestants was studied by Silva and Applebaum (1989). The researchers divided the subjects into groups of top and lower place marathon finishers. Whereas low place finishers mainly employed dissociative strategies, top place finishers associated throughout the competition, however, at later stages when pain was felt they also employed dissociative strategies. It was also noted by Silva and Applebaum that elite runners used self-talk to push or "psych" themselves through tough parts of the race. Statements such as "stay loose" and "relax" were recorded.

Long distance running is an endurance sport that requires intense effort and concentration for prolonged periods of time. It has similar components to mountain climbing in that both sports require many hours of sustained effort, endurance, and discomfort. Elite runners mainly use associative coping strategies when running long distances. They have been found to focus on

their internal bodily sensations while employing mental skills, such as self-talk to remain concentrated on what they are feeling. Staying in touch with how one feels, even under the most difficult circumstances, may be a skill that elite climbers also use to overcome the hardest parts of the climb. Research findings on psychological functioning and marathon running (Patrick & Hrycaiko, 1998; Schomer, 1986; Silva & Applebaum, 1989; & Tammen, 1996) may have direct implications for individuals who climb 8000 m peaks.

In a study on communication feedback and sustained group goal striving, Emerson (1966) found that Mount Everest climbers (n=18) used the strategy of group goal striving when faced with prolonged uncertainty to reach the summit. During group goal striving, which requires coordinated effort and collective assessment of the environment, the participants used communication processes that maximized and maintained uncertainty about outcome. According to Emerson, when climbers were faced with negative feedback that counteracted prevailing information in the environment, they worked even harder together to maintain collective effort. As a result, group goal striving acted as self-maintaining system. As group members became increasingly dependent upon or attentive to one another, sources of information and energy were mobilized and directed toward the group goal of reaching the summit.

Climbers who reach the summit of Mount Everest are a special population of athletes who perform at a high level. We are uncertain as to how their mental strategies compare to those of other elite performers, however, by examining the mental strategies used by elite athletes across a wide range of sports, some insights have been gained on mental strategies that might be used by elite climbers to overcome obstacles on the mountain. Focusing, imagery, associative thinking, self-talk, and relaxation are examples of mental strategies used in various other sports to help athletes excel at a high level. Because of the similarity between mountain climbing and certain conditions or demands in the sports that were examined, such as a high level of risk, or endurance, it is possible that the mental strategies used in these sports are similar to the mental strategies employed in climbing Mount Everest.

Research Question

Creswell (1994) stated that a grand tour question is the basic form of research questions in qualitative interviewing. The grand tour question is a statement made in the most general format of the question being explored in the study. Thus, a grand tour question remains compatible with the emergent nature of qualitative designs due to the fact that it is phrased in a comprehensive manner that does not limit the scope of inquiry. According to Rubin and Rubin (1995), researchers set up a general question for the interview to keep the interview on course yet allow sufficient flexibility for exploring uncharted paths.

Grand Tour Question

In order to determine the mental strategies used by successful Everest climbers and to remain consistent with the recommended guidelines outlined by Creswell (1994), the following main question guided the present study. What mental strategies do elite Mount Everest climbers use to prepare for and successfully climb the mountain?

Methodology

The purpose of this chapter is to provide detailed information regarding the methodology that was used to carry out the study. The research design, instrument, participants, data collection procedures, data analysis procedures, and trustworthiness are described.

Research Design

Given the exploratory nature of the present study and the advantages and flexibility associated with open-ended interviews, a qualitative method of inquiry and analysis was used. The exploratory nature of a qualitative research design suited the need of the present study, which was, to investigate the mental strategies used by successful Mount Everest climbers. Employing a qualitative method allowed the researcher to get as close as possible to the lived experience of climbing Mount Everest, without being immersed in the culture. The climbers' interpretations and meanings attached to their experience were explored. More specifically, the preparation phase, the obstacles encountered on the mountain, and the mental strategies used to overcome the obstacles were thoroughly recorded and examined. In-depth interviews with elite climbers allowed the researcher to capture the richness and complexity of their subject matter and explain it in a comprehensible way (Rubin & Rubin, 1995).

Flexible and Iterative

In order to learn about the complex phenomenon of high altitude climbing, it was important that the qualitative interviewing design be flexible and iterative (Rubin & Rubin, 1995). The entire design was not planned in advance however an indication of how the present study planned to unfold was stated. As noted by Rubin and Rubin, the design continued to change as we learned more about the subject and discovered new meanings. For example, after conducting the first two interviews, the researcher quickly discovered that mental strategies were also utilized on the climb down from the summit of the mountain. Therefore, more emphasis was placed on the descent phase for the remaining interviews. It is important to note that the basic questions in the interview remained the same. The interview process, however, evolved

throughout the research process in order to capture the meaning of what the participants were saying by using different probing questions to emphasize various areas of importance.

Another crucial component of a qualitative research design is that it is iterative. In the early stages of the interviewing, the design emphasized more the gathering of many themes and ideas; toward the middle of the research, the researcher concentrated more on winnowing to limit the number of themes explored. In the final stages, more emphasis was placed on analysis and testing of understanding, as themes were put together (Rubin & Rubin, 1995).

Instrument

In-depth interviewing allowed for the participants' experience to be heard in a detailed, profound, and vivid manner, which may not have been captured by means of other types of methods. Therefore, an in-depth semi-structured interview style (refer to interview guide) was chosen to explore the mental strategies used by Everest climbers. To gain a clear and comprehensive understanding of the mental strategies used by Everest climbers to prepare for and successfully climb the mountain, the researcher interviewed each participant with the goal of obtaining elaborate detail from each participant's experience on Mount Everest.

Miles and Huberman (1994) suggested that the issues of instrument validity and reliability rely largely on the skills of the researcher and that it is helpful that the researcher have some familiarity with the phenomenon being studied, good investigative skills, and strong conceptual interests. As a former elite athlete, and a mountaineer myself, I have a good understanding of the world of elite climbing. I have developed strong skills in interviewing after having completed Qualitative Data Analysis in Sport Studies (APA 6100), Micro-Counseling (EDU 5871), working with my advisor, and from conducting and analyzing two pilot interviews (see p.21).

Participants

A total of 10 male (n=7) and female (n=3) elite Mount Everest climbers participated in this study (see table 1). The participants successfully reached the summit of Mount Everest at

least once. At the time of the data collection, these climbers had reached the summit once on the average and had attempted the summit an average of two and a half times. Their age ranged from 29 to 64 years ($M=38.2$) at the time they reached the summit. The participants included one solo climber, three expedition leaders, and six climbers from various group expeditions. In terms of country of origin, 4 of the participants were from Canada, 4 from the United States of America, 1 from Sweden, and 1 from Pakistan.

Table 1
Climber Profiles.

Climber	Age *	Country of Origin	Number of Summit Attempts	Number of Successful Summits	Additional Information
1	38	Canada	2	1	Expedition leader/photo journalist/television producer/professor
2	45	Pakistan	7	1	First Pakistani to reach the summit/reached the summit of four 8000m peaks
3	33	U.S.A.	1	1	Most summits of any woman/reached the summit of six 8000m peaks
4	34	U.S.A.	2	2	First American woman to summit Everest from both the North and the South/competed internationally (mountain biking)
5	40	Canada	2	1	Expedition leader/competed at the provincial level in track and field/owner of a Ford dealership
6	29	Sweden	2	2	Biked from Sweden to Nepal, climbed Everest solo and unsupported (without Sherpas or oxygen), then biked back to Sweden
7	64	U.S.A.	5	1	Oldest man to reach the summit/second father-son team/completed the seven summits/ practicing surgeon
8	35	U.S.A.	2	2	Summited Denali 5 times and three 8000m Peaks
9	29	Canada	1	1	First North American woman to summit Everest
10	35	Canada	1	1	Financial advisor/summited Denali and Aconcongua

* age of each participant refers to the time they reached the summit

Purposeful Sampling

Maxwell (1996) stated that purposeful sampling is a research strategy in which specific people, settings, or events are deliberately chosen in order to provide important information that cannot be accessed using other sampling choices. The sample for this study is purposeful because the participants were chosen on the basis of their experience with the phenomenon being investigated, and their openness to share information. Initially individual interviews were arranged through personal contacts. Climbers who successfully reached the summit of Mount Everest were contacted to request interviews, that is, two Canadians and one Scandinavian. The investigator informed each participant of the nature and purpose of the research, emphasizing that all information would be kept confidential. Each participant was asked to provide names of other people who have successfully reached the summit of Mount Everest. The reason for this type of snowball sample is the fact that the number of people who reach the top of Mount Everest is limited, and climbers are a good source for reaching other climbers. An attempt was made to interview participants from nearby locations. However, due to the limited number of Canadians who had reached the summit of Mount Everest, the sample population included participants from various countries around the world. Participants who resided at a distance were interviewed over the telephone.

Data Collection Procedures

Creswell (1994) suggested that data collection involves setting the boundaries for the study, collecting information through interviews, and establishing the procedure for recording information.

Interviews

The data were collected from September through December 2002. The data included nine 60 -90 minute recorded interviews, one with each participant and one internet interview. Two of the participants partook in a face-to-face interview, seven of the participants were interviewed

over the telephone, and one participant responded through e-mail. A number of studies within the sport psychology literature have involved telephone interviews either with half or all of the participants (Farres, 2002; Gould, Jackson, & Finch, 1993). The researchers specified that they found no difference between the quality and depth of the data in comparison to the face-to-face interviews. According to Taylor and Bogden (1998), participants may actually be more forthcoming in a telephone interview because of their perceived anonymity. Furthermore, participants appeared just as, if not more, comfortable over the telephone.

Each participant partook in a semi-structured interview, which was guided by an interview guide (see Appendix A). The interview guide included 11 main questions, each question followed by several probe questions. The questions were predominately open ended which enabled participants to express themselves without feeling constrained.

Pilot interviews

As part of the current research, two separate pilot interviews were conducted in March 2002. Two male mountain climbers who successfully reached the top of Mount Everest at least once were asked about their Everest experience. Both of these climbers, however, were part of the current study as they partook in a second interview. Using an in-depth, semi-structured interview, participants were asked to describe and explain their experience preparing for the adventure, the obstacles they faced along the journey, ascending to the summit of the mountain, and descending to base camp.

Important insights were gained into the mental strategies used by these Everest climbers to climb successfully and overcome obstacles. Many specific examples were provided to demonstrate the role of mental preparation in climbing Everest, the obstacles faced throughout the journey, and strategies used to overcome adversity. Examples of mental strategies included detailed preparation, imagery, teamwork, self-confidence, and focus on short-term goals.

Conducting the two pilot interviews helped to uncover some potentially important themes in overcoming obstacles while climbing Mount Everest. The pilot interviews also aided in

redefining and further developing questions pertaining to the purpose of this study. For example, questions regarding the role of mental toughness were added to the interview guide. Conducting the pilot interviews also helped redefine and clarify the purpose of the study so that the focus was not solely on the climb to the summit, but also addressed the phase before and after the climb to the top. Climbers not only encounter obstacles on the way up the mountain, but they also experience adversity preparing for the climb and on the descent. The researcher also had the opportunity to refine her interviewing skills. Furthermore, the pilot interviews helped to support the importance of studying Everest climbers and their mental strategies. The information gathered from both participants revealed the importance of mental strategies and psychological strength in order to complete a high-risk adventure such as this.

Data Recording Procedures

Except for the one interview that was carried out over the internet, all of the interviews were audio taped to verbally record the information gathered from each participant. Tape recording the interviews ensured that the entire interview was maintained in an accurate and retrievable manner. This allowed the researcher to accurately transcribe, analyze, and quote the exact words of the participants. All of the interviews were transcribed directly from the tapes. Transcribing gave the researcher the opportunity to read and examine each interview carefully and discover emerging themes, ideas, and concepts. With regards to the interview that was carried out over the internet, the participant was initially given all the 11 main questions to answer. The answers were returned to the researcher to be read, examined, and accurately analyzed. The next step included asking various probe questions for clarification purposes and further detail.

Data Analysis Procedures

The purpose of the data analysis was to understand and accurately report the participants' experiences and realities, particularly with respect to the role that mental strategies played in a successful climb. The initial step in the qualitative data analysis involved absorbing the

researcher in the process of transcribing each interview. The researcher personally transcribed all of the interviews. Conducting the interviews, listening to the interview tapes prior to transcription, as well as reading the interview transcripts were also opportunities for data analysis (Maxwell, 1996). The next step was to send back the transcribed interview to each participant for authentication. Once the interviews were sent back to the researcher each transcript was re-read and then highlighted where mental strategies were mentioned or discussed (Orlick, personal communication, 2002). The next step was to extract information pertaining to mental strategies and assign a temporary name or label to each piece of that text. Memos were written often during the process of data analysis as they captured the researchers' thinking about the data, facilitated such thinking, and documented the decision-making process (Rubin & Rubin, 1995).

The next step in the process of analyzing data was categorizing. The traditional approach, using paper and pen to code data was implemented. Coding is the process of classifying individual responses into categories that bring together similar ideas, concepts, or themes (Rubin & Rubin, 1995). An inductive method of data analysis was implemented to group together common themes and concepts. General categories and sub-categories were created. The researcher with the collaboration of her supervisor, made comparisons and contrasts between each category (Creswell, 1994).

Trustworthiness

The two pilot interviews were conducted to confirm that the entire research process and more specifically the questions the researcher asked were valid and well structured. The pilot interviews added to the validity of this study. The sequence of questions I asked in my interview guide began with a general question, followed by several probing questions. The probing questions were asked to allow participants to expand further on a particular question or issue. This procedure led to rich and detailed information. The participants also had the opportunity to add, comment, or elaborate on any of the questions. All interviews were transcribed verbatim and then given back to the participants to be read and validated. Please note that one of the

interviews was not given back to the participant to be validated due to a climbing accident that resulted in death. Participants were free to add, elaborate, change, or comment on any part of the interview or interview process. All of the participants confirmed the accuracy and validity of their own transcripts. This member checking added credibility to and confirmability of the data. Furthermore, each participant was given a list of the results, which included a detailed description of each mental strategy that was used by the majority of participants to prepare for and climb the mountain.

Limitations of the Study

The detailed recall of the climbers was impressive, however it is likely that certain limitations in recall occurred when getting specific detail from the participants. This is a limitation when an extended period of time has passed between the time the climbers were on the mountain and when the interviews were conducted. When interviewing the participants one climber reached the summit 10 years ago, 7 climbers made it to the top within 3 to 5 years ago, and 2 of the participants within a year. The most valuable and ideal method to get as close as possible to the real experience of high altitude climbing is for the researcher to immerse himself or herself in the context and be on the mountain with the climbers as they perform. This method of collecting data was not possible for this study due to financial and time restrictions.

The number of people who reach the top of Mount Everest is limited. Therefore, a sample of 10 is acceptable in a qualitative study such as this one. However, 7 out of the 10 participants were interviewed over the telephone and one over the internet, which may have been a limiting factor. In phone and internet interviews, conversational cues can be missed, making for difficult interviewing under the best of circumstances (Rubin & Rubin, 1995). To maximize detail and depth on the telephone, the researcher ensured that each participant knew that what they had to offer was important, that the researcher was an appropriate person for them to talk to (a Master's student at the University of Ottawa) and was knowledgeable about the sport of high altitude climbing, and that the researcher required detailed information.

Finally, it is important to note that this study is confined to the sport of high altitude climbing and therefore may have limited generalizability to other high performance athletes and sports. It is hoped however, that the insights gained from the in-depth interviews may be of practical value for other athletes'/performers in pursuit of excellence. It is hoped that the rich and detailed descriptions of the 10 cases will help us better understand the mental strategies needed to succeed in the pursuit of performance excellence and survival in high altitude climbing.

Results

The research objectives of this study on mental strategies of elite Mount Everest climbers were twofold. The first objective was to advance our knowledge regarding what mental strategies elite Everest climbers' used in preparation for the climb. The second objective was to discover the mental strategies used by elite high altitude climbers to overcome obstacles while successfully climbing Mount Everest.

The richness and complexity of the data obtained from the in-depth discussions with each climber provided opportunities to explore each of these participants' experiences, including preparation strategies, along with thoughts, feelings, and obstacles encountered when climbing Mount Everest. Furthermore, the results provided interesting information regarding the impact this experience had on the participants' lives and advice they had for other climbers attempting to climb Mount Everest.

The results from the 10 interviews revealed that the elite Everest climbers used various mental strategies to prepare for the climb, and to overcome obstacles while climbing to the summit, and descending the mountain. Themes that emerged from the data are presented and discussed in conjunction with direct quotes from the interviews in order to present the participants perspectives in their own words. For presentation purposes, the main mental strategies are divided into three phases of the climb as expressed by the participants. To begin however, a section on the obstacles that were encountered on the mountain will be included. The three phases of the climb include, the preparation phase, the ascent, and the descent.

Obstacles

All of the 10 participants faced various obstacles while climbing Mount Everest (see table 2). They were asked to describe the obstacles they came across including

Table 2

Summary of Challenging Obstacles Climbers Encountered on Mount Everest

Obstacles	Number of Climbers
Extreme fatigue	7
Oxygen depletion	4
Physical discomfort	4
High winds	3
Fear of death or injury	3
Stress	3
Friction with other climbers	3
Cold temperatures	2
Insomnia, problems sleeping	2
Following another climbers pace	1
Poor nutrition	1

environmental factors, technical, physical, psychological, and relationship/team problems.

Examples of obstacles that potentially could have impeded success on the mountain included extreme fatigue, oxygen depletion (AMS), high winds, cold temperatures, fear of death or injury, stress, and friction with other climbers on the mountain. Obstacles were encountered on the climb to the summit of the mountain as well as on the descent. All of the participants spoke about how these obstacles, many of them life threatening, are a part of the sport of high altitude climbing. Each participant expressed the importance of preparing ahead of time for these potential setbacks and applying the appropriate strategies to get through them and continue climbing. The following section describes in detail, the mental strategies used by these elite climbers to overcome obstacles on Mount Everest.

Mental Strategies

Preparation phase

Effectively preparing oneself to climb Mount Everest is crucial to the success of reaching the summit. Because Mount Everest climbers know that they will be faced with the possibility of serious illness and death once they reach the mountain, they accurately prepare ahead of time. All 10 participants spoke of the importance of preparing themselves mentally, as well as physically and logistically for the climb. The purpose of the current study was to focus on how successful climbers mentally prepared themselves for the adventure. Therefore, each climber was asked how he or she prepared for the climb, from a psychological standpoint, and what he or she was thinking and feeling throughout this phase. The mental strategies used by most of the participants during this phase included detailed planning, imagery, and developing mental strength (see figure 1).

Detailed planning. Part of what allows successful Everest climbers to stay focused and remain confident on the mountain is their ability to thoroughly plan for the adventure. The actual climb on Mount Everest takes about two months, including various acclimatization climbs, rest days, and the final push to the summit of the mountain. Because it is important for the climbers to remain focused, committed, and healthy for such a long period of time, all of the 10 climbers spoke of planning for the climb years ahead of time. Climbers were asked to recall their preparation activities prior to climbing Mount Everest. For many of the climbers, logistical planning, which included paying great attention to detail was a key component in being successfully prepared for the expedition.

Normally you have to apply for a permit through the ministry of tourism way ahead of time. Then about two months out, you make sure that you have the oxygen, you have to

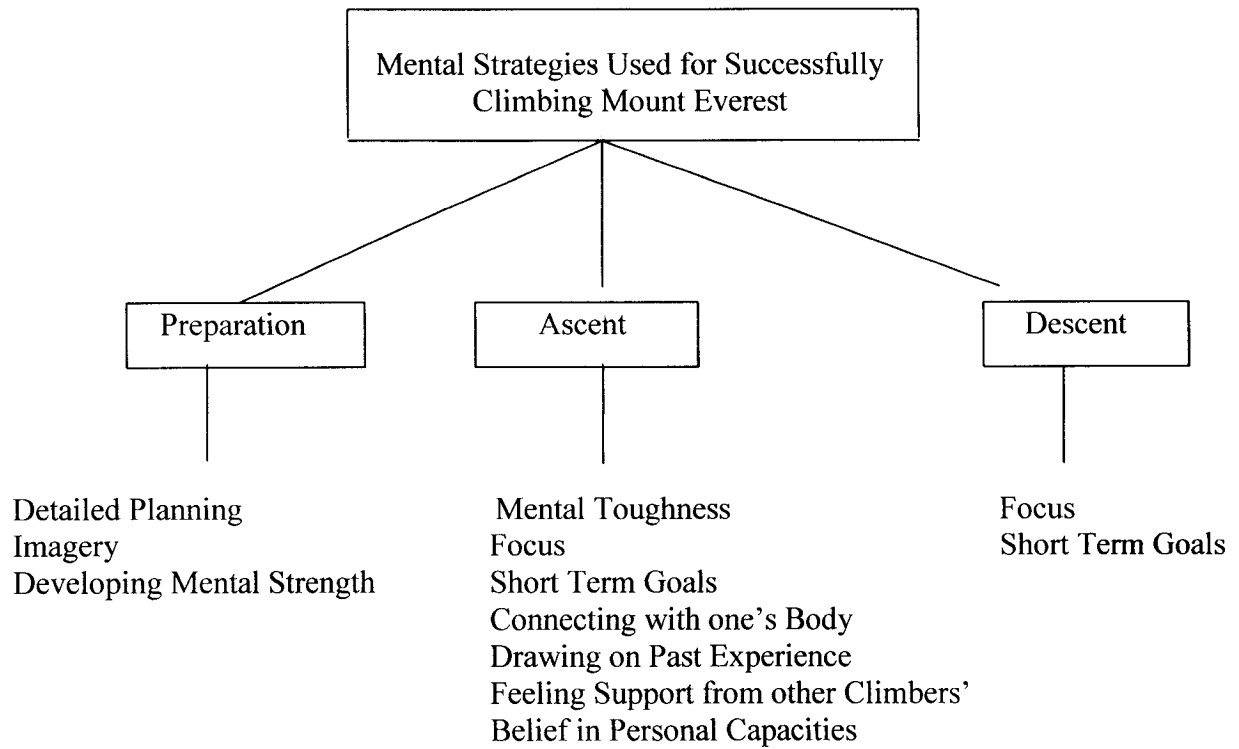


FIGURE 1
CONCEPTUAL FRAMEWORK FOR THE SUCCESSFUL COMPLETION OF A
MOUNT EVEREST CLIMB

order it as well as certain foods and gas from different countries and send it into Nepal.

You have to plan all these details way ahead of time. Then, about a month away you start buying the food that you will be bringing from the States, hiring the Sherpas, the cooks, and the cooks' helpers. And then you have to make sure that you have the proper tents, cook sets, and stoves. It is important not to plan 80 million things right before the expedition. This strategy helps alleviate stress on the mountain. (Climber 3)

I ran through the whole expedition in my head from start to finish a year ahead of time. I thought about how much food we were bringing, what would be the twelve and a half tons of gear and food we would need to bring on the mountain, how it would all unfold from permits to hiring the porters to bringing it all to base camp, what the schedule would be at base camp, how would we live out the two and a half months on the mountain, and the Khumbu icefall. I basically planned the whole climb before leaving for the Himalayas. I then relived it in my head day after day. (Climber 10)

Another way to plan for the climb was to gain as much knowledge as possible relevant to climbing Mount Everest. Learning about the subject helped the participants prepare for difficult moments on the mountain and in turn to react effectively when faced with such various obstacles on the mountain.

The most important thing is planning because if you are prepared for all situations then you feel safe mentally. It is important to have all the knowledge you need for the climb. Reading books and talking with other climbers is important. One year before departing I also prepared all the necessary details. For example, I got a special tent and stove made for me. So, preparation is the key to success. (Climber 6)

I believe that it is all about the planning and preparation. Understanding what you are getting into and understanding to a point that it is intuitive. Everything that you are doing you don't want to have to think about it, you want to do it naturally. Building in redundancy and contingency factors should you come across a set back, you can step back and assess the obstacle and deal with it because you planned it out thoroughly. I learned everything I had to learn about the subject matter in order to eliminate possible setbacks. (Climber 5)

...low and behold while we were doing our summit bid a young 19 year old boy fell off the roof at camp 4. We were at camp 2 and we saw that he had been in the same place for two hours. We knew he was in trouble. So we coordinated a group of ourselves and Sherpas to go and get him. We all met at camp 3 and treated his injuries. We were able to execute effectively because we planned for that type of scenario two years ago. (Climber 10)

Imagery. Closely related to the strategy of planning is imagery. 'Seeing' and 'feeling' oneself execute certain moves or strategies was a common practice of mental preparation prior to the actual climb. Out of the 10 climbers, 6 participants reported using imagery as a strategy to help them perform through difficult phases on the mountain. Climber 3 said "I imagined myself on the summit. I also saw myself climbing and having a positive outlook getting there."

I imagined myself getting to certain places on the mountain. I imagined how I was going to get to the Hilary Step, what I was going to feel like even though I couldn't actually feel the emotion or the physical hurt because it was all in my head. I imagined what I was going to feel like, so when I got to that state and that was how I felt, I would know what it is and keep going. (Climber 10)

Climber 7 said “I would see myself walking up to the summit. And then I would see myself on the top of the mountain.” And, climber 8 said “I visualized a hard day climbing. Climbing a mountain is one step at a time. I visualized one step at a time.”

Developing mental strength. A mental strategy to prepare for the climb mentioned by five participants included intentionally committing to develop mental strength. In training, the participants spoke of frequently increasing their physical limits and level of discomfort. Pushing themselves physically enabled the participants to gain emotional strength and in turn, develop mental toughness. This mental strategy was a crucial element in the success of reaching the summit of the mountain. When the participants were faced with obstacles that could have impeded their success, they relied on their previous experience and mental strength to overcome the potential setbacks.

I would consciously push myself in training. I would run up Sulfer mountain after a day of climbing and I would push my time. Or, when I would run and cycle and I reached the point where I had enough, and I wanted to back off, I would push that threshold. Pushing that threshold affected the way I climbed mountains. When I was climbing in 1985 I was hit by a rock on the first day and it broke my shoulder. I didn't know that at the time and I still kept climbing as I thought I should be able to work through the pain and push the pain and discomfort. I thought that it would be a lot worse on big mountains. So, I would push that threshold. (Climber 4)

...and that comes with past experience where you were able to get through things: to have the strength to say “yes.” The greatest most single thing is to experience hardship. And, I have suffered a lot on other expeditions before going to Everest. People often ask me what it takes to do Everest and to be honest it is a life time of suffering. That is what you

draw on, that ability to say I can sustain the suffering. Climbing Everest is like an aching tiredness that goes right into the depths of your soul. So, the first time hardship shows up on Everest, and it is a very long suffering period, you are able to endure because you say “yes I have suffered like this before and I have suffered for protracted periods of time.” (Climber 1)

A lot of things are inside me and when you do things through repetition and you do them enough, you understand what it is you can put up with. And, if you are constantly pushing yourself, or pushing your comfort level up and up, pretty soon you get to the point where nothing is going to surprise you. (Climber 5)

An important part of preparing for Everest is to know your physical and mental abilities before hand. You must test yourself, and put yourself through tests back home. For example, I walked 110 kilometers with a backpack without resting. It was then that I knew I was close to my limits, so then I knew I would be able to read the signs when I would go on hard climbs. (Climber 6)

In order to develop mental strength, elite Mount Everest climbers trained in difficult conditions and/or they continually increased the level of intensity and duration of their workouts. This strategy helped the participants to mentally prepare for challenges they faced on the mountain.

The Ascent

Successful Everest climbers incorporated various mental strategies during the climb to the summit of the mountain (see figure 1). The participants were asked what they were thinking and feeling from the time they left base camp to the moment they reached the summit.

Furthermore, they were asked to define the obstacles they faced and how they overcame them to

reach their ultimate goal. The results revealed that elite Everest climbers relied on mental toughness, focus, short-term goals, a connection to their bodies, feeling support from other climbers', drawing on past experience, and confidence in their abilities to help them reach the summit. Furthermore, all of them experienced obstacles on the path to the summit and were effective at overcoming them by using these mental strategies. Examples of obstacles faced during the climb included oxygen depletion, high winds, extreme cold, exhaustion, fear, and conflict with other climbers.

Mental toughness. All of the participants spoke of the importance of developing mental strength in preparation for the climb. This mental strategy was clearly evident in overcoming obstacles on the mountain. All 10 climbers had the ability to endure the emotional discomfort and continue climbing through the physical strains induced by the length of stay at high altitude.

I think that all three elements; emotional, mental, and physical are important. The emotional and mental can be more important. If you have physical problems they will stop you, but what you need is the desire and the ability to focus on the task. The success rate on Everest is minuscule. There are lots of reasons for that. Having all three at the same time, being strong emotionally, mentally, and physically are needed for a successful bid, as well as a dash of luck! (Climber 10)

Mental toughness is extremely important. Especially up high. It hurts up high and for some people it hurts a lot. Altitude is not a comfortable thing. So, you have to be emotionally and mentally tough otherwise you will turn around. (Climber 1)

I would say that mental toughness is one of the most critical elements needed to climb high altitude peaks. It really is not easy when you are above 7000 m. Your body really isn't acclimatizing at that altitude so you are not feeling good, you are not sleeping well,

normally you do not eat well. Being strong mentally and putting up with the discomfort helps a lot with your success. (Climber 2)

Focus. Nine participants spoke of using the strategy of focusing to help them perform through obstacles during the climb to the summit of Mount Everest. Focusing included directing physical and mental energy on the immediacy of climbing the mountain. Focusing allowed the participants to eliminate distractions, to keep concentrated on the task at hand, and to achieve specific objectives.

Very few times on Everest would I ever let emotion in. Down in base camp, hanging in my tent I would have memories of my wife and son, such as cards or letters. That was a safe point. You could allow your guard down. On the mountain you couldn't. There was too much responsibility for yourself and for others. You had to stay focused. To know me is to know that you won't find a more competitive, focused, and determined person. (Climber 5)

Climber 4 and climber 8 spoke of focusing not only on reaching the summit, but more importantly on the immediate task at hand.

One thing I will say about myself is that most people see me as driven and a lot of male mountaineers view me as driven. Yes I am driven. Climbing Everest is a lot of time, money, and involvement. So, I am very driven. But more importantly I tend to focus. In my younger years, I competed at the international level in mountain biking so I have the ability to focus. I tend to take climbing very seriously. I stick to the task at hand, that is my motto (Climber 4).

I visualized one step at a time. Climbing a mountain is one step at a time. You definitely want to be focused on summiting, but you really need to focus on the day to day and that

is the key to being successful. Performing well and doing the right thing each day to prepare yourself mentally and physically for the climb gets you to the summit. You can't focus only on the summit. It is kind of like the forest metaphor and the trees. You have to look at what is in front of you. You have to look at the pine needles before you look at the tree before you look at the whole forest. I have seen climbers who are so focused on the summit that they can't focus on doing a good job and getting through the ice fall safely. You have to be strong, healthy, and hydrated and focus on eating and sleeping and resting enough. (Climber 8)

Focusing on the task at hand helped climber 3 eliminate thoughts of self-doubt.

And I remember very distinctly one night I felt like I had been dragging a very heavy bag behind me all the way up to the summit. And that was difficult, the burden which created doubts within me. As I committed myself to the technical climbing on the yellow band, I cleared my mind of all the doubts. There was no more room for those doubts. What I got instead, was a clear, singular, directed focus that allowed me to continue on. (Climber 3)

Short term goal-setting. Eight of the climbers spoke of the importance of setting short-term goals while climbing on the mountain. Participants set specific, relevant daily goals throughout the entire expedition to the summit. Short-term goals were crucial because it enabled the participants to remain focused on the task at hand and not become overwhelmed by the experience. Finally, short-term goals helped the participants to stay committed to the ultimate goal of reaching the summit and coming back down alive.

Don't aim for the end goal just yet, because you have to go through all the obstacles along the way. I always kept that in mind. I said to myself, I am going for the top, that is my goal, but I am going to go through it step by step. From that step, I am going to go on

to the next step and so on, all the way to the Hilary Step. (Climber 6)

Some climbers put their goals in the wrong place. They put it on the top of the mountain. You should really make your ultimate goal to come back to basecamp. It is important to reach the top, however when it is too dangerous to continue you should be able to turn around even if you are close to your objective. Also, it is important to set little goals along the way. (Climber 7)

There are a lot of times when your focus can wonder because there is a lot of repetition. It can be very bleak as you climb progressively up to the next camps because you go over the same terrain 7 or 8 times so there is way too much time to think and way too much time to let doubts creep in. It was a challenge for me to maintain a sense of momentum throughout the acclimatization stage. So, what kept me going those days was setting short-term goals for myself. I would try and skip a camp in a day. I would go from 2 to 4 in a day and that would give me a sense of accomplishment. (Climber 9)

Climber 10 set small goals and in addition, he was sure to accept himself and his performance regardless of whether or not he achieved these goals.

Set yourself a goal but also set yourself realistic goals and be satisfied once you have achieved those smaller goals. I was satisfied. I told myself, "you know, I made it to camp three, 23 500 feet higher than I have ever been before, if this is my summit then I am going to walk away happy. I will try and go for camp 4 and I will try and reach the summit but if it doesn't happen for whatever reason, I am not going to push the envelope so far that I won't be able to come back." (Climber 10)

Connecting with one's body. Five out of the 10 participants spoke of using the strategy of connecting with their bodies to help them persist through difficult phases on the mountain.

Connecting in this way allowed the climbers to focus on their internal body sensations and monitor their pace. More specifically, this mental strategy helped the participants maintain a slow but steady pace and regulate their breathing and body temperature. Furthermore, the possibility of developing altitude sickness while climbing on the mountain is great. Therefore, being aware of their physical state at all times was crucial to staying alive.

We have the next 9 or 10 hours of climbing to do so I just focused on my breathing and on my heart beat. I got into a zone and everything just started falling into place. Before I knew it I was just climbing, climbing like a machine playing music in my head. I paid attention to my heart beating as I played music in my head breathing and keeping the beat going. The hours would pass, one hour after the next trying to climb through the cold until finally the morning came. (Climber 10)

I would not call it suffering, I would call it discomfort. For example, if you are competing in a race, there is a difference between discomfort and pain. The pain is if you are injured and something is really wrong and you shouldn't be racing. In high altitude climbing, however, discomfort is a normal part of the game and I believe in accepting the discomfort as a normal part of the feel on the mountain. (Climber 4)

Summit night is like a dream walk; your brain is functioning on its most basic levels, your mind riveted on the task at hand – to keep moving your feet, to breath purposefully, to not stop until you can go no higher. (Climber 6)

Participants 7 and 10 spoke of consciously being aware of physical symptoms that may be related to high altitude sickness.

I paid attention to my breathing, to the temperature of my body, and most importantly I was always aware of my physiological state. High altitude sickness is common problem

among climbers on Everest, so I made sure that I paid attention to any possible signs.

(Climber 10)

Climber 7 was not only aware of possible signs of altitude sickness, but she also altered her behavior in response to the discomfort associated to climbing Mount Everest.

Yes I experienced a great deal of discomfort. Altitude is discomfort. The first couple of times in altitude were the worst because I was unsettled and stressed by the discomfort.

By the time I got to Everest, I had got my acclimatization and my response to pain down to a science. In fact the strategy of living and thriving at altitude was part of the appeal of climbing in these big places for me. I learned to perceive pain as information, not necessarily as the warning alarms we were programmed to think it was. I would respond to the information by slowing down, drinking more, altering my sleeping arrangements, or eating more. The biggest challenge was discerning the harmless pain from the warning bells. What is danger pain and what is just plain discomfort? More experience led to more confidence in my ability to judge. (Climber 7)

Like climber 7, climber 1 believed in not only paying attention to the workings of the body, but took it a step further and spoke of enjoying the discomfort involved in high altitude climbing.

I believe that high altitude climbers need to make friends with the discomfort and suffering involved on the climb. For me, experiencing and embracing the pain makes me feel alive. And, when I feel alive and vibrant I push forward. Accepting and thriving off the pain helped me get through the challenges I faced on the mountain. (Climber 1)

Feeling support from other climbers'. Working together with other climbers on the mountain to reach the ultimate goal of reaching the summit was a strategy utilized by many of

the participants. Four out of the 10 climbers overcame obstacles on the path to the summit with the encouragement and strength of those close by. Supporting, challenging, and believing in one another were important elements of success on the mountain.

It is not always about being positive because I remember the day I was going for the summit, there was one guy on our expedition that I did not really like. He wouldn't be someone I would select as my climbing partner. When I wanted to go down, when I thought there was no hope of going on, however, he was the guy who said, "hey, wait a minute, we have come this far. I am not turning around now when I know that I can still go on." And he was the guy who drove us out of our moments when we began getting comfortable. It is not always about being nice to one another, it is about challenging one another and motivating. (Climber 9)

Climber 1 spoke about how he drew on the strength of other climbers to help him push on and not give up when faced with tough times on the mountain.

Yes, you get tired physically but it is more than that, it is an aching tiredness that goes right into the depths of your soul and it is because you are spending so much time up high. It sucks the life out of you and eventually you will sit down and you won't get up. It happens often on Everest. I will tell you that mentally it is really important to have strong people around you who all have the desire to reach the summit. If you want to give yourself the best opportunity to succeed, then the quality of people around you should matter. And, I am not saying quality in that they have to be morally upright or super happy all the time. What I mean is how strong they are in terms of mental strength, ability to climb, and being driven by the summit. (Climber 1)

Working together and being committed to achieve common goals with other climbers on the mountain helped climber 4 and climber 9 succeed in reaching the summit of Mount Everest.

When we went up and summited, the people I was around were very strong, really strong and because of that we were able to get up really quickly. We all really wanted to reach the summit. (Climber 4)

One of the things is being a good team member, and that is really critical, and sometimes that is not easy to do especially if you have problems with one of the climbers or there is friction with one of the other climbers. I think the big thing is staying motivated and committed to being a team player. It doesn't matter if you are the leader or you are part of the expedition, everyone has a part and you have to do your part. Doing your part from cooking at camp three, to going out and getting snow, just being a team player is critical and helps in the success of the team. (Climber 9)

Drawing on past experiences. Four of the 10 climbers talked about the importance of drawing on past experiences in order to persist through the struggles and difficult moments on the mountain. They spoke about learning from each past climbing experience, by drawing out insights or lessons to help them prepare for potential tough conditions in the future. By being in high altitude environments as often as possible, they gained a strong foundation of knowledge and drew upon it when they were faced with life threatening or challenging times. Climber 2 said, "It was this cumulative experience and the lessons gained from the failures, epics, and hardships that proved to be our most valuable asset and investment in tackling Mount Everest and coming back alive." Furthermore, field experience created a sense of confidence and certainty on the mountain.

I think it is important to learn from past climbing experiences and use what you have learned on Everest. Learn what works for you and what doesn't. The main thing is drinking a lot. When you don't drink you become dehydrated and it affects your performance and your ability to acclimatize. So you learn little tricks to help you out and be more efficient up there. Like right when you get into a camp, you start boiling snow and start drinking instead of waiting till later when you don't feel like getting out of your tent. You learn how to stay warmer, learn what systems for your feet work, so it gets easier and as a result your mental state improves. (Climber 9)

You are drawing on past experiences. You may feel overwhelmed by your senses at the time but if you can go back to a place when you were younger, where you had a bad experience or several bad experiences and draw strengths from the fact that you are here now and those experiences didn't stop your life from going on. You will get through it. And that comes with those experiences from the past where you were able to get through things. (Climber 1)

Belief in personal capacity. Directly related to the capacity to draw on past climbing experiences is the belief in oneself. Drawing on real-world evidence that demonstrates your capacity to perform well under harsh conditions lends itself to feeling fully confident. The participants were confident in their abilities to make it to the summit and return safely. Believing in themselves allowed them to stay positive and persistent when faced with obstacles on the mountain.

I believed in my ability to make it to the top from day one, from the moment I made this decision three years ago. It was actually a dream of mine for 10 years. When I climbed and summated Mount Aconcagua, somehow I just knew I could climb Everest. I never

told anyone that I knew I could climb it. I didn't want to sound arrogant, but inside me, I seemed to know it. But then came obstacles, and so I had to decide how much I believed in my dream. Often I thought that it was not going to happen, you have run into a brick wall here, and a brick wall there. But I kept pushing on and I didn't give up on my dream. Sometimes you just need that belief in yourself to keep you going and to get through the obstacles. For example, at the Hilary Step I realized a goal of mine and that gave me the confidence to go after my next objective. One advantage I have is the belief in myself. (Climber 10)

I failed on Everest four times before reaching the summit on my fifth attempt. What made the fifth attempt different was that I really had the confidence that I could do it. I trained a whole lot harder and as a result I felt stronger physically. I think that was the major difference concerning my mental state. (Climber 7)

It is important to train physically hard because that helps with your confidence on the mountain. In turn, your confidence reflects what is taking place as you are climbing. I think that it comes down to experience to be honest with you. Experience breeds confidence. I often thought back to past climbing expeditions where we succeeded and used those memories to feel strong and sure of my abilities. (Climber 2)

The Descent

Climbing Mount Everest is not over until the climbers have returned from the summit of the mountain to base camp. Descending the mountain to base camp usually takes up to two days. Climbers will attempt to descend as far down the mountain as possible, however, they normally rest at camp four or camp three before leaving the next day for base camp. It is clearly evident

that mental strategies are not only employed as climbers ascend the mountain but also during the descent to overcome obstacles (see figure 1).

Focus. Focus was reported to be one of two critical mental strategies used on the descent phase of climbing Mount Everest. Most of the participants said that because they were so tired and worn out after reaching the summit, they had to spend what remained of their energies on focusing on the task at hand. Some climbers believe that the ability to focus is more important on the descent than on the ascent.

It is even more important to focus during the descent because your body is not responding the way it should. You are so tired and depleted from the climb that staying focused on every step in front of you is crucial. Otherwise things like clipping a crampon can occur. (Climber 1)

The descent is historically where climbers make mistakes and the post summit adrenaline is gone. I am always very focused in the mountains, but during the descent my focus is at its peak. When guiding, it's looking out for the clients, checking and re-checking anchors, fixed lines, watching weather, other climbers etc. Until we exit the icefall and all the members, both climbers and Sherpas are safe, my guard and focus remains heightened. It's not that I lose the joy after having reached the summit, but it is like bitter sweet until we are all safe. Respect for Everest is key to living and having the opportunity to return and celebrate. (Climber 8)

I found that the descent was in a sense harder than going up. After reaching the goal of summiting Everest, and putting so much energy in it, there is a sudden sense of wanting to let go of the effort. I was aware of this because we had talked a lot about what to do if/when you get to the top. What not to do is drop your guard because at the top of a

mountain, you are only half way to the real goal, which is getting back down safely. Nonetheless, I used a lot of energy to reach the top and it then became a question of managing my reserves to make it down safely. I was incredibly tired going down, exhausted but aware of my surroundings. I kept telling myself concentrate, one step at a time, your not done yet, breathe. I had to stop around five times to rest during the descent and then force myself to get up again and keep going. I didn't feel any emotion, no joy or sadness. I was putting all my thoughts on getting back to camp 4. I would focus on moving until my body would force me to stop. (Climber 10)

Short term goal-setting. In addition to utilizing the mental strategy of focusing, 6 of the 10 participants spoke of setting short-term goals as they descended the mountain from the summit. Setting small, realistic goals helped the participants to stay focused and committed to the descent experience.

Setting short-term goals is really important when coming down the mountain. The goals I set were realistic. Because you are so tired and worn out on the descent, it is crucial that you set these small goals so you don't become overwhelmed by the experience. When you are climbing, you always have to keep in mind that the summit is only part of the climb. In my opinion, a climb is only successful once you have reached base camp from the summit. You also need to monitor your reserves because climbing from the summit to base camp is long. (Climber 3)

Getting off the mountain required everything I had in the 'shoulders up' department. My approach was very deliberate, as I knew how close to the edge I was of losing it. I was very frightened because of this and much of what I had left went into keeping that fear and panic at bay. I did this by reminding myself of all the epics and close calls I had

successfully fought my way through in the past and that these experiences would get me down. I also had to force myself to be very patient and to move slowly and deliberately. I focused on the short-term goal. My headlamp cast a circle of light about a meter in diameter, that circle became the range of my focus. Making the next step down was my goal and once I got there I'd move on to the next. The greatest challenge was keeping that narrow of a focus and not getting pulled off on to the overwhelming magnitude of having to get all the way down to the final camp. (Climber 4)

Impact Climbing Everest had on Participants' Lives

The participants were asked to describe if climbing Mount Everest influenced their lives and if yes, in what way. Out of the 10 climbers, 7 of them felt that this experience had a profoundly positive impact on their lives, whereas the other three participants experienced no change. Most of the seven climbers who experienced a significant life change after the climb, gained confidence in their ability to take on new challenges (see diagram 1).

Sometimes you just need the belief in yourself to get through the many obstacles. I realized that they didn't stop me, it was questionable at times but some how it worked and I made it through so many obstacles. And, that has given me the self-confidence to go after other objectives. Next year is a triathlon; I am going to do the qualifier for the Iron man in Hawaii. That was a goal I made 10 years ago. After Everest, I pulled out my goal sheet and I looked and said what else do I want to do. So, Everest gave me the confidence to say, " even though I don't know the end result and I don't know what obstacles are in front of me, I will go and try," because in the end, you realize it is not the goal, it is the road you took, the traveling, the experience, the obstacles, and how you

overcame them and everything you saw along the way. The entire two years planning and climbing on the mountain were amazing. (Climber 10)

The first time I climbed Everest, it absolutely changed my life. It opened doors for me. And it was almost like, this will sound really corny but I want to tell you anyways, it was almost like I had a big energy shift on Everest. When I came down from the mountain, I approached the world in a different way. And maybe it was because I had achieved what was a big dream for me. It just seemed like it opened new doors and my life changed now that I have done it a second time. I think that my life is changing even more in some ways and that has never happened with any other mountain. I will tell you right now that it changed my life tremendously. (Climber 4)

It changed my whole life for one, my career changed. I became a motivational speaker even though I hated it, I was terrified of it but I wanted to conquer this fear more than give into it. I tell my story to organizations and corporations about 30 times a year. I speak for an hour. My story parallels their own aspirations and for them it is a refreshing context. I also learned that by doing well in one arena, I have the confidence to tackle new challenges; challenges that are outside of my expertise which have lead to further diversification, liberation, satisfaction, and balance in my life. (Climber 9)

It has changed me, my understanding of my abilities and it has reinforced that I am stronger. I have more scar tissue because of it and so therefore, I am fundamentally changed but not in that ethereal sense of "Oh! I saw God." I believe that anytime you push yourself, you learn something and you change because of it. So, it does change people, but to what degree, I guess it depends on the person and their wealth of experience before going there. (Climber 1)

Everest has had an impact on my life. I am amazed by it. Climbing the mountain is only one example. However, the traveling, living in a foreign land and seeing a different religion has inspired me. For example, when I was trekking to base camp and I couldn't find any food a Nepalese family invited me for lunch in their house. They were really poor and had only three eggs to eat. The family consisted of 14 people. Without hesitating they offered me one of the eggs. I couldn't say no because I didn't want to humiliate them by thinking that they needed the food more than me. That shook me. So I started a school down there for children. We have 172 pupils and 7 teachers. It is located in the Khumbu valley. We have also put up a water power plants and a hospital. I believe that it is important to give back to the people who have given me so much. (Climber 6)

The three other participants said that climbing Mount Everest had no impact on their lives. For them, climbing Everest was just like climbing any other mountain. The experience had no significant effect on their lives or themselves as people.

No, I am the same person I was before and after the climb. I think that the media looks at it differently than it is. I think that a lot of armchair mountaineers look at Everest as the icon, as the ultimate goal, or as winning the Super bowl. Yet, really it is another high mountain. Yes it is the highest mountain in the world and what I accomplished is great but it didn't really change me. (Climber 5)

Everest is just a piece of rock and ice. My belief is that you either have it or you don't. You either want it or you don't. Everest is not a big deal for me. It is just a mountain, no better or no worse than any other goal I have set out to achieve. It was just a goal for me. I may have a different outlook than other people who have climbed Everest in that I downplay it. But I believe that there are far more important achievements. I am the way I

am, very focused, determined and very process oriented and that has not changed because of Everest. (Climber 2)

Advice for Others Climbing Mount Everest

The climbers were asked if they had any advice for other climbers who hope to climb Mount Everest. Five out of the 10 climbers recommended that anyone who wants to succeed on Mount Everest gain high altitude climbing experience. Two participants suggested that climbers train hard both physically and mentally before attempting to climb Mount Everest. The participants' recommendations center around thoroughly preparing for the climb (see diagram 1).

I would tell someone who wanted to succeed on Everest to gain climbing experience, and to train very hard emotionally, mentally, and physically. Anyone under stress and extreme pressure who performs in a high-risk environment has to trust the fact that they have trained everything that is under their control. I would also suggest that climbers go under a series of extreme challenges so they can practice relying on their training to help them. When you go numb mentally, which is often the case on Everest, you can then rely on your past experience to get you through. (Climber 1)

Train, train, and train. By training I mean go and climb as many high altitude peaks as possible. Only by being in the mountains can you learn tricks to help you. It is important to be wise on the mountain. Wisdom comes with actual experience. For example, learning weather patterns so you know when and when not to climb. (Climber 6)

I would tell someone who wanted to climb Everest to train extremely hard and get lots of experience. I know that is what helped me the most. Spend a lot of time in the mountains. For example, learning rope skills. Go to another 8000 m peak first, before going to Everest and that way you know how you are going to do on supplemental oxygen. I think

a lot of people go to Everest with not enough experience. And Everest is very expensive. I would say take your time. Take a very focused path. Train hard, and learn your skills. You have to know how to jumal before you go up the Khumbu icefall. Don't try and learn it there. I saw one guy on our team who felt so sure of his skills and then it came to a point where we were doing a lot of repelling and a lot of jumaring and he didn't know how to do it. You can not be learning that stuff on Everest. Mount McKinley is actually a great training peak. It is as cold as you can only imagine up there. Then go to Aconcagua. It is not as cold but it is higher so you will gain experience in high altitude. Take a very gradual path. Those who take their time have no problem on Everest. Everest has a very sharp tail and it is a big mountain. You can get into a very bad situation very quickly. When things go wrong they go very wrong, and lots of people underestimate it. I trained so hard, and I was so happy that I was so fit because when summit day came it was not a problem. It made it a nice experience. It is important to enjoy the process. If you can go as a woman and be really strong physically and technically, then you are a step ahead because everyone expects you to be the weakest link. (Climber 5)

Discussion and Reflections

High altitude climbers have been previously well researched from two major perspectives; their physiological and psychological adaptation to high altitude and their personality profiles. However, although mountain climbers have emphasized the importance of mental strategies and preparation in anecdotal reports, very little research has been conducted on the topic. The current study was the first to explore the mental strategies used to perform in the high-risk sport of high altitude climbing. For this initial study, it seemed suitable to use in-depth interviews to explore the mental strategies of 10 successful Mount Everest climbers.

It is clear that climbing Mount Everest is an extraordinary physical, mental, and emotional test. With the constant threat of danger, and potential death, high altitude climbing differs greatly from many other sports. The climbers mind must learn to cope with danger, death, sleep deprivation, cold, fatigue, avalanches, and various other potential setbacks for over a two-month period. It was fascinating to learn how well the successful Mount Everest climbers in this study applied the various mental strategies in such extreme circumstances. In my opinion, this study only opened the door to the mental strategies used in the sport of high altitude climbing to overcome obstacles such as these.

As a result of talking at length with each climber, it became very clear that success on Mount Everest is very much about having the proper mindset as well as strong mental skills to perform during training and while climbing on the mountain. Obviously, being physically strong, having the required technical skills, and being prepared logistically are also important aspects needed for a successful summit. However, most of the climbers emphasized that what separated them from many of the climbers who have not succeed on Everest was their mental strength and their ability to apply mental strategies during hardship.

Mental strategies used by elite athletes in various other sports are well documented. High-level athletes have been found to use various mental strategies to enhance performance before, during, and after competition. Some of the mental strategies used by the elite climbers in this study, all of whom successfully climbed Mount Everest, are similar to the mental strategies used by elite athletes in various other sports.

In preparation for climbing Mount Everest, the participants in the current study used imagery, engaged in detailed planning, and developed their mental strength, to ensure success. It was found in Orlick and Partington's (1988) study on mental links to excellence that successful Olympians also used imagery and detailed pre-competition planning to prepare to perform at an important event. Similarly, Ungerleider and Golding (1991) found that Olympic track and field athletes used mental practice strategies, specifically, detailed visualization before the Olympic games. According to the review of literature on mental strategies used by successful athletes in various sports, imagery and detailed planning are two common mental strategies used to achieve high levels of performance.

Although developing mental strength may be important in many sports, it is an essential preparation strategy in successful high altitude climbing. It is possible that high altitude climbers strengthen their minds in training because they know that they will be faced with numerous life threatening obstacles on the mountain that require strength to survive. Furthermore, associated with climbing Mount Everest is discomfort. It appears that climbers develop mental strength in the knowing that they will have to endure a tremendous amount of discomfort for a long period of time. Mental strength helps climbers cope with discomfort.

The results in the ascent phase of climbing Mount Everest provide support for Orlick's (1996) seven critical components of personal excellence. Orlick's Wheel of Excellence

represents a conceptual framework for the pursuit of excellence based on the results of in-depth interviews with world-class athletes (Orlick & Lee-Gartner, 1995; Orlick & Partington, 1988), as well as ongoing work with individuals engaged in other high performance pursuits (Orlick, 2000). The seven elements of excellence in the model include commitment, belief, positive imagery, mental readiness, full focus, distraction control, and on-going learning. As the Mount Everest climbers successfully met the challenges of the mountain, they spoke of the importance of using all of the elements from the Wheel of Excellence to help them overcome obstacles on the path to the summit. These mental strategies enabled the high altitude climbers to reach the summit and return safely to base camp.

These climbers also utilized a specific mental strategy during the ascent, connecting with their bodies, which was found to be related to enhanced performance in long distance running (Patrick & Hrycaiko, 1998; Schomer, 1986; Silva & Applebaum, 1989; Tammen, 1996). Many of the successful Mount Everest climbers in this study connected with their bodies to succeed with the immense effort involved in reaching the summit. There was continual self-monitoring with respect to how the climbers were feeling internally. It is possible that the reason climbers are in touch with the physiology of their bodies when climbing is so they do not get sick to the point that they may lay down and never get up. With the high risk of developing high altitude sickness and climbing in a diminished state of mind, climbers need to listen to their bodies and be aware at all times of potential symptoms of high altitude.

Furthermore, the elite Mount Everest climbers in this study utilized various mental strategies found in other high demanding performance domains. In a study carried out by Orlick (1999) an astronaut who was the first Canadian to fly as a mission specialist, to pilot a docking with the Russian space station, and to operate the Canadarm in space was interviewed. The

purpose of the interview was to explore the mental strategies used by the participant to excel in this high demanding pursuit. The results revealed that detailed preparation, focus, imagery, and on-going learning were used as strategies for success. An example of preparing fully for space flight included figuring out what it is you are trying to do and having a clear picture of that, followed by developing a clear picture of what you can do for all the possible things that can go wrong (Orlick). Similarly, high altitude climbers need to develop a plan ahead of time to successfully overcome potential setbacks. In a high demanding environment like climbing Mount Everest there is little time to think in a dangerous situation. Climbers need to react immediately to overcome obstacles.

In another study conducted by Orlick (2001) a cardio-thoracic surgeon was interviewed for the purpose of exploring the mental strategies used to perform and deal effectively with the element of uncertainty in the high demanding domain of surgery. The mental strategies found by Orlick which are similar to climbing Mount Everest included focus, belief in oneself, and teamwork.

The results of both Orlick's (1999, 2001) studies are based on one participant, which is a limiting factor. The similarities however, between the performance domains of flying a space shuttle, performing surgery, and climbing Mount Everest are clearly evident. Achieving the difficult goal of excellence in surgery, space flight, or high altitude climbing includes elements of extreme risk, stress, and high demands. The results of this study on mental strategies of elite Mount Everest climbers are somewhat linked to the sport of high altitude climbing however, it is interesting to note the similarities between climbing Mount Everest and other high demanding performance domains with respect to mental strategies and excellence.

It is fascinating the impact that mental strategies have on the success of climbing high altitude peaks. Many of the participants said that success on Everest is 70% mental, yet so little is known about what it takes mentally to reach the peak and return home safely. As the climbers spoke about the importance of not focusing solely on the summit but also on returning home safely, they touched on the importance of using mental strategies to descend the mountain. It was made clear in the interviews that once an Everest climber reached the summit they were mentally, emotionally, and physically exhausted. Therefore, they needed to use the strategies of short term goals and focus to return safely to base camp. Focus is needed so that the climbers do not make a mistake such as clipping a crampon as a result of feeling extremely fatigued. Short term goals help climbers stay focused and it is possible that they force the climber to continue descending the mountain despite the pull to sit down and go to sleep.

Some of the climbers in this study changed after their experience on Mount Everest while others did not feel like that had changed after the expedition. It is possible that the climbers who experienced no change may be climbers with a great deal of experience climbing high altitude peaks. The participants in this study varied with respect to their climbing backgrounds. It could be assumed that experienced climbers saw Everest as just another mountain.

Much has been learned from these elite high altitude climbers that will help other high altitude climbers in their pursuit of excellence. It makes sense that to prepare for a challenge such as this one should prepare fully, train hard both mentally and physically, and gain climbing experience. It is possible that because of the fatigue and the discomfort associated with high altitude, climbers need to train as much as possible in the natural environment so that their actions become instinctual when they are on Everest. The more familiar and natural the climber is in the environment the less chance of errors will occur.

Future Research Considerations

Much has been learned from this study on preparing for and achieving excellence in the sport of high altitude climbing. Although a great deal was learned, much remains to be learned. For one, as mentioned in the discussion, some of the participants in this study briefly touched on mental strategies such as, commitment and being positive that were not found to be common mental strategies of success. Perhaps it was just an omission on their part. Future research could further explore these elements to determine their influence on success in high altitude climbing. Secondly, it would be useful to do a comparison study with Mount Everest climbers who did not succeed in reaching the summit of the mountain to explore the mental strategies used by these climbers. Finally, it would be of value to examine the reasons why individuals partake in the high-risk sport of high altitude climbing. For instance, one participant in this study touched on feelings as a motive for climbing. It would be interesting to examine the feelings associated with preparing for and climbing Mount Everest.

Conclusion

Various mental strategies are used to prepare for and to successfully climb Mount Everest. Successful Mount Everest climbers use the strategies of detailed planning, imagery, and developing mental toughness to prepare for the challenge. While ascending the mountain, climbers use the strategies of mental toughness, focus, short-term goals, connecting with one's body, feeling support from other climbers', drawing on past experience, and belief in personal capacities to overcome obstacles. They also use short-term goals and the strategy of focus to overcome obstacles while descending the mountain. Much has been learned on the mental strategies used to achieve excellence in the sport of high altitude climbing. This study contributes to existing literature on mental strategies used in preparation for and while climbing high altitude

peaks. The insights of elite Mount Everest climbers increase our understanding of the role of mental strategies in the achievement of difficult goals and on the process of overcoming significant obstacles faced by athletes in various high-risk sports. Hopefully, the insights gained will be of practical value for sport psychologists, expedition leaders, high altitude climbers, and other athlete performers in pursuit of excellence.

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Appendix C

INTERVIEW GUIDE

Preliminary stage: (a) establishing rapport

Warm-up question: Could you tell me about your climbing background?

Q1. Can you take me through the planning or preparation phase?

*probe for: thoughts during the preparation phase
preparation strategies
obstacles*

Q2. Can you take me through your journey - arriving in Nepal, base camp, camp 1, 2, 3, 4, summiting and descending?

*probe for: feelings while climbing
thoughts during the climb
obstacles*

Q3. What were the greatest obstacles you faced?

*probe for: environmental factors
technical problems
physical problems
psychological problems
relationship/team problems*

Q4. How did you get yourself through those obstacles?

*probe for: what was your focus on
thoughts during difficult moments
what got you through it*

Q5. Did you ever feel like stopping or giving up? If so, how did you overcome those feelings and continue on?

*probe for: physical state
thoughts and feelings
focus*

Q6. What was it that kept you going when you were confronted with danger or major obstacles?

Q7. How do you think the altitude affected your ability to focus and apply yourself to this challenge?

*probe for: physical and psychological limitations
focus*

- Q8. How important is a positive attitude or mental toughness on a journey like this?
probe for: details and examples
- Q9. What advice would you give to others who want to attempt to climb Mount Everest?
- Q10. Has this experience impacted your life in any way?
probe for: details and specific examples
- Q11. Is there anything else you would like to add on the role of mental readiness, focus or overcoming adversity?

Wrap-up question: Is there anything else you would like to add? (on anything we discussed or didn't discuss).

Interview debrief: What was your impression of the interview session?
How did you feel when I first contacted you?
Before we began?
During the interview?
Now?

Appendix D

SAMPLE INTERVIEW TRANSCRIPT

COULD YOU TELL ME ABOUT YOUR CLIMBING BACKGROUND?

I grew up in North Carolina where we have little mountains and I was always hiking around there when I was a kid. Then I started hiking bigger mountains when I moved to Colorado. We have 54 peaks that are over 14,000 feet. So, I started out climbing those. And then I went to Mexico and climbed the volcanoes, and Mount Whitney, up to Mount McKinley that was my first expedition. And then from there I started traveling around the world to climb bigger mountains. I went to Africa, Russia, Ecuador, Argentina, kind of all over the globe. For many years I was doing one expedition a year and then I got to the point where the Himalayas really interested me. I actually went to Pakistan and climbed a 25,000 foot peak through China. That was my first really big mountain, going really high without oxygen. Then I decided that I wanted to climb an 8000 meter peak. So, we climbed Cho Oyu which is the 6th highest mountain in the world. When I was on Chyoyu I met a guy from New Zealand who was running trips to Everest and he said Ellen you should really think about coming to Everest. So, I did. Last year I went to the North side and climbed the North side and then I have become really interested in Everest and all the women that have climbed Everest, so I went this year to climb the south side to do my own research on this book I am working on about the women who have climbed Everest. So, that is why I am spending so much time on Everest.

COULD YOU TAKE ME THROUGH THE PLANNING OR PREPARATION PHASE OF CLIMBING EVEREST?

Well, my background is one of a competitive athlete. I competed a lot but now have retired from that kind of competition but in my younger years I competed at the international level so I have the ability to focus and in my training I did a lot of visualizing. And I think I developed the mental toughness kind of strategy which always pays off in mountaineering. I am a real believer in training really hard for whatever you are going to do. So I always go into my climbs very fit and very strong and well organized with my gear. I thought on Everest, this year a lot of guys show up and they are not as quite fit as they think they are and they are not quite as organized with their gear as they think they are. They thought they were, you know I think that I approach a lot of big mountains with a lot of humility. It is never ever that easy. I have never talked to one person who said Oh ya I just waltzed up Everest and it was no problem. It is tough. Climbing, particularly an 8000m peak is hard.

BEFORE YOU MENTIONED VISUALIZATION AS A PART OF YOUR PREPARATION. WHAT WAS IT EXACTLY THAT YOU VISUALIZED?

Walking up to the summit. And seeing myself on the top. I did that repeatedly.

IF YOU DON'T MIND COULD YOU TAKE ME THROUGH YOUR JOURNEY ARRIVING IN NEPAL, BASE CAMP, WALKING THROUGH THE CAMPS AND THEN SUMMITTING.

High altitude mountaineering is a game of endurance because what happens is that you land in Katmandu and you go to Base camp everyone is really healthy and very strong and very positive and thinking very cool and what happens is that we go higher up and we work on the mountain people lose a lot of weight, people get sick, they tend to get tired and they don't sleep as well, a

whole host of new challenges that present themselves and if you start out with 8 people on your team it is always a game of attrition. There are always the people who drop out. I try to be one of the survivors. I try and stay real healthy, get a lot of sleep. I prepare myself mentally. I know that it is going to be really hard. I know that summit day is going to be an 18 hour push no matter how you do it and you can't worry about not getting sleep the night before because it is not going to happen so you just accept that and I just try and have as much tenacity to last as possible. Particularity on the South side of Everest where I did not find the climbing as technical it was definitely a game of endurance. You know if you just hung in there, just stayed well, just stayed focused it wasn't nearly hard as a very technically challenging Again a lot of the guys on our team got really worn down. So by the time the summit attempt came they were just too exhausted. And I see that being very very common, especially men who lose a lot of weight on the mountain. When it comes time to perform they can't. They are just too weak.

IT SOUNDS ALTHOUGH YOU WERE VERY PREPARED IN THAT YOU KNEW WHAT TO EXPECT. DID YOU RELY ON PAST EXPERIENCE?

Oh ya, I think having climbed Everest before definitely helped me climb it this time. I often thought back to moments I climbed other peaks and succeeded to help me overcome struggles on Everest. I will say I think I am viewed and a lot of men probably view me as really driven. Yes I am driven. It is a lot of time, a lot of money and a lot of involvement. So I am very driven. But I tend to focus. I tend to take it very seriously. I am not there to socialize. I stick to the task at hand, that is my motto.

LIKE BEING IN THE MOMENT?

Yes and just focusing that I am there to climb the mountain and not to socialize, meet new people. I am absolutely there with one thing in mind and that is to get to the summit and back down safe. So, I think about climbing and what I need to do each moment to make it to the top. That is where I want to go the top and back down safely.

COULD YOU TELL ME ABOUT DESCENT? WHAT WERE YOU THINKING AND FEELING ON YOUR WAY DOWN TO BASECAMP FROM THE SUMMIT?

I found that the descent was in a sense harder than going up. After you reach the goal of summiting Everest, and put so much energy in it, there was a sudden sense of wanting to let go of the effort. I was aware of this because we had talked a lot about what to do if/when you get to the top. What not to do is drop your guard because at the top of a mountain, you are only half way to the real goal, which is getting back down safely. Nonetheless, I used a lot of energy to reach top and it then became a question of managing my reserves to make it down safely. I was incredibly tired going down, exhausted but aware of my surroundings. I kept telling myself concentrate, one step at a time, your not done yet, breath. I had to stop around 5 times to rest during the descent and then force myself to get up again and keep going. I didn't feel any emotion, no joy or sadness. I was putting all my thoughts on getting back to camp 4. I would focus on moving until my body would force me to stop.

WHAT ARE THE GREATEST OBSTACLES THAT YOU FACED ON THE MOUNTAIN?

For me because I have kind of a small frame I am always paranoid about the cold. But I had boot heaters in my boots, I had hand warmers. I learned how to keep my hands warmer. That is always a huge obstacle. And also not getting sick. Like if trekkers are coming into base camp and they are hacking and coughing I really stay away from other people, and I try and stay really healthy the whole time I am on the mountain. And obviously the kind of obstacles that we had no control over like avalanches, weather conditions, outrageous storms. Those are all huge fears that I had out there.

SO HOW WOULD YOU KEEP GOING, FOR EXAMPLE IF A STORM STARTED TO BREW HOW WOULD YOU STAY FOCUSED AND PUSH FORWARD?

Well I think it is a matter of making one good decision after another. What tends to happen when things go wrong on high mountains is that you will see a pattern of bad decisions. If you look at the 1996 Everest tragedy first of all the climbers were approaching the summit very very late in the day, that was the first bad decision. You can't be going up to the summit at 4:00 in the afternoon. That decision as a professional guide should have never let that happen. That is where it started. They saw the clouds moving in and they never turned around. Another bad decision. Even this year there was a death on the mountain. When a climber fell to his death on the Lhotse face up at camp three in a storm when people had told him don't go up. Our Sherpas for example told me don't go up there it is going to be too windy and too dangerous. And he decided to go up anyway, spend the night up there the storm kept raging and he became desperate to come back down. He came out of his tent in the white out in the wind in the storm and he couldn't find the fixed rope and ended up tumbling down the whole length of the Lhotse face. So, there again I see a pattern of decisions that weren't really thought through very well. First of all if there is a storm and these days with mountaineering you can get fairly accurate weather forecast. If you notice a storm that is due to blow in at some point you really need to rethink where you are going on the mountain. That would be my first process. Then if I were in a storm I would be moving down I wouldn't be moving up so I think with each kind of potentially dangerous situation there is period of ...I always think slow down think about what I am doing, think about where I am going, focus and think with common sense what I am going to do up there.

IS THERE A LOT OF SUFFERING INVOLVED?

Um, I would not call it suffering I would call it discomfort. For example if you are competing there is a difference between discomfort and pain. The pain is if you are injured and something is really wrong and we shouldn't be racing. Discomfort is a normal part of the game and I think in mountaineering we have to accept discomfort as a normal part of the feel.

HOW DO YOU COPE WITH THE DISCOMFORT?

I think because you realize that the rewards are so great, in particular when you reach the summit, then it is worth it. However, every big reward doesn't cut the pain. There is always a price involved and usually that price is hard work and expense. I usually feel the pain and listen to my body at the same time.

WOULD YOU SAY THAT MENTAL TOUGHNESS PLAYS A PART IN CLIMBING THE MOUNTAIN?

Yes, Mental toughness is extremely important. Especially up high. It hurts up high and for some

people it hurts a lot. Altitude is not a comfortable thing. So, you have to be emotionally and mentally tough otherwise you will turn around.

WERE THERE ANY TIMES THAT YOU FELT LIKE STOPPING OR GIVING UP?

No not on this expedition. Everything went pretty well. Last year on the North side I was very frightened in a couple of instances. I can't say that I ever felt so bad that I wanted to stop or turn around but really scared in a couple of places. I get frightened and worried about mountain climbing. There are even times here in Colorado where I am heading up and the weather won't be looking good and I just turn around because I think it is smart because the weather can get nasty in a heart beat. At least on Everest I didn't feel like stopping or turning around.

AND THE TIMES WHERE YOU SAID YOU FELT REALLY SCARED AT CERTAIN POINTS HOW DID YOU KEEP PUSHING FORWARD?

I felt like I could go on. I felt like I needed to work through that problem, be mentally strong and focus on the job at hand.

WOULD YOU SAY THAT YOU FELT CONFIDENT?

Well, I knew that my body felt strong and I just was dealing fear in the moment. I didn't feel weak, or that I wasn't thinking clearly enough or I was too cold, nothing like that I just had fear and I needed to get through the technical problem of the moment. I had done it before in the past and knew I could do it again.

WOULD YOU SAY THAT ALTITUDE HAD AN EFFECT ON THE WAY THAT YOU THOUGHT AND REACTED?

Absolutely. It effects particularly going up toward 25, 000 feet when you are not using oxygen. You are very none elusive. That is the time when it is particularly, you can be very silly that is when I have to watch it. With oxygen I tend to react very well. I think that a lot of high altitude mountaineers (the physiology of people) and I happen to be, and am very lucky I am one of those people who has good reactions from stuff on the top. I think pretty clearly, stay focused and warm up pretty quickly so I tend to perform O.K. whereas I have seen some of my buddies, mainly bigger guys the oxygen helps but not quite as much.

DID YOUR ABILITY TO FOCUS ALLOW YOU TO GET THROUGH THE FEAR TO ACHIEVE YOUR GOAL?

Yes and I will say focus is important. I also realize that I have the potential like anybody does no matter how good a climber you are, we all have the potential to do something incredibly stupid at any time. I am really aware of that because I have some friends that had some really close calls just from very dumb things that they did and they were not really thinking about. I think about that a lot when I am clipping into ropes or un clipping or putting on my harness or walking around in my crampons. I always think *Ellen don't do something stupid it is going to be very costly*. So I focus on what I am doing. I focus on each step or move in front of me.

HOW IMPORTANT WAS IT TO HAVE A POSITIVE ATTITUDE?

Everything. I don't know what you are finding in your research but I think that a positive attitude is key in your life. I mean I think that either you have one or you don't I guess and that has got to extend way beyond the mountain. Again some of the guys that I have competed

against I have learned a whole lot. I have had some great mentors about the power of positive thinking and positive attitude. One of my racing teams mates is a world champion mountain bike racer and I learned so much from him about even just when you are feeling bad and you are performing at your worst if you have a positive attitude you can turn things around. I am a big believer in that.

HAS THIS EXPERIENCE IMPACTED YOUR LIFE IN ANY WAY?

The first time I climbed Everest it absolutely changed my life. It opened doors for me. And it was almost like, this sounds really corny but I will tell you anyway, it was almost like I had a big energy shift on Everest. I think when I came down I just approached the world in a different way. And maybe it was because I had achieved what was a big dream for me. It just seemed like it opened new doors and my life changed now that I have done it a second time I think that my life is changing even more in some ways and that has never happened with any other mountain. I will tell you right now that it changed my life tremendously. Well, climbing for me is a highly personal kind of spiritual thing. And so ya I think when I go to the mountains it is like practicing my religion. It is really important to me the beauty of what I see it really affects me very much. I think that we are all looking for different things when we go to the summit of a mountain and for me it is a very personal feeling. It is more than just a physical achievement, it is about the experience of being at one with the mountains. I don't know how to really explain that part.

COULD IT SORT OF BE A CONNECTION TO SOMETHING LARGER THAN YOURSELF?

Absolutely. Yes that is what it feels like when I am out climbing in the mountains. I feel a connection.

DO YOU HAVE ANY RECOMMENDATIONS FOR OTHER CLIMBERS WHO WANT TO CLIMB MOUNT EVEREST?

I would tell someone who wanted to succeed on Everest to gain climbing experience, and to train very hard emotionally, mentally, and physically. Anyone under stress and extreme pressure and who performs in a high risk environment has to trust the fact that they have trained everything that is under their control. I would also suggest that climbers go under a series of extreme challenges so you can practice relying on your training to help you. When you go numb mentally which is often the case on Everest you can then rely on your past experience to get you through.

IS THERE ANYTHING ELSE YOU WOULD LIKE TO ADD ON THE ROLE OF MENTAL READINESS OR STRATEGIES?

Train hard both physically and mentally before climbing the mountain. Work on building toughness emotionally and mentally. Climbing Everest is not an easy thing. Be prepared and focus on climbing once you are there.