

# Psychiatric Aspects of Extreme Sports: Three Case Studies

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## ABSTRACT

Extreme sports, defined as sporting or adventure activities involving a high degree of risk, have boomed since the 1990s. These types of sports attract men and women who can experience a life-affirming transcendence or “flow” as they participate in dangerous activities. Extreme sports also may attract people with a genetic predisposition for risk, risk-seeking personality traits, or underlying psychiatric disorders in which impulsivity and risk taking are integral to the underlying problem. In this report, we attempt to illustrate through case histories the motivations that lead people to repeatedly risk their lives and explore psychiatry’s role in extreme sports. A sports psychiatrist can help with therapeutic management, neuromodulation of any comorbid psychiatric diagnosis, and performance enhancement (eg, risk minimization) to cultivate improved judgment which could include identifying alternative safer recreational options. Because flirting with death is critical to the extreme sports ethos, practitioners must gain further understanding of this field and its at-risk participants.

## INTRODUCTION

Extreme sports are leisure activities that involve major risk to life and limb. The lay perception that extreme sports participants are primarily thrill-seeking, adrenaline-addicted youths may be oversimplified. Investigators have narrowed the definition to refer only to sporting activities during which “a mismanaged mistake or accident would most likely result in serious injury or death.”<sup>1,2</sup>

Participation in extreme sports may suggest a powerful, life-affirming, and

enhancing transcendent primal drive akin to attainment of a “flow experience.”<sup>3</sup> Conquering the “death wish” (Thanatos drive), overcoming paralyzing fear, and searching for a transformative or “life wish” (Eros drive) are considered integral motivators for the extreme sports person.<sup>1,2,4</sup> Available leisure time; abundant finances; and sophisticated yet affordable equipment attract upper and middle class participants, enabling them to temporarily escape constrained socially acceptable and defined roles and to explore nature and challenge themselves to transcend fear.<sup>5,6</sup> Gender factors likely play a role in extreme sports. Women have overlapping, but different, motivators for extreme sports involvement, although we are not aware of any strong evidence that addresses this issue.<sup>7</sup> Some extreme sports activities have been codified and fall under the umbrella of the X Games,<sup>8</sup> whereas others such as wingsuit flying and ice climbing are too challenging and life-endangering to fully integrate into a field that proudly defines itself by bravado.

BASE jumping (jumping from Buildings, Antennas, Spans, and Earth), for example, involves often-illegal risk-taking extreme sport jumping activities and is associated with a fearfully high mortality rate (see Table 1). The term was coined by “the two Phils,” Phil Smith and Phil Mayfield, after their initial parachute-assisted jump in January 1981 from a Houston building.<sup>9,10</sup> It is worth noting that many sports, including those integrated into the Winter and Summer Olympic Games, share risk factors with extreme sports that place participants at risk for major injury (luge and downhill

skiing are two examples). The 2010 death of third-generation Georgian luge competitor Nodar Kumaritashvili during practice at the Vancouver Winter Olympic Games is testament to this fact.<sup>11</sup>

Geneticists have explored possible links between a propensity for high-risk activities and genetic markers. The putative connection of polymorphisms of the D4 subtype of the dopamine 2 receptor, a G protein-coupled receptor that inhibits adenylyl cyclase, with risk-taking, novelty-seeking behavior in humans and other living organisms is a link from a teleologic perspective.<sup>12-15</sup> The work of Thomson and associates<sup>14</sup> with skiers and snowboarders is especially intriguing. Dopamine is the neurotransmitter most associated with “action,” addiction, and substance abuse. There is a clear link between risk taking and the adrenaline/dopamine/endorphin surge experienced by extreme sports participants. This surge is like the phenomenon seen in gambling and risk-heavy professions such as financial trading, which continually entice participants back to their chosen “edge work.”<sup>16</sup>

For participants with severe hyperactive/impulsive attention-deficit/hyperactivity disorder (ADHD), extreme sports can be fairly calming and can even provide therapeutic neuromodulation with “positive” reinforcement potential elicited by dopamine, serotonin, epinephrine, endorphins, and stress hormone hypothalamic-pituitary-adrenal axis activation, which produces a state of optimal arousal.<sup>17,18</sup> The dopamine and norepinephrine neurotransmitter surge may help to modulate behavior, reversing under-activation in the dorsolateral prefrontal cortex and dysregulation of multiple brain pathways

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involved in the attentional and impulse control processes.<sup>19,20</sup> Cloninger's work on personalities<sup>21</sup> regarding four dimensions of human behavior (harm avoidance, reward dependence, novelty seeking, and perseverance) serves as a helpful template with which to evaluate the personality structures of those who actively participate in extreme sports. Similarly, Zuckerman's Sensation Seeking Scale, now in its fifth iteration,<sup>22</sup> which evaluates four different subscales of thrill and adventure seeking, disinhibition, experience seeking, and boredom susceptibility, provides an excellent framework with which to assess the behavioral traits and functioning of extreme sports participants.

A suicidal level of risk taking may be present in extreme athletes. Dean Potter, a pioneering free climber, slackline walker, and "free BASER," frequently referred to death. He stated, "You are playing with death then and it feels so good." About wingsuit flying he said, "[It] turns the impossible into the possible," and "Instead of dying, I'm flying." He earned the grudging admiration of rangers and throngs of climbing visitors at Yosemite National Park, where he completed many of his most audacious feats.<sup>23,24</sup>

Likelihood of affective disturbance or diathesis is much higher in this risk-taking population. Extreme sports participation may serve as a temporary antidepressant, lifting mood at least on a short-term basis, perhaps not dissimilar to the way the anesthetic agent ketamine can potentially help in the setting of resistant depression.<sup>25</sup> The combination of an endogenous "rush" of multiple neurotransmitters and physical activity greatly amplifies the protective and healthy effect that people involved in "safe" sporting exercise also experience.<sup>26</sup>

Bike motocross (BMX) participants describe the degree to which an athlete's desire to pull a never-before-seen trick or stunt outweighs conventional calculations of risk.<sup>27</sup> Participants in this sport, an X Games favorite, tend to idealize, romanticize, and mythologize extravagant risk taking as "highly motivational passion." Descriptions include:

"We are not normal people. ... In the best sense of the word, we are childlike."<sup>27</sup>  
 "His mind was 'so trigger."<sup>27</sup>

There is a naïve explorer's curiosity vis-à-vis the severe pain response as exemplified by ex-BMX racer TJ Lavin, who said, "I didn't know we could slam like that," after breaking both legs.<sup>27</sup>

When champion BMX biker Dave Mirra retired from BMX in 2011, he said of his younger competitors, "They'll die. Just like I would when I was younger. I would have died to win."<sup>27</sup> In February 2016, Mirra committed suicide by gunshot wound in his car after an argument with friends. A postmortem examination identified chronic traumatic encephalopathy attributable to innumerable

concussions sustained during his freestyle BMX career.<sup>28</sup>

More than 300 BASE jumping-related deaths were recorded between 1981 and 2016; interest in the sport accelerated after 2000 with increased coverage and financial rewards associated with the sport.<sup>29</sup> The number of wingsuit deaths is unknown, but many of the most prominent proponents and pioneers of this field have died, including Dean Potter and Mark Sutton, who was famous for parachuting as James Bond into the stadium at the opening ceremony for the 2012 London Summer Olympic Games.<sup>30</sup>

**Table 1. Extreme sports and morbidity/mortality risk**

Type of extreme sport or study	Years	Morbidity/mortality rate
BASE jumping	1981-2015	More than 300 deaths worldwide <sup>1</sup> Wingsuit mortality as high as 1/50 participants <sup>1-5</sup>
Swedish BASE Jumping Study <sup>1</sup>	2002	1 fatality/60 participants; 1 death/2317 jumps <sup>1</sup>
Mei-Dan et al <sup>2</sup> (Israel)	2013	72% witnessed death or serious injury, 43% of jumpers sustained a serious BASE jumping injury, 76% witnessed a "near miss" or narrowly avoided fatality Injury rate estimates of 0.2% to 0.4% per jump and fatality rates of 0.04% per jump or 1.7% per participant and year
Sky diving	2000-2016	1 death/100,000 jumps <sup>5</sup>
Scuba diving, Divers Alert Network <sup>7</sup>	1970-2017	16.7 deaths/100,000 divers per year
Rock climbing	1998-2011	1 death/320,000 climbs <sup>8,9</sup>
Skiing	2011-2012	1 death/1,351,000 trips (5.5 deaths/million participants) <sup>10</sup>
Free diving	2006-2011	417 free diving accidents: 308 fatal, 109 nonfatal <sup>7</sup>
Hang gliding, paragliding	1993-2017	In the US, 1 death/560 flights <sup>11</sup>

1. Cooper J. BASE jumping: The life-or-death appeal of the world's most dangerous sport [Internet]. London, UK: The Telegraph; 2015 May 18 [cited 2017 Nov 15]. Available from: [www.telegraph.co.uk/men/active/11612292/BASE-jumping-the-life-or-death-appeal-of-the-worlds-most-dangerous-sport.html](http://www.telegraph.co.uk/men/active/11612292/BASE-jumping-the-life-or-death-appeal-of-the-worlds-most-dangerous-sport.html).

2. Mei-Dan O, Monasterio E, Carmont M, Westman A. Fatalities in wingsuit BASE jumping. *Wilderness Environ Med* 2013 Dec;24(4):321-7. DOI: <https://doi.org/10.1016/j.wem.2013.06.010>.

3. Soreide K, Ellingsen CL, Knutson V. How dangerous is BASE jumping? An analysis of adverse events in 20,850 jumps from the Kjerag Massif, Norway. *J Trauma* 2007 May;62(5):1113-7. DOI: <https://doi.org/10.1097/01.ta.0000239815.73858.88>.

4. Westman A, Rosén M, Berggren P, Björnstig U. Parachuting from fixed objects: Descriptive study of 106 fatal events in BASE jumping 1981-2006. *Br J Sports Med* 2008;42:431-6. DOI: <https://doi.org/10.1136/bjsm.2008.046565>.

5. Fatality statistics [Internet]. BLiNC Magazine; c2017 [cited 2017 Nov 21]. Available from: [www.blincmagazine.com/forum/wiki\\_index.php?title=Fatality\\_Statistics](http://www.blincmagazine.com/forum/wiki_index.php?title=Fatality_Statistics).

6. Spiegelhalter D. Extreme sports: What are the risks? [Internet]. London, UK: BBC; 2014 Nov 18 [cited 2017 Nov 15]. Available from: [www.bbc.com/future/story/20120302-extreme-sports-a-risky-business](http://www.bbc.com/future/story/20120302-extreme-sports-a-risky-business).

7. Denoble PJ, Marroni A, Vann RD. Annual fatality rates and associated risk factors for recreational scuba diving [Internet]. Durham, NC: The Rubicon Foundation, Inc; 2011 [cited 2017 Nov 23]. Available from: [http://archive.rubicon-foundation.org/xmliui/bitstream/handle/123456789/9329/DAN\\_Fatalities\\_8.pdf](http://archive.rubicon-foundation.org/xmliui/bitstream/handle/123456789/9329/DAN_Fatalities_8.pdf).

8. Green S. Statistics for climbing accidents, injuries, and fatalities [Internet]. Columbus, OH: ThoughtCo, LLC; 2017 Feb 19 [cited 2017 Nov 15]. Available from: [www.thoughtco.com/climbing-accidents-statistics-756064](http://www.thoughtco.com/climbing-accidents-statistics-756064).

9. Lack DA, Sheets AL, Entin JM, Christenson DC. Rock climbing rescues: Causes, injuries and trends in Boulder County, Colorado. *Wilderness Environ Med* 2012 Sep;23(3):223-30. DOI: <https://doi.org/10.1016/j.wem.2012.04.002>.

10. NSSA fact sheet: Facts about skiing/snowboarding safety [Internet]. Lakewood, CO: National Ski Areas Association; updated 2012 Oct 1 [cited 2017 Nov 23]. Available from: [www.nsa.org/media/68045/NSSA-Facts-About-Skiing-Snowboarding-Safety-10-1-12.pdf](http://www.nsa.org/media/68045/NSSA-Facts-About-Skiing-Snowboarding-Safety-10-1-12.pdf).

11. Fatalities: Fatality reports [Internet]. Colorado Springs, CO: US Hang Gliding and Paragliding Association, Inc; c2017 [cited 2017 Nov 23]. Available from: [www.uspha.org/page/fatalities](http://www.uspha.org/page/fatalities).

## CASE PRESENTATIONS

Here we present three cases. To our knowledge, none of the three extreme sport participants described here sought mental health treatment, but we were familiar with each of them. We describe them posthumously, to illustrate the complex constellation of social and psychological factors that probably influenced and motivated each extreme sports participant. In Table 2 we compare these three cases.

### Case 1: "Allan"

"Allan," a 48-year-old married father of 3 teenagers, was a successful businessman and a "pillar of society." He had a multitude of business and family responsibilities, and he may have felt trapped in his societal roles. Perhaps in an effort to escape these psychological shackles, Allan became a regular "weekend warrior" at a local hang-gliding site. He was extremely careful with his equipment, meticulously prepared, and had a strong awareness about local wind patterns. He died of severe injuries sustained after being buffeted by a strong, unexpected gust of wind that threw him against a cliff face and caused a crash. His death was perceived as a major tragedy by his family and community.

The crash location was associated with well-known risk; at least three serious

injury events occurred each year at the site, and yet Allan, like many other thrill seekers, was willing to take this risk.<sup>31</sup> People at his funeral emphasized that he loved the excitement and sense of freedom the flights provided. Grief management, counseling, and individual and family support cannot replace the ongoing role that Allan would have had as a father, husband, and community leader.

### Case 2: Dean Potter

Dean Potter, the youngest of three sons, was born in the Midwest to a military father and a free-spirited mother, an RN and a yoga teacher who had embraced an alternative lifestyle.<sup>32</sup>

His father was described as a deeply caring, family-oriented man. His mother was described as flighty. When he was seven years old, Dean's parents separated and had shared custody of the children. His first climbing experience was as a four-year-old in the West Bank while his father was a peace keeper in the Middle East.<sup>33</sup>

Dean described his childhood as difficult. In school, he was often in trouble, largely because of his challenges with attention and impulsivity. His family did not seek therapy or psychiatry to address his behaviors, which were consistent with combined-type ADHD. Dean was also painfully shy, withdrawn, and socially

isolated from peers. He described himself as having resentment toward others as a youth because he felt excluded and shunned, although his feelings may have been only partially based in reality. Dean finally established his first friendship when he and another boy snuck into a restricted area on his father's Air Force base in New Boston, NH, by climbing a 200-foot cliff.<sup>34</sup> Dean easily and fearlessly climbed the cliff without a rope and established his life's path. He described rock climbing and free soloing (climbing without safety gear or ropes—a fall causes serious injury or death) as "perfect," spiritual experiences.<sup>32</sup> Dean went to college in NH and continued to struggle to find a peer group with which he could mesh.<sup>32</sup>

Despite not feeling at ease, Dean forced himself to participate in team sports. He summarized his attitude toward his crew team as "destroy everybody and establish my dominance."<sup>35</sup> Shortly after Dean left school and started rock climbing full time at age 20, he found himself drifting around the western US, finally settling down in the Yosemite National Park area. He described several vivid spiritual dreams and hallucinations, which began in early childhood, that involved flight and ravens. He had vivid hallucinations, or visions, of being a shamanistic raven in an area of Huelo Tanks State Park

**Table 2. Case presentation comparisons**

Categories	Case 1: "Allan"	Case 2: Dean Potter	Case 3: Dan Osman
Baseline social functioning	Excellent	Fair to limited	Variable/poor
Risk for extreme sports	Medium	Very high	Very high
Level of skill attained at chosen extreme sport	"Weekend warrior"	Elite professional	Elite professional
Relationships, family stability	Fairly good	Relatively unstable	Moderately unstable
Genetic predisposition for risk taking	Unknown	High	High
Treatment history	No known treatment	No known treatment	No known treatment
Presumptive psychiatric diagnosis	Dysthymia (persistent depression); rule out ADHD; rule out SUDs, partner/relational problems, and generalized anxiety disorder	Impulse control disorder, ADHD, generalized anxiety disorder, conduct disorder, parent-child problems, narcissism; rule out bipolar disorder 1 (manic with psychotic features); rule out SUDs	ADHD, severe conduct disorder, cluster B personality traits; rule out SUDs
Expressed suicidality	Unknown	Extremely cavalier	Very cavalier
Conscious awareness of likelihood of death	Risk taker aware of life-endangering nature of sport, embraced the thrill-seeking component of his sport	Fatalistic, intimately aware, and embracing closeness to death as part of the excitement and challenge of his sport	Enjoyed the ability to "cheat" death and felt "bulletproof"

ADHD = attention-deficit/hyperactivity disorder; SUDs = substance use disorders.

near El Paso, TX, that is sacred to Native Americans and to climbers. Many of his peers thought these visions were brought on by substance use, but, although he did “dabble,” Dean denied these claims. Over time, despite his proficiency and ability to climb at high skill levels, his ability to gain prominence in traditional climbing circles was limited, causing him to become somewhat disillusioned.

But Dean did have a competitive drive to be famous, well recognized, and unique; consequently, he cultivated a passion for riskier, more life-endangering activities such as free soloing, high-lining, BASE jumping, and wingsuiting. Worldwide attention, accolades, and sponsorships were finally available to him. In public, Dean presented a spiritual and charismatic persona. However, accomplishing these feats necessitated access to a primal motivation that led to his nickname, “The Dark Wizard.”<sup>36,37</sup> Fiercely competitive and proud, he was prepared to go to extreme lengths to protect and extend his records and accomplishments. Impulsively climbing in illegal national park sites cost him and his then-wife several sponsors including Patagonia, loyal supporters, and alienation of potential backers.<sup>38</sup>

Potter died in 2015 while attempting a risky, illegal, and never-before-performed wingsuit flight through a notch on a granite face at Yosemite National Park; an acolyte, 29-year-old Graham Hunt, also was killed.<sup>23,24,39</sup> Potter was 43 years old and had inspired generations of young climbers and extreme sports enthusiasts.

### Case 3: Dan Osman

Dan Osman was born in Orange County, CA, in 1963. He had a strong genetic and environmentally supportive background in risk-taking. His father was a former SWAT team officer and detective. His mother was a former world-champion rodeo barrel racer and a horse trainer. A paternal descendant of Samurai families in the Takeuchi Clan, Dan was trained in the Samurai Bushido code of ethics by his father and studied aikido and kung fu, but he did not feel worthy of the katana sword he received in 1994. Dan probably had untreated, fairly severe combined ADHD and as a child was nicknamed, “Danny I forgot.”<sup>40</sup>

When Dan discovered rock climbing at the age of 12, he considered himself a slow learner, taking 8 years to achieve the elite Yosemite grade of 5.12.<sup>40,41</sup> Dan became known for his bold (some would say senseless), reckless climbing, ice climbing, free soloing, and speed climbing (to which his many YouTube videos attest).<sup>42</sup> Because some ascending routes he pioneered were subsequently downgraded in terms of difficulty, Dan increased the challenge by working on speed free soloing, once racing up a 400-foot rock face, ropeless, in 4 minutes, 25 seconds. While bolting a new route in Lake Tahoe, he discovered his love of falling and began to engage in large roped falls. As time progressed, he became bolder and enjoyed mastering falling and associated fears and other emotions.<sup>40</sup> Dan often encouraged others to attempt his feats, and when his 25-year-old friend Bobby Tarver died during a jump, Dan quickly dismissed the event as “pilot error.”<sup>43</sup> Although Dan was often credited with being meticulous and extremely focused when it came to his rope jumps and solo climbs, the rest of his life was marked by impulsivity, disorganization, forgetfulness, illegal jumps, brushes with the law, and episodes of brief jail time.

Friends began to refer to him as being on “DANO time,” as he often arrived hours or even days later than expected. His father eventually told Dan that he would no longer bail him out for his continued minor legal infractions such as unpaid parking and traffic tickets. Friends picked up the slack, but Dan’s Bohemian lifestyle did not make it easy for him to maintain relationships or care for his daughter. Part-time carpentry and climbing were not lucrative occupations.<sup>40</sup>

Dan was excited to be included in the *Guinness World Records* for speed free climbing, and for rope jumping 1000 feet. Aware of the danger, after the record jump he stated on video, “I’ll give my guardian angels some time off because they’ve been doing a heck of a job.”<sup>42</sup>

After being released from a brief incarceration, Dan returned to Yosemite and the site of a jump he had performed several months earlier to take down the rigging and ropes. He must have noticed that winter snows and intermittent freezes had

substantially damaged his rope system. Dan could not resist his impulses despite warnings from friends and attempted an 1100-foot fall. This time, the rope broke at the 900-foot mark, the spot at which the safety knot had been tied from his autumn jump. Dan died in 1998 at age 35, leaving a young daughter.<sup>43</sup>

### MANAGING RISK IN EXTREME SPORTS

Overlearning and practicing skills safely until they become automatic is critical when people participate in high-risk, high-skill activities such as mountain or boulder climbing, alpinism, and other extreme sports. The only way to succeed is to keep practicing toward the goal of reaching the top. It often takes a long time to unlock the sequence of movements to complete the combination required for a particular climb.

The process of practicing in grueling, risky conditions often is just as rewarding for a dedicated climber as the goal of reaching the top or succeeding at any highly challenging task. An essential part of this process is mindfulness, the quieting of the mind. As a free climber pointed out, “It puts me into a position where I can concentrate and be more mindful than any other thing I do. ... The act of climbing without a rope has been very valuable, in that it’s been one of the things I can go do that truly forces me to quiet my mind.”<sup>44</sup> Another participant points out, “... it’s such a hyper-focused and, at the same time, calming experience.”<sup>44</sup>

Extreme sports are generally performed outdoors in natural settings. Conditions must be close to perfect to complete an activity or a climb. However, small variabilities in temperature, humidity, sweat response, and light are always factors. For this reason, many successful climbs are completed at night in colder but more predictable and consistent conditions. When conditions are less than ideal, failure; conscious, prudent withdrawal from a climbing attempt; or severe injury or death are much more likely.

In our opinion there is a notable difference between impulsive high-risk takers and cutting-edge, expert, pioneering extreme sport proponents. Both types of participants risk injury and death while exploring their outer skill limits. Highly

trained extreme sport expert proponents have developed the skill set to manage the frustration associated with deferred gratification and have learned to channel rather than be driven by their impulsivity. Climbers such as those who may die on Mount Everest or while free soloing spend years and thousands of hours developing their skills to the point at which they feel ready to attempt a task that is at the peak of their perceived difficulty scale. They believe their level of preparation lowers risk despite the many variables that heighten risk.

Expert proponents probably turn away from an activity if conditions are not perfect. They use ropes to climb the most difficult sections numerous times before gaining the expertise and confidence to even attempt a climb without ropes. Peter Croft and Alex Honnold, who was the first person to free solo climb the most difficult central route up the El Capitan vertical rock formation in Yosemite National Park in June 2017, are both proponents of this approach.

Two examples of successful, very high-risk athletes/stuntmen who enthralled the world were Felix Baumgartner, who free fell and parachuted from Earth's stratosphere in October 2012 at speeds upwards of 800 miles per hour (Mach 1.2), and Luke Aikens, a third-generation skydiver who free fell from 25,000 feet into a net in July 2016. Sport and adventure psychologist Michael Gervais, PhD, a consultant on free fall attempts, perhaps put it best when he said, "Those that are pushing into territories that are yet to be conquered, we need them to tell us what is possible and truly explore what is not yet known."<sup>45</sup> Baumgartner's humble comment before he left the safety of his parachute capsule exemplified the extreme sports mindset when he said, "Sometimes you have to be up really high to understand just how small you are."<sup>46</sup>

### THE ROLES FOR PRIMARY CARE AND SPORT PSYCHIATRY IN EXTREME SPORTS

Primary care physicians must become knowledgeable about extreme sports and the associated signs that warrant referral to therapists and psychiatrists. While taking patient histories, physicians should

solicit descriptions of all leisure activities, not just "regular" sporting activities. Physicians who develop an alliance with physically healthy patients with incipient psychiatric illness can help to foster their long-term mental health.

The current role of the psychiatrist in extreme sports is probably underutilized and is evolving. Sports psychologists can help participants with motivation and mindfulness skills to prepare for highly risky situations. Participants in extreme sports are aware of their risks and most likely are somewhat contemptuous or dismissive of the role that mental health professionals may play other than in performance enhancement. Consequently, extreme sports enthusiasts may avoid accessing psychiatric services. There also is high risk for ego-syntonic polysubstance use, abuse, and dependence in this population. Substance use and abuse may play a part in the ability to overcome the fear of performing some of these activities. Extreme sports participants need to know that psychiatric services are available and that expressing their concurrent challenges, concerns, or traumas may prove helpful.

The ability to harness and even normalize a quasisuicidal "death wish" to perform these activities suggests that friends and family can encourage consultations with sport psychiatrists. At the very least, therapy may help participants articulate and understand the motivations at work and identify ways to minimize risk. Supportive involvement does not always denote agreement with the extreme project at hand. Support may lead to an intervention whereby an actively suicidal and perhaps manic or psychotic person can be hospitalized and stabilized or successfully treated as an outpatient. Identifying alternative yet high-action safer activities that extend survival may be considered in a therapeutic environment. Patients with associated Axis II disorders may benefit from interventions such as Dialectical Behavior Therapy.

Dean Potter's articulation of this Icarus-like statement is telling: "I know it's insane to think I could fly, but to make it possible, you truly have to believe in it—to go to a place that's not accepted."<sup>47</sup> Despite their life-endangering behaviors,

most of these athletes do not intend to die, at least from an overt cognitive standpoint. Using medications to manage any underlying Axis I psychiatric disorder such as severe bipolar disorder with psychotic features, major depression, uncontrolled substance abuse or dependence, or severe hyperactive/impulsive ADHD may enable safer execution and fine-tuning of the choices these athletes make while participating in extraordinary activities. Psychiatry and sports psychiatrists, in particular, must acquire a deeper understanding of this fascinating field. ❖

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#### References

1. Brymer GE. Extreme dude! A phenomenological perspective on the extreme sport experience [thesis] [Internet]. Wollongong, New South Wales, Australia: University of Wollongong; 2005 [cited 2017 Nov 15]. Available from: <http://ro.uow.edu.au/cgi/viewcontent.cgi?article=1379&context=theses>.
2. Brymer E, Schweitzer R. Phenomenology and the extreme sport experience. Abingdon, UK: Routledge Press; 2017.
3. Csikszentmihalyi M. Flow: The psychology of optimal experience. New York, NY: Harper & Row; 1990.
4. Timms E. Wilhelm Stekel's dialogue with Sigmund Freud: The case for brief therapy and the symbolism of dreams. *Psychoanalysis and History* 2013 Jul;15(2):207-20. DOI: <http://doi.org/10.3366/pah.2013.0133>.
5. Lewis N. Sustainable adventure: Embodied experiences and ecological practices within British climbing. In: Wheaton B, editor. *Understanding lifestyle sports: Consumption, identity and difference*. Abingdon, UK: Routledge; 2004. p 70-93.
6. Fletcher R. Living on the edge: The appeal of risk sports for the professional middle class. *Sociology of Sport Journal* 2008 Sep;25(3):310-30. DOI: <https://doi.org/10.1123/ssj.25.3.310>.
7. Gieseler CM. Performance of gender and sexuality in extreme sports culture [thesis] [Internet]. Tampa, FL: University of South Florida; 2012 Jan [cited 2017 Nov 15]. Available from: <http://scholarcommons.usf.edu/cgi/viewcontent.cgi?article=5245&context=etd>.
8. X games [Internet]. Los Angeles, CA: ESPN Internet Ventures; c2017 [cited 2017 Nov 15]. Available from: <http://xgames.espn.com/xgames/>.

9. Hurt H III. The ground's the limit. *Texas Monthly* 1981 Dec;1981:178-83.
10. BASENumbers.org [Internet]. Hitchcock, TX: BASENumbers.org; c2107 [cited 2017 Nov 15]. Available from: [www.basenumbers.org](http://www.basenumbers.org).
11. Death of Georgian athlete highlights dangers of luge [Internet]. San Bruno, CA: YouTube; 2010 Feb 16 [cited 2017 Nov 15]. Available from: [www.youtube.com/watch?v=VP6AXF-sVc](http://www.youtube.com/watch?v=VP6AXF-sVc).
12. Norbury A, Manohar S, Rogers RD, Husain M. Dopamine modulates risk-taking as a function of baseline sensation-seeking trait. *J Neurosci* 2013 Aug 7;33(32):12982-6. DOI: <https://doi.org/10.1523/JNEUROSCI.5587-12.2013>.
13. Kluger AN, Siegfried Z, Ebstein RP. A meta-analysis of the association between DRD4 polymorphism and novelty seeking. *Mol Psychiatry* 2002;7(7):712-7. DOI: <https://doi.org/10.1038/sj.mp.4001082>.
14. Thomson CJ, Hanna CW, Carlson SR, Rupert JL. The - 521 C/T variant in the dopamine-4-receptor gene (DRD4) is associated with skiing and snowboarding behavior. *Scand J Med Sci Sports* 2013 Mar;23(2):e108-13. DOI: <https://doi.org/10.1111/sms.12031>.
15. Reynolds G. The genetics of being a daredevil [Internet]. New York, NY: The New York Times; 2014 Feb 19 [cited 2017 Nov 15]. Available from: <https://well.blogs.nytimes.com/2014/02/19/the-genetics-of-being-a-daredevil/>.
16. Lyng S. Edgework: A social psychological analysis of voluntary risk taking. *AJS* 1990 Jan;95(4):851-86. DOI: <https://doi.org/10.1086/229379>.
17. Monasterio E, Mei-Dan O, Hackney AC, et al. Stress reactivity and personality in extreme sport athletes: The psychobiology of BASE jumpers. *Physiol Behav* 2016 Dec 1;167:289-97. DOI: <https://doi.org/10.1016/j.physbeh.2016.09.025>.
18. Hackney AC. Endocrine stress reactivity associated with extreme sports [Internet]. Proceedings from the 1st International Extreme Sports Medicine Congress; 2004 Jun 13-14; Boulder, CO. Denver, CO: University of Colorado Denver; 2014 [cited 2017 Nov 15]. Available from: [www.ucdenver.edu/academics/colleges/medicine/sportsmed/cusm\\_events/2014-Extreme-Sports-Medicine-Congress/Documents/Presentations/Endocrine%20Stress%20Reactivity.pdf](http://www.ucdenver.edu/academics/colleges/medicine/sportsmed/cusm_events/2014-Extreme-Sports-Medicine-Congress/Documents/Presentations/Endocrine%20Stress%20Reactivity.pdf).
19. Seidman LJ, Valera EM, Makris N. Structural brain imaging of attention deficit/hyperactivity disorder. *Biol Psychiatry* 2005 Jun;57(11):1263-72. DOI: <https://doi.org/10.1016/j.biopsych.2004.11.019>.
20. Arnsten AF, Scahill L, Findling RL. alpha2-adrenergic receptor agonists for the treatment of attention-deficit/hyperactivity disorder: Emerging concepts from new data. *J Child Adolesc Psychopharmacol* 2007 Aug;17(4):393-406. DOI: <https://doi.org/10.1089/cap.2006.0098>.
21. Cloninger CR, Svrakic DM, Przybeck TR. A psychobiological model of temperament and character. *Arch Gen Psychiatry* 1993 Dec;50(12):975-90. DOI: <https://doi.org/10.1001/archpsyc.1993.01820240059008>.
22. Zuckerman M. The sensation seeking scale V (SSS-V): Still reliable and valid. *Pers Individ Dif* 2007 Oct;43(5):1303-5. DOI: <https://doi.org/10.1016/j.paid.2007.03.021>.
23. Outside TV. Dean Potter: A premonition of death [Internet]. San Bruno, CA: YouTube; 2015 May 20 [cited 2017 Nov 15]. Available from: [www.youtube.com/watch?v=UGzuTpdD-sM](http://www.youtube.com/watch?v=UGzuTpdD-sM).
24. Branch J. Dean Potter, extreme climber, dies in BASE-jumping accident at Yosemite [Internet]. New York, NY: The New York Times; 2015 May 17 [cited 2017 Nov 15]. Available from: [www.nytimes.com/2015/05/18/sports/dean-potter-extreme-climber-dies-in-jumping-accident-at-yosemite.html](http://www.nytimes.com/2015/05/18/sports/dean-potter-extreme-climber-dies-in-jumping-accident-at-yosemite.html).
25. Ketamine lifts depression via a byproduct of its metabolism [Internet]. Bethesda, MD: National Institutes of Health; 2016 May 4 [cited 2017 Nov 15]. Available from: [www.nih.gov/news-events/news-releases/ketamine-lifts-depression-byproduct-its-metabolism](http://www.nih.gov/news-events/news-releases/ketamine-lifts-depression-byproduct-its-metabolism).
26. Maddock RJ, Casazza GA, Fernandez DH, Maddock MI. Acute modulation of cortical glutamate and GABA content by physical activity. *J Neurosci* 2016 Feb 24;36(8):2449-57. DOI: <https://doi.org/10.1523/jneurosci.3455-15.2016>.
27. Miller L. The last days of extreme-sports superstar Dave Mirra [Internet]. New York, NY: New York Media LLC; 2016 Apr 6 [cited 2017 Nov 15]. Available from: <http://nymag.com/daily/intelligencer/2016/04/bmx-dave-mirra-last-days.html>.
28. Roenigk A. Dave Mirra: A hero's death and CTE's arrival [Internet]. Los Angeles, CA: ESPN Internet Ventures; 2016 May 24 [cited 2017 Nov 15]. Available from: [www.espn.com/action/story/\\_id/15613973/dave-mirra-hero-death-cte-arrival-lauren-mirra](http://www.espn.com/action/story/_id/15613973/dave-mirra-hero-death-cte-arrival-lauren-mirra).
29. Bisharat A. Why are so many BASE jumpers dying? [Internet]. Tampa, FL: National Geographic Partners, LLC; 2016 Aug 30 [cited 2017 Nov 15]. Available from: [www.nationalgeographic.com/adventure/features/why-are-so-many-base-jumpers-dying/](http://www.nationalgeographic.com/adventure/features/why-are-so-many-base-jumpers-dying/).
30. Williams A. A thumbs-up before he leapt to his death: Video footage captures the last moments of James Bond stuntman before he died in fall 20 seconds later [Internet]. London, UK: DailyMail.com; 2013 Oct 2 [cited 2017 Nov 15]. Available from: [www.dailymail.co.uk/news/article-2441593/Mark-Sutton-death-Video-footage-captures-moments-James-Bond-stuntman.html](http://www.dailymail.co.uk/news/article-2441593/Mark-Sutton-death-Video-footage-captures-moments-James-Bond-stuntman.html).
31. Fatalities: Fatality reports [Internet]. Colorado Springs, CO: US Hang Gliding and Paragliding Association, Inc; c2017 [cited 2017 Nov 28]. Available from: [www.usHPA.org/page/fatalities](http://www.usHPA.org/page/fatalities).
32. Buchanan R. Climbing at the speed of soul [Internet]. Santa Fe, NM: Outside; 2002 Dec 1 [cited 2017 Nov 28]. Available from: [www.outsideonline.com/1821221/climbing-speed-soul](http://www.outsideonline.com/1821221/climbing-speed-soul).
33. Forum: Dean Potter interview Outside magazine 2002 [Internet]. Cheyenne, WY: SuperTopo; 2012 Mar 27 [cited 2017 Nov 28]. Available from: [www.supertopo.com/climbers-forum/1785758/Dean-Potter-Interview-Outside-Magazine-2002](http://www.supertopo.com/climbers-forum/1785758/Dean-Potter-Interview-Outside-Magazine-2002).
34. Samet M. How Dean Potter became everyone's favorite wingsuited slacklining speed climber [Internet]. Santa Fe, NM: Outside; 2011 Jun 15 [cited 2017 Nov 28]. Available from: [www.outsideonline.com/1898131/aerialist](http://www.outsideonline.com/1898131/aerialist).
35. Potter D. Dean Potter: What I've learned [Internet]. Carbondale, CO: Rock and Ice, Bigstone Publishing; 2016 May 16 [cited 2017 Nov 28]. Available from: <http://rockandice.com/lates-news/dean-potter-what-ive-learned/>.
36. Duane D. Dean Potter: Yosemite's elder madman speaks [Internet]. New York, NY: Men's Journal; 2015 Apr 22 [cited 2017 Nov 28]. Available from: [www.mensjournal.com/adventure/outdoor/dean-potter-yosemite-s-elder-madman-speaks-20150422](http://www.mensjournal.com/adventure/outdoor/dean-potter-yosemite-s-elder-madman-speaks-20150422).
37. Soldinger M. Daredevils: The sky walker [documentary]. London, UK: Firecracker Films; 2009 Oct 5.
38. Heil N. Dean Potter, extreme risk and the allure of the 'dangerous arts' [Internet]. New York, NY: Time; 2015 May 28 [cited 2017 Nov 28]. Available from: <http://time.com/3898978/dean-potter-extreme-risk-and-the-allure-of-the-dangerous-arts/>.
39. Bisharat A. Remembering pioneering climber Dean Potter [Internet]. Washington, DC: Beyond the Edge, National Geographic; 2015 May 17 [cited 2017 Nov 27]. Available from: <http://adventureblog.nationalgeographic.com/2015/05/17/pioneering-climber-dean-potter-died-in-base-jumping-accident/>.
40. Todhunter A. The precipitous world of Dan Osman [Internet]. New York, NY: The Atlantic; 1996 Feb [cited 2017 Nov 27]. Available from: [www.theatlantic.com/magazine/archive/1996/02/the-precipitous-world-of-dan-osman/304382/](http://www.theatlantic.com/magazine/archive/1996/02/the-precipitous-world-of-dan-osman/304382/).
41. Todhunter A. Fall of the phantom lord: Climbing and the face of fear. New York, NY: Doubleday; 1998.
42. Guinness looks back at Dan Osman [video]. San Bruno, CA: YouTube; 2017 Apr 24 [cited 2017 Nov 28]. Available from: [www.youtube.com/watch?v=ly9CP58Ee30](http://www.youtube.com/watch?v=ly9CP58Ee30).
43. Vetter C. Terminal velocity: The death of the master of gravity [Internet]. Santa Fe, NM: Outside Magazine; 2013 Mar 29 [cited 2017 Nov 15]. Available from: [www.outsideonline.com/1914776/terminal-velocity-death-master-gravity](http://www.outsideonline.com/1914776/terminal-velocity-death-master-gravity).
44. Sparks JR. Extreme sports: A study of free-solo rock climbers [thesis] [Internet]. Provo, UT: Brigham Young University; 2016 Dec 1 [cited 2017 Nov 15]. p 21. Available from: <https://scholarsarchive.byu.edu/cgi/viewcontent.cgi?article=7136&context=etd>.
45. Bold skydiver jumps off 7.6 km above sea level without a parachute [Internet]. Brooklyn, NY: Health Units Inc; 2016 Aug 1 [cited 2017 Nov 28]. Available from: <https://healthunits.com/trending/bold-skydiver-jumps-off-7-6-km-above-sea-level-without-a-parachute/>.
46. Felix Baumgartner space jump world record 2012 [Internet]. San Bruno, CA: YouTube; 2012 Oct 14 [cited 2017 Nov 15]. Available from: [www.youtube.com/watch?v=vbN-cW0e0A0](http://www.youtube.com/watch?v=vbN-cW0e0A0).
47. Kaplan S. Dean Potter, extreme climber, dies in Yosemite base jumping accident [Internet]. Washington, DC: The Washington Post; 2015 May 18 [cited 2017 Nov 21]. Available from: [www.washingtonpost.com/news/morning-mix/wp/2015/05/18/dean-potter-extreme-climber-who-risked-falling-in-order-to-fly-dies-in-base-jumping-accident/?utm\\_term=.021863d7450a](http://www.washingtonpost.com/news/morning-mix/wp/2015/05/18/dean-potter-extreme-climber-who-risked-falling-in-order-to-fly-dies-in-base-jumping-accident/?utm_term=.021863d7450a).