

Skill, Mental Toughness, Motivation, and Stress Management Driving Sustainable Peak Athletic Performance

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ABSTRACT

The combination of physical fitness and mental strength can lead to amazing performance, and especially in the mental aspect the concentration of the athlete on the task and his quick recovery from defeat even in hard times are the features of this strength. This blend of strength not only wins but also allows the athletes who can enjoy the competitions longer, thus bringing in another less mentioned aspect that however also contributes to the longevity of the athlete's career. Furthermore, noise is not tolerated by the athletes during the whole competition regardless of the already set high expectations or personal ambitions that come along their way.

Keywords: Word recall, mental toughness, emotional fortitude, motivation for performance, academic progress, and physical success

Introduction

Over the years, the public, little by little, but very confidently, came to the conclusion that health, fitness, and physical strength were the only criteria for a sportsman/woman to be pronounced light. (Hoffman et al., 2006) The mental and emotional dimensions of life as well as the intellectual part of the person concerned may also be the positive factors of his/her total performance. Psychological resilience is the term denoting a person's ability to recover, adjust, and even prosper after the adversity. (Fletcher et al., 2013) Thus, simultaneously, in mainly physically demanding sports, mental stress and performance expectations are always there but

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if the athlete is endowed with the mental quality of resilience then the situation could be considered very good for both the mind and the athlete's performance. The other factor is mental or intellectual toughness which is the same thing as the ability to deliver the best performance every time no matter what the circumstances are, internal or external. (Jones et al.,2002)Athletes who are mentally tough are those who readily acknowledge their defeats, maintain a winning mindset and do not give up in the face of adversity. On the other hand, this trait of mental toughness is one that can be acquired and perfected over a period of time with practice and training. (Connaughton et al.,2010) The process of developing mental toughness through psychological training and interventions is indeed of great importance. The motivator is not only the main reason along with the individual athlete's performance for attending sports but rather the reason for it without a doubt. All athletes first recognize their personal and situational motivations and then utilize them as a support base during periods of exhaustion, lost battles, and extreme hardships. (Murphy et al.,2009) However, maturing through the intrinsic motivation sources such as personal standards, self-rewards, and personal goals eventually takes long roads in psychological maturity and future victories than to be external rewards like money or fame. Therefore, athletes gradually and systematically acquire and cultivate the psychological toolkit for enhancing performance throughout their psychological development which consists of very cognitive and emotional skills (Huber et al.,2012).Growth mindset that one training and practice can finally develop the person's abilities is a very important factor in the endurance-building and winning process. The traits of persistence, flexibility, and learning from mistakes that guarantee gradual performance enhancement are considered the most important ones. Cognitive abilities, particularly that of reasoning and processing information, have been recognized but their use in sports psychology has been rather infrequent (Moran et al., 2012). Their impact on the other hand is really great. The performance of an athlete besides the coach, tactics, and psychological training is mostly reliant on memory and communication. The enhancement of memory and language skills forms the basis of strengthening the ability to make right choices, being quicker in response, giving higher performance under pressure, and even the victory in the long run. Besides, mental toughness is closely related to good health

physically. Inadequate stress and negative thoughts management could, in turn, lead the person's immune system to be weakened and he/she becomes ill or has more injuries (Dorian et al., 1987). Athletes' tenacious character, albeit with a limit, is among the main factors that will allow a person to dispose of stress easily and thus is considered to be a good candidate for health and injury-wise comparison over time to non-resilient athletes where the case is that there are fewer injuries. Motivation, mental toughness, cognitive skills, and memory are typically the most influential factors that determine an athlete's performance and the constant interaction between these factors is what brings them into play. Hence, the development of psychological resilience is a must not only for prolonged competitive performance but also for the physical and mental health that lasts. Mental conditioning has been seen as equally important as physical training and the relationship is still being researched for confirmation (Oliver et al. 1958).

Mental Toughness for Peak Performanc

The works of the two prominent figures possessed a great power over the modern psychological perspectives, especially the case of child psychology, and mental development. Piaget's theory of cognitive development offers a detailed description of the child's journey from being sensory motor to logical and abstract thinker, the age span is roughly from 2 to 20 years (Piaget et al., 1952). He posited that kids are the ones who actively engage in learning by gaining knowledge through their constant interactions with the environment and by their gradual changes in the understanding of the world (Piaget et al., 1970). In contrast to this, Vygotsky's sociocultural theory puts the accelerator on the culture and social interaction to the max in cognitive development (Vygotsky et al., 1978). He put forth the concept of the Zone of Proximal Development which revealed that if learners are rightly directed and given the necessary assistance, the learning process becomes easier and that was the main reason for the scaffolding method to a large extent (Vygotsky et al., 1986). Cognitive development factors have been the main focus of the recent studies and the scholars have classified these factors into three groups; working memory, self-control, and cognitive flexibility, which are all connected somehow to emotion regulation, social interaction, and academic success (Diamond et al., 2013; Baddeley et al., 2003). Mental development is now viewed as an infinite and ever-changing

process that spans the entire life of a person rather than being confined to early years or adolescence. The mental storehouse of semantic memory, which contains general knowledge such as facts, concepts, and meanings, is separate from the personal account of episodic memory which includes one's encounters with specific events (Tulving et al., 1972). According to the scientists, semantic memory is similar to a structure that is network made of concepts which are linked to one another (Anderson et al., 2015). The studies conducted with patients suffering from cognitive disorders show that the decision-making and abstract thinking areas of the brain are very much energized when people make use of their semantic memory (Binder et al., 2009). Besides, the controversies arising out of the debate between the linguistic nature supporters and the non-supporters, as well as the effects of brain lesions, have not completely wiped out the idea of its being very much adaptable to culture and other factors such as past knowledge, beliefs, and expectations. Hence, it is considered a system that is continually changing and adapting for the purposes of learning, communication, problem-solving, and decision-making. The works of Jean Piaget and Lev Vygotsky have had a great impact on educational psychology, sports psychology, mental development, and similar fields. Piaget's cognitive development theory marked the period when children moved from sensory-motor activities to logical and abstract thinking as between two and twenty years old (Piaget et al., 1952). He maintained that children were by no means just passive recipients of knowledge but rather, through interacting with their environment, were actively learning and constructing their understanding, which in turn would influence and reshape their perception of the world (Piaget et al., 1970). The Zone of Proximal Development that Vygotsky posited implies that learning is chiefly the activity wherein the pupils are rightly directed, and supplied, hence one of the major recognitions of its significant application is in such teaching methods as scaffolding which, among others, are being recognized (Vygotsky et al., 1986). The research on cognitive development has very much shifted its focus to the study of the executive functions, that is, working memory, self-control, and cognitive flexibility, which are considered to be the greatest ones in managing emotions, socializing, and having good performance in school (Diamond et al., 2013; Baddeley et al., 2003). There is a general perception that mental development is not limited to pre-school and teenage

years but is rather a dynamic and uninterrupted process throughout the human lifespan. Semantic memory, which is the main component of general knowledge comprising facts, concepts, and meanings, is separated from episodic memory that focuses on personal experiences and is associated with particular events (Tulving et al., 1972). It is believed that semantic memory is structured in a manner that it produces a web of interconnected concepts that makes the recall and understanding of the information fast and easy (Anderson et al., 2015). Neuropsychological studies point out that the areas of the brain responsible for abstract thinking and decision-making are the ones that are predominantly active during semantic memory retrieval (Binder et al., 2009). Moreover, semantic memory is influenced by the user's culture, knowledge, beliefs, and assumptions, thus becoming a variable and adaptable system that is vital in learning, communication, problem-solving, and decision-making.

Cognitive and Emotional Dynamics

The cognitive psychologists have very cautiously and difficultly considered the scientific exploration of the human mind and its very linguistic, thinking, memory, attention, perception, and reasoning processes (Neisser, 1967; Anderson et al., 2015). The behaviorism of the 1950s and 1960s was not only a competitor but also a partner for cognitive psychology. Consequently, the definition of the human mind changed and came to be seen as an information processing unit where knowledge is well coded, stored and retrieved (Miller et al., 1960). The opposing view of the behaviorists gave rise to research areas in choice, memory formation, and problem-solving that were opened up to a large extent (Baddeley et al., 2003). Initial memory-capacity research indicated that humans could only retain a small fraction of information for a very short time in their short-term memory, still, this finding has a great impact on cognitive limitation research (Miller, 1956; Cowan, 2001). The tight connection between psychology and the brain was the milestone of Cognitive Neuroscience emergence, a discipline that regards brain activities as the origin of mental functions (Gazzaniga et al., 2018; Posner & Rothbart, 2007). Moreover, brain imaging technologies have developed to such an extent that they can demonstrate the biological basis of cognition (Raichle, 1998). Cognitive psychology mainly relied on the findings of learning, memory, and problem-solving studies and, in turn, has

led clinical psychology, education, and computer science to those experiments' consequences (Anderson et al., 2015; Baddeley et al., 2003). The long and restless path of cognitive psychology eventually brought it to the point of medical research where the human mental process was completely uncovered and the signs of its variations through different contexts and the whole life span were recorded (Anderson et al., 2015). Self-control is the trait that enables an individual to manage their feelings, thoughts, and physical actions, ultimately leading to the most desired result in the future, especially if the person has to do so in a very difficult situation (Tangney et al., 2004). It is a quality that makes people to put their attention on what is most important and at the same time they are able to cut off the distractions and resist the small but pleasant temptations of the moment (Mischel et al., 1989). Self-discipline is a must for all procrastinators and for one's overall daily productivity (Duckworth et al., 2011). Self-control is also one of the determinants of a person's physical and mental well-being since those individuals with better self-control are less likely to miss medical appointments, take part in healthful activities, and beat stress (Tangney et al., 2004; Moffitt et al., 2011). A disciplined kid is more likely to turn into a healthy adult endowed with positive life outcomes and when this character trait is coupled with perseverance, it results in the successful accomplishment of long-term goals (Duckworth et al., 2011; Mischel et al., 1989)..

Comprehensive Athlete Safety

Vaccine delivery methods are different; for instance, vaccination by injection, oral delivery, and for flu vaccine, intranasal administration is one of them (CDC, 2022; WHO, 2021). The vaccination process produces immunity in very few people, while the rest get it by suffering the disease and then recovering (Abbas et al., 2020). The Immunity process kicked off with microbes being introduced and most of the time the very diluted non-virulent strain was used (Plotkin et al., 2018). Later on, scientists decided to use either dead germs or very weak live germs in the vaccination process as they believed no infection would occur and it was safe (Abbas et al., 2020). The evidence so far has pointed out that the body's defense could be the result of its struggle with the bacteria or viruses in a modified form. That is, the strains are so weak that they cannot cause diseases but still can provoke an immune response (Plotkin et al., 2018). Vaccination then became the first to apply the

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methods of non-infectious or live microorganisms, inactivated toxins, and neutralization (CDC, 2022). Only a small part of vaccines, like measles, rubella, and TB have been made from living but weakened virus (WHO, 2021). Such vaccines may very rarely cause mild side effects and at the same time, the classical disease will not occur (CDC, 2022). Vaccination is the major source of herd immunity because the at-risk population gets protected and the disease-producing path is blocked when a significant part of the population gets vaccinated (WHO, 2021). Immunization can be seen as a cure, the strongest and most accepted one, in the war against the transmission of microorganisms diseases (Plotkin et al., 2018). It has been the main reason for the complete extinction of smallpox from the Earth, and the presence of poliovirus and tetanus in some areas has been reduced to nearly non-existence (WHO, 2021). Overall, vaccines are considered to be extremely effective and powerful weapons in the battle against ailments since they activate the immune system for life and that immunity is offered not just to the individual but to the community as a whole (Abbas et al., 2020). Mental activities performed by an individual and visible to a certain extent are called cognitive processes, through the degrees of receiving, processing, storing, retrieving and applying the information (Goldstein, 2019). Hence, these processes will show up in the way a person thinks, acts, and relates to the environment (Sternberg & Sternberg, 2017). The most frequent fields of cognition are learning, emotion regulation, judgment, comprehension, problem-solving, memory, and thinking (Goldstein, 2019). Cognitive Psychology is the discipline that studies these processes (Sternberg & Sternberg, 2017). It is mainly focused on mental functions such as perception, attention, memory, language, problem-solving, and decision-making (Goldstein, 2019). When one considers these mental processes together, he gets the understanding of how humans perceive the world around them and then act depending on their perception (Carlson & Birkett, 2021). For example, one may claim that through perception humans become acquainted with their surroundings by having their senses notifying and interpreting the information, while attention only allows them to be aware of certain stimuli (Goldstein, 2019). Memory is very important in the process of encoding, retention, and retrieval of information (Baddeley et al., 2020). Language is a means that facilitates people in the area of

conveying ideas and structuring thoughts (Sternberg & Sternberg, 2017). At last, the processes of problem-solving and decision-making are based on these very cognitive activities to perform the situation presented analysis and to select the respective actions (Goldstein, 2019). To disclose the enigmas of the mental systems' functioning in real life, the researchers exploring the human mind use such methods as strictly controlled laboratory experiments and brain imaging (Gazzaniga et al., 2019). The focus on the internal mental activities was the beginning of a rather different psychology that managed to lay the foundations for modern cognitive psychology, which is no longer so heavily concerned with just observable behavior (Sternberg & Sternberg, 2017). Information-processing models depict the mind as a system that processes information through different stages starting from sensory input and moving on to short-term and long-term memory (Baddeley et al., 2020). The function of cognition is attributed to the participation of the entire brain instead of just certain parts. Some Studies have pointed to the prefrontal cortex as a major contributor to the processes of decision-making, problem-solving, and memory recall while the hippocampus serves as a link between memory formation and long-term storage. The advancements in neural imaging technology have come to such a degree that scientists are able to "see" brain activity during cognitive task performance and thus indirectly deduce the operation of mental processes (Gazzaniga et al., 2019). Cognitive processes are such a fundamental aspect that they form a network of highly interconnected brain regions (Carlson & Birkett, 2021). More specifically, this is valid for language comprehension, which, in turn, is dependent on attention and memory as its two main components; consequently, without memory, attention would be of no use (Baddeley et al., 2020). The working memory is, therefore, considered a crucial element in not just the processing of information but also the regulating and controlling of the transfer of information between tasks, attention, etc. (Baddeley et al., 2020). The interaction between working memory and other cognitive processes is thought to be the main reason why cognitive knowledge can be utilized in teaching, computer science, therapy, and human-computer as well as machine communication (Goldstein, 2019). On the flip side, cognitive disorders are becoming less complex to study; thus, one of the types of disorders that are most visible through the lens of cognitive processes is the one

which leads to learning difficulties, problems with attention, and even memory diseases (APA, 2020). Accordingly, the cognitive processes are placed at the very core of human experience, a dividing line that determines thoughts, actions, and behavior (Sternberg & Sternberg, 2017). The findings of cognitive psychology and neuroscience research are constantly revealing an alternative viewpoint that assists in comprehension of the mind-brain relationship in cognition support more distinctly (Gazzaniga et al., 2019).

Incentive-Driven Motivation

Receiving cash, gifts, prizes, and public acknowledgment are all common instances of external rewards(Ryan & Deci, 2000). The receivers of these rewards, be they material or psychological, are thought to be driven by an external or others' motivation, which is the very idea that humans, if at all, are engaging in a very non-self variety of belief only when pushed by outside goals and demands (Deci, Koestner, & Ryan, 1999). The phenomenon of external motivation is very common in workplaces and schools where promotions, bonuses, and other forms of recognition are all considered as part of the motivational process and thus, external motivation is exploited for their benefit (Robbins & Judge, 2017). There are even instances when external rewards are seen as giving a nice performance boost, especially for the motivation of people with low intrinsic motivation doing easy tasks (Lepper, Greene, & Nisbett, 1973). The situation where external forces would be controlling the situation throughout pushing for fast and simple tasks to be done repeatedly or meeting tight deadlines is usually with external incentives (Skinner, 1953). For example, workers are lured to certain levels of output through bonuses, pay raises, and promotions, which, in turn, leads to increased output (Robbins & Judge, 2017). However, the external factors can also result in a decline in intrinsic motivation (Deci et al., 1999).Getting a reward for doing something that a person already loves might eventually cause the person's inherent affection for that thing to disappear little by little (Ryan & Deci, 2000). A good example is a situation where a new artist, who is just starting out, expects to be rewarded or at least acknowledged for his/her work; but on the other hand, he/she might after the reward has gone, completely cut himself/herself off from the art world (Amabile, 1996). Besides, the external force can easily eliminate the person's creation and inspiration (Amabile, 1996).

Consequently, the person may elect to focus on the fast and accurate task completion rather than productive idea generation and innovation (Lepper et al., 1973). Thus, it has been shown that the external incentive system in art, science, and entrepreneurship has been counterproductive as it only utilizes a small portion of the creative energy (Amabile, 1996). Moreover, the external motivation is not entirely inoperative; to the contrary, if the appropriate steps are followed, then it may become the positive impact especially for the beginners or for the people who at the start are not receiving any internal rewards from their activities (Ryan & Deci, 2000). The long journey of turning external goals into personal ones might one day end in self-motivation where the individual converts the external push into a labor of significance to him/her (Deci & Ryan, 1985). Hence, an external reward can be considered as the starting point of the process of cultivating a deeper, more enduring motivation (Ryan & Deci, 2000).

Stress Management for Well-Being

One of the most important factors every human has to acquire if he wants to perform and stay mentally strong at the highest level is the ability to regulate stress (Lazarus & Folkman, 1984). The stress management process includes lessening of physiological and psychological reactions, practicing the right arousal level, and a person remaining calm in difficult times (Weinberg & Gould, 2019). Stress is an athlete's life, to some extent, an unavoidable occurrence, nevertheless, using the right stress handling techniques can make the athlete's life easier by returning him/her faster after overload, won't let him/her get exhausted and even, will push him/her to the top of performance (Fletcher & Sarkar, 2012). The ability to deal with pressure that is good for one's health not only is a very precious quality of an athlete but also a barrier on one's way to peak performance in sports (Hanton, Fletcher, & Coughlan, 2005). Stress management is extremely similar to a wall that protects both the body and the mind from the dangers of stress (McEwen, 2007). Procedures like biofeedback, mindfulness, and cognitive restructuring can not only bring about performance improvement but also result in better control of emotions and concentration (Birrer, Röthlin, & Morgan, 2012). Regular stress-reduction techniques practice by athletes not only enables them to build their psychological resilience but also makes them less affected by stress hormones and have better

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attention (Gross et al., 2011). In the HRV training method or the body's autonomic nervous system (ANS) one can either interfere with or enhance the latter. ANS is the main factor in controlling the stress reaction and the rate of recovery (Shaffer & Ginsberg, 2017). Stress resilience has many rewards, one of the most significant being the capability of one's body to retain its good health-is it not so? The most resilient individuals typically have the strongest immune systems, get ill very seldom and have almost no injuries (Fredrickson et al., 2003). Furthermore, mental toughness is not only a contributing factor to sports performance but also affects the overall quality of life in terms of physical and mental well-being (Clough, Earle, & Sewell, 2002)

Conclusion

There is no question that physical fitness is among the major characteristics identifying who may be the winner in a sports competition; however, the mental aspect of an athlete such as mental power, psychological hardness, and good remembering, is often the deciding factor to a large degree. Also, these characteristics are linked. A player who is weak in both body and mind will not only lack the performance of the mentioned abilities but may even be unable to show their best. Losing mental battles and stress management will not only rejuvenate the athlete's physical condition but also result in shorter periods of incapacity to perform thus, revealing the part of mental toughness in sports that has been overlooked. It is not unusual nowadays to recognize the strengthening and flexibility of mental character as one of the components of an athlete's physiological conditioning along with the body, which in turn, will eventually help to uphold the long road of the athlete's career.

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