High-risk sport research

Dominika Kupciw and Alexandra MacGregor highlight the advances, practical implications and future directions in high-risk sport research.

The height of the skiing season is upon us, and many snow riders are gearing up to hit the slopes around the world. Every winter more of us look for ways to make our skiing holidays unforgettable and the temptation to venture off the marked slopes in search of fresh powder has never been stronger. However, many winter sports enthusiasts were recently forced to re-evaluate their safety measures after the tragic death of the young and talented freestyle skier Sarah Burke. Sarah died following a training session crash, causing her irreversible brain damage. Although many professional skiers wear helmets, many people ignore this simple precaution.

Above: M. Kufel off-piste snowboarding at St. Moritz, Switzerland
Courtesy Zbigniew Szarzynski

Researchers are now interested in identifying the psychological antecedents of risky behaviour in adventure sports. Here we provide a general overview of previous risk-taking studies, outline the research findings from recent studies on the risk-taking behaviours of high-risk sport participants, and discuss the practical implications of the research.

What are high-risk sports?

High-risk sports are activities where the possibility of injury or fatality is an inherent part of participation, and specialised equipment and training is generally required in order to minimise the risks involved (e.g., white water kayaking, skydiving, skiing and traditional climbing). The past two decades have seen the development and increased popularity of new sports such as kitesurfing, and unlike everyday risk-taking activities (e.g., dangerous driving) the danger associated with high-risk sports has become socially accepted in Western society; the potential outcomes, however, are equally risky.

Taking risks or "playing it safe"?

In 1979, Zuckerman defined sensation seeking as "the need for varied, novel and complex sensations and experiences, and the willingness to take physical and social risks for the sake of such experience." Since then, there has been a tendency to assume that all high-risk sport participants are thrill seekers (Zuckerman, 1983, 2007). Given that sensation seeking and risk-taking are closely linked (e.g., Horvath & Zuckerman, 1993), it is not surprising that researchers have typically not sought to examine the detail of different people's risk-taking behaviours *within* these sports. Recently researchers have challenged the idea that all high-risk sport participants are risk-takers. These researchers have taken the view that some individuals deliberately take risks when participating in their sport, whilst others "play it safe" by choosing to minimise the risks involved (e.g., Paquette, Lacourse & Bergeron, 2009; Woodman & Bandura, 2010). To understand why people take risks in these high-risk environments, it became apparent that there was a need for a valid questionnaire for examining the risk behaviours of high-risk sports individuals. In the following section we will briefly present the development of the *Risk Taking in Sport Inventory* (RTSI).

Advances in measurement

Addressing the lack of suitable measures for investigating risk-taking behaviours in high-risk sports, Woodman and Bandura (2010) developed the *Risk Taking in Sport Inventory* (RTSI). The measure follows that of Paquette and colleagues' (2009) work with skiers and snowboarders, with the clear aim of more accurately differentiating between deliberate risky behaviours (e.g., "I deliberately put myself in danger") and precautionary behaviours (e.g., "I take time to check for potential hazards") in high-risk sports. Deliberate risky behaviours reflect a lack of understanding and consideration for the high-risk sport environment, whereas precautionary behaviours reflect careful planning and a high degree of awareness for the risks associated with high-risk sports. As well as examining the psychometric properties of the RTSI, we used the measure to examine two key questions:

1. Are deliberate risky behaviours associated with a greater number of near misses and accidents than precautionary behaviours?
2. Are certain personality traits associated with engaging in either deliberate risky behaviours or precautionary behaviours?

Accidents

Accidents are common in many sports, but the nature of high-risk sports means that accidents are likely to be more traumatic and potentially fatal. In terms of reducing the number of accidents occurring in such sports, an understanding of the behaviours that may predispose someone to being more accident-prone is important. We found that engaging in deliberate risky behaviours was associated with a greater number of near misses and accidents, whereas engaging in precautionary behaviours (e.g., taking time to check for potential hazards) was associated with fewer near misses and accidents. What is more interesting is that precautionary behaviours buffered the deleterious effects of deliberate risk-taking on the likelihood of accidents. In other words, danger *per se* does not necessarily lead to accidents; it is when danger is accompanied by a lack of precaution that danger translates into accidents. There will always be individuals who will push the limits of their sport, and that is no different in the high-risk sport domain. Clearly, some individuals will want to put themselves in situations that are so dangerous that the consequence of failing is almost certainly death. However, the results from our study show that engaging in certain behaviours (i.e., precautionary behaviours) reduces the likelihood of such fatalities occurring.

Personality

While high-risk sports might not be everyone's idea of a leisure time activity, there is evidence for the growing popularity of high-risk sports. It is therefore important to establish which individual characteristics motivate people's engagement in high-risk sports, and to attempt to predict who may be particularly at risk in an already dangerous environment. Of the "big five" personality traits, it is neuroticism, extraversion and conscientiousness that have been central to numerous studies investigating high-risk health behaviours (e.g., Vollrath & Torgensen, 2002). In particular, conscientiousness has been a consistent predictor of an individual's tendency to take risks in high-risk sports, with highly conscientiousness individuals taking fewer risks than individuals low in conscientiousness (e.g., Castanier, Le Scanff & Woodman, 2010). In line with previous findings (e.g., Castanier *et al.,* 2010) we found that conscientious individuals engaged in precautionary behaviours, whereas less conscientious individuals engaged more in deliberate risky behaviours. Indeed conscientious individuals are characterised as being careful, thorough, and deliberate, therefore it is no surprise that they tend to engage in more precautionary and less risky behaviours. If we are able to identify individuals who may be more likely to engage in deliberately risky behaviours, we may be able to put measures in place to reduce the likelihood that their engagement will result in serious injury or fatality (e.g., extra safety cover, spot checks of safety equipment and competency, incorporating potential psychological antecedents of risky behaviour into sport risk management protocols).

Practical implications

"If human nature felt no temptation to take a chance… there might not be much investment merely as a result of cold calculation." (John Maynard Keynes)

"The need for individuals to take risks is a fundamental aspect of human nature; the caveman would not have emerged from the cave to feed his family if he hadn't taken risks."

The concept of risk lies at the very centre of economic expansion; it is the driving force behind discoveries and scientific development. The need for individuals to take risks is a fundamental aspect of human nature; the caveman would not have emerged from the cave to feed his family if he hadn't taken risks. Thus, when proposing any preventative or safety strategies for high-risk sport participation it is important to recognise and maintain the element of risk that many participants specifically strive for.

With freestyle skiing and snowboarding enjoying its place in the Winter Olympics and current proposals by the International Sailing Federation for the inclusion of kitesurfing in the 2016 Olympic Games, the popularity of high-risk sports is on the rise. This amplifying interest in high-risk sports calls for appropriate safety measures and accident prevention strategies. Regulators of sports such as freestyle skiing – making its debut in the 2014 Winter Olympics – recognise the dangerous nature of these sports and have focused on physical safety and accident prevention measures such as mandatory helmet use and air bags on the sides of pipes during practice. However, it is clear that sports regulators may need to consider the psychological antecedents of risky behaviour in adventure sports (e.g., low conscientiousness) in order to ensure appropriate safety and accident prevention measures are in place. Consequently the RTSI could be used to identify an individual's tendency to take deliberate risks in sport that could be beneficial in creating sport-specific injury prevention strategies and in developing safety guidelines for use in personal, coaching and training environments, and in businesses that provide recreational high-risk sport services.

Take-home message

Although research into the differing behaviours of high-risk sport participants is in its relative infancy, there is evidence to suggest that high-risk sport participants are certainly not all deliberate risk-takers. In fact, it is likely that one of the main attractions for high-risk sportspeople is the *management* and control of risk rather than risk *per se*. For many years much of the research has been based upon sensation seeking, and therefore researchers have overlooked the prospect that some high-risk sport participants deliberately engage in risk-taking activities, others adopt safe options within the high-risk sport domain. These recent findings change the way people view high-risk sport participants, and creates an exciting avenue for future research in the domain. ■

Further Reading

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