

Psychologists investigate how teams cope with extreme environments

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Credit: Lancaster University

Psychologists are working with professional adventurers to find out how

teams cope with a 500 mile Arctic trip in temperatures of minus 60C.

The expedition has been endorsed by eminent explorer Sir Ranulph Fiennes who said:

"I wish the Ski to the Edge team all the success and luck in support of their ski expedition. In spite of advances in technology make no mistake this expedition represents a tough challenge operating at the limits of human endeavour in one of the last great wilderness areas."

The results could give an insight into the experiences of the mental pressures faced by special forces and astronauts who also work in extreme environments.

The three-man 'Ski to the Edge' team sets out at the end of January on a 600 mile human-powered journey across the remote McKenzie Mountain range in Canada's Arctic wilderness.

Led by Richard Harpham, the team will face temperatures of minus 60 degrees Celsius during their six week unsupported journey travelling by snow shoe and by ski.

For Lancaster University Ph.D. student Olivia Brown and her supervisor Dr. Emma Barrett, the expedition offers a rare opportunity to study team dynamics and psychological coping under conditions of extreme stress.

Every day, expedition team members will complete questionnaires about the events they experienced, how they are coping, and how the team is functioning together. This data will be analysed by Olivia back at Lancaster University, and will shed new light on team performance under stress.

Olivia said "There is still much we do not know about how teams work

effectively under pressure. Drawing on previous evidence, it is understood that when in [extreme environments](#), stress can reduce the ability of teams to communicate and coordinate effectively. Specifically, previous research with expedition teams has identified that whilst technical skills are important, the importance of interpersonal relations and social intelligence can not be over stated.

Our research seeks to contribute to the understanding of how teams work effectively in stressful conditions over time, thus accounting for the fact that teamwork does not occur in a vacuum. Due to the fact that the teams will be in isolated, pressured conditions for a prolonged period, we are hopeful that the findings will apply to other contexts also.

Indeed, expedition environments are increasingly being viewed as a useful analogy for understanding the experiences of security personnel working in the special forces and those involved in long distance space travel."

Richard Harpham and his team are retracing a route taken by legendary First Nation tracker Alex van Bibber in 1943. Van Bibber was hired by the United States Army to scout a possible route for an oil pipeline supply route through the Yukon and Canadian Northern Territories, to support the war effort. His expedition saw him head North across the remote wilderness of the McKenzie Mountain range, a journey that took 42 days by ski and snow shoes, with temperatures between -50 and -60 degrees Celsius. The Ski to the Edge team will follow the same route and continue across the Arctic Circle to finish at Fort Good Hope.

One of the risks the team face is significantly different to Alex's team in 1943 and is likely a result of global warming with big changes in ambient temperature. Just two weeks ago the Yukon was one of the coldest places on earth with temperatures as low as minus 45 Celsius and then in the space of 7 days the temperature had reached above freezing.

Significantly for the team this has meant rivers that have not frozen and traces of open water which could be dangerous given their route. Currently the team are planning to add a one man 'packaraft' to their equipment to allow them to cross open water.

The journey will push the team to the limit of their physical endurance. In such extreme cold the team will consume over 6,000 calories a day using specially prepared rations from Extreme Adventure Foods. Despite this calorie intake they will still lose weight. The six week journey will also be psychologically challenging, requiring extraordinary levels of endurance, focus, and resilience from each team member, as well as exceptional teamwork. They will need to cope with fear and danger, harsh conditions, and extreme solitude—the Yukon and Northern Territories are some of the most remote locations on the planet.

The Ski to the Edge team are no strangers to adventure and expeditions and have completed many tough challenges before, many gaining international media attention and coverage. They have covered thousands of miles of human powered journeys between them, and are professionally qualified in adventure skills including mountaineering, skiing, and survival.

Expedition leader Richard Harpham said "Expedition teams like ours spend years on physical training and on planning the logistics of extreme and hazardous journeys. We believe that psychological preparation and planning are also crucial to the success of our expeditions, and this research will help us and other [expedition](#) teams better understand how to achieve optimal performance from a team under extreme pressure."

Provided by Lancaster University

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