THE NEWSLETTER FOR WINNERS

STADION news
International Sports Insider
http://www.stadion.com

Volume 7, Number 1, Winter 2000 $3.00

The Role of Aerobic Fitness in High Intensity Efforts, Part IV

This continues the refutation of misconceptions and errors in the quote from Charles I. Staley. (See the first three parts in the three previous issues of Stadion News*.)*

How much aerobic exercise do you need for high intensity efforts?

Obviously the selection of exercises and the methods of applying them have to reflect the demands of your sport. For example, in a fencing or boxing match brief speed-strength efforts that stress fast twitch muscle fibers are decisive, and these use anaerobic sources of energy. But such efforts occur many times during a bout so the ability to quickly recover between efforts, which depends on aerobic fitness, is very important. While a single boxing combination or a fencing flèshe does not produce lactic acid, a series of such efforts does and high acidity of the muscles lowers ability to perform these efforts. Removal of lactate (an ester of lactic acid) depends on aerobic fitness (Wawrzynczak-Witkowska 1991, Sterkowicz 1996). When sufficient oxygen is available, such as when exercise pace is slowed or you are at rest, most of the buildup of lactate is oxidized for energy and some of it is converted to glycogen (McArdle, Katch, and Katch 1991).

Aerobic fitness may be developed together with sport-specific speed or strength—when exercises recreate the pace of the fight—or in separate exercises consisting mostly of aerobic effort. The number and duration of such separate aerobic exercises depends on your individual needs. Some athletes need only two or three aerobic exercise sessions weekly, each of 20-30 minutes duration. These should be continuous low-intensity at a heart rate of 180 less their age exercises such as running, jumping rope, or some other. Other athletes may need more. To tell when and how much you need, become a student of yourself. According to P. Maffetone (1994), these are signs you need a higher ratio of aerobic exercises in your training.

1) You feel fatigued both physically and mentally, or even depressed. Depression is associated with chronic cortisol overproduction (McCarty 1994).

Highlights

STADION NEWS is published by Stadion Publishing Co., Inc., P.O. Box 447, Island Pond, VT 05846, U.S.A.

Printed in U.S.A.

Recent News about Our Authors

Athletes coached by Dariusz Nowicki, author of *Gold Medal Mental Workout,* are consistently the best.

During an international tournament in Holland (Hantei Cup in Oldenzaal, December 11, 1999) his fighters took 8 medals (3 gold, 4 silver, 1 bronze). His team won the Poland Academic Taekwondo Championships (WTF—Olympic taekwondo), November 19-20, 1999.

Dr. Usakov's teaching method receives recognition.

Dr. Valeriy I. Usakov, author of *First Steps on the Ski Trail,* has received an invitation to the 2000 Pre-Olympic Congress—International Congress on Sport Science, Sport Medicine and Physical Education in Brisbane, Australia (September, 7-13 2000).

In 1999 the kindergarten and the school working with Dr. Usakov's programs won the highest recognition for their physical education programs. Kindergarten N312 in Krasnoyarsk was awarded a certificate of excellence from the Ministry of Education of Russia. School N42 won the All-Russian competition in "Olympic Upbringing and Education." The diploma was presented to this school by the President of the Olympic Committee of Russia, Vitaly Smirnov, and the Governor of the Krasnoyarsk Region, Alexander Lebed.

The Role of Aerobic Fitness in High Intensity Efforts

(continued from page 1)

2) You get exercise injuries. High lactate level worsens your coordination so you do not move right and get injured.

3) You catch colds and other infections.

4) You wake up in the morning with difficulty and do not want to get up.

5) If you are a woman, you get PMS and menopausal symptoms because normal function of the hormonal system depends, apart from proper fat metabolism, on aerobic activity.

6) You gain fat or can't lose it.

Observation Reveals, Research Explains

Scientific research gives you reasons for including aerobic exercise in your training. If you are observant, however, you do not need to study scientific papers to know how to exercise. After all, as you see from the errors in estimating the contribution of the aerobic system to short efforts, scientists may draw wrong conclusions because of the inaccuracy of their methods or instruments.

Those coaches that carefully watch the performance of their athletes in contests and in training know, without having to study papers, what exercises and how much of them to do.

All it takes is reacting to the signs—how athletes act, perform, and feel. Imagine a boxer who can throw a few lighting-fast combinations at the beginning of a fight but later on loses speed. It may mean that he does not have enough of the source of energy for this type of effort or that he is not recovering fast enough.

A coach may react by making this boxer do such combinations more often per minute during workouts. If that does not bring any improvement because the boxer is fatigued and runs out of speed, then improving aerobic fitness may be the solution.

How much aerobic training? As much as does not cause lowering of the speed and force of the boxer's punches.

An athlete's attitude and mood is also a telltale sign. If the athlete is enthusiastic about working out and happy then the balance of exercises is right. If the athlete does not look forward to working out, is gloomy, depressed, and does not recover well after workouts—then perhaps there is too much anaerobic efforts in his or her training. Do I need to say that an athlete who does not like what he or she does and is overtrained is not going to perform well?

Aerobic fitness has a place in every athlete's training regimen. Observation—paying attention—will tell you to what extent and level of intensity aerobic training has a place in your workouts.

To emphasize the need for aerobic training in sports that do not seem to require aerobic fitness, I will close this article with a quote from Peter Rachmanliev, Bulgaria's Senior National Coach for Track-and-Field Throws (Rachmanliev and Harness 1990):

"Heavy strength training loads have a negative effect on the heart and the circulatory system which can be only partially compensated for in a natural way by cross-country runs, [ball]games, swimming and a good deal of mobility work."

References

Maffetone, P. 1994. *In Fitness and in Health: Everyone Is an Athlete.* Stamford, NY: David Barmore Productions.

McArdle, W. D., Katch, F. I., and Katch, V. L. 1991. *Exercise Physiology: Energy, Nutrition, and Human Performance.* Philadelphia: Lea & Febiger.

McCarty, M.F. 1994. "Enhancing central and peripheral insulin activity as a strategy for the treatment of endogenous depression—an adjuvant role for chromium picolinate?" *Medical Hypotheses* 43, no. 4: 247-252.

Rachmanliev, P. and Harness, E. 1990. "Long-term preparation for advanced female discus throwers." *New Studies in Athletics* vol. 5, no. 1 March 1990, pp. 69-92.

Sterkowicz, S. 1996. "W poszukiwaniu nowego testu sprawnosci ruchowej w judo." *Trening* no. 31: 46-59.

Wawrzynczak-Witkowska, A. 1991. "Znaczenie odnowy biologicznej w procesie treningowym." in Waldemar Tlokinski ed. 1991. *W kregu psychofizykalnych zagadnien profilaktyki i terapii w sporcie.* Gdansk: AWF Gdansk.

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?
Write to us at our address:
Stadion Publishing Company, Inc.,
P.O. Box 447-N, Island Pond, VT 05846, U.S.A.
e-mail: news@stadion.com

Self-Defense Tip

Mental toughness is more important in self-defense than in sports. The price of "freezing up" is much higher outside the competitive arena than inside it.

Here are two questions from martial artists on mental toughness training and the answer from Mr. Dariusz Nowicki, author of *Gold Medal Mental Workout.*

First question: I am seeking a way to help people have more faith in their martial arts when it comes to applying them to self-defense situations. I am curious about mental toughness training. Can it be applied to real life self-defense situations or is it only for sports?

Second question: I read your testimonials and found them encouraging. However, I am curious as to whether or not you provide the same mental training for streetfighting. In my time I've heard from friends and read in magazines how martial artists "freeze up" when actually confronted with a real-life threat.

Mr. Nowicki, the author of *Gold Medal Mental Workout* and the chief coordinator of psychological preparation for all Polish Olympic teams training for the Sydney Olympics in 2000, answers:

What you will achieve with *Gold Medal Mental Workout* depends on what goal you set for yourself. The exercises of *Gold Medal Mental Workout* can be adapted to any goal.

Even though *Gold Medal Mental Workout* is designed for sports, the mental abilities you can develop using it are the same as those needed in self-defense. These abilities are: self-assurance, concentration, and skills of relaxing and of mobilizing energy.

It is enough to substitute for images of sports competition your images of self-defense in the mental exercises of *Gold Medal Mental Workout* to prepare yourself for the unexpected situations of self-defense.

"Freezing up" may be caused by learning unrealistic techniques and by irrational training. Learning usable self-defense skills is covered in the Self-Defense Tip in *Stadion News* of Fall 1998.

Mental Training in the Process of Preparation for Competition

by Dariusz Nowicki, chief coordinator of psychological preparation for all Polish Olympic teams, author of *Gold Medal Mental Workout*

For many years outstanding athletes, coaches, and scientists have striven for greater sports mastery to ensure success in competition. Once the potential for improvement through better sports technique and methodology of training is fully exploited, those questing for the winning edge concentrate on sports psychology.

Because training methods, training loads, and methods of speeding up recovery used by leading athletes are very similar, based on the same widely accessible knowledge of physiology of effort, it is mental training that determines victory or defeat.

What is mental training?

Mental training is a collection of psychological techniques (mental exercises) and methods that, if systematically applied, improve control of emotions and behavior, quality of concentration, and increase endurance to stress, or mental toughness.

Mental training is tightly integrated with physical training. Both these forms of preparing athletes for competition complement each other and lead to peak form and record results.

Mental training falls into three periods:

1. Period of general mental preparation: Athletes learn to achieve the relaxation state and to concentrate attention—foundations for making positive mental changes and for developing the skill of controlling emotions and behavior.

2. Period of sport-specific mental preparation: Athletes learn mental exercises for developing the skill of ideomotor training (use of imagery to improve physical skills), sport-specific concentration of attention, and mental toughness. Athletes also learn how to include mental exercises in their regular workouts.

3. Period of mental prestart preparation: Athletes practice programs of mental training preparing for competitions—ideomotor training for perfection of sports techniques and tactics, mental exercises for control of arousal during competition and for increased confidence, and a relaxation program for speeding up recovery during strenuous workouts and competition. At the end of this period athletes internalize one program designed to prepare for a particular competition.

Who should conduct mental training?

The brief answer is: the coach and the sport psychologist.

The coach knows the athlete best because of everyday contacts during workouts. It would seem, therefore, that the coach should conduct mental training too, but usually the coach is so occupied with other duties that he or she does not have time to learn all the required psychological skills. Of course the well-prepared coach knows the fundamentals of mental training: how to use concentration exercises, ideomotor exercises; knows methods of mobilizing athletes and of releasing their mental tension. Any properly prepared coach can thus use these techniques in critical situations in training and in competition, but almost certainly will not have the specialized knowledge of a sports psychologist.

The sports psychologist works with athletes in close cooperation with the coach. The coach not only knows the athlete better but also the specifics of the sport. The sports psychologist should be a former athlete, know the methodology of sports training, and have extensive experience with mental training for sports. Being a former competitor helps the sports psychologist to understand athletes and their behavior in competitions, and to gain the trust of athletes and coaches.

So the sports psychologist is a consultant or adviser to the coach on matters of mental preparation for competition, while the coach directs the whole training process taking into account suggestions of all the collaborators, including the psychologist. It is essential that the athlete also treats the sports psychologist as a consultant or adviser and not become dependent on the psychologist's presence and help. A good sports psychologist will discourage such dependence. An athlete's improved performance is a result of mental exercises proposed by the sports psychologist and not a result of the presence of the psychologist.

Mental training in a macrocycle

The time needed for mastering particular mental skills varies from athlete to athlete. It should be long enough for the athlete to make the skill automatic. Its length depends on the frequency of mental practice. The majority of athletes practice mental skills 3-5 times per week, but some practice twice a day.

It is best to introduce mental training in a transition period (a period of relative rest following a competition period and preceding the next preparatory period) because lowered physical loads leave enough time and energy for mastering the basic skills of mental training. The exercises developing basic mental skills, such as relaxation, concentration, and positive thinking, help to deal with problems arising from the previous competitive period and increase an athlete's willingness to train.

The basic mental exercises continue into the general preparatory period. Each session of the basic exercises of mental training takes from 20 to 30 minutes and should be done once or twice every day. During the 3-6 weeks needed to master the basics of mental training, the sessions are held in a silent, warm, and dark room, and the skills may be learned in a group.

During the sport-specific preparatory period, with the basic skills of mental training already mastered, athletes progress to learning mental skills more closely related to their sport, namely, the type of concentration that is specific to their sport, and the ideomotor training for speeding up the process of learning and perfecting technical skills. During this period athletes also learn short relaxation programs for speeding up their recovery after hard efforts, and they encode a connection of starts in competitions with positive emotions.

At this time each session of mental training takes from 5 to 15 minutes and athletes practice individually. Sessions are conducted in less comfortable conditions, occasionally even in the locker room, gym, or on the bleachers.

In the competitive period, most emphasis is on the sport-specific psychological training, meaning mental preparation for specific competitions. Athletes encode emotional states associated with being in good shape, self-confidence, and belief in success. Mental exercises for eliciting the optimal state of mind for performance become a routine part of a warm-up. As the main competition get closer, athletes develop a mental exercise program for preparing for this most important competition.

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 **boldface.**

■ ***What is the average time frame from being able to do a side split after three sets of isometric stretches to being able to achieve the side split on the first isometric stretch? In short when can I expect to do a side split via isometrics without a warm-up? I have been able to do a side split at the end of my isometric workout for about two months now, but it takes about 3 sets of stretches to get that far down.***

The reason for you having to warm up before you can do a full side split may be that:

1. Your exercises, although effective enough to let you do the side split, did not have enough time to strengthen your legs as much as it takes to do splits without any warm-up; or

2. Your body has not "learned" yet that sliding into a split is safe. (This possibility cannot be considered separately from the first one.)

In my experience an instant split (with isometric stretch or without it) can take from a couple to a few months after being capable of doing full split.

I would advise doing heavy squats, lunges, and deadlifts (normal and sumo) until you can lift weights heavier than your body weight in the squat and about twice the body weight in deadlifts, and using isometric tensions to raise up from the straddle stance (extremely low horse stance), and ultimately from the side split.

■ ***When one does dynamic strength exercises for the groin and hamstrings in preparation for isometric stretches, is it better (or necessary) to do the exercises using the full range of motion? For example, regular hamstring curls use a very limited range of motion, whereas stiff-legged deadlifts work the muscle in a stretched position.***

Generally, yes, do the strength exercises in the full range of motion. You may consider doing heavy deadlifts **after** all your isometric stretches for hips. Isometric stretches leading to the side split and the front split involve strong tensions of psoas muscles that attach to the front of the lumbar spine. Back erectors are fatigued by doing stabilizing work during heavy deadlifts, back extensions, or "good mornings" and so may spasm during isometric stretches for the splits.

■ ***In your stretching video, you give guidelines on the required foundation of back strength before beginning squats using extensions on a bench for the test. As I don't have access to the appropriate sort of bench, could you give me guidelines using deadlifts? I am currently deadlifting my body weight in 3 sets of 12; is that adequate to safely begin squats?***

To begin, yes.

■ ***I am interested in plyometrics and their application to kickboxing. I had done some plyometric training when I was cycling competitively, and it really helped me develop an explosive sprint. Would specific plyometric training help develop one's ability to deliver explosive punches and kicks? Would the book* Explosive Power and Jumping Ability *provide information on plyometrics for kickboxing and exercises applicable for kickboxing or martial arts that one could follow?***

Yes. See pages 100-109 of *Explosive Power and Jumping Ability for All Sports.*

■ ***I bought your book* Stretching Scientifically *and I was wondering whether Creatine will be able to help decrease pain and increase flexibility during stretching?***

As I explained in *Stretching Scientifically* you should not stretch if you feel pain. Creatine is used in strength training to permit working out longer or harder. Stretches used in my method take little time and are not very fatiguing for a normal person; therefore, taking creatine should not have any beneficial effect.

In case of muscle soreness after workouts, I suggest eating lots of vegetables and fruits rich in vitamin C (green peppers, broccoli, black currants, oranges). More information on vitamin C and athletes is in *Stadion News* Fall 1999.