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Home

[Essentials](#) | [Current Health Article](#) | [Current Spiritual Article](#) | [Archived Articles](#) | [Collections](#)

[Archived Health Article](#)

## **Cutting Edge Sports Training for Extreme Performance.**

By: Dr. William Wong, ND, PhD.

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Here in the States we like to think of ourselves as being on the cutting edge, leaders in all endeavors and ahead of the game in all things. This attitude may be true in some things but it is definitely not true in Sports Medicine. Typically Americas ivory towers of sports med and exercise physiology are 20 to 30 years behind Scandinavia and Eastern Europe in their theory and application. As an example the top textbooks in exercise physiology on the development of strength and power are from Scandinavian physiologists. Romania's former national weightlifting coach was scoffed at by American academics when he described the training techniques he and the Communist Block in general utilized to build their gold medal powerhouse teams. They did not scoff for long. On trying the techniques out, mostly in attempts to discredit the Eastern Blocks methods, low and behold it turned out that they worked! The Romanian coach now heads up the US Olympic Weightlifting Team!

Most of the powerful Iron Curtain competitors were relatively small and poor countries. How could these nations with their small gene pools hope to compete against the powerhouses of genetic variety such as the US with it's huge racial mix and the Soviet Union with it's hundreds of nationalities. These large nations could custom fit a genetic type to a sport. The smaller countries had to work with what they had. What mix of things did the likes of Romania and East Germany do to produce athletes of such superior ability? The answers were threefold: True strength training, plyometric power training, Systemic enzymes.

What do we mean by true strength training? Strength is the ability to apply force. Most of what passes for strength training in the West today is simply modified bodybuilding and as Russian strength coach Pavel Tsatsouline says bodybuilding is the worst thing that ever happened to weight training. Bodybuilding works with moderate resistance with moderate numbers of repetitions, in very strict movement with the aim of producing muscular hypertrophy. Hypertrophy is defined as an increase in the size of an existing structure. Bodybuilders use techniques that balloon out size with out producing significant gains in

strength or producing strength that is adaptable to sports performance. I'll explain how that works in a bit.

True strength training uses very heavy weights, few repetitions and they do something unthinkable in bodybuilding - they cheat. In other words they use their whole body to help perform the lift. This is not the recipe for safety in commercial gym settings where worries about injury liability run dominant over performance physiology. Neither is it the recipe for a body builder's kissably beautiful biceps. But whole body involvement is the recipe for functional strength. Skill movement in sport, dance or any activity involves the whole body never one joint at a time. Training only one joint solo without synergistic involvement of the rest of the body produces strength that has little transference to real movement during performance. When involving the whole body strength is amplified into power (strength over time). Proper strength training does not produce a lot of hypertrophy (bloating). Instead it produces a change in muscle known as hyperplasia where a muscle bundle splits and becomes two or more overlapping muscle bundles. The result is not the bloated, soft, easily lost size of the bodybuilder but plywood strong dense muscles with lasting useable strength.

Here again we have one of the differences between European sports science and the Yanks; physiologists here don't believe hyperplasia happens in humans, in Europe hyperplasia been a given for 20 plus years and they've adjusted their training methods accordingly with great success.

Notice the difference in size between bodybuilders and Olympic weight lifters. The smallest Olympic lifter is considerably stronger pound for pound than the biggest bodybuilder despite the size difference is. Also according to studies done at two separate Olympics, the weight lifters are the second most flexible and balanced athletes there (the gymnasts are the first. Watch a bodybuilder move - flexibility and balance are definitely not strong points of their training and being). Feel the difference in the muscle. Show muscle feels doughy to hard squeeze, like the muscles on a dystrophic child. Now squeeze the arm of an Olympic lifter or power lifter. Solid steel covered by flesh. Show or performance? Posing or movement? For which shall you train? The physiological law of training specificity demands that one has to condition the muscles against the loads that the sport will demand from them. Bodybuilding is a non contact sport. Strength training get you ready to perform, to excel and to strive.

Next the Communists had to develop an advanced way of turning the strength their techniques developed into power. Training slowly teaches you to move slowly. While slow performance is initially needed to learn the proper performance of a skill, practice must be speed up after learning to insure proper performance. Most sports demand explosive movements against resistance. That resistance can come either from gravity (as in gymnastics), a medium (such as water in swimming), or an opponent (as in wrestling). Explosive movements against the weights can be done safely if proper training in its bio mechanics is done before hand. (This is definitely one not to try at home boys and girls, unless you've got the supervision of an exercise physiologist (NOT a personal trainer) knowledgeable in the safety of such techniques). Explosiveness against weights only partially builds the ability to produce power. To fill this need of sport, the Eastern Block exercise science folks developed Plyometric training. Here in the States some folks have

fancied up some aspects of plyometric training with giant rubber balls and fancy equipment. You don't need any of those.

Lets first answer the basic question as to what plyometric exercise is. Plyometrics are exercises that involve an explosive movement of the extremities that propel the entire body.

The wind-ups to these movements are usually full body and the full body learns how to cooperate in producing great speed and explosiveness that transfers directly to a sport skill.

One example of plyometric work you may have seen involves athletes zig zag jumping over knee high benches side to side. The most common plyometric exercise involves jumping up onto a bench some 20 to 25 inches high with both feet. Then the athlete jumps down again absorbing the downward energy on the return then uncoiling it to jump up once again. The Soviets trained all of their athletes in Plyometrics; from the archers to the fencers to the shooters to the wrestlers. The balance, precession, anaerobic conditioning, and power developed by this work was useful they found, for all athletes in all sports.

A typical day for a Communist block athlete would go something like this:

- Stretching, not the slow static mamby pamby passive stretching we advocate here but an active stretching that actually had a side effect of producing strength.
- Progressive Resistance Training. Strength Work at the afore mentioned low reps and high weights.
- Plyometric Exercises
- Skills Training. Practice in the actual sport.
- Additional aerobic or anaerobic conditioning as needed by the sport.

What is anaerobic conditioning? Everyone can more or less describe aerobic exercise as working out the heart, lungs to develop endurance. This description would be correct, and we'll add one thing; in aerobic exercise oxygen is the primary fuel the body uses to maintain it's work load. You literally burn oxygen. Anaerobic exercise on the other hand does not involve long steady bout of work but short and super intense rounds of exercise.

In this type of work oxygen is either not available to the muscles due to the intensity of muscular contractions which cut off blood supply or, the work bout over loads the body beyond it's ability to deliver oxygen to all of the working parts. In this type of work the cells burn glycogen or blood sugar as their primary fuel instead of oxygen.

Olympic Freestyle wrestling is the best example of an anaerobic sport. Freestyle wrestlers are the best conditioned athletes in all of sport both aerobically and anaerobically, as the demands of their skill are so great. Conditioning for anaerobic ability involves near endless repetition of exercise drills involving one burst of energy after another. Athletes wind up breathless, nauseous, dizzy and the number of precious energy producing centers of the cells known as mitochondria just build and build. This increases both the stores of potential energy as well as the actual furnaces to burn that energy in the cells. The result longer, stronger more controlled and able bursts of skill performance.

The third secret was not a training method but a physiological realization as to three drawbacks of intense training. Inflammation, micro injury and immune system depression. These are the main limiting factors on sports performance.

All athletic training produces inflammation. Muscles, tendons, ligaments, bursa, periosteum all react to hard training by swelling and becoming painful. The more of this accrues the less intense the athlete will participate in the training. Micro injuries happen every day in skill and conditioning exercise. These tiny injuries are not enough to sideline an athlete but they accumulate and sooner than not become a macro injury demanding rest.

Over and above the lapse in training, both micro and macro injuries produce scar tissue (fibrosis) which limits the range of motion in the limb and creates the potential for further injury.

The one aspect unrecognized until the 60's was that intense training schedules lowered the bodies immunity. Every day of hard training is followed by two to three days of immune suppression. When an athlete tags too many days of training together without adequate rest then the immune system in goes into steep decline to the point where in some athletes, such as marathoners, it dies out all together. There is now even a professional journal for immunology issues and sports medicine. What armament did the Iron Curtain countries use to combat these three deadly foes to performance?

Through the 40's and into the 60's they tried to use Cortico Steroids, against the inflammation. These drugs had nasty side effects such as water weight gain, death of bursa (the tissues that lubricate the articulation of muscle to bone), weakening the tendons, extreme mood swings none of which are conducive to high level athletic performance! The issues of fibrosis and immune system depression they had no answers for. Then came the late 60's and everything changed.

In the constant search for substances to improve performance the East Germans took notice of a preparation that was gaining favor on the other side of Germany.

This product was used by physicians to naturally reduce inflammation, eat away at fibrosis, and modulate immune function. (1). It's components were already approved for use in boxing to reduce brain swelling due to practice or matches. (2). When the product was tested it surpassed all expectations as an inflammation controller. What's more it kept micro injuries from becoming macro injuries and ate away at the limiting fibrosis of older injuries. (3). When an athlete was injured use of the product caused that athlete to heal faster than was ever seen before.

Use of cortico steroids could be dropped. Moreover the toxic non steroidal anti-inflammatory drugs (NSAID's) such as aspirin, ibuprofen and the rest could also be dropped saving the athletes from facing the great killer of young sportsmen - kidney failure.

The combination of dehydration and NSAID use is the single largest cause for athletic deaths. During one New York Marathon in the late 1990's an Ibuprofen manufacturer gave out samples of their product before the race. Four runners died at that marathon from kidney failure!

What was this product whose use was classified as a state secret in most of Eastern Europe - Systemic Enzymes. They were buying it through from companies in the west and secreting the supplement across their borders.

The International Olympic Committee banned cortico steroid use in 1975. Most of the

Eastern Block countries did not even blink, their athletes were already off the anti-inflammatory drugs and performing harder, healing faster, staying healthier and maintaining their ranges of motion all through the use of safe and research proven systemic enzymes. In the world, today's best systemic enzyme product is VitalZym, from World Nutrition.

There will be some who'll scoff and say that all of the Eastern Blocks sports greatness came through the use of anabolic steroids. Not so! Our athletes used the same dope; so why were the Communist kids that much better? (The one place where Soviet and East German drug science did excel was in covering up drug use). The Olympic athletes themselves called the Olympics in Atlanta the Human Growth Hormone Games.

The IOC seems impotent to stop drug use because spectators come to see records shattered.

Without drugs such sports as cycling, speed skating and track and field would be boring events where this years times and distances would be no better that the last games and those not much better than they were in the `64 and `68 games! The result would be a drop off in viewers and a drop off in sponsorship. The bribing scandal concerning the Utah winter Olympics has done more than anything else to show that the Olympics are no longer about the glory of amateur sport; it's all about the glory of money for the promoters, the hosts and the potential winners. In this vein the IOC has nothing to learn from the WWF about the link between money, promotion and performance; the IOC wrote the book!

If you are into extreme performance, overdoing and pushing the envelope of human performance then take heed of what they did behind the Berlin wall. The Comrades got it right! Now 30 years later we need to catch on. Nuff said.

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Soviet training techniques can be learned about by reading the works of Russian coach Pavel Tsatsouline. His books are available from Dragon Door publications at [www.dragondoor.com](http://www.dragondoor.com).

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