

How effective are extreme sports at inducing flow state and how does the resulting flow state impact long term happiness?

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Abstract

We all want to achieve long-term happiness. One path to achieving this goal is flow. Flow is state full mental absorption that occurs when someone is so engaged in activity that all else seems to fade away. Flow has been shown to improve happiness and overall well-being. In this paper, I explore the question of how effective are extreme sports at inducing flow state and how does the resulting flow state impact long term happiness. This research draws primarily on psychological studies conducted over the past 45 years, as well as personal experience and accounts of flow. In the existing research, there is direct link between the amount of flow in a person's life and their level of happiness. Additionally, extreme sports have been demonstrated to be highly effective at inducing a flow state. Therefore, extreme sports lead to happiness in a person's life. It should be noted that psychological dependence has also been demonstrated in extreme sports. These conclusions indicate that flow in extreme sports is overwhelmingly positive. However, further research on the outcomes of dependence in extreme sports is recommended.

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Part 1: Introduction

When was the last time that you were so immersed in what you were doing that everything else seemed to fade away? It may have been while rushing down a mountain bike trail, running, playing music, painting, or working. Think about that feeling. That is a phenomena most commonly called *flow* in psychology; other names for the mental state include “optimal experience” and “peak performance.” Everyone has experienced some degree of flow in their life, whether or not they have even realized it. Flow describes when a person is so involved with the activity at hand that a profound shift in experience and consciousness takes place. This often elusive state of mind has been a point of interest in understanding human consciousness for thousands of years, but only in the past few decades did science start to understand it. The most significant scientific breakthroughs in flow research have come from a psychologist named Mihály Csíkszentmihályi (pronounced Me-high Cheek-sent-me-high). Csíkszentmihályi’s research has revealed a very strong positive correlation between the amount of flow in a person’s life and how happy they are.

It is human nature to search for happiness. Almost all of our decisions are oriented towards this goal. Many of work a job that we don’t enjoy, because we believe the rewards of that work will make us happy later. We make great sacrifices in the pursuit of happiness. Breakthroughs in positive psychology, the field psychology that explores things like the pursuit of happiness, have identified flow as major contributor to long-term happiness. Flow can be experienced in nearly every situation, however, some activities lend themselves far better to the

experience than others. Their high risk nature and inclusion of the necessary conditions, makes extreme sports are extremely effective at inducing flow states. Flow has been shown to have a very positive impact on long-term happiness. Therefore the participation in extreme sports is an effective path towards long-term happiness.

Part 2: What is Flow

What is it like to be in Flow?

Flow is a sensation that we have all felt, but it is difficult to put your finger on. How do you describe a feeling that is characterized by a loss of self-awareness? This idiosyncrasy of flow is mentioned by flow researcher Mihály Csíkszentmihályi: “the problem with flow was that as soon as a person read or heard about it, the obvious response was: ‘Yes, of course. It’s something I always knew . . . I just did not have a name for it’” (Csíkszentmihályi qtd. DeManzano et al.). To attempt to fully describe the sensation of flow, it is best to start with the most basic and singularly defining aspect, total engagement in the activity.

A flow state is achieved when your whole being is absorbed into what you are doing. There is no concern for what happened yesterday or what will happen tomorrow; there is no consciousness left over for irrelevant thoughts. You are locked into the moment. Action feels instinctual, automatic, and effortless. Skills are heightened and performance is at its peak. Thoughts and decision-making are more creative and are not second-guessed. You inextricably feel a part of what you are doing. Time is distorted, slowing down or speeding up to accommodate the demands of the activity. Joy, gratification, and fulfillment typically follows the experience.

Why is Flow important?

For thousands of years, one of the fundamental conclusions of philosophers, thinkers, and more recently psychologists, is that “the pursuit of happiness constitutes the basis of both individual motivation and social well-being” (Csíkszentmihályi). People want to be happy and go to great lengths trying to achieve that. Much of society turns to materialism, believing it will make them happy. After basic needs are met, this approach leads to empty short-term gratification that leaves the person at the same level of satisfaction. A recent study published in *Nature* found that above an average annual income of \$75,000, emotional well-being flattens off (Jebb). This is significant because it demonstrates that beyond the meeting of basic needs, materialism fails to provide additional happiness. Further happiness and fulfillment needs to come from other sources, such as flow.

There is no cookiecutter procedure for achieving lasting happiness, but incorporating flow into one’s life on a regular basis appears to be highly beneficial. Ironically, while you are in flow there is no consciousness available to comprehend feelings. As Csíkszentmihályi puts it, “Being happy would be a distraction, an interruption of the flow.” Although technically happiness is not a part of a flow state, the feelings that follow Flow are often described as bliss, euphoria, accomplishment, and joy; “People report having been in as positive a state as it is possible to feel. Autotelic persons, those who are often in flow, tend also to report more positive states overall and to feel that their lives are more purposeful and meaningful” (Csíkszentmihályi qtd. Adlai-Gail, Hektner).

Flow in Psychology

It was the distortion of time, feeling of calmness, and clarity of thought that caught the attention of one of the first scientists to identify flow, Albert Heim, geologist and amateur outdoorsman. In the spring of 1871, Heim began to ascend one of the tallest mountains in the Swiss Alps. Not far out of treeline, the exposure became extreme and an unfortunate gust of wind caused Heim to lose his hat, reaching for it, he stumbled backwards and began to tumble toward a sixty foot cliff. He dug his feet and hands into the earth in an attempt to slow himself (Kolter, pg 9). His fall couldn't have lasted more than a few seconds, but to him, those few moments stretched out immeasurably. Heim described what he experienced, writing, "What I felt in five to ten seconds could not be described in ten times that length of time. All my thoughts and ideas were coherent and very clear" (Heim translated by Noyes & Kletti). There was "no anxiety, no trace of despair or pain . . . rather calm seriousness, profound acceptance and a dominant mental quickness" (Heim qtd. Kolter 9).

What Heim experienced was flow and it sparked a strong curiosity. He investigated the phenomena but was mostly unsuccessful in unlocking its secrets. Heim's fascination persisted, but progress in the field of flow research continued at a very slow pace until the early 1970s when Csíkszentmihályi began his research into flow. Much of Csíkszentmihályi's early work focused on various creative types like artists and dancers. When he observed art students completing a piece he was amazed at their intense concentration, often going many hours without eating, drinking, or using the bathroom. When the artist finished their piece, they would

simply put it away with the countless others they had created and begin anew with no intention of profiting off the work they had completed.

This raised the question: Why did they do it? How did they become so engrossed in what they were doing that they even became unconscious of their bodily needs, even when there was clearly no extrinsic benefit? Csíkszentmihályi reasoned that high-flow activities must be autotelic in nature and therefore highly rewarding. Autotelic is derived from two Greek roots: *auto* meaning *self* and *telos* meaning *goal*. If an activity is autotelic, the activity is the goal in and of itself rather than some external motivation. The artists were not creating their art with hopes of selling it or becoming rich or famous; they did it for its own sake. It appeared that autotelic experiences produced “such a great feeling that people would seek it out even when no other rewards or goals motivated them” (Csíkszentmihályi). Csíkszentmihályi soon renamed autotelic experience to the much simpler *flow*, being that was how many of his interviewees described the feeling. Some said “it felt like I was being carried by the current of a river” or “I felt effortless, like a feather carried by the wind” (Csíkszentmihályi). This isn't to say that people with external motivations will not experience flow. This means that their goal before and during a flow state is not external. Even if professional skier or pianist are generally motivated by the money they will make by performing, their goal while they are performing is not money; their goal is to perform their best.

The next important question is what conditions lead to flow? Through over 10,000 interviews and the use of a survey method called Experience Sampling Method (ESM),

Csikszentmihályi found that flow is a universal human experience. His research revealed nine key similarities that were consistent no matter the flow activity, culture, or location in the world. It doesn't matter if you are a surgeon in Shanghai, a programmer in Silicon Valley, a Navajo weaver in the southwest United States, or a skier in the Alps, if you are experiencing flow, several of these components are present:

Proximal Conditions

- Challenge-Skill Balance (CS) — engagement in challenge that is in proportion with one's current ability
- Clear Goals (CG) — a feeling of certainty about what one is going to do
- Unambiguous Feedback (UF) — immediate and clear feedback about one's action

Flow Experience

- Action-Awareness (AA) — involvement is so deep that action feels spontaneous and almost automatic
- Concentration on the Task at Hand (CT) — a feeling of being intensively focused on what one is doing in the present moment
- Sense of Control (SC) — a sense that one can deal with the situation because one knows how to respond to whatever happens next
- Loss of Self-Consciousness (LS) — a lack of concern or worry about self
- Transformation of Time (TT) — a sense that the way time passes is distorted
- Autotelic Experience (AE) — experience of the activity is intrinsically rewarding. (Kawabata)

In 2011, Researchers Masato Kawabata and Clifford J. Mallett made the distinction that Csikszentmihályi's components of flow are parts of a process that build off each other and lead to an overall heightened state of consciousness. The first three factors: challenge-skill balance, clear goals, and unambiguous feedback, are what Kawabata and Mallett distinguished as

proximal conditions of the flow activity that are satisfied before a flow state is reached. They are prerequisite that lead to the flow state. The flow state itself is characterized by the other six components of flow: concentration on the task at hand, sense of control, loss of self consciousness, transformation of time, and autotelic experience (Figure 1).

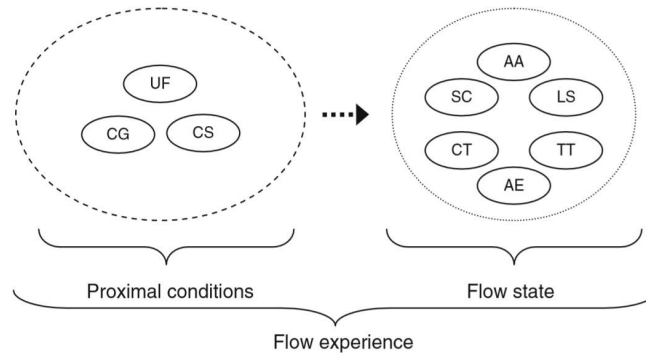


Figure 1 (Kawabata)

Flow in Eastern Religion

Interest in flow experiences long predates modern psychology and Mihályi Csíkszentmihályi. For millennia, eastern religions have incorporated key aspects of flow into their beliefs and practices. One of the fundamental ideas of Taoism is *wuwei* (effortless action) (Littlejohn).

The Taoist philosopher Zhuangzi proposes that happiness is nothing but *wuwei* (no contrived action), that is, using one's natural abilities and intuition to flow with one's environment. When one is fully engaged with what one is doing, one begins to act effortlessly, and one's whole mindset changes from that of fear and avoidance to that of engagement and openness. (Pursuit)

Wuwei, as described here, is perfectly in sync with the experience of flow.

Most eastern religions incorporate practices to discipline the mind in order to access flow. Examples include various forms of meditation, such as Yogic practices and the many forms of martial arts. These practices allow the participant to experience the fullness in body and mind that can be achieved through flow (Csikszentmihalyi, 1990, 106). Flow, typically through meditation, has been realized as a powerful tool for overcoming the duality of self and object (Sansone), achieving deep spiritual and intellectual enlightenment. The extreme concentration and psychological absorption achieved in deep meditation diminishes the barrier between self and object. This is the loss of self component of flow described by Csikszentmihályi. Loss of self, as used by Csikszentmihályi is not a fully accurate description. Self-transcendence would be more accurate because there is often a feeling of merging with the environment or activity. The boundary between self and the world becomes blurred, but self is not necessarily lost. This happens because the activity in the region of the prefrontal cortex that is responsible for making the distinction between yourself and your environment is drastically reduced during a flow state.

Our Brains on Flow

Research has only begun to reveal the exact neurological happenings during this deep shift in consciousness. What has been discovered about brain activity in a flow state is surprising and on the surface somewhat counterintuitive. In flow, there are a number of significant change to thought processes. The level of focus is extreme, decision-making skills are heightened, ability to connect seemingly disconnected ideas is improved, accurately analyzing the situation becomes easier, and it all happens much faster than is normally possible. Some of the primary functions of the prefrontal cortex include sustaining attention, stimulus detection, sequencing tasks, complex

planning, anticipating and processing outcomes, perceiving spatial relationships, and performing tasks that require the guidance of one's actions by visual information (Siddiqui). Given the prefrontal cortex is responsible for higher cognitive function (as outlined above), it is logical to assume that activity in that region would be significantly increased during a flow state. However, the opposite occurs; most of the prefrontal cortex shuts down. This deactivation of the prefrontal cortex is called transient hypofrontality (Kolter 48).

Activity is instead focused on regions of the brain that handle implicit functioning: primarily the precuneus in the parietal lobe (Figure 2). According to researchers with the Institute of Neurology, Andrea Cavanna and Michael Trimble, the precuneus plays a central role in a wide spectrum of highly integrated tasks, including visuospatial imagery and problem solving, episodic memory retrieval: the recollection of previous experiences and self-processing operations, namely first-person perspective taking and an experience of agency. (Cavanna, Trimble) This explains much of the alterations in consciousness that typically are experienced during a flow state.

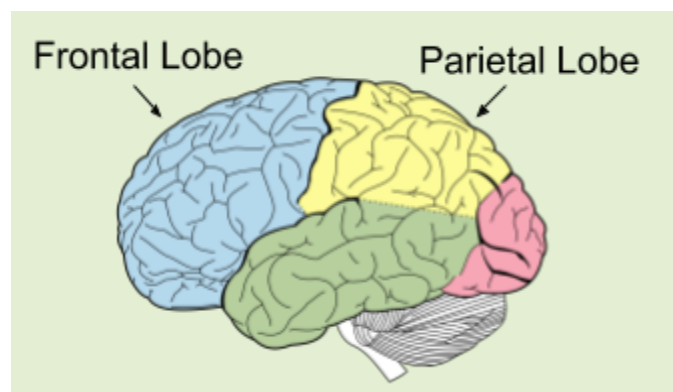


Figure 2

Our brains have two primary systems of thought, the explicit (mostly located in the

prefrontal lobe) and the implicit system (mostly located in the precuneus). The explicit is responsible for higher cognitive functioning and conscious awareness and reasoning. The implicit is experience-based, intuition-driven thought. When someone has a gut feeling or does something by muscle memory, it is their implicit system at work. The implicit system exchanges higher cognitive function, such as critical thinking, for fast and efficient experienced based responses. That is why when someone throws an apple to us we are able to catch it without calculating when and where it will land. Those mental calculations are based off of thousands of observations of the way objects move through space. (Kolter pg 71)

Electrical signals travel through the brain at different frequencies. The lowest frequency, delta (1 - 3.9 Hz), corresponds to deep dreamless sleep and healing. Theta (4 - 7.9 Hz) happens during vivid dreaming, meditation, insight, and the processing of novel stimuli. Alpha (8 - 13.9 Hz) coincides with a relaxed, calm state of very little higher cognitive function. Beta (13.9 - 30 Hz) is attentive concentration at the low end and fear and stress at the high end. In flow or when our implicit system is engaged, our brain operates primarily in the ranges of theta and alpha (Kolter pg 33,34). This relationship makes sense given what has been observed about the nature of flow.

Along with a significant shift in electrical activity, our brains utilize a potent concoction of endogenous neurochemicals, namely dopamine, norepinephrine, endorphins, anandamide and serotonin. Dopamine is our brain's feel good chemical, it is the reward we get when we do something our brain deems good. It also increases attention, data processing, pattern recognition,

heart rate, and blood pressure. Csikszentmihályi also connects flow to dopamine when he quotes fellow psychologist and flow researcher Ölján de Manzano, “flow results when dopamine arrives to parts of the brain involved in effortful, conscious striving.” Norepinephrine’s effect on the brain resembles dopamine’s, but is distinctly different. It triggers glucose release and speeds up heart rate and breathing, increasing both the fuel and oxygen or muscles need to function. It also increases emotional control, neural efficiency, arousal, and attention. Endorphins are naturally occurring opioids. They are incredibly strong painkillers that let us push beyond our normal tolerance thresholds. Anandamide is an endogenous cannabinoid that has a similar effect to marijuana. It elevates mood, relieves pain, assists cardiorespiratory system, improves lateral thinking (connecting disparate ideas) and is a strong inhibitor of fear. Serotonin typically enters the mix as the flow state is winding down. It is related to a feeling of happiness and overall well being and is part of the reason that flow experiences nearly always feel retrospectively positive. (Kolter 67)

Part 3: Extreme Sports Lead to Happiness Through Flow

Flow as a Source of Happiness

By definition, flow experiences are rewarding. Flow happens when we are doing our absolute best at what we are already good at. One Big Wave surfer noted, “For a moment in time, time stands still and you are able to control the most uncontrollable because everything becomes slow motion and that’s when you know you are surfing the best” (Partington). It is an

autotelic experience, meaning the reward comes from the enjoyment of and engagement in the activity. A study by Sarah Partington et al. recognised that “several of the surfers prioritized the euphoric feelings they experienced during flow moments over more material and arguably more rational incentives such as monetary reward.” They surf for no reason other than that they love to do it.

Accomplishment is felt for two main reasons. First, flow happens when we are engaged in challenging activities. In other words, flow happens when we are doing work. Csíkszentmihályi pointed out that “The best moments in our lives are not the passive, receptive, relaxing times... The best moments usually occur if a person’s body or mind is stretched to its limits in a voluntary effort to accomplish something difficult and worthwhile” (Csíkszentmihályi). Think about times when you felt fulfilled or truly gratified. Does that feeling come after you have passively watched TV, or when you have put the work in to accomplish something? The second reason we feel accomplish is that when we are in flow, learning, achievement, and productivity are significantly improved. One study found that there is a positive correlation “between flow and students’ perceived learning of the subject matter, students’ perceived skill development, and student satisfaction” (Rossin). It feels good to make progress in anything especially when that progress brings you closer to a meaningful goal. Regularly participating in high-flow activities develops the type of character that seeks challenge and personal betterment. In a 1998 study of American teenagers, Csíkszentmihályi found that “high-flow kids end up having greater long term happiness as well as success in school, social relationships and careers” (Pursuit). This supports the claim that engaging in high-flow activities

influences behavior in a way that leads to positive life outcomes.

Frequently accessing flow has been shown to have a significant positive impact on well-being and overall long-term happiness. Extreme sports are highly effective at inducing flow states. Therefore extreme sports are an effective path toward well being and overall long-term happiness. A 2012 study titled “Transcendent Experience, Flow and Happiness for Mountain Climbers” investigated this relationship. The study found “Happiness is the outcome of cognitive and affective evaluations of flow” later stating “flow experiences gained is an important source of happiness for mountain climbers” (Tsauro). Extreme sports provide one of the shortest and most reliable path to flow humans have found. The unique conditions that define action sports foster flow, achievement, progression, and fun. Despite their autotelic nature, adventure sports do have an extrinsic goal: happiness. People do them because it makes them happy; why else would they risk life and limb?

Extreme Sports as a Gateway to Flow

I am the type of person to willingly accept risk to push my limits on a mountain bike, on skis, or in my own head. This pursuit of limit progression is also the pursuit of flow. Thousands of hours of experience participating in action sports has showed me how effective they are at inducing flow. People participate in extreme sports *because* they are a shortcut to flow and therefore, increased long-term happiness. Renowned free soloist and base jumper Dean Potter commented on action sports as a flow inducer, saying “I can sit on my ass and meditate for two hours to get a fifteen second glimpse of the state. Or I can risk my life and get there instantly -

and it lasts for hours.” Flow is what makes these kinds of activities worth doing; without it people would find them terrifying not exhilarating. Not only are extreme sports an effective method of entering flow, they would rather than exist without it. In fact, they could be very dangerous without it. Flow induces focus amongst athletes, which keeps them safe during sports.

Proximal Conditions: Unambiguous Feedback

Extreme sports exhibit all of the proximal conditions for flow: unambiguous feedback, skill-challenge balance, and clear goals. When you are skiing a technical line or descending a difficult trail on a mountain bike, feedback is abundant, unambiguous and immediate. You feel the result of every subtle movement and every slight change in velocity. The very forces that govern the activity are transferred through your body. Every error and correct action is felt by your whole being and is used to continue forward to meet the next obstacle.

Proximal Conditions: Skill-Challenge Balance

The key part of having a skill-challenge balance, is the challenge. With too great challenge we become frustrated, but with too little challenge we become bored; in both cases we become unengaged (Figure 3). According to Csíkszentmihályi, flow experiences are most likely to take place when the task at hand is 4% beyond your level. Extreme sports are characterized by challenge. Even the most basic maneuvers of most extreme sports would be close to impossible for the average person. For example, take the 360 on skis, this trick is simply jumping into the air and spinning around one time. At any given ski area you will find a handful of 8-10 year olds who can do this easily, but randomly choose someone off the street and they would be hard

pressed to even jump on skis, let alone perform this very simple trick.

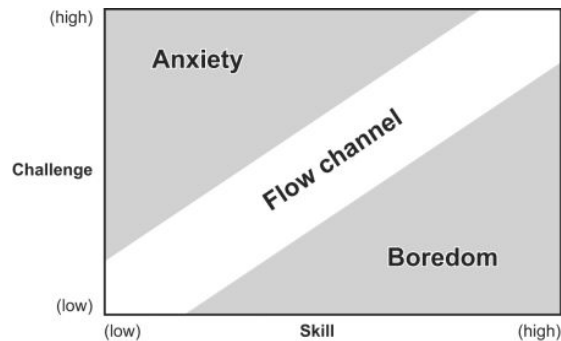


Figure 3 (Csíkszentmihályi)

Additionally, the challenges present in most extreme sports are different in nature than many more traditional sports, like sprinting. The barriers that face a sprinter are primarily physical. A major progression might require strengthening muscle to shave a tenth of second off your time in the 100 meter dash. But, for an extreme athlete, major progression involves expanding their comfort zone beyond what was previously conceivable. The barrier is nearly all mental; how far can you push before you get scared and flow is no longer possible? Because these barriers are psychological rather than physical, there is almost no limit to how far extreme athletes can go and how fast they can get there. That is why extreme sports have progressed at the astounding rate they have.

Proximal Conditions: Clear Goals

The extreme athletes' limitations are primarily psychological, they are able to set goals that are highly ambitious and creative. On June 3, 2017, a rock climber Alex Honnold began his ascent up Yosemite Valley's most prominent feature, El Capitan. El Capitan is a three thousand foot face of sheer granite that towers over the valley. On a typical ascent of "el cap," climbers

travel together, all carrying large packs full of gear to anchor themselves on the way up. On this occasion, Honnold approached the base of the wall alone, carrying nothing but a chalk bag and a pair of climbing shoes. Honnold was about to complete a legendary feat of human performance. He was about free solo El Capitan, climbing totally exposed without ropes or any other means of security. This had never been done and is still viewed by much of climbing community as awesomely insane. The feat has been compared to an olympic level performance where not earning gold results in certain death. Alex completed the ascent in a record breaking 3 hours and 57 minutes (Chin). In order to achieve this truly amazing accomplishment, he had to perfectly execute thousands of highly difficult moves in perfect sequence. Each move was a clear goal that brought him closer to his ultimate goal.

Clear goals are fundamental, not only in rock climbing, but extreme sports more generally. There are innumerable slight movements and actions that are essential to succeed at any extreme sporting activity. In a single moment of mountain biking, a rider may have to do a half pedal to minutely adjust their speed, preload the suspension in preparation to pop over an obstacle, and change their body position to move their center of mass, all while processing the trail ahead. Each of these subtle actions is a clear goal and for a rider in flow, the execution of these goals happens automatically and without thinking.

Risk Encourages Flow

Environmental triggers such as risk, play a key role in the activation of a flow state. Csíkszentmihályi described how consequences assist in achieving flow, “Risk is one factor that

has been described as an effective catalyst for reaching transcendent states such as flow” (Csíkszentmihályi). There is no shortage of risk in extreme sports, it is what distinguishes them as extreme. Perceived risk, triggers a response in the brain that you to focus on the present and drives away irrelevant thoughts. If our hunter/gatherer ancestors came in contact with a saber tooth tiger, it would not be beneficial to think about how soft its fur looked. All of their attention needed to be devoted to taking action to survive.

When we perceive that we are in danger, a mix of chemicals and electrical signals rushes through the brain. Cortisol and, in extreme cases, adrenaline are our body’s stress hormones and are very effective at nudging us into a flow state. Cortisol streamlines the data processing, eliminates irrelevant responses, sustains attention and concentration, and increases glucose levels in the blood giving us a boost in energy (Corinna). Cortisol was also found to produce a shift from hippocampal cognition to simple stimulus–response-related habit behavior” (Corinna). This describes transient hypofrontality which leads to the engagement of our implicit system. A 2014 study on the effects of cortisol on flow experience discovered the relationship between flow and cortisol to be shaped like an inverted U (Figure 4). Too little or much cortisol was unhelpful, but moderate levels were beneficial in stimulating a flow experience. Cortisol and adrenaline improve our ability to meet challenges and by doing so, push us toward flow.

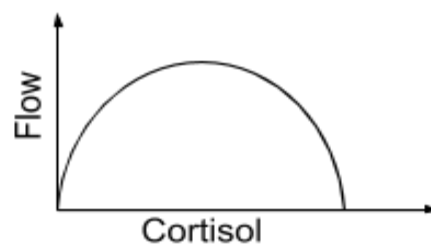


Figure 4

Flow Dependence in Extreme Sports

Extreme athletes often risk life and limb to achieve feats that most would view as positively crazy, but why do they do it? Aside from the joy they get from these experiences, some are motivated by a psychological dependence on flow. Csikszentmihályi asserts that “The rewards of flow are open-ended and inexhaustible,” but also warns that flow has the potential to be a double-edged sword, stating that we “need to learn to distinguish the useful and the harmful forms of flow, and then make the most of the former while placing limits on the latter” (Csikszentmihályi). A recent study titled “The Dark Side of Flow: A Qualitative Study of Dependence in Big Wave Surfing” examined dependency in high risk flow activities. In the study, fifteen elite big wave surfers were interviewed and their statements were compared to specific criteria of dependence:

- Drug-Like Qualities - addictive
- Withdrawal - symptoms such as anxiety, depression, or depletion when deprived of the activity
- Social Impairment - the activity is prioritized over almost all else such as social or professional goals
- Physical Impediment - continue to participate in the activity despite impediments such as injury
- Tolerance - need to escalate the activity to achieve the desired mental/emotional effect

(Partington)

Collectively the surfers exhibited all of the criteria of dependence outlined above, giving credibility to the notion that flow can have negative impacts especially in extreme cases.

Participant D referred directly to the addictive nature of flow even in the presence of extreme risk, stating, “There is a risk of dying, of breaking bones, but the feeling you get off it (flow) is like no other feeling in the world. The best drugs cannot get you the same level of ecstasy, feeling of really good adrenaline. Once you get familiar with that feeling it’s an addiction” (Partington). Participant H adds, “You just get a taste of it and I think it becomes addictive almost. It’s something you can’t quench, you can’t satisfy and you chase it” (Partington).

Participant H continues by highlighting symptoms of withdrawal felt when not engaged in the flow activity; “after all that is done, there is a depression almost. You are sort of depleted and the only way to satisfy it is to do it again” (Partington). The highs of deep flow can be so intense that many extreme athletes find it difficult to cope with the monotony of daily life. Csíkszentmihályi also refers to this in his writings, “the self becomes captive of a certain kind of order [that is achieved in flow], and is then unwilling to cope with the ambiguities of life.”

The feelings of euphoria and ecstasy that athletes feel can lead them to ignore or reject things that obstruct their participation in flow activities. Participant B talked about how her husband wants to have children, but she is opposed to it because she wants to keep big wave surfing. Another participant explained a time he sustained an injury, but continued surfing

regardless, “It went on for over six months. I tried to pad it, put on wetsuits. I couldn’t stop surfing, so it prolonged the injury and healing” (Partington).

Other surfers spoke of a need to continually push further, play with more powerful forces, and take bigger risks in order to access a flow state. Participant C discussed the “desire to go further than you have gone before,” explaining that “nothing is ever enough” (Partington). It is a cycle, take a risk to enter a flow state, build a greater risk tolerance, take a greater risk to enter a flow state. While participating in extreme sports, athletes are very regularly in a flow state. This causes their skill and comfortability in that context to increase at an extraordinary rate, resulting in an higher personal tolerance. Keeping in mind that flow states are most easily achieved when perceived challenge of the activity is approximately 4% above the skill level of the participant, it is evident why there is such a need for escalation.

The study concluded that some of the surfers did exhibit flow dependence, because they “talked of being addicted to the euphoric feelings experienced, and were willing to continue to surf despite family commitments, injury or potential death, to replicate these sensations” (Partington). However, it was also recognised that “it is likely that these surfers did in fact experience flow while surfing, and that flow was likely to be associated with improved mood states, performance, self-esteem and fulfillment” (Partington). The ultimate conclusion of the study was that flow experience in extreme sports should not be viewed as wholly positive. Though it has many benefits, flow experience in extreme sports has potentially addictive properties. These addictive properties have the potential to cause a negative effect on well-being.

Part 4: Conclusions

Flow is the state of consciousness where you are so totally immersed in an activity that everything else fades away leaving only the rawness of pure experience. It is the phenomena that underpins the peak of human performance, drives progress, and fuels creativity. It is what happens when challenge slightly exceeds ability, goals are clear, and feedback is immediate and unambiguous. You lose yourself to what you are doing. Some form of what is now known as flow has been the subject of philosophy and psychic exploration for tens of thousands of years. It plays an important part in tradition and spiritual practices, but only in the past decades has scientific research shed additional light on the experience. The findings of Csíkszentmihályi and other researchers strongly indicate people who experience more flow lead happier, more fulfilling lives.

Extreme sport athletes have found a way to tap into this force and use it to push beyond the limits of possibility, achieving immense joy along the way. They are such effective flow inducers, in part because they embody the proximal conditions of flow and they typically take place in a high risk natural environment. This environment focuses our mind, demanding the utmost attention. Extreme sports are a gateway to almost limitless and intense flow experiences, that lead to such strong feelings of euphoria and ecstasy that they can have addictive properties. Even though extreme athletes can become dependant on flow as a source of happiness, the consequences almost always are eclipsed by the rewards.

If extreme sports are appealing, then they are a clear and obvious path to flow and increased happiness. Not everyone enjoys extreme sports, but they can be a launching off point to develop flow-based practices and techniques for achieving flow can be learned and applied in other areas of life. Toned down versions of extreme sports still contain much of the same flow inducing properties.

Flow is a highly nebulous and nuanced concept that needs a great deal of further research. Outside of extreme sports flow research is important because flow is one path to optimising the human experience. It is a door to optimal experience that is always open, no matter the outside conditions. Because flow is so common and so complete in extreme sports, they are a good basis for further research. However further research needs to closely and empirically examine both the positive and negative outcomes of flow dependence and the likelihood of becoming dependant on high risk activities.

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