How techniques that help to develop mental strength in individual sport such as tennis can be applied to dealing with everyday stresses and challenges that require resilience.

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1.0 Introduction

The mental preparation of a tennis player, or any athlete in general, is one of the most crucial characteristics for developing a successful personality. The will, control, and critical thinking are necessary at all stages of an athlete's development. The psychologic aspect is considered multidirectional and is often seen as a determining factor in the formation of the psychology of the winner. It additionally leads to the improvement of physical, technical, and tactical skills. People tend to forget about the importance of the mental aspect because of the daily routine. At the same time, the actual necessity of psychological strength is usually revealed during the most stressful situations, such as competition.

It is vital to understand that mentality should be trained the same way athletes train their bodies. Thus, the coach, who teaches tennis skills, uses the methods of mastering movements, as well as laws of physics and anatomy. Athletes do not master the sport independently but rather in the course of systematic work. Respectively, mental activity has its laws as well. In order to develop and improve it in the future, it is necessary to master the basics of psychology and understand how the brain works.

For instance, the psychological preparation of a tennis player should include mastering relaxation skills, developing self-confidence, psychological stability, the ability to concentrate at a certain point, goal setting and situation modeling skills, as well as mastering visualization techniques. The same approach can be used in developing mental strength for any stressful situation requiring more extended resilience.

2.0 Mental state of a tennis player during competition

An athlete's enormous work is targeted at a single aim, a successful performance during competition. In everyday life, everyone faces the same thing: we all strive to achieve our goals

only to face that specific point that will indeed reveal if we are ready for the next step or if more work needs to be done to overcome the challenge on the way to success.

One of the reasons why athletes do not perform successfully is the lack of mental preparation. It is essential to understand what is happening to a person's mind during competition in order to increase the level of psychological strength. Any competition starts with a condition inside the person. Success during competition is mainly affected by the mental state of the athlete before the start of the match. "The pre-start state of an athlete is understood as a conditioned reflex psychological and physiological pre-adjustment of a person and his body for the upcoming competitive activity."[1] One can often hear athletes saying: "I was tensed," "I do not know where it came from," "something happened to me," or "it does not depend on me." A competitive state arises based on the athlete's experience, expectations, and readiness. Feelings come first, that is why it is essential to ask, "what do I feel when I think about competitions," whether it is fear of making a mistake, responsibility, desire to test myself, or just need.

Every athlete experiences the desire to win and a fear of making mistakes. For that reason, pre-start feelings are incredibly unique. And only when people realize that their brain is their biggest helper will they be able to start working on the mental aspect. Consequently, that is an indisputable fact that the condition that one has is often good for them. The only question that remains is what the priority is: overcoming the challenge or the fear, striving for patience or comfort. Depending on the priority, the brain will offer the easiest way to achieve that priority. That is the main task of the brain to preserve the health. Therefore, one's determination and preparation helps choose whether they should "run or fight."

[1] Ilyin, "Psychology of Human States," 412.

For example, when someone imagines a lemon: how they cut it, try it and eat it. They can feel the saliva in the mouth as soon as they imagine it. That is the reaction of their reflexes to the acid. Even though that person has only imagined lemon, their brain has already started eating it. In the same way, for every thought people have before the start, the process they well imagine is being launched.

The degree of demonstration of the pre-start state also depends on such things as the conditions in which the start is expected, the athlete's experience, and the type of his nervous system. There are always two options: either you control your state, or the state will control you. Managing the condition is not as difficult as it seems because one just needs to know how the brain works during competition.

Usually, the pre-start state is divided into three levels: combat readiness, pre-start fever, and pre-start apathy. "During the state of combat readiness, there is an optimal increase in the activity of the central nervous system, or CNS, that leads to an increase in the mobility of all nervous processes."[2] Such state ensures that corresponding shifts in the functional state of the movements are performed within all body systems. This condition is the most effective form of pre-start reaction, providing the best performance during a tennis match.

"Pre-start fever is characterized by the significant arousal in CNS, which causes a malfunction of all body functions."[3] Therefore, the lack of the ability to differentiate can lead to a number of tactical errors, loss of concentration, and fuss that will not allow the tennis player to realize his skills and abilities fully. The increase in heart rate, body temperature, and blood glucose level reaches exceptionally high values during this condition. That is why the body expends much energy and, therefore, the working capacity decreases.

[2] Puni, "Athlete's Pre-Start States," 519.
[3] Puni, "Athlete's Pre-Start States," 522.

Finally, pre-start apathy is characterized by "the predominance of inhibitory processes in the CNS, while there is not much change in the functions of other body systems."[4] For example, the content of glucose in the blood sometimes becomes even lower than the initial level, and the content of lactic acid rises. Pre-start apathy may occur if an athlete is waiting to face a stronger opponent or in case of rescheduling the game to a later time. Pre-start apathy often negatively affects the result, while only in some cases, athletes may successfully perform at competitions. Such a phenomenon is caused by the quick release of the brake state at the beginning of work due to the powerful flow of impulses entering the CNS from moving muscles.

The degree and form of different pre-start states depend on a number of factors. Firstly, training increases the nervous system's resistance to various stresses that affect an athlete's body. In addition, numerous performances at a competitive level allow one to correctly assess their own body's capabilities and the rivals' level. The type of nervous system also significantly affects pre-start conditions. Thus, for example, sensitive athletes with a predominance of inhibitory processes usually experience a condition in the form of pre-start fever.

Everyone should be aware that the pre-start state can be controlled by managing emotions. The main link in managing the state of a tennis player is the adequate establishment of competitive goals, working on expectations, and answering questions about how to implement a particular situation.

There are several techniques that can better assist an athlete in managing their emotions. Firstly, everyone should understand that any state is meant not to harm but rather help an athlete. The point is not to resist but accept and focus on action rather than experiences. A person must be clear about what they are doing and why, and only then will they be able to control everything

[4] Puni, "Athlete's Pre-Start States," 526.

consciously. Finally, everyone should set goals based on what they know and can control. The nature of tennis as a sport implies long-term work on the court, and different levels of opponents, which in turn makes it necessary for an athlete to solve a large number of multidirectional problems. If there is no answer to the question of how to achieve this or that goal, then poorly controlled states may arise.

3.0 Factors that prevent people from performing their best

3.1 Fear

The purpose of competitions is to show what an athlete can do. However, sometimes this does not work as desired for several reasons. “Walter Cannon, a physiologist at Harvard Medical School, first described the stress response in 1915 in the form of a “fight or escape” model. He studied how fear and anger both affect the physiology of animals. Later followers began to call the concept of a person's reaction to stressful situations: “Freeze - Flight - Fight - Forfeit.” In a stressful situation, the body begins to actively produce two hormones: adrenaline and norepinephrine. The release of these hormones causes behavioral response known as the “hit, run, freeze” response.”’[5] Those innate reactions that are typical to all people and animals provide immediate physical reactions associated with the preparation of all muscles for increased body activity. Together, this strongly stimulates the body, such as a short-term increase in muscle strength, reaction speed, sensitivity receptors, and endurance. But as soon as a person focuses on the feeling of fear, it becomes uncontrollable and starts to interfere with their performance.

However, the majority of the time, fears during the athletic performance are about what will happen then, after the performance, after the decisive point, which means that even if a player experiences them, competitive performance is affected because they allow themselves to

[5] McGonigal, “The Upside of Stress: Why Stress Is Good for You, and How to Get Good at It,” 352.

be in the “later” moment, rather than staying in the present. A person's sense of fear affects the result only because they are focused on the result, which leads to the loss of control over their own actions. All the doubts and fears limit actions, and the body begins to act cautiously, "no matter what happens," which automatically leads to the increased probability of failure. Thus, successful performance in any activity is, first of all, freedom.

There have been many examples when fear might even be helpful. There are hundreds of cases when, against the backdrop of fear, people are capable of incredible things. Running away from danger, they are able to overcome unimaginable challenges. Thus, fear can even be beneficial to increase performance while assisting in becoming more precise, faster, more attentive, etc. The only important thing to remember is that only if a person is focused on the action and not on the result will fear help to become better. In many sports and even usual daily challenges, fear is not something that gets in the way, it is panic. Panic is a complete lack of control over actions. And the most crucial rule to avoid panic during a tennis match for the player is to focus on one point until they get into the rhythm of the match. The same rule can be used when anyone is facing any challenges of everyday life, the only important thing is to realize what is one thing that you need to concentrate on to feel less pressure.

3.2 Doubts

Doubts are present not only in sports but also in any professional activity of a person. Every next step in human development passes through hundreds of doubts. In the competitive activity of a tennis player, doubts in most cases are related to the result. Sometimes, in order to set up an athlete for a competitive environment, many coaches say, "think less" or "do not think at all." Hardly ever anyone elaborates more on how to do it. In fact, it is impossible not to think at all and very difficult to think less in a stressful situation when a person wants to perform at the best

level, be it a tennis match or a job interview. Thus, the most essential skill that one can develop is the ability to think correctly.

Firstly, it is important to analyze what happens when a person doubts using the example of a tennis player. Many tennis players are well prepared for the competition. However, not everything worked out as planned during the warmup, or maybe past competitions were not as successful. Thus, the thought "something is wrong, or what if ... " is present. But it is still necessary to perform, and any tennis player is trying to get rid of these annoying thoughts in different ways, which are always accompanied by internal dialogue. The internal dialogue, reacting to a stream of thoughts, is able to launch into action different states based on the thought. But if a person takes a deep breath and tries to hear the heartbeat, it will become the priority for the brain, and everything else will move to the background. With the same principle, if a player allows the possibility of a bad outcome of the competition, they multiply this outcome many times over, because the body instantly assumes such a possible state. In this case, the possibility increases the occurrence of an error.

This leads to the rule that one needs to aim all the stream of thought at one desired state of mind, the state of readiness. Whenever anyone starts to undertake any challenge, they should give themselves the command “Ready!”, and their brain will turn on all the essential physiological functions of the body to provide them with the best possible desired outcome.

3.3 Interference

Interference is anything that interferes with comfort—from lack of sleep to being uncomfortable. In fact, interference is what people allow to interfere. In these situations, it is crucial to understand why they allow something to interfere with their performance. Interference is considered a primary reason for failure, as it is a ready-made excuse in case something will not

work out, which means that the brain begins to protect a person from the experience of defeat. At this point, a person is not in control of the state and thereby it leads to an unpredictable result.

The essential rule for working with interference is to understand oneself and carefully decide what one chooses: getting back to the comfort zone or finding ways of overcoming new challenges. Needless to say, creating and searching for comfortable conditions even in the preparation process will only create a disadvantage, as a person needs to get used to competitions or important presentations with all the challenges. Additionally, it is imperative to remember that if a person is able to overcome interference during practice, it can and should be managed during competition as well.

Remember, nothing prevents anyone from showing what they are capable of at competitions unless they themselves allow a breakdown. That is why everyone should never let circumstances bring them down.

4.0 Characteristics that help to succeed in competitions

4.1 The "4C Rule" of the Ideal Tennis Player

Numerous publications are devoted to the psychological characteristics of a tennis player. In the book by R. Fish, "Anatomy and psychology of tennis," the characteristics of a successful tennis player are well described. There, "success in tennis requires special qualities of character, such as concentration, character, courage, confidence, intelligence (40%), rational technique (30%), high physical performance (25%)."[6] He emphasizes that "all famous tennis players, first of all, are distinguished by their passion for the chosen sport, the ability to resist physical and mental fatigue, diligence, as well as the ability to a high concentration of attention."[7]

[6] Fish, "Anatomy and Psychology of Tennis," 121.
[7] Fish, "Anatomy and Psychology of Tennis," 121.

Thus, he created the "4C" rule of an ideal tennis player. Firstly, concentration is crucial to help the athlete stay focused during the many hours a tennis match can last. Secondly, character, as a tennis player, needs firmness to overcome the critical moments of the game, mastering the situation in order to make the right decisions and rebuild the tactical game plan. Courage, additionally, is essential to any tennis player in order to withstand the pressure of the situation. Finally, confidence, or belief in one's own strengths, is the basis for motivation to achieve and achieve emotional harmony. The same four critical rules can be applied to any challenge people have to face, like interviewing for a job or presenting in front of hundreds of people, as a psychological setting determines the outcome to a certain degree.

4.2 Mental Toughness

Mental toughness is a measure of an individual’s stamina and confidence, the ability to show the maximum of one's opportunities under competitive stress. There are four aspects of mental stability, as described by Felix Guillen and Sylvain Laborde in their study. The first important attribute of mental resilience is hope, which is described as unshakable confidence that you have all the abilities to achieve the goal. Secondly, they mention optimism or a character trait that is common for a person who always hopes for the best. Another critical aspect is persistence or consistency in achieving the goal, not giving up when facing difficulties. Finally, adaptability, or the ability to adapt to problems in an uncertain environment.

In order to improve the level of mental stability to a higher level, it is crucial to develop all four aspects. Becoming more stable and not conceding to emotions helps a person to focus more on rational analysis of the game and a positive attitude. Several rules will assist everyone in developing their mental resilience. Firstly, a person should start by identifying all the technical and tactical strengths to notice that they have already worked hard to develop such a long list.

Keeping a list of the achievements - what a person has already achieved in their career - will help them to feel more confident at a difficult moments. Another important rule is to learn to set reasonable goals and then divide big goals into specific and reasonably achievable in the near future. Any victories and achievement of an intermediate goal strengthen self-confidence, maintains motivation, motivate for success, and attract good luck. However, if the result suddenly turns out unsuccessful or the goals are not achieved, it is not yet a defeat. With the right attitude toward failure, it becomes an excellent incentive to move on and keep working harder. Difficulties that arise on the way to the goal, in fact, do not hinder its achievement but contribute to it. Overcoming difficulties increases self-confidence. The thought "I did it!" is critical, as a person knows they can go further in life, overcoming other circumstances. It deserves respect and, most importantly, self-respect.

4.3 Emotional stability

At the moment when emotions overflow, people can use the “Stop!” technique that will help to mentally interrupt the flow of negative thoughts. The essence of this technique is step-by-step recognizing and switching from negative thoughts to thoughts that help succeed. The first step includes analyzing the performances and making a list of "negative" thoughts or "harmful thoughts ." Such thoughts include all thoughts that, in accordance with the personal characteristics, interfere with the performance. All people are different; therefore, their negative thoughts differ as well.

The second step involves making a list of "helpful" thoughts that help to demonstrate high quality. As soon as one notices that a harmful thought creeps into their head, they need to internally give themself a command "Stop!" It is important to immediately stop the flow of

"wrecking thoughts" without letting them start to unsettle you and start the flow of positive thoughts as quickly as possible.

Additionally, it is vital to learn how to overcome the tension. As a rule, the ability to relax is achieved through training. And one way is to try breathing gymnastics. Even a few calm, deep breaths can help reduce anxiety. Regular practice of breathing exercises normalizes the state of the autonomic nervous system, develops self-regulation skills, and positively affects the athlete's composure and self-confidence. Some believe that calmness on the court is natural for a tennis player. Perhaps, but if a person wants to be calm, they should try to look calm, and in the end, they themselves will believe in it. “In order to master the art of relaxed concentration, it is important to trust yourself, allow yourself to relax, while it should happen by itself and should not be the result of effort”[8] The more people worry about things they cannot change, the less energy remains for what is possible to change.

The way people motivate themselves for the challenge can respectively affect the outcome, as while the winner is determined to win, the loser is afraid of losing. Thus, it is essential to understand whether one is determined to succeed or avoid failure. The stress of overcoming the challenge might be present; however, if one wants to win, there is only one way out: love this stress while having the desire to test it.

According to J. Loer and his matrix, “maximum performance that an athlete achieves is only due to a high level of physical energy and a positive emotional attitude.”[9] There are various mood options, but not all are equally beneficial for the athlete. For example, there is a positive mood, but the energy potential is low, and then the athlete is relaxed and calm but not focused. Or vice versa, when much energy has accumulated, and the mood is negative, then the athlete

[8] Gallwey, “The Inner Game of Tennis: The Classic Guide to the Mental Side of Peak Performance,” 170.
[9] Loehr, “On Form: Managing Energy, Not Time, Is the Key to High Performance, Health, and Happiness,” 176.

wastes his energy on anger, frustration, unnecessary anxiety, etc. Therefore, controlling one's emotional mood and energy level is crucial for becoming more effective.

Any physical activity in a positive mood is easier to bear, while the result is achieved faster. A positive attitude towards oneself, a coach, and an opponent allows one to maintain energy potential and promotes self-development and harmonious improvement of skills while increasing stress resistance and adaptability. However, everyone has negative emotions of all kinds. But it is crucial to learn not to get stuck on them and switch to the positive ones as soon as possible. Otherwise, negative thoughts lead to an unnecessary loss of energy, resulting in the athlete feeling empty. Even though activating negative emotions such as anger helps create an impulse to action. However, without switching to action, it may still impose a long-term negative "imprint" on the general condition of the athlete, gradually undermining his self-confidence if the action is not taken immediately. That is why people who achieve success always think positively.

4.4 Self-confidence

"The most important moment in the psychological preparation of a tennis player is the realization that to achieve the highest potential in the game, you need to be able to control the state of self-confidence."[10]

A confident player is more relaxed, calm, and reasonable. If one shows the opponent, or person they are competing for the job position with, that they are afraid of him, the rival will feel more substantial. However, if a person ignores others' strengths, other people's advantages will become weaker. There are several essential rules for working on self-confidence. Firstly, one can try to think about how they show dissatisfaction during the challenge and, if necessary, change

[10] Loehr, "On Form: Managing Energy, Not Time, Is the Key to High Performance, Health, and Happiness," 176.

their behavior to the opposite. For example, a tennis player closes his eyes and lowers his head when he makes a mistake. Thus, the opposite reaction to such a reaction is not closing the eyes and keeping the head held high. The implementation of this advice will require that another person can compile a list of such negative manifestations during the entire match or presentation, for example. Any detail in the behavior, from facial expression to impatience, can give out the individual's psychological state.

Competitive stress can also be used to the advantage. Small portions of stress trigger the development process, increasing the reserve capacity. Describing the mechanisms of this process, D. Loehr uses an example of power loads, where “in order to increase muscle mass, we use strength exercises that create tension, fatigue, and pain in the muscles, i.e., microtrauma and physiological stress.”[11]

Sports psychologists recommend using the system rituals to increase self-efficacy. “The automatism of actions is developed from habits that are formed on the basis of "rituals." The development of positive rituals allows one to shape the desired behavior, which becomes habitual and can assist in the development of better self-confidence and calmness.”[12]

4.5 Visualization

Visualization is part of autogenic training, which allows one to fully immerse oneself through visual representation of images inside consciousness. With the help of visualization, a tennis player can achieve the optimal psychological state for realizing the potential of self-efficacy and working out the strategy and tactics while psychologically preparing for the competition. The practice of visualization in sports tends to be as realistic as possible. The task is not to fantasize

[11] Loehr, “On Form: Managing Energy, Not Time, Is the Key to High Performance, Health, and Happiness,” 176.
[12] Loehr, “On Form: Managing Energy, Not Time, Is the Key to High Performance, Health, and Happiness,” 176.

about perfect serves but to remember the actions in a real game and gradually improve them to the ideal. Visualization is also practiced, but the only difference is that it is a mental practice. And in these practices, one also needs to give all the best until perfect reproduction is achieved in all details using all the senses.

At the neurophysiological level, the effect of visualization is explained by the activation of alpha and beta brain rhythms. "The greatest visualization is achieved with an increase in the alpha rhythm, which is usually activated in the state of falling asleep and awakening. A little tip to start visualization is to roll your eyes up. This simple eye movement is associated with the activation of the alpha rhythm of the brain."[13] One can try both visualization of a pleasant memory of the successful outcome, and abstract images like success, freedom, etc.

The ability to visualize is individual and depends on the predominant type of perception of the athlete. However, everyone can achieve success in the visualization technique if practiced daily. Starting by focusing on the breath, which should be deep and calm, athletes work out individual strokes, movements around the court, emotions, and reactions in tense moments of the match, and strategic and tactical actions.

Activation of the beta rhythm is also crucial since it is within the state that a person can influence effectively. One can practice beta training without special preparation in any free time. For example, before starting a game, a tennis player needs to focus on inner feelings and emotions and take control of the situation rather than looking around. Visualization allows them to improve the biomechanics of actions and increases clarity of movements and concentration of attention while reducing internal stress and increasing psychological stability.

[13] Greenberg, "Comprehensive Stress Management," 496.

5.0 Conclusion

While the most significant challenge for athletes is competition, everyone faces numerous other challenges they try to overcome daily. The most common for everyone are such things as presentations, exams, or job interviews, and whether the desired outcome will be achieved depends strongly on the person and their mental preparation. The example of a tennis player shows what affects the result and what needs to be done in order to be genuinely prepared to achieve the desired outcome. Before any new challenge, one should understand that the pre-start condition has the power to affect the result. For that reason, it is vital to learn how to be in control of that condition and how to give the brain a command to act in a way that will most likely lead to success.

There are several aspects that may become obstacles that may only be overcome by mental strength and psychological training. It is crucial to remember that fear, as well as doubts, is mostly about what will happen after the exam, presentation, or job interview. This means that the current state can be affected by something that might happen in the future. That is why even though it is challenging to get rid of fear entirely, it is essential to understand how to use it to improve performance while focusing on actions and not the result. Another crucial aspect is the ability to ignore interferences that allow one to give themselves an excuse.

Many different characteristics should be additionally developed to help stay mentally tough and prepared for the challenge. The list includes such characteristics as concentration, character, courage, confidence, hope, optimism, persistence, and adaptability. All those characteristics, in addition to breathing gymnastics, the "Stop" technique, and visualization, will help one to achieve the desired outcome of any challenge they might face.

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