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## Ars longa, vita brevis by Thomas Kurz

The period of highest athletic ability, when rational (and intense) sports training can reveal a person's full athletic potential, lasts only a few years.

The first few years of training allow for nearly normal overall education because in these years, less time and energy is dedicated to training than later, at higher stages of sports development. As the degree of mastery grows, the athletes must work harder and longer to compete at the international level. That leaves little time for work, normal studies, or family duties. Fortunately, the period of life when one can enjoy success at any of these endeavors lasts much longer than the time of the highest athletic ability. *If one wants to realize one's full athletic potential*—which can set one for life financially, bring great honor to one's family, and satisfy one's national pride, but only if pursued with total commitment and only in this short, strictly defined period in one's life—then one should give it a priority over everything else.

If so, then everything—environment, activities, human contacts—should be subordinated to the demands of sports training. One should live where the most favorable

training conditions are and surround oneself with people conducive to success. People without an inner drive for excellence (in any field) drain energy and should be avoided. If they have a negative attitude, then they must be avoided.

The purpose of sports training is to achieve the highest possible sports result for a given individual. Training is efficient if this result is achieved with a minimal expenditure of time and energy—in other words, by doing only what works optimally for a given athlete.

In *Science of Sports Training: How to Plan and Control Training for Peak Performance* I have described the means of sports training that lead to peak performances without resorting to illegal ways because most of the illegal ways of enhancing performance are harmful in the long (and in the not-so-long) run. Athletes will still have a life to lead once they have passed that phase of their life in which peak performance is possible. It behooves them to do nothing that would shorten their lives or injure the quality of life yet to experience.

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## New DVD: *Power High Kicks with No Warm-Up!*

Our video *Power High Kicks with No Warm-Up!* is finally available on DVD.

This DVD teaches everything there is to know about kicks: fundamentals, footwork, drills, developing power, and technical tips for power and great height with no warm-up. It shows proven sequences of exercises that develop all these kicks: knee kick, front kick, side kick, back kick, roundhouse kick, crescent kick, and hook kick.

This DVD teaches how to learn different ways of doing these kicks: with lead leg

and rear leg, head-on and spinning. It teaches kicks in the order you should learn them—from easy to difficult, from head-on to spinning.

You will learn:

- How to throw powerful high kicks with no warm-up
- How to put more impressive power and snap in your high kicks
- How to kick “cold” without pulling muscles or otherwise injuring yourself

To see the contents list of this DVD visit [www.stretching.info/power\\_toc.html](http://www.stretching.info/power_toc.html).



## Doping

by Thomas Kurz

Another Olympics, another batch of doping scandals...

I believe that neither the government nor the criminal justice system should be involved when grown-up athletes do illegal doping. Illegal doping violates an athlete's promise to abide by the rules of the sport and so should lead to a forfeiture of awards and a ban from competition but not to any criminal penalties.

Some means of doping are made illegal by nosy government authorities who feel they cannot let adult individuals take a chance at getting cancer of the liver, cancer of the testicles, and other ailments—as if someone else, other than athletes themselves, was responsible for their medical bills or their insurance premiums.

Doping is a poor substitute for rational exercise methods and state-of-the-art means of recovery. If it is used, it will cause harmful side effects and embarrassment that will outlast and outweigh short-term athletic success. For example, the use of anabolic steroids to increase muscle strength and mass causes a disproportion between the development of muscles' contractile strength and the structural strength of the joints and ligaments, which leads to injuries (Ulatowski 1981).

In the long-run doping is more expensive than using correct methods of training combined with optimal selection of natural means of recovery. In the costs of doping one has to include the inevitable side effects with their costs: medical, legal, ruined reputation, and lowered earnings.

Even strict supervision by experienced sports medicine specialists, such as those from East Germany, does not prevent the most unpleasant side effects, as evidenced by the fate of many East German athletes, which is described in *Faust's Gold* by Steven Ungerleider.

Anabolic steroids are used also for speeding up recovery between workouts. How many of those athletes who speed up recovery with steroids or unnatural hormones have systematically used all available natural means of recovery? I mean,

starting with a physiologically sound arrangement of exercises in a workout; then the right sequence of workouts in a day with multiple workouts and in a week of workouts, and in longer periods; then additional exercises specially designed to speed up recovery between workouts; then various modes of sports massage and physiotherapy; and a healthy daily routine, of course.

The right sequence of a workout's exercises makes an athlete recover faster than a wrong sequence of the same exercises, and the same goes for the sequences of the workouts themselves.

There are natural ways of increasing growth hormone releases through specially designed exercises. High altitude training increases the oxygen-carrying capacity of blood without autotransfusions or erythropoietin. So which is more expensive—reading up on exercise physiology and making a few trips to the mountains or taking artificial hormones that are detectable and have side effects galore?

But to conduct a state-of-the-art training process and intelligently use the natural means of recovery take learning and judgment. One must creatively apply knowledge of the exercise sciences: physiology, biomechanics, psychology, didactics, and methods of training. This is too much for many coaches and trainers of even professional athletes, it requires much more than knowing how to cycle the administration of anabolic steroids.

When one sees a trainer who supposedly has taken exercise physiology courses make baseball players sit in static stretches before practice, and on top of that the trainer encourages partner stretches and pushes the players down into stretches, then one knows why it is too much. When one sees a highly paid coach of a football or a baseball team order players to warm up on stationary bikes, then one knows the coach does not want to or cannot design and run an interesting warm-up.

There is more to a warm-up than moving until one's body temperature increases. A

warm-up is supposed to be a flowing succession of exercises relevant to the sport that progress from general moves to sport-specific, warming up athletes while easing them into their techniques and into the right mindset for practice or a contest. If a coach cannot put together a good warm-up, how can such a coach design the main part of a workout and the cool-down? As you know from reading this article, arrangement of exercises in a workout affects recovery.

A coach of any sport who did not study anatomy, biomechanics, sports physiology, biochemistry, sports psychology, pedagogy, and the theory and methods of sports training\* is deficient. This kind of coach may know his or her sport, but he or she is not proficient in the standard techniques of other sports (such as all ball games, gymnastics, aquatic sports, and track and field). The incompetent coach does not read up on the current state of knowledge, and does not apply this knowledge. Such a coach holds back the athletes, which may lead to the temptation of doping.

If one chooses to use means of enhancing performance that are illegal or unethical, it is not enough to find the medical personnel who are willing to participate in the scheme. To avoid detection the athletes' physicians, the sports scientists, and the coaches would all have to have the highest level of qualifications, and an extensive knowledge and experience with using the given type of dope. Right here is a snag—high quality people are not likely to do unethical things. On top of that, since methods of detection are constantly improving, so the doping methods and choices are constantly changing, not many specialists have much experience with any of it. Further, one has to keep in mind that safety records of illegal drugs are even worse than of drugs (such as Vioxx) that are approved by governments.

To sum it up: Illegal doping is an admission of an athlete's ignorance and of a coach's incompetence.

\* Theory and methods of training is a science that deals with systems of training and methods of improving athletes' performance. It is a central subject in university courses for coaches and p.e. teachers of former East bloc countries. Its concepts are presented in the book *Science of Sports Training*, which describes and explains all the means of sports training that lead to reaching peak performances without resorting to illegal ways.

## Acrobatics and Tumbling for Speed-Strength Sports

by Thomas Kurz



Acrobatic or gymnastic skills such as tumbling are important in many sports. In track and field top pole-vaulters (for example, Yelena Isinbayeva and Svetlana Feofanova) practice tumbling as a part of their workouts. Well-trained combat sports athletes can do flips (somersaults) and flic flacs (back handsprings) too. A fine sense of one's position in space and not being afraid to turn in the air comes in handy in defeating opponent's grappling throws and armlocks. In striking arts, like kung-fu, fighters show spectacular evasions based on gymnastic or acrobatic skills.

During my summer vacation I visited DKS Targówek, an acrobatics club in Warsaw, Poland, and watched some workouts. Why would I want to watch acrobats work out? I had seen many workouts of acrobats and gymnasts while I was studying and training at the University School of Physical Education, but these workouts were different. The workouts I had seen during my studies were for competing acrobats and gymnasts—all talented young people in peak shape. But at this club, in addition to workouts for competitive acrobats, the instructors conduct workouts for the general public. I watched just such workouts.

I have seen how well these instructors teach, and what's more important, I have seen who they teach—some of their students are in their 50s. They teach fast: I have seen a 20-year-old with no gymnastic background who has learned basic tumbling, from front handspring to back somersault, in three months (two or three 90-minute workouts per week).

Here is what the instructors themselves say about the pace of learning such crucial techniques as back somersault or back handspring (flic flac):

“Active people, who participate in some systematic physical training, can perform

those techniques without assistance after a few dozen assisted repetitions. People less fit may need a few hundred assisted repetitions before doing these techniques alone.

“Acrobatics are a sport for everybody. Both youth and adults can do it. From our experience we know that everyone can learn such techniques as somersaults and handsprings. The time required varies depending on an individual but 95% of our students learn those skills in well under one year. Rarely does someone need more than one year of training to accomplish this.

“Acrobatics students are afraid of bad falls. Well-conducted workouts, with correctly selected exercises and competent instruction and spotting, dispel those fears and lets students learn quickly. Special apparatus installed in the gym further contributes to safety and effectiveness of learning.”

The acrobatic club at which these instructors teach has won national championships 24 times, and its members bring home medals from European and World Championships. The club has about 150 members who compete but it also offers classes for the general public, both youth and adults.

You can see sample teaching sequences from a workout for the general public by downloading video files from [www.stadion.com/acrobatics.html](http://www.stadion.com/acrobatics.html).

These video clips show parts of a typical workout run by instructors Dariusz Obrebski and Pawel Grzybczyk. We show these clips because they feature average young people, not especially talented, from late teens to twenties, learning tumbling skills. You can see how those people (most of them too old to enroll in a competitive gymnastic program) learn front and back somersaults, back handsprings, flying cartwheels, and more with no fear and in short time.

## Gymnastics in Pole Vault

Yelena Isinbayeva began training in a gymnastic section of Volgograd's Army Club at the age of 5. She was a good gymnast, with good potential. But her height and weight got in a way: At 15 she was 170 cm (67 inches) tall, so from the gymnastic section she was sent to pole vault coach Yevgeny Trofimov. Gymnastic skills are still the major part of her pole vault workouts.

Svetlana Feofanova was a gymnast for 11 years. She was a reserve for the Russian Olympic team in 1996. She took up pole vault at 18, in 1998, when she “got too old for gymnastics.”

In her workouts she does acrobatics, long jump, high jump, shot put, and hurdles, and she lifts weights.

Stacy Dragila took up gymnastics after she watched Mary Lou Retton's performance at the 1984 Los Angeles Olympic Games. She considers gymnastics to be a key to her success in pole vault.

Her typical workout days, apart from pole vaulting, interval training, and weight lifting, include gymnastics training in the evening.



Let us know what you think about our newsletter. Have you learned something that improved your or your athletes' performance or health? What would you like to learn more about?

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# Q and A on STRETCHING and TRAINING

(continued from previous issue)

Study these typical questions on stretching and training carefully. You may find information that relates to questions of yours. Questions are in *italic boldface*.

Here are some questions I answered a few months ago on Stadion's Sports and Martial Arts Training Discussion Forum (<http://www.stadion.com/phpBB2/>).

■ *I just have a quick question for any of you (but naturally, especially to Mr. Kurz). Do any of you see any inherent advantage to aerobic fitness in either swimming or running as compared to the other? I need to get my aerobic up to speed, but personally I can't stand running. I'll do it if I absolutely must, but I'd much rather swim. Should I be doing one or the other?*

Aerobic fitness for what? If for running, then running is best. If for swimming, then you have to swim a lot because of training specificity. Gains in maximal oxygen uptake from swimming do not transfer to running performance. Transfer of gains in running to swimming is not too good either—the best long-distance runners are not the best long-distance swimmers.

It is easier to develop general aerobic fitness (cardiovascular fitness) by running than by swimming. At the same heart rate, perceived exertion is greater when swimming than when running. This has to do with lessened gravity stress in water (lower heart rate) and with drag resistance (more perceived effort). Runners tend to have greater maximal oxygen uptake than swimmers and cross-country skiers tend to have the greatest maximal oxygen uptake of all athletes.

The bottom line: It is better to swim than do nothing. As for application of the cardiovascular fitness to activities other than running or swimming, a good swimmer might do better than a bad runner.

■ *Recently I bought a book called Super Squats by Randall Strossen. After reading your article about "Squats and Martial Arts," I see that you are familiar with this program. I want to do this 20-rep squat program, but I was wondering if it is possible to combine it with taekwondo workouts too. I am hopefully graduating to first dan this*

*summer, so it is important that I practice taekwondo (I train taekwondo about 2-3 times per week). The problem is that rest is of vital importance if this program should work, but at the same time I want to train taekwondo as well.*

It is possible to combine working on maximal strength or mass with working on some other abilities or skills. You will need to pay attention to your body's signals to make sure your other work does not interfere with the recovery required by the strength work.

It would be best if you could work on your strength (the 20 rep squat program) on days when you do not feel too fatigued from your taekwondo practice and when you know that you will have time to recover from your strength work before your next taekwondo workout. If this is impossible because of the schedule of your taekwondo practice, then you may try doing your strength work together with your practice.

As you should know from *Science of Sports Training*, your work on maximal strength is most effective if done right after the warm-up and if the remainder of the workout does not include endurance work—at least not for the muscles stressed in your strength exercises. Doing strength work at the end of a fatiguing workout for other abilities (say, taekwondo practice) also reduces effectiveness of strength exercises. Reduced effectiveness does not mean that your strength will not increase—just that it will not increase as much as it could otherwise. So you can try either of these two approaches (strength right after warm-up and then your taekwondo practice or first the practice and then your strength exercises) and see if the resulting increase of strength and mass satisfies you and if such combinations are healthy for you (see *Science of Sports Training* for interpretation of your body's signs).

Subjects such as the place of strength exercises in a workout, in weekly, monthly and longer periods, as well as single-task workouts versus multitask workouts, are all covered in *Science of Sports Training*.

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