Training Secrets for Extreme Performance

By: William Wong N.D., Ph.D.,
Member World Sports Medicine Hall of Fame

Here in the US 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 or athletic conditioning. Typically America's ivory towers of sports medicine 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, 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. It's like Bruce Lees' principle of putting the whole body mass behind a punch! 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 kissibly beautiful biceps. But whole body involvement is the recipe for functional strength. Skill movement in martial arts, 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 US; physiologists here don't believe hyperplasia happens in humans. In Europe hyperplasia has been a given in sport science 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. Also, according to studies done at two separate Olympics, the weight lifters are the second most flexible, balanced, and agile athletes there: the gymnasts are the first. Watch a bodybuilder move - flexibility and balance are definitely not strong points of their training or being. Now, watch the balance of an Olympic lifter doing a clean and jerk; try the technique yourself if you

don't think there's much to it! Then, watch that lifter get out from under a fully loaded barbell held over head! Strength, balance and agility; sounds like traits needed in most sports, do they not? Next, feel the difference in the muscle. Show muscle feels doughy to a 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? Kata or Combat; for which shall you train? The physiological law of training specificity demands that one has to condition the muscles against the loads that the endeavor will demand from them. Bodybuilding is a fine activity but it is a non contact sport. If all you want to do is look great, then fine, bodybuild. But if you want to be able to apply your muscles to a task, then strength train. Real strength training gets 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 mechanics of a skill, practice must be sped 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), an opponent (as in judo or wrestling) or a bat hitting a ball (as in baseball). Explosive movements against the weights can be done safely if proper training if 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 or certified Strength Coach knowledgeable in the safety of such techniques). Don't depend on a personal trainer to know these things. What's the difference between those an Exercise Physiologist or certified Strength Coach and a personal trainer? It's like the difference between someone who gets their black belt by attending two or three weekend seminars every few months as opposed to someone who masters an art by spending years learning it's discipline in a temple.

Explosiveness against weights only partially builds the ability to produce power. To fill this need of sport, the Eastern Block exercise science group 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; the Russians used tables and locker room benches.

Let's first answer the basic question as to what plyometric exercise is. Plyometrics are exercises that involve an explosive movement of the extremities to propel the entire body. The wind-ups to these movements are usually full body and the 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 zigzag 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 only to uncoil it once more to jump up again. The Soviets trained all of their athletes in Plyometrics, from the archers to the fencers, the shooters to the wrestlers. They found that the balance, precession, agility, anaerobic conditioning, and power developed by this work were useful for all athletes in all sports.

A typical day for a Communist block athlete would go something like this.
Stretching, not the slow, static, 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, low sets and high weights. Example 3 sets of 3 to 5 repetitions with 80 to 95% of a 1 RM. A RM is a 1 Rep Max, the maximum weight you can move in that exercise for 1 repetition. (As far back as the early 1960's the two pioneering PRE researchers, DeLorm and Watkins, found that if an exercise is properly programmed and executed then its goals could be accomplished in 3 to 4 sets. Adding sets after 4 made no difference to the final outcome and often served to over train the subject).

- 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 and 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 its workload. You literally burn oxygen. Anaerobic exercise on the other hand does not involve long steady bouts 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 overloads 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 free style wrestling is the best example of an anaerobic sport. Free style 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 with muscle breakdown, and immune system depression. These are the main limiting factors on sports performance.

All conditioning and skills 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 intensely 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. Hard training produces muscle wasting catabolizing responses, where the body begins to break it's own muscle down and eat itself. These happen through the cortisone hormones the body produces in response to the inflammation.

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 system suppression. When an athlete tags too many days of training together without adequate rest then the immune system 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 in 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 Steroid drugs 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, wasting muscles, osteoporosis, extreme mood swings and more. None of those 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.

- It's components were already approved for use in boxing to reduce brain swelling due to practice or matches.
- 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.
- When an athlete was injured, use of the product caused that athlete to heal faster than was ever seen before. Further, since it readily controlled inflammation, the bodies' cortisol response did not have to kick in. Therefore, the product was protein spairing, preventing catabolism. And as a

further assist to anabolism, the product was found to produce as near a total digestion and absorption of protein as is possible, increasing the speed in which muscles could rebuild and grow.

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 Your 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! The exact same products we can buy over the counter here in heath food stores!

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 Systemic Enzymes. What are Systemic Enzymes? These are a synergistic blend of protein cleaving enzymes that have five primary actions. Systemic Enzymes are:

1. **Anti-inflammatory.** Hydrolytic enzymes are the primary anti-inflammatory agents of the body.
2. **Fight Fibrosis**, from scar tissue to fibrotic cysts, the enzymes eat them.
3. **Modulate Immune Function**. If the immune system is depressed, as happens after hard training, the enzymes boost function, along with creating more Natural Killer Cells and White Blood Cells to kill germs. If the immune system is operating too high, as happens in Lupus or Rheumatoid Arthritis, the enzymes down shift immune function and eat the Circulating Immune Complexes the system is making to attack the patient's own tissue.
4. **Cleans the blood** of dead debris the liver can't handle on it's first pass through, leaving the blood freer flowing and better able to carry oxygen and nutrients.
5. **Opens clogged circulation**. Fibrin forms the matrix for arteriosclerosis. Systemic enzymes eat away at the matrix, dissolve the fat that holds the blockage together and bonds onto the heavy metals that reinforce the clog carrying them to the bowel for deposition. Enzymes have been doing all this without creating dangerous stroke and heart attack causing embolites. European doctors have been using oral Systemic Enzymes for over 40 years without ever having a single patient die or fall ill from using the products!

Here in the US, we have the planets best systemic enzyme in Vitalzym, from World Nutrition. It has replaced Ibuprofen, aspirin and other enzyme products in NBA, NFL, Major League Baseball and NHL training rooms.

The next Eastern Block trick was to use Androstene to increase natural testosterone output in their athletes. Tests had been developed to detect Anabolic Steroids, as they are traceable long term in the body. Andro on the other hand, though it boosted T production up by several hundred percent, only did so for some 3 hours at a time and could not be detected in any tests then had. If we timed the application of an Andro stack to the natural rhythm of a person's Testosterone production, then the effect of the natural T boost could be further enhanced. We all make T at two primary times during the day, between 2 and 4 in the morning and again between 2 and 4 in the afternoon. Andro was applied just before bed and at mid afternoon. The effects were stupendous.

Oral ingestion of Androstene and it cousins is wasteful. Research at the University of Dublin Department of Pharmacology found that absorption through the gut was only at 5% of what was taken in. On the other hand it was found that applying the Andro stack to the skin as a cream, using a special lipid carrier to draw the supplement into the tissues, produced 95% absorption and utilization. Tests proved it and even better, the effects of the increased T could be felt in 15 minutes! The cream the doctors at the school developed is available from a Phoenix based company called Life-Flo; the product is named Andro Edge.

If you are into extreme sports, true fitness and real training - 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.

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Resources:

Vitalzym is made by World Nutrition 1-800-548-2710
Andro Edge is made by Life Flo 1-888-999-7440

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.

About the author: Sports Medicine Hall of Fame member Dr. William Wong has been involved in athletic training, sports conditioning and rehabilitation for over 20 years. His lifting carrier spans some 35 years. He is the author of the book "10 Natural Treatments You Haven't Heard Of" and the upcoming book "Natural Sports Medicine". In 1993 Professor Wong was also inducted into the World Martial Arts Hall of Fame as Wing Chun instructor of the year. His teachings can be found on the net at www.totalityofbeing.com.

What Are Systemic Enzymes and What Do They Do?

By: William Wong N.D., Ph.D. Member World Sports Medicine Hall of Fame.

The word systemic means body wide. Systemic enzymes are those that operate, not just for digestion, but throughout your body in every system and organ. But let's take first things first, what is an enzyme?

An enzyme is a biocatalyst – something that makes something else work or work faster. Chemical reactions are generally slow things, enzymes speed them up. Without enzymes, the chemical reactions that make up our life would be too slow for life as we know it. (As slow as sap running down a tree in winter). For life to manifest as we know it, enzymes are essential to speed up the reactions. We have roughly 3000 enzymes in our bodies and over 7000 enzymic reactions. Most of these enzymes are derived or created from what we think of as the protein digesting enzymes. But while digestion is an important part of what enzymes do, it's almost the absolute last function. First and foremost, these body-wide protein-eating enzymes have the following actions:

Natural Anti-Inflammatory.

Enzyems are the first line of defense against inflammation. (1,2,3). Inflammation is a reaction by the immune system to an irritation. Let's say you have an injured right knee. The immune system, sensing the irritation in the knee, creates a protein chain called a Circulating Immune Complex (CIC for short), tagged specifically for that right knee. (The Nobel Prize in biology was won in 1999 by a scientist who found the tagging mechanism). This CIC floats down to the right knee and causes pain, redness and swelling – the classic earmarks for inflammation. This, at first, is a beneficial reaction; it warns us that a part of ourselves is hurt and needs attention. But, inflammation is self perpetuating, it creates an irritation that in response, the body makes CIC's for!

Aspirin, Ibuprofen, Celebrex, Viox and the rest of the Non Steroidial Anti Inflammatory Drugs all work by keeping the body from making all the CIC's. This ignores the fact that some CIC's are vital to life, like those that maintain the lining of the intestine and those that keep the kidneys functioning! Not to mention the fact that they, along with acetaminophen, are highly toxic to the liver. Every year 20,000 Americans die from these over the counter drugs and another 100,000 will wind up in the hospital with liver damage, kidney damage or bleeding intestines from the side effects of these drugs. (4,5).

Systemic enzymes, on the other hand, are perfectly safe and free of dangerous side effects. They have no LD-50, or toxic dose. (6). Best of all, systemic enzymes can tell the difference between the good CIC's and the bad ones. This is due to the fact that hydrolytic enzymes are lock and key mechanisms and their "teeth" will only fit over the bad CIC's. So instead of preventing the creation of all

CIC's, systemic enzymes just "eat" the bad ones and in so doing, lower inflammation everywhere. With that, pain is also lowered.

Anti Fibrosis.
Enzymes eat scar tissue and fibrosis. (7). Fibrosis is scar tissue and most doctors learn in anatomy that it is fibrosis that eventually kills us all. Let me explain. As we age, which starts at 27, we have a diminishing of the body's output of enzymes. This is because we make a finite amount of enzymes in a lifetime and we use up a good deal of them by the time we are 27. At that point, the body knows that if it keeps up that rate of consumption we'll run out of enzymes and be dead by the time we reach our 40's. (Cystic Fibrosis patients who have virtually no enzyme production to speak of, even as children usually don't make it past their 20's before they die of the restriction and shrinkage in the lungs from the formation of fibrosis or scar tissue).

So our body begins to dole out our enzymes with an eyedropper instead of with a tablespoon. Result: the repair mechanism of the body goes off balance and has nothing to reduce the over abundance of fibrin it deposits in nearly everything from simple cuts, to the inside of our internal organs and blood vessels. It is then when most women begin to develop things like fibrocystic breast disease, uterine fibroids, and endometriosis. We all grow arterial sclerotic (meaning scar tissue) plaque, and have fibrin begin to spider web its way inside of our internal organs, reducing their size and function over time. This is why as we age our wounds heal with thicker, less pliable, weaker and very visible scars.

If we replace the lost enzymes, we can control and reduce the amount of scar tissue and fibrosis our bodies have. As physicians in the US are now discovering, even old scar tissue can be "eaten away" from surgical wounds, pulmonary fibrosis, kidney fibrosis even keloid years after their formation. Medical doctors in Europe and Asia have known this and used orally administered enzymes for such for over 40 years!

Blood Cleansing.
The blood is not only the river of life, it is also the river through which the cells and organs dispose of their waste. Enzymes improve circulation by eating the excess fibrin that causes blood to sometimes get as thick as catsup or yogurt, creating the perfect environment for the formation of clots. All of this material is supposed to be cleaned off by the liver on "first pass" or the first time it goes through. Given the sluggish and near toxic or toxic states of everyone's liver these days, that seldom happens. So the waste remains in the blood, waiting for the liver to have enough free working space and enough enzymes to clean it. This can take days or in some people, weeks! (8).

When systemic enzymes are taken, they stand ready in the blood and take the strain off of the liver by;

- Cleaning excess fibrin from the blood and reducing the stickiness of blood cells. These two actions minimize the leading causes of stroke and heart attack: blood clots. (8).
- Breaking dead material down small enough that it can immediately pass into the bowel. (8).
- Cleansing the FC receptors on the white blood cells, improving their function and availability to fight off infection. (9).

And here we come to the only warning we have to give concerning the use of Vitalzym or any other systemic enzyme – don't use the product if you are a hemophiliac or are on prescription blood thinners like coumadin, heparin and plavix. The enzymes cause the drugs to work better, so there is the possibility of thinning the blood too much.

Immune System Modulating.

Enzymes are adaptogenic, seeking to restore a steady state to the body. (9). When the immune system is running low, we become susceptible to infectious disease. When it's cranked up too high, then the system creates antibodies that attack it's own tissues, as are seen in the autoimmune diseases of MS, Rheumatoid Arthritis, and Lupus. Here the Vitalzym will tone down immune function and eat away at the antibodies the immune system is making to attack its bodies own tissue.

When the immune system is run down too low, the enzymes increase immune response, producing more Natural Killer cells, and improving the efficiency of the white blood cells, all leading to improved immunity.

Virus Fighting.

Viruses harm us by replicating in our bodies. To do this, a virus must bond itself to the DNA in our cells through the medium of its exterior protein cell wall. Anything that disrupts that cell wall inhibits the ability of viral replication by rendering individual viruses inert. (10,11). Systemic enzymes can tell the difference between the proteins that are supposed to be in your body and those that are foreign or not supposed to be there (again the enzyme lock and key mechanism). Vitalzym has the strongest protein eating effect of any enzyme due to its Serrapeptase content and can be of help in combating viruses.

Vitalzym with its serrapeptase based blend of enzymes is the strongest and fastest working systemic enzyme on the planet. No brag, just fact.

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