

DARE: DESIRE TO STRIVE

DARE: Desire to Strive Beyond Current Capabilities

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### **Abstract**

The purpose of the following study is to explore the psychological practice and racing experience of competitive distance runners. It is proposed that a new mindset called DARE state be used to describe the mental experience of athletes when they are engaged in training that encompasses a “love of challenge,” deliberate practice and flow state in the same workout or race. The presence of both deliberate practice and flow in the same session is a new proposition as previously these two concepts have been viewed to be opposed. Seventy-four competitive college runners completed measures that assessed deliberate practice, flow state, and athletes’ love of challenge after intense practices and races. We found that runners do experience aspects of deliberate practice and flow during the same session when both practicing and racing. In fact, deliberate practice and flow scales were found to be positively correlated. The second hypothesis of this study, which stated that DARE state scores would be positively correlated with running performance improvement was supported. DARE state scores were positively related to athletes’ subjective ratings of performance, coaches ratings of athlete improvement, and the degree to which athletes were meeting their coach’s expectations. DARE state was also positively correlated with objective measures of running improvement, but this failed to reach significance. In sum, we found evidence that both deliberate practice and flow can be experienced by athlete’s in the same training session, and that athletes who experience both of these phenomena in the same session frequently may improve more quickly than athletes who do not.

**DARE: Desire to Strive Beyond Current Capabilities**

*The moment. It's like being in love for the first time: total immersion in a feeling of helpless bliss. It hurts, too, but just right, with a sort of subconscious yearning, a longing, because it won't last forever and you miss it already... And so you sink fully into it, the act, and you do not let go, do not come up for air, you cannot press pause, because it will be gone- this moment... It's better here, pushing yourself sometimes well beyond comfort. I'm convinced of it... And it's fun. Above all else it's fun.*

*-Pete Vordenberg, Momentum: Chasing the Olympic Dream*

Some people crave the world beyond their edges (Self, De Vries, Findley, & Reilly, 2006). In every field of expertise there are individuals who choose to regularly challenge the boundaries of their capabilities. These people strive to improve skills despite the risk of error or failure, which is inherent in attempts to extend one's limits. The psychological contributors to striving, and the relationship between challenge and skill are thoroughly researched aspects of performance psychology (Csikszentmihalyi, 1990; Duckworth, Peterson, Matthews, & Kelly, 2007; Ericsson, Krampe, & Tesch-Romer, 1993). The concept of deliberate practice, commonly described as the specific, intense, act of working outside one's comfort zone, is well established as necessary for the development of expert levels of skill (Ericsson et al., 1993; Ericsson & Chambliss, 1994). Flow state, defined as complete immersion in a task that is perfectly matched to one's capabilities, is frequently associated with exceptional performance (Csikszentmihalyi, 1990). Some literature describes deliberate practice and flow state as incompatible, and possibly mutually exclusive (Ericsson et al., 1993). The possibility of both phenomena occurring in the same practice or race has received little attention in psychological research. The intent of this

paper is to examine the interaction between deliberate practice and flow, and to gain some understanding of its relationship with the development of expert performance.

Research into the psychological contributors to skill development and achievement in sport is important work. Psychological factors that influence progress in sport often generalize to deepen overall understanding of the process of progress in multiple domains (Duckworth et al., 2007; Ericsson, 1993). For example, deliberate practice has been shown to contribute to the development of expertise in running, music, chess, and academics (Duckworth et al., 2007; Ericsson et al., 1993; Ericsson & Charness, 1994; Ericsson, 2007); flow state has been associated with outstanding athletic performance as well as greater job productivity and satisfaction (Bakker, Oerlemans, Demetroui, Slot, & Ali, 2011; Jackson, Thomas, Marsh, & Smethurst, 2010; Jackson, 1992). Engagement, defined as “enjoyment, aspirations, and participation” (Martin & Jackson, 2008, p. 144) has been shown to be a significant contributor to overall human well-being (Seligman, 2011). It makes sense that greater understanding of the forms of engagement available could potentially aid in its cultivation, and the development and selection of the best versions of engagement suited for various contexts and individuals.

### **Deliberate Practice**

Deliberate practice is the act of attempting to improve a skill by focusing on it precisely at a level that would be considered to be at the edge of one’s current capabilities (Ericsson et al., 1993). Deliberate practice has been shown to be a necessary activity in which athletes must engage in order to gain expertise in sport (Ericsson et al., 1993; Ericsson & Charness, 1994; Ericsson, 2007). Deliberate practice is typically coach-directed, carried out for the sole purpose of improving performance, takes into account lessons learned in previous attempts, provides clear feedback so that the performer knows immediately how well she is doing, and involves

numerous repetitions of the same task (Ericsson et al., 1993). The core finding that has arisen from deliberate practice research is that skill improvement in humans occurs as the result of specific work on weak areas over time, and that the more a person engages in this sort of practice, the more progress he will make toward becoming an expert in his field (Ericsson et al., 1993). The research on deliberate practice challenges theories that genetic factors and innate qualities alone determine expert performance in a given field (Ericsson et al., 1993). Deliberate practice literature does not ignore the fact that some physical attributes are enormously influenced by genetics and predispose an individual to excel in particular sports (Ericsson et al., 1993). For example, height is a distinct advantage in the game of basketball, while a small stature facilitates gymnastics skills (Ericsson et al., 1993). However, Ericsson et al., (1993) explain that these fixed qualities play a limited role in the attainment of expertise, and that environmental factors, namely the frequency and quality of deliberate practice, are more important when explaining the attainment of expert performance.

When compared with athletic programs it is clear that deliberate practice characterizes the training methods observed in most sports, which typically involve stressing specific skills and systems in order to prompt physical adaptation (Buchheidt & Laursen, 2013; Laursen, 2010). The form of deliberate practice referred to in the current study, high intensity interval training (HITS), is characterized by repeated bouts of intense exertion interspersed with periods of rest (Buchheidt & Laursen, 2013; Ericsson et al., 1993). High intensity interval training is “a potent, time-efficient strategy to induce many metabolic adaptations” (Gibala & McGee, 2008, p.), and is an essential program component for the vast majority of endurance sport athletes (Buchheidt & Laursen, 2013). Duration and intensity of HITS varies with each training session (Buchheidt, & Laursen, 2013; Gibala & McGee, 2008; Laursen, 2010). In addition to HITS, tempo runs and

time trials (long running sessions completed at a moderate to high intensity), are also considered deliberate practice in the current study.

### **Flow**

Sometimes referred to as “antithetical” to deliberate practice (Ericsson et al., 1993), flow state is defined in part as complete immersion in the task at hand and is described as a form of optimal experience (Csikszentmihalyi, 1990). Flow has been observed to have 9 dimensions: a) an ideal balance between challenge and skill, b) complete concentration, c) the perception of action and awareness merging, d) the impression that time transforms (long moments seem short, and vice versa.), e) loss of self-consciousness, f) a sense of control, g) clear goals for the action being performed, h) and immediate, unambiguous feedback regarding how one is performing (Csikszentmihalyi, 1990).

Flow has been thoroughly studied with respect to its role in athletic performance (Bakker, Oerlemans, Demetroui, Slot, & Ali, 2011; Jackson, Thomas, Marsh, & Smethurst, 2010; Jackson, 1992). The presence of flow appears to contribute to superior soccer performance (Bakker et al., 2011), successful basketball free-throws (Pates, Cummings, & Maynard, 2002), greater accuracy in golf (Nicholls, Polman, & Holt, 2005), and faster times in both swimming and running events (Stavrou, Jackson, Zervas, & Karterolis, 2007). In lay term flow is commonly referred to as “the zone,” (Barraclough, n.d.).

Prior literature places deliberate practice and flow at opposite ends of the experiential continuum (Ericsson et al., 1993). Ericsson et al., (1993) states:

Recent analyses of inherent enjoyment in adults reveal an enjoyable state of "flow," in which individuals are completely immersed in an activity (Csikszentmihalyi, 1990).

Similarly, analyses of reported "peak experiences" in sports reveal an enjoyable state of

effortless mastery and execution of an activity (Ravizza, 1984). This state of diffused attention is almost antithetical to the focused attention required by deliberate practice to maximize feedback and information about corrective action (p. 368).

This author agrees that in their most pure and complete form, deliberate practice and flow are opposed in this way. Deliberate practice is described as precisely focused effort that is not inherently pleasurable (Ericsson et al., 1993; Ericsson, 2007); flow is described as automatic, perceptually effortless immersion in the task at hand, and is considered an “optimal experience” (Cziksentmihalyi, 1990, p. 3). However, it is proposed in this study that elements of flow and deliberate practice may interact during some athletes’ practice and racing sessions. The intent of the following study is to explore the possibility of a middle ground where elements of these two constructs are both present.

### **Introducing “DARE”**

In *The Myth of Sisyphus*, Albert Camus (1955) tells the story of a man condemned to push a boulder up a mountain for eternity. Through Sisyphus, Camus (1955) illustrates the choice of perspectives a person can assume toward the challenges of life, in particular, the possibility of facing difficulty with “joy”, and the sense of fulfillment that can arise from struggle:

*If the descent is thus sometimes performed in sorrow, it can also take place in joy. This word is not too much... it echoes in the wild and limited universe of man. It teaches that all is not, has not been, exhausted... all Sisyphus’ silent joy is contained therein. His fate belongs to him. His rock is his thing... each atom of that stone, each mineral flake of that night-filled mountain, in itself forms a world. The struggle itself toward the heights is enough to fill a man’s heart.”(Camus, 1955, p. 78)*



The “struggle itself...[which] is enough to fill a man’s heart,” describes eloquently the new orientation toward challenge which is being proposed in this paper (Camus, 1955, p. 78). This orientation is called “DARE state.” DARE is an acronym that stands for deliberate, active, reaching, engagement. DARE state is defined as an eagerness to venture beyond the boundaries of one’s current capabilities in an activity that is personally meaningful. DARE state is embodied by an individual who is hungry for challenge, and loves the experience of stretching herself. DARE is experienced prior to, and in the moment of action, when a person is striving at the threshold of his or her comfort zone. Thus, DARE is considered a state as opposed to a trait.

Although DARE State shares a great deal with deliberate practice - primarily the experience of working outside one’s comfort zone on a specific aspect of performance - it includes two additional components: elements of flow state, and a love of challenge. Central to DARE is a love of challenge, which we are defining as enjoyment derived from engaging in activities that are difficult. Deliberate practice is frequently described as *not* inherently pleasurable, and only carried out for the purpose of improving performance (Ericsson et al., 1993). Conversely, we propose some athletes seek the challenge of hard training because the act of striving is pleasurable in itself, especially deliberate practice.

The question of the presence of pleasure during deliberate practice has been discussed previously (Ericsson et al., 1993). In opposition to the suggestion that deliberate practice can be pleasurable, Ericsson et al. (1993) notes that many athletes decrease the intensity of their training periodically throughout the year: “If individuals enjoyed deliberate practice, they ought to practice at a uniformly high level all year. Instead, athletes train much harder during the preseason period and during the season itself; during the off season they often reduce the level of

training dramatically” (p. 372). Ericsson et al., (1993) also notes that elite adolescent athletes often discontinue intense training in adulthood, and implicates the discomfort of deliberate practice as a key reason.

Certainly, rest periods within training and racing seasons are common-place in many sports programs (Daniels, 2010). However, although the benefits of a mental break from intense training are noted, the rationale for rest is primarily for the purpose of physical recuperation (Daniels, 2010). Frequently, an athlete will wish to do more deliberate practice than her coach deems appropriate (Hollander, Meyers, & Leunes, 1995). These athletes’ desire to train, and in particular to train with intensity, suggests a genuine love of striving exists.<sup>1</sup>

Ericsson et al.’s (1993) argument against the presence of pleasure in deliberate practice does not account for the enormous popularity of masters’ sports, which provide opportunities for training and racing to people of ever increasing years (Lyons & Dionigi, 2007). Many of these athletes invest significant physical and financial resources in training regimes that require intense workouts several times each week (Lyons & Dionigi, 2007). They do so despite the fact that increasing age leads to an inevitable and steady decrease in a physical capability for athletic improvement. Thus, it makes sense to suggest that some individuals find enjoyment in the activity of intense training itself, and do not engage in deliberate practice solely for the performance gains such training can provide.

Additionally, on the occasions when an athlete does cease to engage in regular deliberate practice there can be many reasons for this besides the difficulty of deliberate practice itself.

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<sup>1</sup> Certainly, there are several reasons why some athletes may train excessively. Obsessive passion, which is a compulsive need to train (Vallerand et al., 2003), or powerful external motivators such as money and status can also contribute to excessive practice (Ryan & Deci, 2000). However, there is no reason to suggest that all excessive training has a maladaptive cause, and due to the observation that the desire to train intensely is prevalent among athletes, this suggests that *some* athletes do in fact *enjoy* training with intensity.

Demands of adulthood, such as those involved with building a career and raising a family, can make finding the time for intense training difficult. Also, interests change over time, which does not necessarily mean that a prior activity (i.e., deliberate practice) was too unpleasant to continue, but rather that another one has become more interesting or enjoyable. In the case where an athlete does take breaks from training, or retires because he finds deliberate practice wholly unpleasant, this does not impact the possibility that at one time he *did* love the act of striving in his particular domain.

In a field study, which compared Olympic swimmers and regional level swimmers, Chambliss (1989) notes that the Olympic athletes engage in training that is qualitatively different from that of the more recreational swimmers. Chambliss (1989) explains that these differences lie within three dimensions: Technique, discipline, and attitude. Chambliss' (1989) description of the attitude of the Olympians bears strong resemblance to how DARE State is conceptualized:

At the higher levels of swimming, something like an inversion of attitude takes place.

The very features of the sport which the "C" swimmer finds unpleasant, the top level swimmer enjoys... They enjoy hard practices, look forward to difficult competitions, try to set difficult goals... It is incorrect to believe that top athletes suffer great sacrifices to achieve their goals. Often they don't see what they do as sacrificial at all. They like it.

(Chambliss, 1989, p. 73-74)

The subject of an athlete's motivation to engage in a particular activity is highly relevant to this discussion regarding the existence of DARE state during practice. Three theories have explored aspects of motivation in detail: Vallerand, Blanchard, Mageau, Koestner, and Ratelle, et al., (2003), and Vallerand, Mageau, Elliot, Dumais, Demers, and Rousseau (2007), have examined the presence of passion for one's craft, highlighting harmonious and obsessive passion

as two primary forms. Obsessive passion is associated with an assimilation of the activity into a person's identity, creating unhealthy and "rigid" persistence in activities believed to be required of the activity (Vallerand et al., 2003). Harmonious passion is described as "autonomous internalization," that leads to individuals participating in an activity because they enjoy it, rather than as a result of identity driven pressures (Vallerand et al., 2003). Deci and Ryan (2000) present self-determination theory, which examines the effect of internal versus external motivating factors on goal pursuit. Finally, individual differences in "need for achievement" have been identified, which correlate with differing orientations toward practice, mastery, and competition (McClelland, 1958; McClelland, Koestner, & Weinberger, 1989).

Vallerand et al., (2003) define passion as "a strong inclination toward an activity that people like, that they find important, and in which they invest time and energy" (p. 756). Both harmonious and obsessive passion have shown a positive relationship to performance; however only harmonious passion appears to correlate positively with well-being (Vallerand et al., 2003/2007). DARE is conceptualized as similar to harmonious passion in that DARE requires engagement in an activity because of an enjoyment of the activity for its own sake. Where DARE diverges from harmonious passion is in its attraction to challenge and its relationship with struggle. Vallerand et al. (2003) describes the athlete with harmonious passion as likely to persist with an activity "as long as the person derives positive benefits from the activity" (p. 758). However, Vallerand et al. (2003) go on to state, "if negative outcomes are experienced on a regular basis, the person may decide to reduce or cease activity engagement" (p. 758). An athlete in DARE State enjoys the challenge of stepping outside of her comfort zone, and expects and embraces the struggle that is inherent in that zone of striving.

When discussing DARE state, the term, “positive” is not limited to fun and happy emotions (Kashdan & Biswas-Diener, 2014). Positive can also include participation because one values striving and persistence toward something difficult and meaningful. Therefore, where someone who is harmoniously passionate about an activity might desist when numerous unpleasant struggles ensue (Vallerand et al., 2003), someone with a DARE mindset persists because the *experience of struggling* is of value to that person. This does not mean that this persistence is obsessive, or unhealthy. Rather, a person with a DARE mindset accepts and values struggle as an opportunity to grow one’s capabilities, and willingly seeks associated challenges as a result. Interestingly, in several of Vallerand et al.’s (2003; 2008) studies, harmonious and obsessive passion were found to be positively correlated, and in some cases strongly so ( $r=.68$ ,  $p<.001$ ) (Vallerand et al., 2008). Thus, there appears to be a form of passion that integrates both harmonious and obsessive characteristics, and could be very similar to how DARE is conceptualized.

Related to the subject of harmonious and obsessive passion is self-determination theory (Ryan & Deci, 2000), which describes motivation on a continuum from purely extrinsic to purely intrinsic. To be extrinsically motivated is to be driven to participate in an activity by external forces (i.e., a superior’s command, or monetary reward)(Ryan & Deci, 2000). Conversely, to be motivated intrinsically is to participate autonomously for the pleasure of engaging in the activity for its own sake (Ryan & Deci, 2000). The current conceptualization of DARE state implies motivation that is intrinsically driven.<sup>2</sup> DARE is theorized to involve a genuine passion for striving because of the inherent value and/or enjoyment one holds for the striving itself.

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<sup>2</sup> Conversations with elite athletes have revealed that pure intrinsic motivation is very difficult to find and possibly non-existent within this population due to the complex relationship these athletes develop with sport over time regarding their status, identity, and livelihood.

The final motivational framework of relevance to DARE State is McClelland et al.'s (1958) "need for achievement". McClelland (1958) describes individuals high in need for achievement as:

Very sensitive to the opportunity to do something better than before, or than others, and to improve skills (Brunstein & Heckhausen, 2008; McClelland, 1985). As a consequence they prefer challenging goals of moderate difficulty from which they get realistic feedback about their level of performance and ability (Atkinson, 1957).

For them, the striving for and attainment of achievement goals are accompanied by positive emotions such as enjoyment and pride (Schultheiss, Wiemers, & Wolf, 2013) (p. 84).

Schultheiss et al. (2013) state that individuals high in need for achievement are more likely to choose challenging tasks, and experience flow state. Highly relevant to DARE state, those high in need for achievement are theorized to have learned through past experience that challenging situations are likely to be rewarded with feelings of mastery (Schultheiss et al., 2013).

Clearly, need for achievement has many similarities to DARE state. Both constructs seek challenge, and both have an orientation toward mastery as opposed to an extrinsic reward (e.g., prize money or praise). However, there are some points by which they differ. DARE state is considered a *state*, while need for achievement is frequently referred to as a stable *trait* (Schultheiss et al., 2013). Also, DARE state is not viewed to be associated with, or motivated by, a reward of any kind, even feelings of mastery.

### **Daring Personalities**

This is not the first study to investigate individual differences regarding appetite for challenge. Research in the area of need for achievement (Schuller et al., 2010), and the existence of an “autotelic personality” (Nakamura & Csikszentmihalyi, 2002) indicate that some people are more positively oriented toward challenge than others.

Early in his articulation of flow, Csikszentmihalyi (1975/ 2000) noted that some people might be more dispositionally inclined to enter flow state than others. He termed this disposition an “autotelic personality,” which he described as a tendency to “enjoy life,” and “do things for their own sake, rather than in order to achieve some later expected goal” (Csikszentmihalyi, 1997, p. 117). Genuine curiosity and low self-centeredness are hallmarks of the autotelic personality, as these qualities are believed to predispose a person to entering flow state (Nakamura & Csikszentmihalyi, 2002). Regarding the measurement of the autotelic personality, the time individuals report being in flow has been the predominant variable examined (Nakamura & Csikszentmihalyi, 2002). However, due to the fact that available activities that lend themselves to flow will impact the amount of time a person is in flow, other measures now assess the autotelic personality by defining it as “intrinsic motivation in high-challenge, high-skill situations” (Nakamura & Csikszentmihalyi, 2002, p. 95). After surveying a sample of adult workers, LeFevre (1988) found that “40% ...were most motivated in high-challenge, high skill situations, and about 40%... were most motivated in low-challenge, low-skill situations (Nakamura & Csikszentmihalyi, 2002, p. 98). In compliment to these findings, Hektner (1996) observed that people determined to have an autotelic personality were most likely to be unhappy in low-challenge, low-skill situations, while non-autotelic individuals were not averse to these conditions (Nakamura & Csikszentmihalyi, 2002).

In the athletic domain, focus has primarily, and almost exclusively been placed on the presence of flow during competition (Bakker et al., 2011; Stavrou et al., 2007). Considering that the time spent in competition is proportionally minute in comparison to the time most athletes spend in practice, this study will focus primarily on athlete's practice experience. In accordance with Ericsson et al.'s (1993) findings that qualitative differences in practice methodology cumulate in significant differences in expertise, it's possible that qualitative differences in perspective that have the potential to further influence practice quality could also add up to superior progress over time.

The proposition that thoughts and emotions might have an impact on athletic performance, specifically in the area of speed and endurance has been explored. Noakes' (2000) central governor theory has highlighted the potential role of the brain in endurance fatigue. Noakes' (2000) research in this area suggests that sensations of fatigue may be initiated at a neurological level, and that training can moderate the degree to which the brain allows the body to recruit muscle fibers, and access energy stores, thus impacting performance. Similarly, Marcora's (2009) psychobiological theory, which states that fatigue is dependent upon one's perception of one's ability to maintain exertion, suggests that emotions play a powerful role in the maintenance of performance in endurance sports.

Considering that the quality of practice in speed and endurance sport is normally defined by the optimal stress of one's muscular and energy systems (Daniels, 2010), it seems possible that a mindset that enables this optimal stress frequently could result in superior physiological adaptation, cumulatively over time. This is the rationale behind the hypothesis that DARE practice will lead to greater performance improvement.



## **The Current Study**

The first purpose of the current study is to examine athlete's practice and racing experience, and specifically the possibility of the presence of both deliberate practice and flow in the same session, which if observed is being termed, DARE state. Although there are likely traits that predispose individuals to meet challenges with eagerness, DARE in this case is considered a *state*, which some athletes experience more frequently than others. It is hypothesized that the athletes who practice in DARE state most frequently will have shown greater performance gains over the preceding two years than those who practice in DARE state less frequently. It is hoped that this work will deepen the current understanding of the psychological contribution to the development of ability, particularly in the athletic domain.

## **Method**

### **Participants**

Participants were  $N = 74$  collegiate runners (48 female,  $M_{age} 20.45$  years,  $SD = 1.22$ ), from 5 universities throughout the Northeast United States. Four schools offer Division I running programs, while one school is considered Division III. Runners are currently competing at distances from 800m to 10,000m.

### **Procedure**

Runners were recruited for this study via email, phone, and in-person correspondence with their team coaches. Approximately 30 coaches were approached initially; 9 coaches expressed interest in taking part, and eventually 5 followed through with carrying out the study. Both coaches and athletes were provided with consent forms. These explained the voluntary nature of the study, the fact that participants could drop out at any time, and provided information that no compensation would be provided to any participants.

Initially, all athletes filled out a form where they were asked to list their personal best running times at distances from 800m to 5000m between January, 2013 and June, 2015. Coaches were provided with a rating form on which to indicate the degree to which each athlete has improved, and the degree to which he or she is living up to the coach's expectations.

Next, and over the course of one month, athletes were asked to complete four DARE state measures following some of their most demanding practices (i.e., interval training, tempo runs, and time trials), and one DARE state measure after one race. Due to the fact that training experiences can fluctuate from day to day, multiple measures were deemed necessary in order to most accurately establish each athlete's tendency to practice or race in DARE state. Upon collection of the data it became apparent that the athletes varied to the degree that they followed these directions. The number of runs reported and the accompanying ratio of practices to races varied among participants<sup>3</sup>

## Measures

**DARE state.** The construct, DARE state, is conceptualized as being comprised of a "love of challenge," elements of flow state, and deliberate practice. Therefore, the questionnaire provided to athletes included questions on all three of these components (see Appendix A).<sup>3</sup> The questionnaire was comprised of sixteen questions in total, and was divided into three sections: love of challenge, flow state, and deliberate practice. The questions designed to assess "love of challenge," are original to the current study, as are the questions designed to assess deliberate practice (however, the deliberate practice questions were created following careful review of the

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<sup>3</sup> Analyses are calculated without differentiating between the athletes with respect the number of runs they reported. In total, 24 runners recorded all five runs, 49 recorded at least 4 runs, 61 recorded at least 3 runs, while 69 recorded at least 2 runs. Five runners recorded one run only. Because all of the running reported contributes to each runner's progress over time (Daniels, 2010), practices and races were not differentiated between on initial analysis. There was also no differentiation between runners who completed one measure versus those who completed three, or five.

deliberate practice literature, and attempt to assess each runner's experience of deliberate practice in as close an accordance as possible with the characteristics of deliberate practice as described by Ericsson et al., 1993).

**Love of challenge.** The purpose of the questions designed to measure love of challenge, was to assess the degree to which the participant felt eager to face the difficult aspects of training each day. Questions included, "Today... I felt eager to face the challenges before me," "the most difficult parts of practice/ competing increased my motivation to work hard," "the most difficult parts were the most valuable," "I felt glad to be training/ racing regardless of how well I ran." The love of challenge component of the DARE Measure showed a high internal reliability ( $\alpha = .88$ ). The mean love of challenge score across all athletes was 3.52, with a standard deviation of 0.46.

**Flow.** The questions that assess flow state are drawn directly from the Flow State Scale (Jackson & Marsh, 1996). This measure has been used in numerous previous studies in the area of flow and sports, and has shown consistent internal reliability ( $\alpha = .83$ ). The Flow State Scale was shortened in order to keep the time demands of this project to a minimum for the participants. All questions were measured on a Likert Scale from 1 (strongly disagree) to 5 (strongly agree). The purpose of the post-practice questions regarding flow state, were to assess the elements of flow that each athlete experienced during training or racing each day, and the degree to which he experienced them. Questions included: "*Today I was concerned with what others were thinking of me* (reverse scored)," "*I loved the experience of running today*," "*I was completely focused on the task at hand while running/ competing today*," "*today I felt like my body performed automatically*," "*today's practice/ race required a great deal of mental exertion* (reverse scored)," "*today while I was practicing/ performing time seemed to alter* (i.e., long

events felt short, and vice versa),” “*today I had a sense of complete control over the outcome of the race/ practice,*” “*throughout practice/ the competition I knew how well I was performing,*” and “*today I had clear goals regarding what I was trying to achieve.*” The flow state component of the DARE state measure showed a high internal reliability ( $\alpha = .84$ ). The mean flow score across all athletes was 3.73, with a standard deviation of 0.45.

***Deliberate practice.*** The questions designed to assess deliberate practice address the aspects of specificity (“*today I ran intervals/ tempo, a time trial, or I raced*”), intensity (“*today I practiced outside my comfort zone,*” “*today I worked at the edges of what I am capable,*”), and effort (“*today’s practice required a great deal of mental exertion.*”) which comprise activities which are considered deliberate practice (Ericsson et al., 1993).<sup>3</sup>

After completing the questions pertaining to the three aspects of DARE, participants were also asked to rate their performance that day on a Likert scale (1= “*one of my worst performances,*” 5 = “*one of my best performances*”). The deliberate practice component of the DARE state measure showed a moderate internal reliability ( $\alpha = .68$ ). The mean deliberate practice score across all athletes was 3.96, with a standard deviation of 0.48.<sup>4</sup>

Each athlete’s DARE state experienced during every practice and race reported was calculated by averaging all responses across the three DARE state subscales: love of challenge, flow state, and deliberate practice ( $M = 3.72$ ,  $SD = 0.38$ ,  $\alpha = .88$ ).

**Athlete progress and ability.** Each runner’s progress was assessed between the beginning of the 2013 season (Sept, 2013), and the end of the 2015 season (June, 2015). Each

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<sup>4</sup> . In this study, the amount and frequency of deliberate practice is not in question. Athletes were instructed to complete DARE state measures after high intensity workouts which fulfill the criteria for deliberate practice. Sixty seven of 74 runners selected “agree” or “strongly agree” when responding to the question, “Today I ran intervals, a tempo run, a time trial, or I raced,” indicating that 90% of the run practices referenced in this study can be considered deliberate practice (Ericsson et al., 1993).

runner was asked to provide his or her best times at distances ranging from 800m to 5000m during this time frame. In order to determine each runner's progress in his or her running ability during this period, the times that showed the greatest improvement (or least regression) based upon percentage improved from time A to time B were selected. Priority was given to times reported that were achieved during 2015 ( $n = 57$ ) as these are the most relatable to the measures completed during this study. The running improvement assessed spanned two years in most cases ( $n = 57$ ), and one year in others ( $n = 17$ ). Improvements reported that spanned two years were always prioritized over those that spanned one when deciding which values to include for each runner's measure of improvement. Not all runners completed these measures fully, which is the reason for the variability regarding the time frame from which the rate of improvement was drawn. Runners were also asked to rate their performance following each race or practice for which they completed a DARE state measure. This was scored on a Likert scale (1 = *one of my worst performances*, 5 = *one of my best performances*).

Each runner's improvement was also assessed through coach ratings. Coaches were provided with a form (see Appendix B) that asked them to rate each athlete on a Likert Scale in two areas: degree of improvement (coach's rating of improvement) over the previous two years (1 = *greatly regressed*, 5 = *greatly improved*), and the extent to which each runner is performing according to expectations (coach's rating of meeting expectations) (1 = *below expectations*, 2 = *meeting expectations*, 3 = *exceeding expectations*).

Additionally, each runner's relative ability was calculated using the VDOT (Daniels, 2010), which is a formula that enables runners to be compared to one another objectively, even if they are specializing in different events (distances). Daniels (2010), describes the VDOT as "a good predictor of physiological capability...the higher VDOT is associated with the better

runner, regardless of age or sex” (p. 80). The term “VDOT” was originally established to be a shortened form of the expression, ‘V dot O<sub>2</sub>’ which is the measurement of the amount of oxygen that an athlete consumes during one minute of exercise (Daniels, 2010). The formula underlying the calculation of the VDOT actually accounts for three physiological measures related to running performance: VO<sub>2</sub> max (the maximum amount of oxygen a person can consume during exercise), running economy (“the energy demand for a given velocity of sub-maximal running” [Saunders, Pyne, Telford, & Hawley, 2004, p. 465]), and the “fraction of each runner’s respective VO<sub>2</sub> max at which each runner performed when racing over a variety of distances” (Daniels, 2010, p. 78). In sum, the VDOT is a number that comprehensively reflects runner’s physiological capabilities, and is derived from a formula that accounts for three physiological measures established to be predictive and relevant to distance running performance (Daniels, 2010).

### **Results**

As predicted, athletes reported experiencing aspects of love of challenge, flow state, and deliberate practice during the same sessions. All of the correlations presented in the analyses to follow reflect athletes’ mean DARE state, love of challenge, flow, and deliberate practice scores across several sessions. However, each individual run was also examined in order to determine if flow state and deliberate practice were occurring in the same sessions. In total, 281 runs were documented. Of these, 122 DARE state measures indicate that the runner rated both his or her deliberate practice and flow experience higher than 3.5 in the same session. Of these, 52 DARE state measures reflect both deliberate practice and flow scores at 4.0 or higher in the same session. Scoring oneself a “3” on any aspect of the DARE state measure indicates a response of “neutral” to the question with which it is associated, while scoring oneself a “4” indicates a

response of “agree.” Therefore, athletes agree that they experienced deliberate practice and flow in the same session in 122 of the 281 runs documented.

### Relations Between DARE Subscales

When we controlled for school, age, gender, and reported injuries, all three of the components of DARE state were found to be positively related (see Table 1), suggesting that runners experience flow, deliberate practice, and love of challenge when training and racing.

Table 1

Correlations between the components of DARE state after controlling for school, age, gender, and reported injuries

	Love of challenge	Deliberate Practice
Deliberate Practice	.33*	
Flow	.56***	.46***

*Note:*  $N = 62$ . \*  $p < .05$ , \*\*\*  $p < .001$

Upon further analysis of the relationship between the components of flow and deliberate practice it became clear that the flow elements of autotelic experience and complete concentration were strongly related to deliberate practice. Specifically, sense of control, action/awareness merging, loss of self-consciousness, and time transformation were also positively correlated with deliberate practice, but failed to reach significance. Three components of deliberate practice were also found to be related to flow state: the presence of clear goals, specific and intense training (interval training and races), and the presence of unambiguous feedback. See Table 2.

Table 2

Correlations between the elements of deliberate practice and flow state after controlling for school, age, gender, and reported injuries

	F5	F6	F7	F8	F10	F11	12	13	DP9	DP14	DP15
<b>Flow Elements</b>											
F5. Loss of self-consciousness											
F6. Autotelic experience	.20										
F7. Complete concentration	-.08	.56***									
F8. Time transformation	.14	.48***	.45**								
F10. Action/ awareness Merging	-.10	.26	.11	.22							
F11. Sense of control	.12	.48***	.42**	.57***	.16						
<b>Deliberate Practice Elements</b>											
12. Unambiguous feedback	-.10	.19	.28	.26	.04	.31*					
13. Clear goals	.15	.41**	.53***	.22	.02	.25	.49***				
DP9. Mental effort	.01	.11	0.0	.17	.10	-.23	-.26	.06			
DP14. Specific/ difficult tasks	.25	.48***	.34*	.34	.11	.40**	.19	.37*	.13		
DP15. Work outside Comfort zone	.24	.29	.16	.07	.14	.15	.13	.51***	.50***	.32*	
DP16. Work at edge of Capabilities	.09	.17	.18	.06	.12	.09	.04	.13	.34*	.20	.66***

Note:  $N = 44$ . \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

### Psychometrics and Performance

Hypothesis two, which predicted that DARE scores would be related to performance improvement, was partially supported. When analyses controlled for school, age, gender, and injuries, DARE state was found to be positively related with coach's ratings of improvement ( $r = .402, p = .003$ ), and coach's rating of expectations ( $r = .29, p = .04$ ). DARE State was also positively related to athlete's subjective performance ( $r = .46, p < .001$ ). Finally, DARE state was



positively correlated with the objective measure of running improvement (percent improved in running speed over two years), although this relationship failed to reach significance ( $r = .14, p = .32$ ). See Table 3.

Table 3

DARE State and DARE State subscale's relationship to measures of running improvement after controlling for school, age, gender, and injuries

	1	2	3	4	5	6	7
1. Percent improved							
2. Athlete subjective performance	-.04						
3. Coach's ratings (improvements)	.45***	.15					
4. Coach's ratings (expectations)	.45***	.10	.81***				
5. DARE	.14	.46***	.40**	.29*			
6. Love of challenge	.09	.25	.14	.10	.71***		
7. Deliberate practice	.12	.35**	.41**	.35**	.78***	.33*	
8. Flow	.10	.47***	.32*	.17	.87***	.56***	.47***

Note:  $N = 53$ . \*  $p = .05$ , \*\*  $p = .01$ , \*\*\*  $p = .001$

### Racing versus practice: Differences in DARE

Independent samples t-tests revealed no mean differences on DARE state experienced during racing or practice. However, further analyses were conducted on athletes' reports of DARE state when racing versus practicing, and clear differences were noted. Athletes' DARE state reported during practice was positively related to coaches ratings of improvement ( $r = .42, p = .01$ ), but not significantly related to coaches ratings of meeting expectations ( $r = .16, p = .38$ ). Conversely, athlete's DARE state reported during racing was positively related with coach's ratings of meeting expectations ( $r = .40, p = .02$ ), but not significantly related to coach's

ratings of improvement ( $r = .19, p < .29$ ). Finally, athletes' ratings of subjective performance were positively related to DARE state during both races and practice. See Table 4.

Table 4

Correlations between DARE state and performance measures during racing and practice after controlling for school, age, gender, and reported injuries:

	Percent Improved	Athlete subjective Performance	Coach ratings (improvement)	Coach ratings (expectations)
DARE (race)	.26	.44**	.19	.40*
DARE (practice)	.31	.31	.42*	.16

Note:  $N = 33$ . \*= $p < .05$ , \*\*= $p < .01$

### Discussion

Athletes were observed to experience love of challenge, deliberate practice, and flow state during the same racing and training experiences. This supports the first hypothesis of this study, which states that all three of these phenomena can be experienced in the same session. DARE state was also shown to relate positively to measures of performance improvement. This positive relationship was primarily observed with respect to athlete's subjective ratings of their own performance, coaches ratings of athlete improvement, and the degree to which athletes meet their coaches' expectations. These findings support the second hypothesis of this study, which predicts that athletes who practice in DARE state frequently will have shown greater performance improvement than those who practice in DARE state less frequently. Interestingly, DARE state following races and practices differed with respect to the relationship of each to the performance measures. In particular, DARE state experienced during practice was only found to relate positively with coaches ratings of improvement, while DARE state observed during races was only observed to relate positively to coaches reports of athlete's meeting

expectations. Although a positive trend was observed, DARE state did not relate significantly to the objective performance measure (running time percentage improvement).

### **The Components of the DARE State Measure**

As predicted, theorized components of flow were positively related. Considering that flow is described as an optimal experience which individuals seek for its own sake (Csikszentmihalyi, 1990), it makes sense that athletes who love the challenge of interval training and racing itself are most likely to experience flow state. Thus, the positive relationship between love of challenge and flow follows this rationale. Love of challenge was also positively related to deliberate practice, which also makes sense considering that deliberate practice by definition is the act of challenging oneself (Ericsson et al, 1993), suggesting that those who love challenge are most likely to choose to engage in deliberate practice.

Similarly, athletes were observed to experience both deliberate practice and flow state in the same sessions. In fact, deliberate practice and flow were found to correlate positively with one another. These findings contradict the previously held opinion that deliberate practice and flow state are “antithetical” experiences (Ericsson et al., 1993). It was observed only some elements of flow state and deliberate practice reflect significant relationships. In particular, autotelic experience (the enjoyment of an activity for its own sake (Csikszentmihalyi, 1990), and complete concentration.

Regarding the positive relationship between autotelic experience and deliberate practice, it is not surprising that athletes who enjoy taking part in training for the enjoyment of the experience itself would be most likely to engage in deliberate practice. Considering the high degree of challenge present in deliberate practice, and the requirement of working outside one’s comfort zone, it seems that less autotelically driven athletes might be avoidant of deliberate

practice experiences due to the difficulty inherent within them. With respect to the positive relationship between the flow state element of complete concentration and deliberate practice, this could be explained by the fact that the act of deliberate practice itself, and in particular the specificity and challenge by which it is defined, *requires* a high degree of concentration. Therefore, although complete concentration is not explicitly stated as a component of deliberate practice it makes that it should be present while one is engaged in it.

Some elements of deliberate practice were found to be related to flow state. In particular, the presence of clear goals, reports of engaging in specific and challenging training, and the availability of feedback. The positive relationship between clear goals, unambiguous feedback and flow state is also not surprising. The Flow State Scale typically includes both of these elements when flow is being measured (Jackson & Marsh, 1996). However, in the current study the components of clear goals and unambiguous feedback were included in the deliberate practice subscale only in order to create discrete subscales for the purpose of analyzing the components of DARE state.

### **DARE and Performance**

As predicted, athletes' DARE state scores were positively related to running improvement. DARE state scores were positively related with athletes' subjective performance ratings, coaches' ratings of improvement, coaches' ratings of the degree to which athletes are meeting expectations.

The relationship between DARE scores and athletes' subjective performance ratings indicates that on average, when athletes experience higher levels of DARE state they perform better. Although these performance measures are subjective, athletes' ratings should be considered to be a valid performance measure. Runners receive unambiguous and objective

feedback constantly due to the fact that their performance is measured by the time it takes them to cover specific distances. Therefore, because runners are highly aware of their current running times during practice and races, their subjective reports of their performance are likely informed by a great deal of objective feedback.

Despite this rationale, athlete's subjective performance ratings were not found to be related to other measures of performance. It is possible that some explanation for this could lie in the method by which the performance measures were obtained. Both coach's ratings of improvement and expectations were obtained by asking coaches to assign a single score to each athlete after reflecting on the athlete's progress over the preceding two years. Athlete's subjective performance ratings were collected daily in conjunction with each DARE state measure, and averaged across the number of runs the athlete documented. Considering the fact that coach's ratings are reflective of the coach's retrospective impression of an athlete over years, and the athlete subjective performance measures are an average of daily experiences it makes sense that the differences in scores might lie in the methodology by which they were obtained.

### **Racing and Practicing Differences**

Unexpectedly, DARE state measured during races versus practices differentially predicted coaches ratings of improvement, and coaches ratings of meeting expectations. In particular, DARE state experienced during practice was found to relate positively with coaches ratings of improvement, while DARE state experienced during races did not. Conversely, DARE State observed during races was observed to relate positively to coach's reports of athlete's meeting expectations, but did not relate to coaches ratings of improvement. Perhaps, when responding to the question of how much each athlete has improved, each coach is reflecting on

the athlete as a whole, and considering each athlete's attitude and effort in addition to more objective practice and race performance statistics. Considering DARE state can be imagined as powerfully positive approach to hard work, it is not surprising that athletes scoring highly in DARE state would impress upon their coaches the sense that they are improving. It is also possible that the athletes who are rated as "improving," are in fact improving objectively, as seen through improvements in times run during workouts during practice. Objective practice performance measures were not included in this study. An additional explanation for the differing relationships between DARE state observed during races and practices and coaches ratings could be explained by the possibility that coach's ratings of athlete's meeting expectations could primarily reflect whether or not an athlete is racing as fast as the coach hoped he or she would when the athlete initially joined the team. It is possible that coaches ratings of athletes' meeting expectations could primarily encompasses objective performance results because these results are of primary consideration when recruiting athletes, and are less impacted by the athletes attitude and performance during practice.

Unexpectedly, there was only a moderate correlation between objective running improvement and coaches ratings, and no significant relationship between objective running improvement and athletes' subjective performance ratings. One explanation for this might be that the objective measure of running improvement was calculated utilizing runner's times from only two races during the span of two years. It might be that these two races, and the improvement observed between them was not representative enough of the runner's actual improvement, which would normally incorporate numerous races over several differences as well as objective practice performance.

### **Study Limitations and Future Directions**

The primary limitation of this study is its correlational nature. Clearly, correlation does not infer causation, so we cannot infer that DARE state experienced frequently *causes* improvement in running performance. It could be that runners who have experienced the most improvement have developed a greater tendency to love challenge, experience flow state, and engage in deliberate practice.

The second notable limitation to this study is the discrepancy between the performance measures. Coaches were not provided with detailed instructions regarding how they should complete either of the athlete ratings they were asked for. More precise instructions could explain the differences observed between the two coach rating scales, objective measures of performance, and the differing relationships with DARE state.

Regarding the objective measures of performance, namely the improvement in running times, it's possible that including more objective measures than just two races over two years, could reflect different findings in relation to DARE state than was observed in this study. Additionally, a larger sample size might reveal a significant relationship between DARE State and objective running improvement considering the positive, albeit insignificant trend found in the current study.

A third limitation of this study may be in the method by which DARE State is measured. McClelland et al.'s (1958) construct of need for achievement shares many similarities with DARE State, and therefore the research surrounding the measurement methodology of need for achievement may be helpful in determining the optimal way to measure DARE State. McClelland et al. (year) has differentiated between two types of need for achievement. The first, which he calls "intrinsic" need for achievement (nAchievement) is a need so basic that he

considers it akin to one's thirst for water. This nAchievement is measured using narrative and story techniques, and the participant is not explicitly aware that his nAchievement is being measured. The second form of need for achievement McClelland calls "self-attributed" (sanAchievement), which means that the "need" is explicitly stated by the agent in self-report measures similar to those used to measure DARE State. nAchievement has been shown to predict long-term behavior, and superior relative performance to those who score highly in sanAchievement in activities where the reward for participating is increased mastery of the skill itself. Conversely, short-term behavior is more easily predicted in people who score highly in sanAchievement than those who score highly in nAcheivement, but high scores in sanAchievement are not predictive of long-term behavior. Importantly, nAchievement and sanAchievement have shown themselves to be unrelated in numerous studies.

Therefore, the current self-report measures of DARE state might not be the ideal way to measure this construct, especially if the intent is to assess the cumulative effect of DARE state experienced frequently over time. There are two ways to look at DARE: As an explicit attitude similar to sanAchievement, or as an implicit drive, more like nAchievement. If DARE is in fact an unconscious need similar to nAchievement, intrinsic measures similar to those that predict long-term behavior regarding nAchievement might be a more appropriate and accurate measure for a mindset that is predicted to impact performance improvement over years.

Mihalyi Csikszentmihalyi and Jeanne Nakamura (2011) have differentiated between the *field* and *domain* of positive psychology. The field of positive psychology is described as the "human infrastructure" that enables the ideas birthed within positive psychology to be developed and applied outside the laboratory (Czikszentmihalyi & Nakamura, 2011). The domain of positive psychology is described as the clarification of boundaries, and articulation of definitions



that separate one set of ideas from another (Csikszentmihalyi & Nakamura, 2011). Pawelski (n.d.) states that in order to “mature” (p.2), positive psychology must invest effort in clarifying the boundaries and definitions of its ideas, and even the term “positive” itself. Similarly, an essential future direction regarding ongoing exploration of DARE state is a clear definition of where the DARE boundaries lie. Questions that could be explored include: Where is the line between deliberate practice, flow, and DARE? How will this boundary be objectively determined? Does the line vary from person to person? Do these components occur concurrently or discretely within the same practice?

### **Concluding thoughts**

Perhaps a new word is needed to describe the “pleasure” referred to regarding DARE state. How is an experience that draws individuals to seek opportunities to participate in activities rife with risk, and often significant physical discomfort accurately linguistically expressed?

Philosopher, Jeremy Bentham (1789) claimed that humans are driven by pleasure above all else; Victor Frankl (1963) asserts that the main driving force of human beings is not pleasure, but meaning. Joseph Campbell (1988) disagrees: “I don’t believe that people are looking for the meaning of life as much as they are looking for the experience of being alive.” Perhaps the “pleasure” and “enjoyment” referred to with respect to DARE State is better described as lived experience at its utmost.

Upon contemplation of DARE, and its related constructs, deliberate practice and flow, it seems that DARE *is* incredibly similar to lived experience, and far closer to this experience than either deliberate practice or flow. Considering that deliberate practice is a narrow focus on specific and uncomfortable action (Ericsson et al., 1993), while flow is complete absorption in a

task (Csikszentmihalyi, 1990), it seems that neither of these is representative of the complex fluctuations of experience that DARE is imagined to be. DARE is a mixture of the painful and the sublime. It involves varying degrees of awareness of the body, effortful conscious thought, and fleeting moments of mastery. When a person steps into DARE state, he enters life at high potency, and engages intimately with its ferocity and grace.

It is clear there are many questions still to be discussed regarding DARE state, its phenomenology, and its effects. These have great potential for psychological, philosophical, and physiological exploration. It is my hope that this is just the beginning of a journey that will contribute to greater overall understanding of human motivation and high achievement.

*“Now its over, ease returns. You’ve recovered. Nothing burns. Life is simple, direct and fair. Everyday you miss it there.”*

-Thompson (2015)

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Appendix A

Please circle the term that best describes today's activity: a) Practice  
b) Race

<b>Today in practice/ while racing:</b>	<b>DARE State: Running</b>				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<b>LOC1</b> I felt eager to face the challenges before me.					
<b>LOC2</b> The most difficult parts of practice/ competing increased my motivation to work hard.					
<b>LOC3</b> The most difficult parts were the most valuable.					
<b>LOC4</b> I felt glad to be training/ racing, regardless of how well I ran.					
	<b>FS: Running</b>				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<b>F5</b> *Today I was concerned with what others were thinking of me.					
<b>F6</b> I loved the experience of running today.					
<b>F7</b> I was completely focused on the task at hand while practicing/ competing.					
<b>F8</b> Today while I was practicing/ performing, time seemed to alter (i.e. long events felt short, and vice versa).					
<b>F10</b> Today I felt like my body performed automatically					
<b>F11</b> I felt like I was in complete control of the outcome of today's practice/ race.					
<b>12</b> Throughout practice/ the competition I knew how well I was performing.					
<b>13</b> Today I had clear goals regarding what I was trying to achieve.					
	<b>DP: Running</b>				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<b>DP9</b> Today's practice/ race required a great deal of mental exertion.					

**DP 14** Today I ran intervals/ tempo, a time trial, or raced.

**DP 15** Today I practiced outside of my comfort zone.

**DP 16** Today I worked at the edge of what I am capable

**Please check the box that best describes your performance today:**

This was one of my worst practices/ competitions	Below average performance	Average performance	Above average performance	This was one of my best performances
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**Is there anything the researchers should know about you or your training today (i.e., you are recovering from injury)?**

**Thank you for participating in this study!**  
**Researcher contact: Shannon Thompson sthompsons.mail@gmail.com**

Appendix B

Team Name:

**Coach’s Rating Form**

**For each athlete on your team please place a check under each of the two headings, and in the appropriate box.**

	<b>Athlete Improvement in 24 months</b>					<b>Current Performance</b>		
<b>Athlete Name</b>	Greatly regressed	Regressed	Stayed the same	Improved	Greatly improved	Below expectations	Meeting expectations	Exceeding expectations

Appendix C

### **An Introduction to Positive Psychology**

*“[There] is reason enough to treat everyone as if they have the potential to reach full bloom.”*

-Kaufman (2008)

The original ideas and rationale behind the construct, DARE, and the study that preceded this arose from my studies of Positive Psychology at the University of Pennsylvania. Therefore, it is appropriate to provide some information on the origins of this field in order to help readers understand the foundation upon which DARE is built.

Positive psychology is the scientific study of humans at their best (Asalone, S. in class). The term, “best,” has as many definitions as the countless dimensions across which it can be realized. Basically, positive psychology strives to study and foster what is *right* with people; the field examines the aspects of humanity that are remarkable, outstanding, and that contribute to a well-lived life (Seligman, 1999). The following section will briefly outline positive psychology as a field, beginning with an overview of its origins and intentions. It will culminate by highlighting the current discussion regarding how the “positive” should be defined, which will provide a bridge to the study that follows.

#### **Positive Conception**

The spotlight on what we now refer to as the positive aspects of psychology, was switched on during Martin Seligman’s (1999) presidential address to the American Psychological Association in 1999 (Pawelski, n.d.). Seligman (1999) explained that the intent of positive psychology is “to utilize quality scientific research and scholarship to reorient [psychological] science and practice toward human strength” (p. 561), and to respond to the question, “what makes life worth living” (cited in Pawelski, n.d.)? This broadening of focus that Seligman (1999) called for was a distinct pivot from the emphasis that the field of psychology had previously placed upon psychological disorder (Pawelski, n.d.). Seligman (1999) noted the

importance of continued work in the field of mental illness, while at the same time demanding that attention be equally invested in the exploration of what is positive about human beings, and life as a whole.

A great deal of empirical research has been devoted to answering the question, what makes life worth living (Donaldson, Csikszentmihalyi, & Nakamura, 2011; Shuck & Reio Jr., 2014; Seligman, 2011)? This question has launched exploration in widespread directions, and the umbrella of positive psychology now reaches across a vast expanse of subject matter (Pawelski, n.d.). Positive psychology concepts are currently applied in a multitude of fields, including business, politics, therapy, philosophy, education, law, the literary, visual, and performing arts, and sports (Donaldson et al., 2011; Duckworth et al., 2007; Pawelski & Moore, 2013; Seligman, 2009, 2011).

### **Positive Exploration**

Out of rigorous empirical research into the original question, what makes life worth living? Seligman (2011) coined the acronym “PERMA” to describe elements of life that have been shown to contribute to human flourishing. Broken down, this acronym represents positive emotionality, engagement, relationships, meaning, and achievement (Seligman, 2011). Each of these Seligman (2011) claims is chosen for “its own sake” (p. 16). Each has been found to be a major contributor to human well-being in empirical research (Seligman, 2011).

Many positive psychology researchers focus on human strengths and how to leverage them (Linkins, Niemiec, Gillham, & Mayerson, 2014; Niemiec, 2013; Peterson & Seligman, 2004). In this way, positive psychology is said to assume a strength-based approach as opposed to a deficit based one (a standpoint on problems that focuses on what is wrong, or needs to be “fixed” about a situation [Pawelski, n.d.]). The identification of signature character strengths (the

character traits most abundant with each individual), and the study of their use, has been utilized by the fields of education, human resources, business, and therapy, to name only a few (Linkins et al., 2014; Niemiec, 2013; Rath & Conchie, 2008). Extensive research supports the practice of utilizing one's signature character strengths frequently, and in novel ways for the cultivation of well-being (Peterson & Seligman, 2004).

Unsurprisingly, research on the pleasant aspects of life assume a prominent place in positive psychology (Frederickson, 2009). Flow State, as described by Csikszentmihalyi (1990), is an optimal experience that is characterized by complete immersion in the task at hand (among several other characteristics). Flow State, also often considered to be an ideal performance mindset has now been studied extensively, especially with respect to the role it plays in sport (Martin & Jackson, 2008; Nakamura & Csikszentmihalyi, 2002).

Contrary to initial impression, positive psychology refers to far more than just positive emotions (Kashdan & Biswas-Diener, 2014; Pawelski, n.d.). Sophisticated questioning and exploration by numerous critical thinkers has resulted in a field that incorporates a vast diversity of human experience into its literature (Duckworth et al., 2007; Kashdan & Biswas-Diener, 2014; Pawelski, n.d.; Schwartz, 2004, 2006). The traditionally positive human capacities of gratitude, awe, joy, love, and passions are discussed at length, alongside the roles of typically less pleasant experiences such as trauma, grief, dissonance, conflict, and sadness (Frederickson, 2009; Frankl, 1964; Kashdan & Biswas-Diener, 2014; Peterson & Seligman, 2004; Pawelski, n.d.). Discussions regarding the definition of the positive center around whether "positive" refers to pleasant experiences or optimal utility for adaptive outcomes (Pawelski, n.d.). Some psychologists argue that many unpleasant experiences and emotions contribute to beneficial outcomes, and therefore should be considered positive (Kashdan & Biswas-Diener, 2014; King,

2011). King (2011) notes that there is a “place for suffering in good lives” (p. 422), and examples where negative emotions have contributed to positive outcomes abound in current literature (Kashdan & Biswas-Diener, 2014). Although the precise definition of what is meant by the “positive” remains elusive, it appears that both positive and negative are necessary in the cultivation of a life well lived (Kashdan & Biswas-Diener, 2014; Pawelski, n.d.). The ongoing discussion regarding this intersection is a worthy representation of the dynamic complexity of which positive psychology is comprised.

Some branches of positive psychology highlight the benefits of struggle (Duckworth et al., 2007; Ericsson et al., 1993; Ericsson & Charness, 1994; Ericsson, 2007). The concept of grit, which is defined as “passion and perseverance toward long-term goals” (Duckworth et al., 2007), suggests that hard work can trump talent in the pursuit of outstanding achievement. These findings are complimented by Dweck (2006), who has observed that a growth mindset contributes to an individual’s willingness to persist at challenging tasks. Ericsson et al.’s (1993) exploration of deliberate practice has demonstrated that specific and intense effort is necessary for the attainment of expertise. Teseschi and Calhoun (2004) have observed remarkable personal growth in some individuals following devastating trauma.

Resilience is a major focus of positive psychology (Reivich & Shatte, 2002; Reivich, Seligman, & McBride, 2011). Seligman’s (1990) early work, which began by focusing on depression, and a concept called “learned helplessness,” led to a more refined definition of optimism, and the role it plays in human resilience. Essentially, Seligman (1990) found that optimistic individuals were more likely to continue to persist when faced with adversity, as opposed to pessimistic individuals who were more likely to give up. His findings have generalized from animals to humans alike, and across several fields including politics, business,



and sports (Seligman, 1990). The United States Army now implements a Master Army Resilience Training program throughout its entirety (Reivich et al., 2011).

### **Positive Collision**

*“It is only by the collision of adverse opinions that the remainder of the truth has any chance of being supplied”* (Mill, J.S., p. 551).

Considering the vast territory, and apparently polar subject matter covered in the preceding paragraphs, it is clear that balance and integration must also be an important consideration within positive psychology. In 1566, Aristotle introduced the concept of the golden mean, which explains that all characteristics and qualities have an optimal level of deployment, and that this optimal level is highly context specific (Melchert, 2002). Schwartz (2004) has covered the topic of balance at length, citing the necessity of autonomy for human happiness on one hand, and the hazards of excessive choice on the other. Schwartz (2006) considers the strength of practical wisdom (the knowledge of to what degree to deploy particular strengths in specific contexts) to be superior to all others for its ability to enable other strengths to be applied in the appropriate balance for each nuanced and unique moment.

Clearly, positive psychology embraces constructive arguments, and the collision of apparently contrary ideas. For instance, several researchers have extensively explored the territory of daydreaming, creativity and IQ, highlighting the value of each, and directing greater appreciation toward the benefits of the first two (Eskine & Kaufman, 2013; McMillan, Kaufman, & Singer, 2013). Therefore, the proposed integration of two phenomena previously believed to be opposed, flow and deliberate, continues the curious and innovative spirit of this field.