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The Study of Success in Music: Applying Methods Developed by Sports Psychology towards Achieving Peak Performance

A supporting document submitted in partial satisfaction of the requirements of the degree Doctor of Musical Arts in Music

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Sports & Music Psychology: application of sports psychology for instrumental peak performance.

ABSTRACT

The Study of Success in Music: Applying Methods Developed by Sports Psychology towards Achieving Peak Performance

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This document is intended to serve as a supplemental guide for musicians, outlining the advantageous mental and physical practice techniques and methods which have been revealed through research in sports psychology. Additionally, this work draws on research in music psychology to investigate the numerous psychological obstacles and challenges musicians must overcome in order to develop a consistently high level of performance.

Case studies from the field of music psychology are discussed, as this document seeks to expose some of the common triggers for performance anxiety and stage fright. This document further discusses those principles of sports psychology which are applicable to a musician's daily practice and which pave the way for better control over the physical and psychological symptoms known to negatively impact peak performance in situations of extreme pressure. Applying these principles also helps in the development of

increased control of muscular and mental functions, accuracy, precision, discipline, mental awareness and overall coordination.

With this information, I hope to educate musicians about the existing relationship between mental process and physical execution and the impact one has on the other. This document reveals how successful performance should be viewed as a process with its roots in developments that occur even before picking up the instrument.

Finally, this paper hinges on the idea that, through the efficient application of sports psychology principles, musicians can learn how to feel 'as one' with the instrument, a feeling of one-ness that sports psychology refers to as the 'zone.'

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Introduction

Sports psychology is a continuously developing science based on the principles of psychology which focus on the enhancement of social, mental, artistic and athletic performance, as well as on general psychological benefits and human enrichment. Within this field, specific research focuses namely on the psychology of success, greatness and excellence. Numerous studies have directly examined pre and post performance thought and mental processes, discovering the way the mind handles such situations and developing the most efficient and effective performance habits for highly stressful situations.

For professional athletes and musicians, performing under pressure is an inescapable element of their careers. Given the current levels of performance excellence and the consequent fierceness of competition, consistency in performance quality is indispensible in attaining the degree of professionalism that has become the new standard. Findings produced by

sports psychologists provide a systematic approach to learning to perform at one's highest potential. This can be applied not only to athletics, but to

myriad other performance-related activities. According to the research detailed in this paper, the science of sports psychology indicates that the proper combination of mental and physical preparation is perhaps the most crucial component of success.

This implied link between musical and athletic disciplines is a logical one. Similarly to athletes, musicians must achieve high levels of technical skill, efficient movement patterns, acute focus, composure and extreme concentration, all while maintaining a consistently high level of performance. Musicians 'play' music as athletes 'play' sports. Therefore, like sports, a musical performance is a physical activity with extreme demands on technical facility, training ethics, discipline, deliberate practice, structure, dedication, determination, motivation and inspiration. Like sports, it is a form of self-expression, performed in front of an audience and demanding astounding mastery of the human mind and body. Both performance practices provide the performer with opportunities for excellence, though the journey may bring forth intense pressures, challenges, anxieties, fears and psychological phobias. Adapting the methods and principles developed by research in sports psychology, to be discussed at length herein, affords tremendous advantage in a musician's constant struggle to elevate, not only the quality, but the consistency of quality in their performance.

Olympic champions are exceptional athletes in their respective fields and are primary examples of performers who have excelled despite enormous physical and psychological obstacles. Research and studies conducted in sports psychology have meticulously examined these exceptional athletes, concentrating heavily on analysis of their mental states during a performance. Given the established similarities between music and sports, these scientific findings can naturally be applied to push the capability of musicians towards achieving peak levels of performance.

Studies conducted in the related fields of music and sports psychology provide the scholarly foundation for this paper's own foray into the fascinating complexities of the human mind. Equally important in setting the stage for the following arguments are a number of resources of a non-scholarly nature, discussed under the sub-headings of 'Advice from the Author', which are crucial to advancing any musician's hopes of success.

Prominent among the existing research in this area of study is Dominique Bellon's paper, entitled *Application of Sport Psychology to Music Performance: A study based on a review of sport psychology literature and selected interviews with professional musicians.*[1] Like Bellon's work, this

[1] Bellon, Dominique. *Application of Sport Psychology to Music Performance: A study based on a review of sport psychology literature and selected interviews with professional musicians.* Dissertation, Arizona State University. Ann Arbor: ProQuest/UMI 2006. Publication No. 3220283

paper also bases its discussion around the main principles of sports psychology.

While necessarily overlapping with Bellon's topic in terms of basing its discussion around the tenets of sports psychology, this document delves further into how one might cultivate the optimal mental state and, attitude for performance. In addition, what follows includes detailed explanation of the practice techniques that will help establish the confidence required to battle the notorious effects of performance anxiety and stage fright. Studies cited as supporting evidence for the assertions made in this document are derived from selected works in sports psychology literature. Also cited are carefully chosen music psychology sources that directly relate to the topic at hand and, finally, sources concerning the evolutionary background of the psychological aspects of music performance.

It is important to note that suggested methodologies gathered through research in sports and music psychology are in fact suggestions which, when properly utilized, have the capacity to produce significant results, even for the most elite musicians. However, they do not guarantee success. Finally, this paper chooses to focus on just one, albeit important, performance context - that of solo performance. The discussed methodologies of performance enhancement, practice strategies, mental attitude and confidence-building techniques can be applied to other genres of instrumental performing, such

as chamber or orchestral settings, but the specific techniques of doing so won't be discussed here. By engaging in proper utilization and application of the knowledge this paper offers, the performer can attain the ability to perform at peak levels on command, a phenomenon often referred to in the world of sports as, 'performing in the zone.'

In the 'Zone'

What sets elite performers apart is not necessarily in skill level, but in their mentality, attitude and thought processes. Every aspect of a performance is a manifestation of one's mental state. When an ideal, 'zone' mindset is obtained, many musicians and athletes refer to this experience as being 'in the moment,' as if all activity is executed effortlessly and without the need for analysis. In this mental state, concentration, focus and mental anticipation are so intense that all action is visualized before it actually occurs. Furthermore, many describe the sensation of experiencing the performance as if it is occurring in slow motion. The ability to engage and activate this heightened performance mode can be learned, trained and refined as a skill.

In the 'zone,' the human body experiences symptoms[2] related to peak performance. These can be categorized as listed and described below:

Mental Relaxation—a state of inner calm experienced by a performer during extreme focus and concentration on the task at hand, as well as a sense of being 'in the moment.' This mental state permits the performer to be in complete control of the performance. Furthermore, performers engaged in such extreme mental focus and relaxation have an increased resilience to external interference. Conversely, performers who suffer from mental tension experience a loss of concentration,

[2] Guyton, Arthur. *Physiology of the Human Body*. Saunders College Pub, 1984, 23.

focus, control of their actions and sense of being 'in the moment,' as if everything is happening too fast.

Physical Relaxation—a state in which the muscles throughout the body are loose, characterized by a sensation of warmth, complete fluidity of movement, effortless physical response to mental commands and great precision in the application of technical facility.

Mental Confidence and Optimism—a self-confident mindset and belief in one's ability to execute to the best of one's ability and highest potential.

Control of performance—a feeling of total, effortless control, with the ability to make the right decisions when necessary with confidence and clear intentions. Performers often describe this state as feeling at though the body takes control of the performance without much interference from the actual self.

Focus on the present moment—a balanced equilibrium between the integration of the mind and body, resulting in the highly efficient ability to process the mental and physical functions of the task at hand. In this state, the performer is completely unhindered by feelings or thoughts about the immediate past or future. In addition, the mind is devoid of analytical mental processes, thus allowing the action to happen 'automatically' and 'effortlessly.'

Complete awareness—a state of complete comfort and unity with the instrument. In this state, performers feel completely absorbed by the performance, yet they are still aware of their environment and able to anticipate the actions of other musicians involved.

Energized—a sense of heightened energy before a successful or peak performance. Though feelings associated with stage fright, nervousness or performance anxiety are still present, at this stage their negative contribution, when weighed against feelings of excitement, positive intensity, ecstasy and satisfaction, is extremely minimal.

> The 'zone'—is an ideal stage of a peak performance. This stage is marked by a feeling of complete access to, and control over all necessary skills for achieving one's highest peak performance levels. Not only does the technique come with great ease, but the performer also feels a sense of total insulation against any stressful external factors, physical or psychological, that would typically be associated with performing under pressure. In this state, the performer feels detached from the usual physical responses to stress which would include muscle tension, loss of precision and control, the feeling of things happening too fast, sweating of the palms, as well as various degrees of hyperventilation and anxiety.

The different physical and mental stages associated with the 'zone' can be learned, practiced and triggered on command. Achieving the mental states contributing to the success of a performance depends on a few important factors, not least the performance environment and the psychological or physical responses it might provoke. In a stressful or competitive performance environment, the performer becomes more vulnerable to such commonly experienced, performance related threats as performance anxiety and stage fright, both real and imagined.

The subconscious mind makes no distinction between an immediate, physical threat and a merely psychological one, so the fight-or-flight response[3] is automatically triggered by the central nervous system during severe stage fright and performance anxiety. Once the performer surrenders to these involuntary reactions, a series of physical symptoms take place with

[3] See chapter "*Stage Fright and Performance Anxiety*"

the potential to severely impair the ability to perform at peak levels. These symptoms include pupil dilation, increased sweating, palpitations, tightness and constriction of abdominal muscles, decreased function of the kidneys, increased blood pressure, increased mental activity and increased output of adrenalin.[4] These symptoms are ineffective for peak performance and instead negatively affect one's capacity for instantaneous adjustments, mental flexibility and decisiveness, as well as the ability to control one's focus and concentration.

Through implementing the techniques and principles of sports psychology, performers can train the body along with the mind to accept, manage, control, react to and counteract these factors - mental and physical, internal and external - that are detrimental to peak performance.

[4] Guyton, Arthur. *Physiology of the Human Body*. Saunders College Pub, 1984, 231.

Mind and Attitude are Everything

An ideal mental state for peak performance is characterized by positive thinking. Choosing how to think is an important, fundamental decision. In order to develop a consistently high level of performance, consistency in methods of positive thinking and affirmation is essential. Research confirms that positive thinking, meaning the complete absence of detrimental thoughts, during or before a performance is the leading factor contributing to lower anxiety levels.[5] Musicians often exhibit a phobia of public performance and auditions, much of which is exacerbated by the imagination. This phenomenon is an evolutionary behavior responsible for inducing the fears and phobias that often lead to self-destructive thought patterns. These thought patterns are then translated into feelings that directly affect and impact a performance. Therefore, it is of paramount importance to maintain a positive attitude, especially before and during a performance. The dominant thought will most often influence the result, and so, if self-doubting thoughts take control of one's rationale, as Henry Ford famously stated, "Whether you think you can, or can't-you're probably right."

The subconscious mind is responsible for regulating the mechanisms necessary for survival such as respiration and digestion. It is the source of

[5] Kenny, D.T. *A systematic review of treatments for music performance anxiety. Anxiety, Stress and Coping*, 2005. 18(3), 183-208.

dreams, intuitions, instincts, ideas and a place where learned material, skills, emotions and behavior are retained. The subconscious mind stores all incoming information, be it positive or negative. The mind neither passes judgment on the information it absorbs, nor filters it; the brain simply remembers.

The brain consists of two hemispheres - left and right.[6] The left hemisphere is responsible for logic and analytical thought. The right - for comprehensive thought, creativity, imagination, art and music. Being aware of this anatomical structure can help one influence and manipulate the brain to work to one's advantage in a performance situation. By filtering the types of thoughts that are allowed to be programmed into the mind, the performer has the power to adjust their own thoughts into a mode of greater positivity. This in turn can favorably impact their performance by simply reducing their degree of stage fright. This filtering process involves physical, emotional and mental regulations and can be further defined by the following mental process:[7]

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[6] Eden, Dan. *Left Brain, Right Brain.* < http://viewzone2.com/bicamx.html>

[7] Salmon, P.G. & Meyer, R. G. *Notes from the green room. Coping with stress and anxiety in music performance.* New York: Levington Books, 1992,189.

1. Become aware of all thoughts and feelings and the way in which the mind is interpreting information.

2. Gather information from experience related to these thoughts and attitudes (including those which are appropriate to the situation and those which are not).

3. Analyze the data obtained.

4. Make appropriate changes to dysfunctional attitudes.

Mind and Attitude are Everything

Advice from the Author:

Attitude is everything. Therefore, it is extremely important to constantly improve and maintain a healthy, positive attitude. To accomplish this, a change in the thinking process must occur. Attitude is directly impacted by the thoughts that enter the mind. As a performer, it is crucial to be selective and aware of the ideas and opinions that are formulated as a result of these thoughts, whether negative or positive. The subconscious mind retains the majority of thoughts to which it is exposed and therefore, a performer must make an effort to saturate the mind with positive, helpful thoughts in order to turn having a positive attitude into a habit.

It is unrealistic to expect to think greatly of yourself at all times, as it is natural to have occasional worries and doubts. The goal is to become more attuned to one's thought processes and thus ensure that helpful thoughts dominate. If a performer continues to think the way they have always thought, they will perform accordingly. Accepting this notion is the first step towards improving performance and practice. Professionals adopt the mentality of a winner, whether they are a musician or an athlete, and strive to excel in every aspect of instrumental and artistic development.

Because a proper attitude is so important, it is vital to associate with sources of positive influence. It is in the performer's best interest to abstain from discussions of any performance-related topics with those who hold and express negative views on the subject. As a performer, one must constantly search for ways to improve one's self-image. Do not become prey to depressive and negative modes of thinking, as self-image also influences the development of attitude concerning one's artistry.

It is beneficial to surround yourself with excellent musicians and to take advantage of every opportunity to observe their practice habits, performance attitude, methods of preparation and the manner in which they carry themselves; to become the best, you must immerse yourself in the best. Nourish positive attitudes and beliefs. Do not allow anyone to contaminate and negatively influence your self-image. Such a renovation of thought process will allow for a much more enjoyable and successful music-making experience. As an improvement-driven musician, seek out and take advantage of opportunities to gain new insights and knowledge. Observe musicians who do what you admire, whether musically or professionally.

This newly adopted attitude will manifest itself in your daily playing. When practicing, do not do so merely for the purpose of not sounding poor or not being under-prepared for the next lesson. Establish long and short-term

goals and aim every practice session towards meeting them. Do not settle for good, as it is the enemy of great; when you play, always do so to play to the best of your ability.

Self-Acceptance

Advice from the Author:

Improvement starts with self-acceptance. Before one can embark on a journey of self-improvement through techniques such as detailed goal setting, practice strategies and mental rehearsals, a musician must evaluate and accept their current level of playing. This is an important realization that must occur before any deficiencies can be addressed. As a performer, it is beneficial to acknowledge one's own strengths and weaknesses and to then construct strategic practice methods and routines accordingly.

Striving for ultimate perfection is unrealistic. Perfection does not define success. Understand that success is not represented by a single, great, flawless performance. Rather, success is marked by consistency of greatness in performing - this is what distinguishes the greatest from the great. The ability to reach this level of professionalism is difficult and to gain consistency on command is even more of a challenge. However, it is possible and attainable through training. Before one can develop an appropriate practice strategy that will produce that level of peak performance which sports psychologists term the 'zone,' it is necessary to first recognize where one currently stands in relation to where one wants to be, artistically.

Acceptance of one's current standard of playing is the first important step before any improvements can be made.

Acceptance gives the performer the opportunity to move on from mistakes, to make progress and to quickly recover from any negative habits that may plague their playing and performance. This is not to say that one should accept inadequate preparation and mediocre performance habits, nor should acceptance of personal limitations be perceived as a weakness. Acceptance helps supply the patience required for thorough preparation and practice - essential steps towards improvement in all areas of artistry.

It helps to remember that mistakes will happen when least expected, both in practice and performance. These mistakes will have varying degrees of negative impact on the performance, but keep in mind that once they have happened, they are beyond the performer's control. What remains within control, however, is how the performer chooses to react, remember, learn and move on from the mistake. Dwelling on the negative factors will only lead to evolving feelings of fear, self-doubt and uncertainty. Such self-deprecating thoughts will negatively impact performance and practice alike. A performer's self-image is an important concern when it comes to elevating the quality of performance and shortening the recovery period after an unsuccessful performance. One's self-image manifests itself in one's actions.

If a musician experiences constant doubt, negativity and self-destructing thoughts, they will most likely not perform to their highest potential.

Goal Setting

Music and sports psychology, through research conducted on successful people, have revealed that those who achieve success are goal oriented. Research by Elliot and Church (1995), summarized in, *A hierarchical model of approach and avoidance achievement motivation*, an article published in the *Journal of Personality and Social Psychology*, proposes two types of achievement goals:

1. Mastery Goals: motivated by the desire to improve the ability and master new skills.
2. Performance Goals: motivated by the desire to demonstrate a capacity superior to that of others.

Research on the achievement of goals has revealed that the implementation of goals of the two aforementioned types is associated with positive effects and high levels of internal motivation towards challenging tasks.[8]

To successfully customize a practice strategy based on the performance goals set by a musician, clear short and long-term goals must be established. They can then serve as a reference guide for daily practice. Research shows

[8] Elliot & Church. *A hierarchical model of approach and avoidance achievement motivation.* Journal of Personality and Social Psychology, 1997, 72, 218-232.

that attaining an international level of performance and expertise in the arts or in sports takes at least 10 years.[9]

Furthermore, in 1993 a study by Ericsson and colleagues concluded that violinists with highly successful solo careers have accumulated nearly ten thousand hours of practice by the age of twenty.[10] According to Ericsson, "The amount of practice is a key factor in achieving an international level of expertise, the factor contributing the most to expertise is the type of practice, specifically deliberate practice."[11] Authors Deakin, Cote and Harvey describe deliberate practice as:

> "A period of training in which the explicit aim is to improve performance. These highly structured training sessions require effort, determination, and concentration and are not inherently enjoyable."[12]

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[9] Ericsson K. A., and Charness. *Expert performance: Its Structure and Acquisition.* American Psychologist. 1994. 49(8), 725-747

[10] Ericsson, Krampe and Tesch-Romer. *The role of deliberate practice in the acquisition of expert performance.* Psychological Review, 1993. 100(3), 363-406.

[11] Ericsson and Lehmann. *Expert and exceptional performance: Evidence of maximal adaptation to task constraints.* Annual Review of Psychology, 1996. (47), 272-305.

[12] Deakin, J.M., Cote, J., & Harvey, S. A. *The Influence of Experience and Deliberate Practice on the Development of Superior Expert Performance.* The Cambridge handbook of expertise and expert performance. 2006. (38) 683- 700.

Studies have further confirmed the existence of a direct relationship between the amount of deliberate practice and the execution of high-level performances in the fields of music,[13] chess[14] and sports.[15]

Research subjects explored by music psychology are also addressed in the field of sports psychology. Because sports psychology studies provide specific methods of achieving goals, these methods can also be applied by musicians towards developing daily practice strategies. President of two sports psychology-consulting firms and leading counselor, Gary Mack, sets down in his book, *Mind Gym,* an acronym for goal setting - 'SMART.'[16] The S stands for specific. The purpose is to devise practice sessions aimed at addressing specific technical, musical or performance/practice related aspects. The M stands for measurable. The progress should occur in measurable terms, be it something as simple as increasing the tempo by a few metronome clicks. The A stands for achievable. It is important to set goals that can be accomplished within the designated time limit. The R

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[13] Lehman & Gruber. *Music.* The Cambridge handbook of expertise and expert performance. New York: Cambridge University Press. 2006. 457-470.

[14] Charness, Tuffiash, Krampe, Reingold, & Vasyukova. *The role of deliberate practice in chess expertise.* Applied Cognitive Psychology, 2005. 19, 151-165.

[15] Hodges, Kerr, Starkes & Nananidou. *Predicting performance times from deliberate practice hours for triathletes and swimmers: What, when, and where is practice important?* Journal of Experimental Psychology*: Applied*, 2004. 10 (4), 219-237.

[16] Mack, Gary, and David Casstevens. (*Mind Gym: An Athlete's Guide to Inner Excellence.* New York: Contemporary 2001. 62.

stands for realistic. The musician must set goals that are realistic enough that they feel confident in their ability to reach them. Do not set goals too high or too low; be realistic in your expectations. This approach yields rewards in the form of inspiration and motivation, but only if the goals have a high probability of achievement and therefore, of success. The T stands for time-bound. These are the time horizons the musician sets to achieve each individual goal.

Progress is achieved by means of systematically working towards short and long-term goals. The more focus dedicated towards reaching a specific target or goal, the higher the chances of achieving it. A musician has to be very single-minded about this, almost as if nothing else existed until he or she has reached that target. It is beneficial to become obsessed with and completely consumed by set target-goals to the point where achieving them becomes ingrained in the subconscious mind. Being constantly focused on desired results in this way helps to cultivate the patience necessary for maintaining persistence and constantly doing the right things in daily practice.

Advice from the Author:

When establishing long-term goals, subdivide them into a compilation of more immediate goals. These immediate goals will be the checkpoints on the way to achieving bigger and more long-term goals. Make sure the short-term and immediate goals pose an attainable challenge so that one remains sufficiently challenged and motivated. If the set goals are too high or unrealistic given the current playing/performance-level, the musician may become overwhelmed and consequently, motivation will wane and result in loss of interest and commitment. To constantly refresh one's motivation, assess improvement periodically to make sure that the established short-term goals are in fact being accomplished. The important thing is that the musician consistently sees the proof of their efforts reflected in their playing. This serves as necessary fuel for motivation and commitment.

The progress of achievement should be assessed and re-evaluated on a regular basis, but remember to be aware of some important factors. These are the quality of the experience of performance, the practice methods utilized and how close one is to the ultimate goal. As achievements are recognized, this realization provides the necessary encouragement and discipline needed to stay committed to continuing with the learning process. Awareness of progress, critical thinking, understanding and experience are critical components of effective learning. When musicians begin to notice

significant improvement in their playing due to hard work, they start to enjoy this effective process. It is a self-perpetuating cycle; the more one enjoys something, the more likely one is to stay committed to the work.

As gradual improvement occurs, it is important to start noticing one's physical and mental sensations, that is, whether one is calm, tense, nervous, anxious or relaxed. Notice if the music is played with ease or with technical struggle. Also, begin to be aware of the emotions while playing. One major factor that contributes to performing in 'the zone' is the sensation that the music is merged with the very act of performing to the extent that the performer can no longer separate the two. To perform in 'the zone,' is to become one with the music. If the mind is preoccupied with technical challenges and uncertainties, the performer does not allow him or herself the opportunity to feel merged with the music and, as a result, the performer most likely will not have a fulfilling musical experience.

Practice for Success

Advice from the Author:

While music psychology helps us understand the physical and mental obstacles inherent in pursuing excellence, sports psychology provides us with concrete methods proven to be time-efficient and effective for daily practice. Most wish to accomplish as much as possible in the least amount of time possible, and in this way end up diminishing the quality of their practice. There is a common misconception that practice makes perfect. That is absolutely untrue. Rather, practice makes permanent. This is why incorrect practice can be so detrimental; an extensive amount of such poor quality practice will only bring harm and minimal, if any, progress.

Sports psychology places strong emphasis on training athletes' confidence, self-awareness and critical observation. In the case of musicians, this means being able to hear the end result mentally prior to physically executing it on the instrument. Critical observation of one's playing is key to enacting effective modification and improvement of practice. If one has difficulty executing a particular technical passage, it is crucial to identify, analyze and isolate the exact problem. If, for example, the problem lies in a physical motion, then more often than not, the mind is the source of the inaccuracy. It is your brain that is responsible for sending signals to your

fingers and hands and therefore, you must address and adjust your mental approach to the task. Properly analyzing, isolating and identifying the source of the problem (i.e. technical deficiency, uncomfortable fingering, awkward shifts or hand stretches) is foundational to the effective training advocated by sports psychology.

A successful performance is one that is musically sophisticated and confident. Therefore, one's practice should utilize beneficial mental-rehearsal techniques that reinforce this style of playing. If one practices for hours, yet finds that the final performance does not reflect one's true potential, than the practice routines and methods used have clearly not been effective and need to be re-examined and adjusted. A learning musician's performance practice should consistently improve. Do not get into the habit of allowing progress to stagnate; try to strive for continuous improvement and progress and constantly verify that what you are practicing is in fact correct. This approach will ensure that one's practice method is wise and effective-that is, to practice not only until it is right, but until it can't go wrong.

When practicing, always practice to the best of your abilities, playing to the highest standard. This requires extreme mental alertness, diligence, critical listening and learning how to be your own teacher. This is what it takes to learn to play in 'the zone.' In "The Edge: The Mental Side of Sports"

author Pattie Freeman quotes Magic Johnson - "Talent is never enough…with a few exceptions the best players are the hardest workers."[17] It is important to avoid falling into the habit of practicing on 'autopilot,' a state in which one does not diligently exercise any form of mental or physical discipline. This approach leads to something that should not be considered 'practicing,' but rather, engaging in the careless, mindless and uninvolved playing-through of material while hoping that the results will somehow improve with repetition. On the contrary, pure repetition without conscious monitoring of one's effort to internalize inaccuracies, imprecision, incorrect intonation and many other counterproductive habits is extremely unproductive if it becomes a staple of one's daily practice. In short, do not believe the misconception that practice makes perfect. As stated before, practice makes permanent and it is important to be selective in choosing what to allow into one's permanent technical facility. Being selective from the outset is important in order to avoid spending time later trying to unlearn any previously developed habits, which are not in the least bit beneficial or efficient.

[17] Freeman, Pattie. *The Edge: The Mental Side of Sports*. Xlibris 2001, 86.

Preparing for Performance

"Music is the space between the notes," said Claude Debussy[18]. And indeed, the details between the printed notes are what truly separate an amateur from a professional musician. It is all in the challenge of getting from one note to the next while overcoming any technicalities that threaten to interfere with the musical and stylistic characters of the piece. For a performance to be brilliant and musically sophisticated, a musician must first be true to the score, following every printed marking made by the composer. It is testament to the importance of accurately observing and executing composers' markings that this is a prioritized criterion in orchestral auditions to which the jury pays critical attention.

Auditions create high-pressure environments that may cause inconsistency in the execution of nuances. There are a few reasons for this:

1) The performer is simply not familiar enough with the score and its markings with regard to nuances and other aspects of musicality.

2) The performer is under-prepared and their mind is racing with thoughts concerning technique and technical analysis, thus taking away from the music itself and the impression of an 'effortless' performance.

[18] Koomey, Jonathan. *Turning Numbers into Knowledge: Mastering the Art of Problem Solving.* Analytics Press 2008. 96.

3) The performer is experiencing performance anxiety and/or stage fright and, as a result, is not in full control of their physical movements.

The degree of stage fright experienced pertains directly to the physical aspects of a performance. As asserted by Kato Havas in her book *Stage Fright,* "The root of most problems concerning stage fright lies in forced and faulty physical actions. The problems of the mental attitudes often arise merely as a result of physical distortions."[19] To achieve a musically sophisticated performance, one needs to have sufficient technical skill to execute the musical ideas with grace, ease, style and precision.

During the course of perfecting a piece, the brain works in two modes. First is the analytical mode, involving analysis of the techniques and mechanics of playing. The second is that of trust and acceptance. By the time the piece reaches performance quality, the first mode is eclipsed by the second. The better prepared one feels, the easier it is to trust oneself during a performance. That is, the more self-trust one has, the more confident one feels on stage. To achieve this level of trust in oneself under pressure, one must be extremely prepared. To reach such a level of preparation, one must evaluate his or her playing on a critical level. Be aware of the fact that, when under pressure, the body and mind will revert to the most dominant habits.

[19] Havas, K. *Stage fright: its causes and cures, with special reference to violin playing.* Bosworth 1983, 127.

This means that, while performing, the performer may fall into a thought pattern that can be destructive to the performance and as a result, the body will have a negative physical reaction. By being aware of this process, one can re-train and prepare for these situations.

Advice from the Author:

To take a technical example, when dealing with scale-like runs on the instrument, incorporate these runs into daily warm-up routines. For example, instead of warming up with a scale or an etude, use runs from the current repertoire. If necessary, by adding a few notes to the beginning or end of the run, one can create more of a complete scale. This method of using various passages from the performance repertoire can be used to practice daily mechanics, playing them at different tempi as you would scales and arpeggios. Applying this approach is an efficient method, not only for learning runs, but also for mastering the most demanding passages. Much advanced repertoire demands execution of technical facility that is not necessarily acquired through practice of basic mechanics such as scales, arpeggios and etudes.

When isolating specific passages in this way and using them as exercise methods, it is important to remain extremely analytical. Constant

monitoring and involvement helps to avoid developing debilitating habits that can hinder the performer's ease of technical execution. Professional musicians have developed an acute ear and the mental capacity to consistently exercise this discipline. When Vladimir Horowitz was asked how he achieved his amazing technique, he responded cryptically, "by doing less and less."[20] This remark refers to the fact that, when executing technicalities, it is crucial to do only the necessary motions. At times, musicians complicate a passage by involving too many unnecessary movements.

Practicing these runs daily, incorporating various dynamics and rhythms, using different parts of the bow and different tempi helps to isolate the functionality and thereby increase the independence of the hands, thus helping the development of exceptional dexterity. With greater dexterity and independence comes the ability to make a more efficient, quick and safe technical recovery when necessary. Experience allows the performer to feel more comfortable, self-reliant and secure in their abilities during technical discrepancies and subsequent technical recoveries during a performance.

Just as golfers practice the different mechanics of specific motions of a full swing, a similarly methodical approach can be adapted for musicians.

[20] Mak, Peter. *Peak Performance & Reducing Stage Fright.* Research Group Learning in Music & the Arts. 2010.

When learning challenging runs, the habit of playing through them in their entirety at quick or performance tempo by means of repetition is not conducive to attaining precision and accuracy. Practice of this type is ineffective, unproductive and has only negative impact. It is also neither result- nor goal-oriented. Due to such practice so lacking in a means of consistent, systematic progress, technical passages cannot be executed with the same technical brilliance demonstrated by professionals.

Another approach to practicing such passages is to 'skeletonize' them. There are numerous ways of doing this. To 'skeletonize' a passage is to play only the 'important' or pivotal notes, a pivotal note being the one from which a shift is made. Essentially, this serves to create a basic outline of the entire passage. This is done in order to solidify and establish concretely the precise physical motions needed to fulfill the technical requirements of a passage. Practicing these outlines allows the musician to internalize the physical movements to which he or she will revert to and rely on during high-pressure situations. Remember, in moments of pressure-induced nervousness or anxiety, the body will revert to the most dominant physical or mental habit, regardless of whether this habit is beneficial or destructive. Therefore, it is essential to develop a systematic approach to daily practicing, methodically training the brain and the body to follow through with the correct, exact motions.

For string players, the physical properties of the instrument can be used as a reference for movement and hand placement or positioning, thereby assisting in physically training the muscles. This method helps in developing accuracy and precision when it comes to shifting positions, as well as with intonation. When practicing shifts, use the physical proportions of the instrument as a guide against which to mentally register the placement of the finger executing the shift - firstly, in relation to the palm and the thumb and their placement on the violin, and secondly, in relation to the fingerboard, the neck and the body of the violin. Register these physical movements mentally so that, when attempting the same or similar technical movement in the future, the brain can recall this pre-rehearsed physical movement and trigger the muscles accordingly.

Once the motions are solidified and maneuvering has become comfortable within the 'skeletonized' version of the run, one can begin adding in more of the passing notes until the entirety of the original passage is restored. It is important to note that, instead of adding in the missing notes at random, it is suggested to add notes by the beat. That is, if practicing the last two beats of a skeletonized passage, fill in the missing notes from only those two beats. Once that becomes solid, one can add the next full beat of notes preceding the initial section. Through this method, one can build a strong foundation within the run to which the rest of the notes may be added

when one is ready to do so. Again, this is of tremendous help in high-pressure situations. This helps the performer feel a greater sense of security, confidence and freedom, while also allowing them to focus on the musical character of the piece, rather than technicalities, and eliminating doubt about the technical demands of various passages throughout the work.

In his book, *Putting Out Of Your Mind*,[21] Dr. Bob Rotella describes a golfing exercise that can be adapted for a musician's daily practice routine as a means to develop a higher level of consistency. This routine is implemented as follows. A technical 'run' is divided into beats or into other rhythmical sections, starting the division from the last note of the run and working backwards. Now, one can add a portion of a metrical section prior to last note of the run. The goal now is to play this entire segment as precisely as possible three consecutive times. If a note is missed or the execution of this segment is not of a high standard, then this segment must be executed three times all over again, until it can be successfully played three times. After a complete, successful attempt, another segment can be added on to the previously established section. Now these two segments are practiced consecutively. Once a note is missed or the newly elongated run is not executed satisfactorily three times in a row, the entire exercise must resume from the very beginning, once again executing the first section by itself.

[21] Rotella, Robert J., and Robert Cullen. *Putting out of Your Mind.* London: Pocket, 2005, 143.

After each successfully played set of consecutive runs, add yet another section until the entire passage is played as a whole. Successful completion of this exercise can sometimes take minutes, and sometimes long periods of time. However, this is a reliable way for the performer to practice specific sections of a larger passage while building confidence.

This method of practice is also beneficial in that it helps simulate the type of pressure a performer would experience on stage. This statement can be tested as follows. If the goal is to successfully play the entire run ten consecutive times, and nine runs have already been completed successfully, one will feel extreme pressure to not falter on the tenth try because if this last one is unsuccessful, then the whole experiment must begin again. In simulating an environment reminiscent of a performance, one learns to train the body and mind to feel calm and at ease—the necessary mental state for any performance.

Playing the aforementioned skeletonized passages in different patterns comprised of dotted rhythms can further solidify the majority of technical runs. This method will shift the points at which reduced time is available between notes and immediately reveal which transitions, string crossings or shifts require more work in terms of clarity, precision, intonation and other technicalities. This practice method applies not only to passage runs but also

to excerpts comprised of fast, continuous notes, or places that require rhythmical precision. To practice passages like these, dotted rhythms are extremely helpful, but it is also beneficial to practice them in sets of four or, for triplets, three notes at a time. To create variation, shift the four-note pattern by one note at a time. For example: pattern 1) a b c d, a b c d, becomes pattern 2) b c d a, b c d a, which becomes pattern 3) c d a b, c d a b, which finally becomes pattern 4) d a b c, d a b c. For best results, practice this way with a metronome and listen carefully to produce the cleanest transition from note to note. Also, insert a rest of equal value to the notes between each set of four notes (e.g. 1 2 3 4 rest, 1 2 3 4 rest etc). Use this rest to quickly prepare for a clean attack on the first note of the next set. Additionally, it is strongly suggested that this rhythmical work be done in the same part of the bow that would be used in performance tempo. Thus, the performer guarantees that the same muscle groups and motions are utilized during this type of slow practice as at performance tempo. When the same muscle groups and movements are involved in slow passagework, the physical execution is essentially a slow motion replica of the execution at full tempo. The minimal need for adjustments to stroke or technique makes this a much more valuable and efficient method of increasing the speed to performance tempo.

Conduct your practice sessions as if you were at an audition, and audition as if you were at your regular practice session. Every attempt at playing through a passage or a piece should be an attempt at playing to the highest standard possible. Such vigorous training sessions increase the chances of attaining a higher level of professional performance, as well as cultivate positive attitude, confidence, consistency and competence. Being well prepared in this way builds increased trust in one's own abilities to react to the unexpected during a performance. This in turn helps minimize performance anxiety, fear, frustration and nervousness, reserving more mental capacity to devote to achieving a peak performance. The methods described above are characteristic of effective, high-quality practice, which ultimately brings one closer to being able to perform in 'the zone' on command.

Mental Rehearsal: Visualization

The study of the human mind has, in the fields of music psychology and sports psychology, has lead to the implementation of a technique known as Visualization, which is primarily based on the use of positive thinking and imagery to affect one's performance. Sometimes, we experience this process without exerting any conscious effort. When we experience a vivid dream, our nervous system behaves as if the images are real and, as a result, triggers physical reactions in the body. We often notice this when we wake up from a nightmare with physical symptoms of fear, anxiety, sweat etc. Knowing how our central nervous system operates, we can use the knowledge of these processes to our advantage.

Visualization is the practice of applying the imagination to visualize or mentally recreate a specific action, whether it is a performance or any other event. This technique can help with overcoming fear, achieving goals and building confidence. It also serves as a substantial supplement to physical practice. During visualized practice sessions, it is best to involve all the senses and pay close attention to all imagined details, including visual, kinesthetic (related to feelings) and aural. This mental rehearsal exercise works best when an experience is recreated to be as similar as possible to the actual event, incorporating all possible distractions and obstacles.

For example, a musician may visualize himself perfectly executing a challenging passage from a piece of music, mentally focusing on minor details and all the physical functions at work. By doing this, the musician trains the brain to perform the mental processes and sends the muscular impulses needed for precise execution of the challenging passage. These visualization exercises help the mind to eventually function more quickly and precisely when actually playing the passagework; the mind is now recalling the commands and processes that have already been mentally performed. Muscular movements, when rehearsed via visualization, are treated by the mind in much the same way as during the actual event. The golfer Jack Nicklaus describes his experience as follows:

> "I never hit a shot not even in practice, without having a very sharp, in-focus picture of it in my head. It's like a color movie. First I "see" the ball where I want it to finish, nice and white, sitting high up on the bright green grass. Then the scene quickly changes, and I "see" the ball going there: its path, trajectory, and shape, even its behavior on landing. Then there's a sort of fade-out, and the next scene shows me making the kind of swing that will turn the previous images into reality"[22]

A case study[23] presented in October of 2000 at the Association for the Advancement of Applied Sport Psychology discusses a diver who, during a

[22] Nicklaus, Jack, *Gold My Way*, quoted in Baum. K., *The Mental Edge*, Perigee, 1999, 44.

[23] Sime Wes, Ph. D., M.P.H., Thomas W. Alle, Ed. D., & Catalina Fazzano, Ph. D.

routine dive, landed flat on the water and suffered a fracture of the thoracic vertebra - technically a broken back. The recovery process took months, during which time the diver became frustrated at falling behind with his practice in the pool. For this particular diver, use of visualization was already included in his regular practice routine. Therefore, when offered the opportunity to enhance the visualization process, the diver readily agreed and began mental rehearsal as part of his new mental routine. This routine included regularly watching videos of his successful dives and then following this up with visualization practice. By following this routine, the diver managed to win a major competition only two months after his recovery. Given these much-improved results, the diver's coach made the following comment:

> "I don't know what you were doing with all that brain stuff, but it is literally unheard of in the world of diving to have an athlete come off a major injury with minimal preparation time in the water and win a meet like this…Before his injury, this kid could do well in 8 out of 10 dives, but now he is a 'diver', i.e., he makes something positive out of all 10 opportunities."

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cont…"Helping Athletes Find Their "Zone of Excellence." Draft submitted for publication, Biofeedback, 2000. Dr. Wes Sime, Thomas W. Allen and Dr. Catalina Fazzano. Dr. Wes Sime is a sports psychologist and a professor of Health and Human Performance at the University of Nebraska. Thomas Allen is a Psychologist at Washington University in St. Louis, with a concentration in neuro-feedback as it relates to performance enhancement, as well as in finding the optimum level of mental concentration associated with success in performance. Dr. Catalina Fazzano is a psychologist specializing in the treatment of children and families.

In the following season, the diver won many elite competitions. The next season, during preparations for a championship, he was faced with increased anxiety due to the intensity of the competition. Moreover, the diver had discontinued the additional, intense visualization sessions and reported in a debriefing that he was consequently unable to replicate the intense imagery that had been responsible for previous success, a shortcoming which further resulted in his failure to advance into the Olympic trials.

This case study suggests that proper implementation of visualization training is directly related to patterns of success. Further validation from the diver's coach supports the evidence that the diver had in fact surpassed his usual rate of improvement from before the additional booster of visualization was added into his regimen.

A similar case[24], also presented at the aforementioned Association, describes a 13-year-old female equestrian who had been experiencing difficulties completing a course run consisting of specific, technical, multiple jumps over barriers in a timed event. After a series of unsuccessful performances, this rider was trained using sports psychology methods, involving training sessions in concentration and visualization. Her

[24] Sime Wes, Ph. D., M.P.H., Thomas W. Alle, Ed. D., & Catalina Fazzano, Ph. D. *Helping Athletes Find Their "Zone of Excellence."* Draft submitted for publication, Biofeedback, 2000.

visualization training sessions were held at the riding show ring, where she rehearsed visualizing and planning for certain segments during which she was required to narrow her focus and concentration. Her coach has confirmed that following only a few of these brief and intense training sessions with a peak-performance trainer, the rider was able to maintain continued success without fear. Music psychology has confirmed a similar phenomenon. That is, that the act of imagining oneself performing with a complete absence of performance anxiety significantly reduces levels of cognitive anxiety.[25] Therefore, systematically familiarizing oneself with the conditions of the actual performance via techniques such as visualization is a beneficial means of anxiety reduction.

Another study[26] examines the long-term effects of mental visualization. Russian scientists staged the experiment using four groups of Olympic athletes, whose training schedules were divided into the following categories:

Group 1 - 100% physical training with 0% mental training;
Group 2 - 75% physical training with 25% mental training;
Group 3 - 50% physical training with 50% mental training;
Group 4 - 25% physical training with 75% mental training.

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[25] Thurber, M.R. *Effects of heart-rate variability biofeedback training and emotional regulation on music performance anxiety in university students*. Doctoral dissertation. University of North Texas. 2006.

[26] Scaglione, Robert. *Karate of Okinawa: Building Warrior Spirit.* Person-to-Person Publishing 1997, 15.

The results showed that athletes from group 4, who devoted 75% of their time to mental training, performed the best. These scientists thus substantiated with scientific evidence the claims that mental imaging can stimulate increased precision of muscular impulses.

The foremost reason for musicians to employ visual and mental rehearsal is to program the brain with the impulses needed to trigger muscle groups to perform various intricacies in the most efficient, accurate and organized manner. Resulting as it does in increasingly consistent, technically accurate performances, mental rehearsal also leads to more confidence on the part of the performer and in the performance itself. This creates a positive change in the performer's emotional state. With confidence comes calm, poise, control and a decrease in performance anxiety and stage fright. Of course, one is not to entirely replace physical practice with strictly mental, but rather to supplement the one with the other.

Other benefits of this combination of physical and mental practice include the ability to more quickly commit repertoire to memory, more involvement in the music, a heightened sense of awareness of musical nuances, a better comprehensive ability to solve problems involving instrumental facility and the more efficient acquisition of new techniques.

This type of mental rehearsal is extremely helpful when preparing for auditions. Some think, "How can I possibly walk into an audition and feel confident that I can win when I haven't yet won or even advanced to the next round?" Music and sports disciplines may have different theories regarding this concept, but one thing is certain. Both the athlete and the musician must train themselves to retain their confident mentality from one audition to the next. This is a skill in itself, which also needs practice. One must mentally rehearse by visualizing the performance as a success. This, of course, does not guarantee winning a position or advancing in an audition, but this positive, competitive mentality is certainly better than doubt, fear and other forms of anxiety.

Performance Anxiety and Stage Fright

Any discussion of effective performance preparation would be incomplete without an in-depth look into the nature of the one thing that can make even the most arduous preparation go awry. This, of course, is stage fright. Stage fright is actually an innate behavior. Triggers for such behavior can result from a variety of personal characteristics. These include:

Hypersensitivity—a nervous system that reacts strongly to external stimuli.

Perfectionism—an attitude of those not easily satisfied with themselves.

Insufficient technique—"The root of most problems concerning stage fright lies in forced and faulty physical actions"[27]

Other traits include assigning an inordinate amount of importance to a single performance or having ineffective coping strategies when attempting to deal with high-level demands and the expectations of others.

Research has shown that stage fright is common among professionals, affecting as many as 60% of the musicians who participated in the research study, while 20% of the musicians experienced symptoms so severe that their

[27] Havas, K. *Stage fright: its causes and cures, with special reference to violin playing*. Bosworth & Co 1986. 127.

professional careers were directly affected.[28] While stage fright can affect a person to varying degrees and can represent a serious mental and physical impediment, the symptoms nevertheless do not leave the musician unless a specific approach is employed to reduce their effects.[29]

This concept of 'fear' or 'stage fright' is described in various ways depending on the individual musician and the extent to which their performance is affected. In the field of music psychology, the term 'stage fright' is defined as follows:

> "The experience of persisting, distressful apprehension about and/or/ actual impairment of, performance skills in a public context, to a degree unwarranted given the individual's musical aptitude, training, and level of preparation."[30]

And furthermore:

> "The fear before or during a performance, the fear of not being able to deal with the increased stress during a performance."[31]

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[28] Hart, R. *Therapeutic response to performance anxiety: Extending clinical research into the experience of artistic performance with a sample of professional musicians.* Metanoia Institute 2007. <http://www.musicalperformanceanxiety.com/Musical%20Performance%20Anxiety.pdf>

[29] Salmon, P.G. & Meyer, R. G. *Notes from the green room. Coping with stress and anxiety in music performance.* New York: Levington Books, 1992.

[30] Salmon, P. *A psychological perspective on musical performance anxiety: a review of the literature*. Medical problems of performing artists, 1990. 5(1), 2-18.

[31] Brodsky, W. (*Music performance anxiety reconceptualized: a critique of current research practices and findings. Medical problems of performing artists*. 1996. 11, 88-98.

These definitions suggest that to suffer from stage fright indicates insufficient control over one's performance. Musicians who assign a great level of importance to an upcoming performance will experience even greater symptoms owing to the exaggerated level of perceived importance. This tendency has the potential to be very detrimental to the self-image of the individual. "Those perceiving most threat are likely to experience the greatest anxiety, and those who are most anxious are more likely to perceive performance conditions as more threatening."[32] Because the perceived level of threat corresponds to the amount of anxiety experienced, stage fright is first and foremost an imagined fear - a concept that has been widely recognized and popularized by sports psychologists.

This symptom of 'fear' can be categorized as follows into four components:[33]

> Behavioral—consisting mainly of the effects of physical movement, which can trigger further mistakes, such as less or more exaggerated physical motions and irregularities in tempi and rhythm.

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[32] Hart, R. *Therapeutic response to performance anxiety: Extending clinical research into the experience of artistic performance with a sample of professional musicians*. Metanoia Institute 2007. <http://www.musicalperformanceanxiety.com/Musical%20Performance%20Anxiety.pdf>

[33] Steptoe, A. *Stress, Coping and Stage Fright in Professional Musicians Psychology of Music*, 1989. 17, 3-11.

Physiological—involving physical changes in our bodies as a result of the increased anxiety due to alterations in our hormonal and nervous system. As a result, we experience shaking, trembling hands, nausea, shortness of breath, memory loss and increased heartbeat.

Cognitive—involving mental deficiencies resulting from nerves. This is when we experience difficulty in maintaining extreme concentration and/or focus, as well as negative thought patterns that hinder our performance. This cognitive component is the one most responsible for enhancing and continuously elevating the degree of stage fright.

Affective—involving feelings related to experiencing the fear itself, such as panic, inferiority and insecurity.

When musicians with a low level of performance anxiety experience stage fright, symptoms are mostly limited to the physiological. However, those with a higher level of anxiety experience additional symptoms representing the cognitive component of stage fright and brought on by doubting one's own abilities.

Though music psychology seeks to understand and trace the triggers of stage fright, sports psychology provides a great resource for mental training tools. These tools, when properly applied to daily instrumental practice, yield tremendous positive effects on a musician's ability to control and cope with performance anxiety.

For musicians and athletes alike, one of the most common detriments to performance quality is stage fright. A study conducted on 749 boys aged nine to fourteen showed that their level of performance anxiety, when

compared with other music and sports related activities, was highest while performing solo on a musical instrument.[34] As sports psychologist Bob Rotella puts it, "Fear is a mental state. It's being afraid of making a mistake."[35] Additionally, "People who suffer from performance anxiety suffer especially from the fear of being observed and criticized."[36] In his book, *Finding your Zone,* Michael Lardon further highlights the origins of stage fright as follows:

> "Fear is a universal emotion that has developed through evolution to help propagate human life. When we are fearful and in a fight-or-flight response, we are more on guard, less naive, more motivated, hyper-alert, and physiologically stronger. We become more equipped to handle a dangerous attack…This relationship between fear and survival has developed over millions of years of evolution, and in more primitive times fear served us well in maximizing our survival. In order to insure survival, fear has been imprinted within the neural circuits of the human psyche."[37]

Fear, being an emotion that drives us to fight for survival, derives from our instinct to seek safety, and also acceptance by a large group of

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[34] Simon, J.A., & Martens, R. *Children's anxiety in sport and nonsport evaluative activities.* Journal of Sport Psychology*, 1979. 1,* 160-169.

[35]Rotella, Robert J., and Robert Cullen. (2004). *Golf Is Not a Game of Perfect.* 134.

[36] Beck, A. *Cognitive therapy of depression: new perspectives.* In P.J. Clayton & J.E. Barrett (Eds.), Treatment of depression: Old controversies and new perspectives. 1983. 266-278.

[37] Lardon, Michael. *Finding Your Zone: Ten Core Lessons for Achieving Peak Performance in Sports and Life.* New York: Perigee Book, 2008. 122.

peers. One way to obtain such acceptance is to be desirable, valuable and impressive. Therefore, musicians have the same natural, instinctual impulse to impress with their performances as all humans do to be accepted and appreciated by society. Fear is the emotion that stimulates us to prepare well in order to increase the chances of producing a better performance and by extension, a greater likelihood of meeting with acceptance, rather than criticism. This evolutionarily derived fear, when manifested as performance anxiety, can be advantageous if controlled or limited to a mild form.[38]

Because anxiety is an evolutionary, innate behavior, it is important to learn how to manage, react to and control our body's response. Therefore, it is encouraged to avoid adding to one's anxiety through an excess of negative thoughts and self-criticism before a performance. Ultimately, however, it is only the musician who can decide what he or she thinks about. It is best to minimize the amount of time spent focusing on things one hopes will not happen, rather than on what one hopes to achieve during the performance. Again, because most of the time it is the dominant thought that wins, our performance is directly affected by how we think.

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[38] Hart, R. *Therapeutic response to performance anxiety: Extending clinical research into the experience of artistic performance with a sample of professional musicians.* Metanoia Institute, 2007. <http://www.musicalperformanceanxiety.com/Musical%20Performance%20Anxiety.pdf>

Performance anxiety affects us all on different levels. Some musicians 'choke' on stage to the point that their performance does not resemble anything they were able to produce and prepare in practice. As Rotella explains, "A golfer chokes when he lets anger, doubt, fear or some other extraneous factor distract him before a shot."[39] It is extremely advantageous to be able to choose what one thinks about directly prior to an audition or performance, because the fact is, everyone chokes at one point or another at all levels, from amateur to professional. However, choosing our thoughts carefully can help us minimize this inevitable fear by allowing our minds to focus on the right aspects of an upcoming performance. As previously mentioned, it is much more advantageous to focus your thoughts on the things you wish to happen in your performance. This is a more effective and intelligent way to prepare for performance and a much healthier attitude towards competition. Nurturing this type of mentality is a skill developed and implemented by methods devised by sports psychology.

It is very helpful to understand and remember that anxiety and nerves are a body's natural state in performance situations and therefore, it is best to re-train your mind to capitalize on the benefits of this nervous state. Feeling nervous can alternately be experienced as a feeling of excitement.

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[39] Rotella, Robert J., and Robert Cullen. *Golf Is Not a Game of Perfect.* Simon & Schuster 2004. 171.

Excitement is a great state of mind for a performer, especially before a performance, as it helps direct one's focus towards reiteration of positive self-affirmations.

Symptoms such as sweaty, trembling hands and a pounding heart are all natural symptoms. So, rather than letting one's thoughts and energy be consumed by trying to prevent the hands from shaking or sweating, focus instead on collecting yourself mentally and physically for the task at hand and on the performance strategy and routine that has made your past performances and practice successful. Though one may still experience racing heart, trembling hands, or an overwhelming feeling of excitement, the mind must remain sharp and as calm and focused as it is during practice. In further support of this advice, a music psychology study[40] has shown that positive internal dialogue helps to decrease performance anxiety, based on findings that compared a group of subjects utilizing this approach with a group behaving as normal.

Musicians performing at a consistently high level under pressure have learned to revert to their most dominant habit. During daily preparation, they have developed a solid pre-performance routine that they execute in

[40] Jackson-Court, A (2007). *The show must go on: Tackling music performance anxiety*. Unpublished thesis BA.

their practice sessions. This routine can consist either of specific physical or mental activities that help soothe and calm the mind and maintain the notion that the piece, when played in a performance, is no different than when played during practice. As well as physical rituals, having a mental routine is extremely important. As baseball legend Yogi Berra said, "Ninety percent of the game is half mental."[41] Following a mental routine will help you concentrate, focus and keep your mind sharp and less susceptible to distractions. Keeping one's mental state in check helps one stay attuned to the reality of the situation.

Because the evolutionary adaptation of fear is an inextricable part of our psyche, it is inevitable that people will revert to frightened behavior during possibly life-threatening situations. But when performing or auditioning, no threats to one's life actually exist and therefore, the fear response that one experiences is simply a mind set left over from an adaptation for an entirely different situation. If we mentally trigger the fight-or-flight response by habitually exaggerating the threat of a performance, this type of reality distortion is, by definition, neurotic.[42]

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[41] Mack, Gary, & David Casstevens. *Mind Gym: an Athlete's Guide to Inner Excellence*. New York: Contemporary, 2001, 3.

[42] Lardon, Michael. *Finding Your Zone: Ten Core Lessons for Achieving Peak Performance in Sports and Life*. Penguin Group 2008, 123.

Additionally, in "Performing Under Pressure", violinist Oliver Steiner writes, "A better life habit is to respond with performance preparation which is geared to playing under pressure. Playing under pressure is not to be feared, it is merely the normal circumstance of performing."[43] Finally, when the mind is fine-tuned to accept pressure as an advantageous, competitive edge, pressure is then a positive stimulus. As tennis player Billie Jean King says, "Pressure is a privilege."[44]

[43] Steiner, Oliver "Performing Under Pressure" <http://oliversteiner.com/article1.php>

[44] Brennan C. & B.J. King. Pressure is a Privilege: Lessons I've Learned from Life and the Battle of the Sexes. LifeTime Media 2008.

Effects of Beta-Blockers on Performance Anxiety

A short-cut method for reducing effects of stress hormones and adrenaline symptomatic of the natural fight-or-flight response, are beta-blockers - beta antagonists, including the popular Inderol.[45] Beta-blockers are prescription drugs which function by blocking the action of adrenaline and noradrenaline on the receptors that are found, among other places, in the heart, brain and lungs. Once the drug has diminished adrenaline levels, the heart rate slows down due to the decreased stimulation of its beta-receptors and the reduced amount of oxygen and blood the heart requires. After a prescribed dose is administered, its peak effects occur one to two hours later. Administering beta-blockers has been approved for the treatment of heart attacks, high blood pressure, heart beat irregularities, migraine headaches and tremor. However, even though the U.S. Food and Drug Administration has not approved beta-blockers for official anxiolytic use,[46] musicians, dancers, and athletes also often turn to this drug as various indications of performance anxiety emerge in an attempt to battle the hindering effects of stage fright and tremor. Beta-blockers are actually contraindicated in patients with asthma as they can hinder breathing, according to the British

[45] Frishman W. H, Cheng-Lai A, Nawarskas J. *Current Cardiovascular Drugs.* Current Science Group 2005, 152.

[46] Schneider F. R. *Clinical practice. Social anxiety disorder.* N. Engl. J. Med. 355 2006 (10): 1029-1036.

National Formulary 2011.[47] Even non-asthmatic patients risk a slew of potential side effects, including drowsiness, hallucinations, dizziness, depression and other problems related to the central nervous system. Despite these concerns, beta-blockers are still advertised, and are popularly considered to be some kind of 'miracle' drug for those struggling with performance anxiety.

In 1987, shortly after the application of beta-blockers to cases of stage fright was first recognized in a 1976 issue of *The Lancet,* the International Conference of Symphony Orchestra Musicians conducted a survey representing 51 of the largest orchestras in the United States, and discovered that 27% of the musicians involved had used beta blockers, 70% of these having obtained them from friends rather than physicians.[48]

A study published in the *American Journal of Medicine*[49] described an experiment in which researchers administered either 100mg of atenolol or a placebo to twenty-two string musicians six hours prior to their performance. The subjects' heart rates, stage fright, technical motor performance, and urine catecholamine were measured. The results showed that while heart rates were significantly lower in the subjects who received the beta-blocker,

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[47] British Medical Association, Royal Pharmaceutical Society contr. *British National Formulary.* British Medical Association. 2011.

[48] Blair Tindall. *Better Playing Through Chemistry.* The *New York Times,* 17 October 2004, Retreived July 25, 2012.

[49] Brantigan, C. O. *Effect of Beta Blockade and Beta Stimulation on Stage Fright.* American Journal of Medicine 72.1 1982. 88-94.

their technical performance as rated by professional musicians was not significantly improved. These results suggest that while beta-blockers do effectively decrease the heart rate, they do not automatically make one capable of producing a technically improved musical performance, or serve to decrease the psychological effects of stage fright.[50]

Perhaps contributing to the widespread use of beta-blockers are other studies that prove quite the contrary. However, the results of these investigations are subjective and vague, as the majority, which have so far been conducted on this subject, involve an inadequate number of subjects- fewer than forty in all cases. It would seem appropriate to carry out further research with more in-depth and more scientifically designed experiments involving a larger pool of subjects. Only then would it be possible to draw definitive conclusions with a minimal margin of error.

Some musicians report from personal experience that beta-blockers seem to improve their performance on a technical level. But feeling physical comfort and calmness during a performance does not necessarily guarantee that one is performing at peak levels. In fact, many musicians can only peak perform when experiencing some level of anxiety. This anxiety is a source of energy that is essential for maintaining extreme concentration and focus, an energy that is often not available during daily, routine practice.

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[50] Neftel, K.A. *Stage Fright in musicians: a Model Illustrating the Use of Beta Blockers..* Psychosomatic Medicine 44.5 1982. 461-69.

Because most performers are so eager to eradicate the hindering physiological symptoms of stage fright, they tend to forget that beta-blockers do not block mental and emotional effects such as self-criticism, self-doubt, memory slips, or panic. Furthermore, beta-blockers have been shown to diminish the necessary emotional elements that are crucial to a performance. With emotion reduced or stifled in this way, a performance can at times be perceived as soulless and inauthentic.[51]

[51] Blair Tindall. *Better Playing Through Chemistry*. The *New York Times,* 17 October 2004, Retreived July 25, 2012.

Pre-Performance Routines

Advice from the Author:

Sports psychology teaches performers to develop greater awareness of positive and negative factors, both mental and physical, during daily preparation, starting long before any given performance. Sports psychology methods help performers develop better practice techniques, as well as specific routines that drastically increase the chances of executing a quality performance under pressure. A steady routine is necessary for some to attain a focused mental state, to enter a zone of mental and physical comfort and block out unnecessary distractions. Simply put, a routine is designed to put the performer in the best possible physical and mental state before any performance.

A routine properly customized for each performer is the foundation of consistency. Sports psychology reveals that the most consistent performers have a pre-game/performance routine which they execute every time. This is not to say that a pre-performance routine will eliminate any chance of minor inconsistencies, but a performer who devises a personalized routine to carry out prior to each audition or performance will certainly have greater control of musical and technical execution. In a high-pressure situation when anxiety levels are intensified, such a routine enables the performer to be

more focused, self-trusting, decisive and ultimately more capable of disciplined movement. Establishing and practicing a pre-performance routine is a reliable means to develop effective, dominant habits that are crucial to have when the pressure is on.

For musicians who find they tend to lose focus under pressure, a consistent physical routine repeated before every performance is one way to cultivate a mental state that is much less prone to distractions, self-deprecating thoughts, self-doubt and fear. Many musicians spend much of their time working on and adjusting the physical aspects of their playing, but pay far too little attention to adjusting their mindset, a mode of preparation which, in moments of pressure, can guide one into a zone of decisiveness, efficiency, calmness and extreme focus. A routine helps performers reach a state of trust in themselves, providing the highly advantageous effect of minimizing doubts about mechanics and technicalities before and during one's playing. As mentioned before, such thoughts about instrumental and technical mechanics tend to overwhelm the mind and deplete one's focus on pure musicianship.

A good routine should never be too long, as the shorter the routine, the easier it will be to execute, a feature that is especially important for orchestral auditions. In such auditions, a routine needs to be short enough to

be fully completed between excerpts. Completing a short, internal routine allows the performer to enter into a state of mind devoid of all uncertainty and self-doubt. That is, it is an opportunity to focus on the 'now', a mental state into which no extraneous thoughts can intrude. 'In the now' is a state of mind in which one's focus is devoted entirely to the task at hand; a performer is able to play, as it were, note-by-note.

As discussed previously, when a musician is able to execute the most intricate, challenging work without any mental or physical impediments, this feeling is often described as the being 'in the zone.' Once you have completed your mental routine, you are psychologically prepared to play just as you would during practice. This is another reason why it is important to make every practice session an attempt to play your best. If consistency is established through the process of completing a routine and this customized routine is applied in your daily practicing, then in an audition, you will not feel required to do anything differently from what you have been doing all along.

Not only will a consistent routine help one focus and prepare oneself mentally as well as physically, but also, if elements of mental rehearsal such as visualization and positive self affirmation are incorporated, one can boost personal confidence levels on command. Going through the process of a

routine allows the musician to completely trust in themselves and their thorough preparation. The time taken to complete the routine is also a time to cease getting in your own way. The ideal mindset going into a performance does not permit any negative introspection or obsession over the importance of the audition or the performance, the results of other competitors, or the excessive comparison of oneself to others vying for the same position. To help avoid such detrimental thoughts, especially at auditions, it is best not to listen to others warming up and playing through their excerpts. Judging your own playing in relation to theirs will only generate thoughts that will interfere with the mindset necessary to perform to your best ability.

Incorporating a pre-performance routine into daily practice will not only improve the overall quality of one's playing, but will also increase the consistency, efficiency and productivity of the practice itself. The ultimate result of this is to create a more confident performer. Developing and maintaining this type of habitually rigorous practice, coupled with an appropriately positive mentality and attitude, is the core foundation of performing in 'the zone.'

Confidence

Advice from the Author:

A confident musician speaks and thinks about performing in ways that project confidence. These musicians speak about what they want to happen on stage, rather than about all the things that they wish would not happen. One is more likely to perform better if one's thoughts are focused on a positive end result, rather than on the things that could negatively impact the performance. The foundation of confidence is built mentally. It has become a commonly acknowledged fact in the field of sports psychology that between two performers of equal skill level, the one with more confidence will almost always outperform the other.

To experience this phenomenon, consciously attempt to think confidently and notice how the body reacts. In spurs of confidence, the body performs with greater precision, intonation, grace, dominance, rhythm and coordination of physical movements. Comparing this sensation with a performance throughout which one doubts one's own abilities, one will notice changes in all categories described above, including the sound production. It is nearly impossible to execute at peak level while lacking confidence and the corresponding mental state that it demands. Some musicians argue that it is impossible to acquire confidence without having already won a number of

auditions or competitions or having had a series of highly successful performances. If this were actually the case, it would be hard to explain musicians who win competitions or advance to the finals at major auditions on their first attempt.

With the acquisition of experience, confidence improves as well, due to a musician's selective approach to deciding which aspects of their performance experience they should remember and actively contemplate. When analyzing past performances, the musician needs to decide whether a certain experience is worth dwelling on and if it will benefit future performances and auditions. If it is a helpful recollection, then it should be retained and periodically re-lived through visualization of that particular performance. This helps to boost the confidence level–recall the aforementioned wealth of evidence as to the effectiveness of visualization. However, if the experience was one that negatively impacts one's thinking, then a conscious effort should be made to move on as soon as possible. Selective monitoring of thoughts takes effort and can become a great habit with tremendous benefits. Mark Twain describes this best, remarking, "The inability to forget is infinitely more devastating than the inability to remember."[52]

[52] Brownlee, Mark. *Polo Players Edition:* Remember to Forget. 2010, 36-39.

When preparing for an audition, a confident performance is crucial. This does not mean that one is to play boldly and take risks. On the contrary, a strategy for an audition should be conservative. For a string player, this means playing within one's abilities - technically, dynamically and with regard to tempi selection. A conservative strategy also means that, if a pianissimo dynamic is required, it must be played in a way that still produces a solid tone. Likewise, fortissimo dynamics should not simply be played as loudly as possible, as this also risks sacrificing the quality of the tone. The purpose of a conservative strategy is to showcase only one's highest quality of playing.

This conservative approach allows performers the opportunity to trust in their physical ability to execute at their highest potential, thus resulting in a confident performance. Trust in one's abilities helps to achieve a peak performance; it is the link between intention and ability. By continually performing at peak levels within the limitations of one's technical capabilities, the musician begins to build a sense of consistency. This in turn leads to a more calm and poised stage presence, as well as greater decisiveness and confidence in playing. This pattern of building a history of peak performances is founded in conservative strategy and results in more confident execution, both musically and technically.

Performers can nurture their self-confidence by analyzing their process of personal goal achievement, rather than by scrutinizing audition results, as these vary arbitrarily. If one sets a goal to play brilliantly at an audition and, though the desired position is not awarded, but the audition does in fact go well, then this can still be considered a successful experience. This audition should not be considered a failure, because the actual result amounts to the auditionee becoming a much better player in the process of preparation. Viewing these experiences in such a positive light is an important step towards gaining greater self-confidence.

As previously noted, it is important to be surrounded by people who are the best at what they do in their respective fields. This is for the purpose of absorbing their attitudes and mentalities. Observe how they talk about success, training and preparation. Learn through experience gained vicariously - use every opportunity to find out more about their process of achievement and implement their advice. Experiment with various methods of applying new, beneficial knowledge to help you also eventually become great. It is also beneficial to associate with people one can trust, who give encouragement and provide inspiration. By associating with such types, an environment of positive thinking, influence and persuasion is created. These are the necessary building blocks for self-confidence. Imitate successful

people, for they are tangible evidence that success is possible and within reach of everyones' capabilities.

Post-Performance Mental Recovery

One of the methods for quickening the mental recovery process from performance blemishes involves adjusting the vocabulary used to describe these flaws. Words that hold less negative impact are helpful in minimizing the negative reaction to these errors. Words such as blemish, miscalculation, inaccuracy, oversight, mishap, etc. are much less disheartening than, say, disaster, major error, ridiculous, train-wreck, fault, uncontrollable, etc. Using language that downplays the severity of the flaw manipulates the subconscious mind, which is the main component in helping you to move on and forget the experience more quickly, rather than wasting time with denial, anger, depression and frustration.[53]

Technical inaccuracies must be put into perspective. The degree to which a technical inaccuracy negatively impacts the performance is relative to the performance as a whole. The audience will be less likely to remember minor 'imperfections' given that they exist within the context of an entire movement or concerto. However, if these 'imperfections' were to occur in an excerpt during an orchestral audition, then of course their consequences would linger in the memory for a much longer time, given that it has prevented one from advancing into the next round or even from winning the

[53] Buswell, David. (2006). *Performance strategies for musicians.* MX Publishing 2006, 202.

job. But again, this is not a reason to fall into depression. Not winning the job is not the same thing as losing a job. The position was yet to be held, and therefore there is no real loss, but rather the actual benefit of having improved over the course of one's previous, diligent preparation.

The Importance of Passion

Keep in mind that performing is an art rather than a science. If the mind is too concerned with technical analysis during a performance, the artist risks becoming preoccupied by thoughts that do not contribute to either a confident performance or the attitude and mindset characteristic of great performers. When it is asked of great performers how they attained such a high level of performance and mastery of their instrument, the most common answer is "passion." Music psychology defines passion as a strong propensity towards a self-defining activity that one loves, considers important and devotes significant amounts of time and energy to pursuing.[54] It is due to this passion, and not to any external factor of pressure, that a person chooses to engage in musical activity. Consistent positive outcomes and the absence of negative outcomes are associated with possessing a higher degree of psychological adjustment.[55] The methods and principles developed by sports psychology are the tools necessary for musicians, fueled by passion, to fine-tune their mental approach and achieve their goals.

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[54] Bonneville-Roussy, Lavigne and Vallerand: *When passion leads to excellence: the case of musicians*. Psychology of Music, 39:123, 2011.

[55] Bonneville-Roussy, Lavigne and Vallerand: *When passion leads to excellence: the case of musicians. Psychology of Music*, 39:123, 2011.

Epilogue

Success is built on a foundation of commitment, and due to the nature of life, there is no substitute for this. Commitment builds courage. When exercising courage to become the best musician one can, the artist simultaneously develops the necessary competitive drive, dedication and determination. Though success is not guaranteed, it is certainly much harder to fail if one maintains this attitude. Unfortunately, many musicians cheat by depriving themselves of possible success by doing only just enough to get by, or they succumb to their own frustration and other self defeating emotions. For some, 'getting by' becomes the standard for every aspect of improving their performing art, be it preparation for weekly lessons or for a performance. A musician who has the desire to become one of the best must invest the appropriate commitment into becoming the best, always striving to do a bit more, a bit harder and for a little longer. A healthy competitive attitude motivates one to put in the effort required and only then will one build the momentum towards improvement. Along the journey of improvement, musicians will face various distractions and obstacles, even from colleagues, but they are distractions only if allowed to be so. The road to success is only revealed to those who seek it, and what one finds depends on how and where one chooses to look. I hope this document serves its

purpose as a supporting manual for musicians seeking greater knowledge, understanding and guidance along their journey to higher professionalism and peak performance.

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