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Sports Skills and Strength Training

Athletes of different sports can't develop sport-specific strength using the same strength exercises regardless of sport. (For a definition of sport-specific strength please refer to *Periodization of Strength* by Bompa.)

Strength exercises cause morphological changes that occur mainly in muscles, including increases in the amount of muscle glycogen, the number of mitochondria, the number of capillaries, the size of muscle fibers, the structure of connective tissue, and the density of bones associated with the exercised muscles. Strength exercises also cause functional changes that occur mainly in the nervous system.

You need sport-specific exercises because both the morphological and functional changes caused by strength exercises are specific for each type of exercise. Only beginners can use one type of exercise to cause improvement in all forms of strength.

Strength training for each sport is different. The repertoire of exercises, the type and amount of resistance, the number of repetitions and sets, the frequency of workouts in a week all differ depending on the objectives of the training. Strength training of weightlifters has different objectives than that of wrestlers, track and field jumpers, or karateka.

Jumpers do their sport-specific strength exercises differently than weightlifters, and wrestlers do theirs differently yet. If athletes of different sports did the same strength training with the same exercises, the same percentages of their 1RM (repetition maximum), and so on, they would all develop the same type of strength. If wrestlers were using a weightlifters' program, they would end up with insufficient muscle endurance of short and medium duration (up to 5 minutes). If high jumpers were using it, they would lack take-off power (even though weightlifters can jump high with both legs) and lose some flexibility of the lower back.

Sports skills are not practiced independently of strength training. Sport-specific strength training includes skill practice because sport-specific strength exercises are skill exercises. For example, judoka must learn the skill of applying force both explosively and continuously, meaning that although the pull during a throw must be explosive, it cannot be jerky and its force must increase until the end of the throw. All this takes a split second and requires a specialized form of strength that is different from that of jumpers or boxers. These various types of strength are developed by sport-specific strength exercises that are also skill drills.

To be continued in the next issue

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Get Your Training Questions Answered on the Web

Visit Stadion Publishing Company's "Question and Answer on Training" web page (www.stadion.com/question.html) where you can have your question posted and answered by Stadion's authors and by other athletes or coaches.

On the page there are questions and answers about stretching and flexibility, strength training, endurance training, mental training, and technique training.

Flexibility, Strength, and Age

We thank Mr. Ollie Speakman, age 50, for sending us his photo showing the results of using our stretching method. Mr. Speakman is a karate instructor in Tullahoma, Tennessee. Here is what he wrote:

"I still refer to your book *Stretching Scientifically* I bought in 1993 after I fell in 1992 and injured my lower back.

"I took this photo a few weeks ago and you can see I have improved a lot from the first photo I sent in 1994." (The previous photo Mr.

Speakman sent us showed him doing a split between chairs, supporting himself with a cane while recovering from a serious lower back injury. That photo can be seen on the web at www.stadion.com/testimonialss.html.)



Can You Ever Stop Building Your Mental Toughness?

by Artur Poczwardowski, Ph.D., performance enhancement consultant

Being seriously involved in some competitive sport, you probably consider every means of enhancing your athletic performance. Smart practice, appropriate diet, strength training, and stretching (e.g., see the works published by Stadion Publishing) are likely examples of what you have used to excel in your sport.

Here is a question for you: How mental is your sport? If you said 50% or more you got it right! Very often mental factors account for more than 50% of a sports performance. Next question: What percent of your practice time do you spend on psychological training? Your first response might be, "How do I know that I need this stuff in the first place? I'm pretty tough mentally already." It is true. Not everybody needs to work on psychological skills to the same degree. On the other hand, no great athlete neglects the psychological part of his or her sport preparation and training.

Before we go any further consider the following thought, which originated in the former Eastern Bloc's philosophy of sports excellence: An athlete can produce maximal speed (and other components of an athletic skill) only while being in a state of emotional comfort, often called the emotional comfort zone or simply the zone (Hanin, 1980; Sozanski and Witczak, 1981).

Your state of emotional comfort is a range of emotions such that you display your full athletic potential. Some sport psychologists call this state "peak performance" or "peak experience" (e.g., Ravizza 1977, Williams 1993). These emotions differ from person to person. For some it is a feeling of joy, or of playfulness, while for others it is cold fury.

Those of you with considerable training experience probably can recall several situations during contests or during practice when every move was perfect. With reflection you also realize that in all these situations you felt nearly the same emotion. That is the emotion that represents your state of emotional comfort. Common to these situations is that athletes who experience peak performance do not have any thoughts about the outcome of their performance; they are totally in the moment and

completely with what they are doing.

Have you ever been nervous, worried, or anxious prior to or during competitions? Did you reach your full sports potential during that event? Stress and anxiety are conditions that everybody experiences in such situations. Anxiety or negative thoughts

(a) distract you and thus slow down your reaction time. (Will you be right there to counterattack your opponent?)

(b) decrease your ability to concentrate on the task at hand. (Don't you sometimes think about what's going to happen to you after you win or lose a particular fight?)

(c) make your muscles tense, which makes you slower and shows up in the interruption of your breathing pattern, fatiguing you and further increasing your anxiety. And, importantly,

(d) negative thoughts related to anxiety might weaken your motivation. (Don't you wish sometimes the competition was over before it even began?)

Even elite athletes feel anxious prior to major tournaments. What makes them champions is that they have practiced the necessary skills to cope with these mental states. How did they know that they needed this "mental stuff?" The next few pages will help you find out whether you might consider psychological skills training to improve your sport performance. Among various psychological skills that help athletes gain control over their performance, the most important seem to be these seven:

1. Self-regulation (the ability to relax or energize at will)

2. Self-imaging (the ability to produce controllable and vivid images in your mind)

3. Self-concentration (the ability to concentrate and maintain your concentration)

4. Self-talk (using positive self-talk)

5. Self-confidence (maintaining an optimal level of self-confidence)

6. Self-motivation (nurturing a strong achievement motivation)

7. Self-development (planning and using well-prepared mental routines).

For a true champion, gaining control over one's performance means smart use of the above listed skills. As a result, body

and mind work together!

Here are several questions that will help determine your mental condition. Just answer yes or no. If you think that you have experienced a described scenario more than 20% of the time, the response is yes (1 point). When this scenario applied to you 1 out of 5 times or less, the answer will be no (0 points).

1. You have trouble sleeping a night or two before a major tournament (Yes/No).

2. You perform better during practice than during competition (Yes/No).

3. Your mind is full of pictures of you performing poorly and you cannot rid your mind of these pictures (Yes/No).

4. You find it difficult to practice your sport skills in your mind with your eyes open (Yes/No).

5. You have a hard time focusing your attention, your mind wanders, and you have to constantly remind yourself to stay focused (Yes/No).

6. You allow yourself to think about what others do halfway through your warm-up (Yes/No).

7. After a mistake you beat yourself up verbally: "I'm so stupid! It's not my day. It's over" or anything similar along these lines (Yes/No).

8. You're injured and it's time for your treatment. The thought goes through your head: "Well, I have done what the doctor said six times already and nothing's changed. I'll stay home and watch TV" (Yes/No).

9. Prior to a challenging match or fight, you think that you're too weak for your opponent and you start to think about your chances in the next tournament (Yes/No).

10. When you face an opponent you defeated a couple of times earlier, you don't even bother to stretch before the fight (Yes/No).

11. The major feature of your tactics is defense and not being defeated (Yes/No).

12. Your coach says you can make another step up in ranking but you are pretty much satisfied with where you are right now (Yes/No).

13. Every time you compete, you experiment with a new warm-up or you are

(continued on page three)

Can You Ever Stop Building Your Mental Toughness? (continued from page 2)

too stressed out (or too excited) to follow your regular way of approaching competitions (Yes/No).

14. You find it foolish when some of your opponents follow the same ritual before every single match or fight (Yes/No).

If you scored 12 or more, you will definitely benefit from psychological skills training, and the sooner you do something about it, the better. Scores of 6-11 indicate that there is a substantial room for improvement in the way you psychologically approach competitions. If you scored below 6 it may indicate that mental preparation is one of your strengths—but, can you ever stop building your mental toughness?

Can you ever stop any conditioning program—physical or mental—if you want to get better and better? Just think about it! Obviously, there are more sophisticated and accurate ways of assessing your needs with regard to your mental toughness. For example, some performance enhancement professionals (e.g., sport psychologists) would use an in-depth interview with both you and your coach to learn about your strengths and weaknesses. You might have also heard about various psychological questionnaires and inventories that assess an athlete's abilities in such psychological skills as these I listed earlier. Often, observations of your practice and competitions will give a lot of insights into how you handle pressure on a psychological level. A really smart way to learn about how you will benefit from a mental training program is to combine all these sources of information. Many sport psychologists do that. If after this initial assessment of your readiness to benefit from mental training, you have found out that such a program is indicated for you, you can contact a sport

psychologist who is accessible to you, or you may contact me personally to discuss your concerns. Remember, there are plenty of good self-help materials on the market. Good examples are Terry Orlick's works (1986, 1990) or a very thorough and systematic program for combat sports developed by Dariusz Nowicki (1997) published by Stadion Publishing.

Last but not least—there is a bonus to learning psychological skills for sport performance. These skills are also life skills. You can use them at work to be more productive, at school to learn more effectively, and even in your relationships to make them work better! Yes, you are perfectly right—your self is the best investment you can make!

Contact Dr. Artur Poczwardowski by e-mail at apoczwar@hsc.utah.edu, by phone at (801) 581-4729, or by mail at the University of Utah, Department of Exercise & Sport Science, Salt Lake City, UT 84112.

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Self-Defense Tip

This issue's tip deals with an attack that can end up the same as the over-the-arms bear hug described in *Stadion News*, Fall 1997. An attacker who grabs you in a front under-the-arms bear hug can bend you backward and push you down, trip you by hooking a leg behind your knee from outside while bending you backward, lift you up and throw you down by sweeping your legs aside with a foot, or throw you back overhead (judo *uranage*). To prevent the attacker from succeeding with any of these

actions, you need to put at least one of your palm heels under the attacker's eyebrow while lowering your hips. Move your hips back away from the attacker's hips while pushing hard with your hand against the attacker's eyebrow. This push bends the attacker's head backward, forcing him/her to release the grip.

Initially your legs should be in a cat stance (neko-ashi dachi shown in *Stadion News*, Summer 1997) to protect you from kicks to the groin and inner thighs.

Why use your palm heels instead of stabbing

Martial Arts Video Reviews

Here is a review of Stadion's video *Power High Kicks with No Warm-Up!* that appeared in Martial Arts Video Reviews, a web site (<http://www.altinet.net/~karate/reviews.htm>) where you can find unbiased reviews of martial arts and self-defense videos.

Review

by Eric Mann

Martial Arts Video Reviews

www.altinet.net/~karate/reviews.htm

This tape was very good, and in my opinion, would be an excellent choice for the beginning or intermediate student. It was packed with over 60 kicking exercises.

As for the scoring, Stadion got a "10" on #2 (Instructor's demonstrated skill level). I was extremely impressed with Mac's ability. Not only did he impressively perform all the various exercises on this video, but [he] also included numerous excerpts of footage from several full contact tournaments he fought in and won. He definitely looked to be "the real deal."

And I like the fact that Stadion has one of the best return policies around. Some companies accept "no returns," others allow returns "within 30 days." But Stadion allows its customers to return product "anytime." So if you're looking for a tape on kicking, and you're a beginning or intermediate student, this could be the tape you've been looking for.

Look in the next few weeks for our review of Stadion's *Secrets of Stretching* video. This is the one we've all seen in various martial arts magazines in which Mr. Kurz does full chinese "chair" splits, several feet off the ground.

your fingers into the attacker's eyes? Because most likely you will not have enough time before the attacker buries his/her face in your chest to protect from just that defense. Why put your palm heels under the eyebrows and not under the chin? Because the same position of the head that protect the eyes hides the attacker's chin too. In addition, having your palms under someone's chin gets your fingers very close to his/her teeth.

To learn more techniques, order *Basic Instincts of Self-Defense*. (See the order form on page four).

QandA on STRETCHING (continued from previous issue)

Study these typical questions on stretching and training carefully. You may find information relating to questions of yours. The questions are in boldface type.

■ I am 47 years old. When I attempt to do side splits, even though I believe I am using the correct posture, I feel a pain in the outer part of my hip joints. Even though I feel that the muscles of my inner thighs might stretch further, I feel severely limited by this pain. It almost feels as though my joints are "locked," preventing any further movement. Is this condition normal?

Your complaint is typical for those who, while attempting the side split, do not flex their hip joints enough. When your hips are not flexed enough they jam, and the only way to spread your thighs wider is to tilt your pelvis forward (the same way as when you lean your trunk so it is parallel to the floor).

To do a side split from a standing position, the hip joint should be flexed in the same way and at least as much as when you are sitting on a low chair. This is similar to the so-called horse stance. At the beginning of a side split attempt while you are standing in the horse stance, your buttocks should be at the same level as your knees.

Report #1: How You Can Use Anatomical Tricks to Increase Your Stretches explains why the horse stance averts irritation of the upper brim of the hip socket and the resulting pain above the hip joint.

■ I have read that strength coaches Jerry Telle and Paul Chek discourage stretching after high-intensity weight training. Their thinking stems from the fact that one's muscles have been asked to contract maximally for a period of about an hour, and it is difficult and perhaps even undesirable to attempt to reverse the effects of these maximal contractions. If one does want to stretch, they recommend waiting at least five to six hours after training.

You have not specified what kind of stretches (dynamic, static active, static passive, or isometric) these coaches find

detrimental and for what sport their strength training is being used. Without knowing these facts it is hard for me to tell if what they say makes sense because such a conclusion would depend on the purpose of the strength training. For example, strength training for weightlifters has different objectives and thus is done differently than that for wrestlers or high jumpers.

Olympic weightlifters rest at least four minutes between exercises and often more than ten minutes; in this time they shake their limbs to relax their muscles and do flexibility exercises, mainly for shoulder joints. Wrestlers use much shorter rest breaks—no more than two minutes—because even when working with relatively heavy weights, their goal is to develop muscle endurance. Their breaks between resistance exercises can be filled with mild stretches or with “empty” rehearsals of their skills.

Stretches and relaxation exercises such as shaking the arms or legs and light massage are used to speed up recovery between sets of lifting heavy weights by weightlifters, track and field throwers, and bodybuilders. Usually dynamic stretches and short static passive stretches are used to help blood circulation and thus recovery of working capacity between sets. Isometric stretches are not done between sets for the muscles stressed in heavy lifts because these stretches could cause muscle strains.

The “thinking” about the undesirability of “reversing the effect of maximal contractions” seems bizarre. Even in typical, non-sport-specific strength exercises such as a bench press with dumbbells or a curved bar (like the one Shamrock uses), a deep squat, “good morning,” or a snatch (which is sport-specific only for weightlifters), maximal contraction is done from the maximal stretch. Consider Olympic weightlifters, for example. Every time they do a snatch, the muscles of their thighs and hips stretch nearly maximally (in the low squat phase) and then from that stretch tense maximally. To learn about strength training, read books on this subject listed on the Web at *The Athlete's Bookshelf* (<http://www.stadion.com/bookshelf.html>).

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