This article describes the use of biofeedback interventions with PGA golfers, professional baseball players, and college athletes. The author advocates applying the optimal performance framework beyond the field of sport, to high performers in other areas, including business and medicine. Physicians are in many ways athletes and peak performers, and the outcome of their performance is life or death, recovery or disability. Physicians rarely participate in conventional employee assistance programs or stress debriefing, and would benefit from a wider application of a peak performance approach to their optimal wellness for themselves and their families.

Introduction
This article will illustrate the skills of a sport psychologist and biofeedback practitioner using the optimal performance model with elite performers beyond the world of sport, especially among physicians and their families. The following description is a poignant example of how subtle interventions can be powerful too.

On the eve of one of the most prestigious and popular major golf events of the year, I sent the following email to one of the players I have coached intermittently for six years, but who has been very hesitant to do any instrumented (biofeedback/neurofeedback) training:

Just a few thoughts for you to ponder during the next few days, before this PGA event starts. While you are out on the range or in a practice round, please make an immediate reflection after nearly every single shot on two things. (My message was that golf provides instant feedback; pay attention and use it).

1. Was the outcome (of this shot) above or below average of your expectation for this particular shot? Stay in the immediate moment with a realistic evaluation of the shot. You may have gotten away from doing this critical and immediate assessment to discover your base level of mental focus.

2. Secondly, ask yourself whether your mind state was more completely absorbed, engaged, or locked in than average just before and during the shot, or was your mind state just before and during that shot less than completely absorbed, engaged, or locked in? (Golfers tend to hit many shots in practice—by contrast, we want to develop quality in practice, not quantity).

When the dust has settled and you have completed competition for the day, ask yourself: Are you aware of a correlation? That is, for the shots with better outcomes, were you more completely absorbed, engaged, or locked in than average, and vice versa?

Lesson Learned—When you finally discover (with immediate reflection after each shot) what your most recent mind state—feeling was just before and during the shot that resulted in the best possible outcome, then you will be on your way to having great control—to being able to call up that feeling when you want it for every shot (transfer of training from awareness to refining momentary control).

Stay with this mindset after every shot—Was I more or less completely absorbed just before and during that shot than, on average?

Now I hope you can go out and have a great time this week while playing at the top of your game throughout the event.

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This professional golfer had struggled in previous years to actualize the great talent that he had developed in high school and college. In the professional tournament described above, he ended up in a playoff and then in second place, far beyond all expectations of those around him. Since that time, his career has taken off and he has experienced victory with renewed awareness of his emotional-mental state during the golf swing.

I have had the privilege of working with elite athletes in many sports, for example, Payne Stewart, the famed PGA golfer who wore knickers Scottish style. His sport psychologist brought me in for electrodermal biofeedback and surface electromyography biofeedback training in 1999, before he won the U.S. Open and the Ryder Cup (Sime, 2003). Then, six months later, he was tragically killed in a plane crash.

Sean Casey is a former professional baseball player who I assisted for ten years, together with my colleague Leslie Coates, and who now unabashedly proclaims the benefits of...

Similar team experiences with college football and woman’s volleyball at the University of Nebraska opened doors for psychophysiology to make a difference in performance enhancing strategies involving control of arousal and self-regulation. In each of these varied settings, the use of electrodermal (EDR), surface electromyographic (SEMG), heart rate variability (HRV), and neurofeedback, individually or in combination, was useful in providing objective demonstrations of stress reactions under time pressure in some situations and in developing highly intensive focus of concentration on a single, pointed task in others.

Throughout my career, my goal has been to bring to bear, in these challenging sports, the most appropriate and advanced technology to objectively measure and ultimately train the relevant psychophysiological parameters previously identified as critical to each individual athlete’s success (Strack & Sime, 2011). In football, this meant eliminating “residual tension” to increase reaction time and minimize impulsive mistakes. In golf, this means quieting the intrusive thoughts during the fractional moments during a swing. Tommy Bolt, a legendary golfer who was well known for his explosive outbursts after a bad shot (like throwing his clubs into the lake), really came to understand this principle, when I was trying to explain how neurofeedback can identify “focus” or lack thereof in golf. He exclaimed: “I would guess that I have changed my mind, in midswing, at least 10,000 times in my golf career.” (That self-effacing comment epitomizes the loss of focus on the task that underlies most mistakes in golf).

In volleyball and baseball, objectively measuring and ultimately training the relevant psychophysiological parameters means developing the “quiet eye” skills to be able to track a fast moving ball with total focus and absence of eye blink, and to subsequently react in a split second accurately focusing on the target (Sime, 2003). In nearly all sports, the rhythm, timing, and pace of performance can be conditioned with use of the Interactive Metronome, which I call the “poor man’s route” to achieving an internal neurocognitive balance that parallels anything we could try to achieve with neurofeedback (Sime, Robertson, Silverman, & Coates, 2011). All of these applications in sport are equally important in other critical performance settings where timing, speed, accuracy and endurance are determinants.

**Consultations Beyond Sports**

The next most obvious profession where applied psychophysiology and performance psychology can make the transfer is in medicine and surgery. My colleague, James Loehr, is an executive development specialist who runs the Mental Toughness Institute in Orlando, Florida (now owned by Johnson & Johnson). He has worked with many physicians, as well as professional athletes. He made this statement to 700 participants at the Association for Applied Sport Psychology in 2010: “Where is peak performance more important, but in medicine, where the outcome can be life or death for the patient. Consider that finite, precision movements make for a successful surgery, but poor judgment due to missing details or mistakes (slips) in an effort to hurry or take short cuts are not acceptable. Physicians are athletes and critical performers, just as much as the Olympians, and their challenge is far more important when it comes to making the right decisions and carrying out procedures and surgeries under extreme pressure with life and death outcomes” (Loehr, 2010).

**Specific Consultation Opportunities in Medicine**

I began my career in psychophysiology working on emotional stress testing with Robert Eliot, the prominent stress cardiologist who developed the Hot Reactor model linking emotional stress to heart disease. In his book, *Is It Worth Dying For?* (Eliot & Breo, 1984), along with another titled, *From Stress to Strength* (Eliot, 1994), Dr. Eliot embraced stress management from a psychophysiological perspective. He taught me to measure cardiac dynamics under stress and to identify patients at risk, but he also taught me that you cannot get the patients’ attention unless you can communicate to them the importance of this work in a concise and sometimes humorous manner (Sime, Buell, & Eliot, 1980). Thirty-some years later, I am reintroducing these principles to physicians as well as high-level business executives and their respective families.

While Robert Eliot gave me the opportunity to begin working with physicians, I found other colleagues to guide me in the business world. Sven Setterlind, who recently presented at the Association for Applied Psychophysiology and Biofeedback (AAPB) conference in New Orleans, developed the Stress Profile and the Leadership Profile. These two instruments assess in-depth qualities of personal attitudes and behaviors, which could either improve the atmosphere at work by good leadership or create conflict and great distress (Setterlind & Skarman, 2011). Using self-report instruments among departments and administrators with 360 degree feedback instruments is a wonderful
corollary to individual BF/NF. At present, I am collaborating with another esteemed Scandinavian colleague, Goran Skarman, who applies the concept of Flow in medical organizations. I hope this approach will work very well for us in the U.S. in the next few years, especially in the business world (Setterlind & Skarman, 2011).

**Specifics About Working with Physicians and Their Families**

Over the past few years, I have found more and more physicians and their families who seek consultation for a myriad of personal concerns. It is a privilege to work with very high-functioning and elite clients who sincerely want to get better at their chosen endeavors and careers.

To further document the relevance and the potential importance of applied sport psychophysiology in medicine, I recall one physician who caught on to the concept and stated it concisely and accurately as, “Who helps the Doc, when the Doc needs help?” The following case study illustrates how this consultation proceeded.

**Case Study**

Dr. J. and his wife brought their son in for counseling. He had not been performing up to the level of his ability as a freshman in college, so they told him that he would have to repay the expenses for his education (since he did not seem to value the privilege of an advanced degree). To their abject horror, the naive, but ingenious, young man devised a devious scheme to make money quickly. Fortunately, the scheme was interrupted, but the question remained, “How did this affluent, upstanding, and moral family create an offspring with questionable moral values and rather lazy habits?”

The following principles of sport psychophysiology were applied in this difficult situation: Goal Setting (by Global Positioning System [GPS] standards, “recalculating”), Confidence Building (without supporting evidence of recent success), Attention Control (in the face of many distractions), and Visualization and Biofeedback/Stress Management. He was challenged to consider: “Where do you want to be in five years and how do you think you can get there?” This was the beginning strategy and the process of performance counseling with this young man extended into better stress coping, more values congruence, and emotional control. The biofeedback intervention consisted of using the emWave™, electrophysiological biofeedback, and thermal biofeedback training during the counseling session, amid various interpersonal challenges that the young man was asked to cope with more effectively.

Several months later when the young man had resumed achieving his potential, Dr. J. scheduled another appointment, only this time he wanted to talk about himself. A couple years earlier, he had suffered his own medical complications, which limited his physical ability to practice medicine. During his recovery and as he was returning to part-time practice, he discovered that his partners in the practice had “docked” him a substantial portion of his income for the time of his absence, and furthermore, that some of his patients had chosen one of the other physicians in the practice during his absence. Dr. J. had expected some adjustment in his income for that year, but had felt insulted that he had not been consulted about how that reduction was to be calculated. Prior to this loss of function, Dr. J. had been the leader of the practice and a prominent figure in the community.

After the recovery, he felt displaced, disrespected, and exceedingly angry with his partners, so much so that he refused to speak to them in the clinic and disdained their efforts to mollify his concerns. This acrimony had existed for almost a year before Dr. J. realized that his anger was eating away at his personal and professional core. He opted for this consultation because he simply could not decide how to handle his legitimate angry feelings and still remain in the practice. Physicians are not routinely trained to deal with interpersonal conflict issues.

The consultation for this situation began with Dr. J. giving me permission to visit with the new director of the clinic on his behalf. Subsequently, the director gave me permission to visit with each of the other partners, seeking their perspective on the changes post-recovery (for Dr. J. in the clinic). Some were hard-core in their attitudes, believing that Dr. J. did not deserve the money or the leadership role that he had previously worked very hard to earn. Others understood his perspective, but felt slighted that he could not simply talk the problem out with the group. All agreed that conflict resolution was critical to the future viability of the clinic, as all parties involved were very distressed. Biofeedback instrumentation was not needed to document the elevated stress levels. Simple observation of cold, sweaty hands, rigid facial expression, and somber communication were very apparent and duly noted.

I arranged one-on-one meetings between Dr. J. and each partner, wherein I facilitated each discussion as a mediator. Since I knew the perspective each person brought to the table, I was able to introduce the tough, conflicted issues in a gentle, diplomatic manner, while interpreting how the misunderstandings could have occurred. Each meeting was extremely tense in the beginning, but the details were aired and accepted by the other party. All parties came out of the discussions feeling better about themselves and each other.
In one instance there were tears shed over the implication that one partner had tried to take patients away from Dr. J. All was forgiven when the real intentions and misperceptions were resolved.

Since the relationships within the practice became amicable once again, Dr. J. has now taken on a leadership position in developing a large project, a satellite clinic, which has satisfied everyone’s long term hopes and dreams for the practice. Because the consultation went over so well among the partners, and aided them in achieving a desirable solution, our clinical practice, First Step, has been invited to do in-service training on biofeedback and neurofeedback, aimed at providing more services for their patients as well as for their staff.

In essence what I have learned from this consultation was:

1. Everyone knows that (EAP) Employee Assistance Programming is essential for large organizations, especially in Health Care. However, there is generally no established internal program for physicians, and physicians rarely take advantage of programs offered to other employees in the hospital environment. This leaves them quite vulnerable to the same family and work conflicts that we all experience. One hospital program in Orlando, Florida has recognized this issue and has developed a Physician Wellness program targeted these needs. Physicians also are sorely lacking in coping resources regarding grief and loss issues.

2. Critical Incident Stress Debriefing (CISD) is an important intervention for the First Responders (police, fire, rescue, nurses, dispatchers, helicopter pilots, etc.) following a tragic and untimely death, usually on the highways. I am one of many volunteer providers in the State of Nebraska who go to the hospital or fire station 24–48 hours after a tragic death. Together with a trained First Responder, we facilitate a 90–120 minute debriefing session, wherein participants who were involved in the “failed rescue attempt” talk about their role, their agony, and their distressing reactions at home or in their downtime, resulting from the secondary trauma associated with seeing someone they might know in pain or dying. My past experiences dealing with interpersonal stress among paramedical staff in CISD were excellent preparation for working with Dr. J. and his medical group, managing their interpersonal conflicts, and applying the applied psychophysiology principles of performance enhancement in their clinic situation.

3. Flashbacks, diminished focus and concentration, irritability, and increased substance use are the common unfortunate expressions that health care professionals often experience, under the heading of secondary post-traumatic stress disorder. Debriefing is intended to share, open up, and release some of the pent-up emotion and frustration, in order to bring closure to these failed rescue attempts. The bottom line is that, in over 15 years of doing this work, I have never had a physician participate along with his or her medical staff following such a failed rescue attempt. And, of course, physicians routinely have to face family members in explaining a failed medical procedure that resulted in an unexpected permanent disability or fatality.

4. Physicians are expected to be able to handle death and dying routinely. The result is that sometimes they become callous and insensitive to surviving family members and at least they simply stuff their own natural emotional reactions. “Stuffing it” is a part of stoicism, and stoicism is on the downhill slide toward depression. The physicians I work with are reluctant to acknowledge all of this and sometimes only their spouses recognize the signs and symptoms of the tremendous load of emotions that they carry on their backs.

Conclusion

Two of the sport psychology principles that overlap most with biofeedback and neurofeedback include visualization and attention control. Many of our clinician colleagues in AAPB are very experienced with these two principles and thus have a great deal to offer in the sport-performance world. With these examples in mind, others may now find it possible to expand their practice to other populations of elite performers, including physicians and other top-level high achievers, such as those in business, where executive coaching is a burgeoning field that is primed for the application of performance psychophysiology. Another route that may be more expedient for expanding practice is to develop a professional liaison with a performance psychologist in your local area. Find out when and where the regional meetings are being held (see Association for Applied Sport Psychology, at http://www.AASP.org), then show an interest with an offer to demonstrate your skills while learning more about who is working with various individuals or teams. You will have to invest the time and energy to extend yourself into the professional community, but the rewards in collaborative outcomes far outweigh the costs.
References
Loehr, J. (2010, October). *Building a career in sport psychology: My insights, my struggles, my story*. Keynote Presentation at the annual meeting of the Association for Applied Sport Psychology, Providence, RI.


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