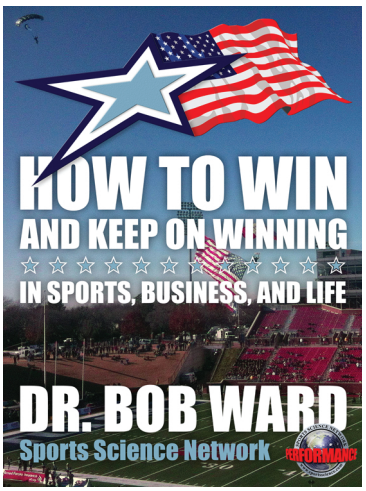
Hello all and best wishes for 2012!



Welcome to the first issue of "Alternativz", an *occasional* journal of complementary and alternative solutions for health, well-being, performance, and longevity.

With the advent of Alternativz, ***The COHERENCE Newsletter*** draws to a close. While Coherent Breathing and "breathing biofeedback" will continue to be a cornerstone focus, with Alternativz I plan to expand the concern of my writing to include matters other than breathing, matters that work in synergy with breathing to yield optimal outcome. I'm particularly interested in wholistic approaches to graceful aging and productive longevity, a matter that concerns many of us – around the globe. I like the name Alternativz because it connotes limitless possibility!

This first issue, ***Evidence For The Relevance Of Breathing To Sports Performance***, written with Dr. Bob Ward, PED, of ***Sports Science Network***, considers the role breathing as it applies to a range of "sports" endeavors. Bob and I have been collaborating in this area for a few years now. Breathing for sports performance, i.e. extending the limits of strength, speed, power, endurance, poise, and precision, is largely a nascent field. In this regard, it's not unlike breathing for health, i.e., by and large it has been taken for granted. Texts on the sports physiology typically make clear the vital processes of energy production and gas exchange but end there. Few offer guidance as to *how to breathe to maximize the performance outcome*. At the same time "sport", whether one is competing against oneself or others, is a field where breathing well can be the difference between winning and losing, success and failure, achieving one's goals – or not. In fact, as we ramp up the demands we place on the body/mind, breathing well becomes even more critical than when we are at rest or semi-activity. Why? Because breathing ultimately governs circulation, and circulation ultimately governs the myriad processes in the body that determine how well the body functions. In icy water, breathing is the physiological function that literally stands between life and death.

Period	Before Event	During Event	After Event
Focus	Training	Peak functioning	Recovery
Function	Building potential	Maximizing performance	Restoring potential

Figure 1: The Three Concerns Of Sports Performance

To better understand, let's break our concern down into 3 segments: before, during, and after the sports endeavor; where the focus is on "training", "the performance" itself, and "recovery", respectively. Training relates to the "building of potential", peak functioning relates to "maximizing performance", and recovery relates to "restoring potential", i.e. preparing for the next event, whether it be the next play on the football field or a next marathon. In this article we focus on the importance of breathing as part of training – the period during which the focus is on *the growing of potential* to perform. Future articles will address *peak performance* and *recovery*.

Stephen: Bob, you've been keenly interested in sports performance for a long time. And of course, you yourself have been and continue to be a competitor, even at your present age of 78.

Bob: Thats right, as you know I've pretty much devoted my academic and professional life to the science of athletic performance and continue to compete in Master's track and field power events.

Stephen: In your long experience, how would you characterize breathing's place in sports science?

Bob: Well, outside of yoga and martial arts if we want to include those fields of endeavor, and maybe a few others like breath-hold diving, its been assumed that breathing largely takes care of itself.

Stephen: In my experience, thats the way its been not just relative to breathing for sports but for breathing in general, there is an assumption that breathing is something that "just happens" in the background, without our conscious participation, and it is true that unconscious breathing keeps us alive, but there's an issue of both quantity and quality.

Bob: It's interesting to note that some sports literally require us to manage our breathing, swimming and power lifting are examples. And of course you wrote about high altitude mountain climbing some time ago.

Stephen: In that newsletter I was recounting Luciano Bernardi's study of elite mountain climbers, some of whom practiced resonant breathing before their assualt on Everest. Those that practiced breathing all summited without oxygen assist. Those who didn't did not fare nearly as well. That study has haunted me since reading it. Bernardi et al postulated that breathing slowly and deeply may improve breathing effectiveness and efficiency not only at altitude but also at sea level. I'm now certain they're right.

Bob: If so, it would represent a huge breakthrough. If there's a way to train to shave even hundredths of a second off a best time, it could mean the difference between being the first to win a race vs. the first to lose a race.

Stephen: I'm confident we are on the verge of that breakthrough. With the aid of Valsalva Wave Pro I've been researching breathing, blood flow, and heart rate. It now appears obvious that breathing facilitates circulation and circulation certainly has a huge impact on sports performance. I don't think Bernardi was aware of the role that breathing plays in circulation as of the time of the study. If he and his co-researchers were it wasn't mentioned.

Bob: It stands to reason that many of the body's processes are dependent on blood flow. There's alot out there on the science of cellular respiration and energy production, but I'm not aware of anything on *how to breathe* to maximize circulation – except your work.

Stephen: As far as I'm concerned we know that resonant breathing yields optimal psycho-physiological functioning when we're not exercising. I believe these advantages to accrue from optimized circulation and all that it effects. Bernardi provides a proof point that its practice yields dramatic benefits for a most extreme form of sport. I suggest that these are two ends of a spectrum and that most other sports fit somewhere in-between, any of which can benefit dramatically by improved breathing and consequent improvement in circulatory function.

Bob: If so, what type of breathing should we use to train for sports performance?

Stephen: The same that Bernardi used in his study, resonant (Coherent Breathing). Its the same as that for maximizing health, well-being, and longevity!

Thank you for your consideration and thank you Bob.

Stephen Elliott - COHERENCE

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