



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

Volume 7, Number 3, Summer 2000

\$3.00

Cross Training

This article continues a subject touched upon in the previous issue of *Stadion News* (Spring 2000)—cross training, and a different way to look at using the exercises of several sports in training for one sport. Cross training benefits by permitting an increased amount of physical activity without the downside of an excessive amount of the same activity.

Cross training is a primitive solution to the problem of narrow sport-specialization. There is a better solution—integrating the exercises from many sports into training for one sport. In this approach all the exercises from all the sports are prescribed, conducted, and controlled by the athlete's own coach, who knows the demands of his or her sport, knows the athlete's idiosyncrasies and his or her reactions to training loads in all workouts.

Here is a list of some sports and the purposes for which they are used in training.

- Skating, roller-skating, rollerblading—to improve balance and provide alternative means of general endurance training for other sports
- Basketball, team handball—eye-hand coordination, orientation in space, tacti-

cal thinking, reaction time, jumping ability, general endurance

- Volleyball—eye-hand coordination, reaction time, orientation in space, tactical thinking, upper body strength
- Rowing and kayaking—upper body strength and endurance, kayaking also develops balance
- Gymnastics—upper body strength, balance, coordination, flexibility, kinesthetic awareness, orientation in space, confidence
- Track and field—jumping ability, upper body explosive strength, endurance, locomotion speed, balance (discus and hammer throws), sense of rhythm (hurdles, baton changes in relays)
- Wrestling—balance, flexibility, strength-endurance, orientation in space, aggressiveness
- Weightlifting—explosive strength, confidence
- Swimming—flexibility, moving joints in “unloaded” condition, alternative means of general endurance training (including use of breath holding while swimming for artificial hypoxia)

In addition to developing all those abili-

(continued on page two)

Highlights

- **Cross Training**
pages 1, 2 and 3
- **Self-Defense Tip**
page 3
- **Q&A on Stretching**
page 4

STADION NEWS is published by Stadion Publishing Co., Inc., P.O. Box 447, Island Pond, VT 05846, U.S.A.
Contents copyright © 2000 by Stadion Publishing Co., Inc. All rights reserved. Nothing can be reprinted in whole or in part without written permission from the publisher.
Printed in U.S.A.

Flexibility and Strength



We thank Mr. Jacques Thomet for sending us this photo showing his side split at the age of 52. Mr. Thomet among his accomplishments lists kickboxing championship of Switzerland (1973), karate championships of Switzerland (1973–1974) and Italy (1989–1990), and karate Coupe de France (1975–1976). He currently teaches karate at Life Force Academy in Bradenton, Florida.

Cross Training

(continued from page 1)

ties, exercises of any sport develop general coordination—as long as they are new to the athlete. General coordination allows a person to quickly learn various, often complicated movements and movement patterns. In sports, most (but not all) exercises developing general coordination consist of movements performed for their own sake. The goal is to learn the spatial and temporal form of movements (Szczepek 1987). General coordination facilitates the development of sport-specific coordination because the performance of every new exercise is based on previously mastered movement habits. The more of these basic movement habits that are mastered by the athlete, the easier it is to master the techniques of the sport.

General coordination greatly influences the speed and precision of learning techniques, which is why tests of coordination are used in selection for technical sports.

Another function of new exercises before they are fully mastered, besides developing general coordination, is developing strong will. For example, young wrestlers who just have learned how to move on skates will find an endurance run on skates more challenging to their will than a run on foot.

Exercises from various sports can be integrated within a single workout or constitute separate workouts. It depends on the training goals and on available facilities. So, if gymnastic apparatus is installed in the same room as the wrestling mat, the wrestlers can integrate gymnastic exercises into their wrestling workout. If not, then one or more workouts per week can be done in the gymnastic room.

Here are more examples of integrating exercises from various sports into training for one sport.

- Fencers and judo wrestlers play ball games as one of the means of developing general endurance and of developing broad tactical thinking. Simplified ball games are often part of a general warm-up in these and other sports.
- Boxers do rowing and kayaking as some of the means of developing general strength and general strength-endurance.
- Weightlifters may wrestle after lifting weights to develop general strength-endurance if a wrestling mat is in the weightlifting room.

Table 1. Exercises used in training qualified athletes (Kukushkin 1983)

A—exercises used by all athletes in a given sports discipline, M—exercises used by most athletes, S—exercises used by some athletes, R—exercises rarely used, N—exercises never used.

Sports	Exercises	Competitive and sport-specific													Rowing with accelerations up to 10,000 meters over 10,000 meters	Skiing	Cross-Country	Downhill	Swimming	Hammer	Shot put	Other	Walking	Weightlifting		
		Acrobatics	Basketball	Volleyball	Other	Cycling	without apparatus or equipment	on apparatus	with equipment	High	Long	Other	Rowing	Gymnastics											Jumps	Running
Basketball		A	S	A	M	M	N	A	R	M	R	R	A	N	A	A	N	N	N	N	N	R	A	A	M	
Boxing		A	R	S	R	S	N	A	M	A	R	R	A	S	M	A	M	R	R	N	R	N	R	R	A	S
Cycling		A	R	R	R	R	A	A	R	A	R	R	R	R	M	A	N	M	R	R	R	N	N	R	A	M
Decathlon		A	M	M	R	R	N	A	A	A	A	A	N	A	A	N	N	R	N	R	M	A	A	A	M	
Discus throw		A	M	M	R	R	N	A	A	A	M	M	M	N	A	A	N	N	R	R	N	S	M	A	A	
Gymnastics		A	A	S	R	R	N	A	A	A	S	R	A	N	M	R	N	R	R	R	R	N	R	R	A	S
Hammer throw		A	M	S	R	R	N	A	A	A	M	M	M	N	A	A	N	N	R	N	N	A	M	A	A	
High jump		A	M	R	R	R	N	A	M	A	A	M	A	N	A	A	N	N	R	R	R	R	M	M	A	S
Javelin throw		A	M	M	R	R	N	A	A	A	M	M	A	N	A	A	N	N	R	R	N	R	S	M	A	A
Pentathlon		A	A	R	S	R	N	A	A	A	A	A	N	A	A	N	N	N	N	N	M	A	A	A	A	
Pole vault		A	M	R	R	R	N	A	M	A	M	M	A	N	A	A	N	N	R	R	R	R	M	M	A	S
Rowing		A	R	M	R	R	N	A	M	A	R	R	S	A	N	A	N	R	M	R	R	N	R	R	A	R
Running	100 m, 200 m, 110 m hurdles	A	M	R	R	M	N	A	M	A	M	A	A	N	A	A	N	R	M	N	R	M	M	M	A	M
	400 m, 400 m hurdles	A	M	M	R	R	N	A	A	A	A	A	N	A	A	M	R	M	R	N	M	M	M	A	A	
	800 m, 1500 m	A	R	R	R	R	N	A	A	A	R	M	A	N	A	A	A	R	M	N	N	M	M	M	A	N
	3000 m, 10,000 m	A	N	R	R	R	N	A	M	A	R	M	M	N	A	A	A	N	M	N	N	R	M	R	A	M
	Marathon	A	N	R	R	R	N	A	M	A	R	M	M	N	A	A	A	N	M	N	N	R	M	R	A	M
Shot put		A	M	S	R	R	N	A	A	A	M	M	A	N	A	A	N	N	R	N	N	M	A	A	A	
Skating		A	R	M	R	M	A	A	R	A	M	M	A	M	N	A	M	A	N	N	R	R	M	M	A	N
Skiing	Cross-country	A	R	M	R	M	M	A	M	A	R	M	M	M	A	A	A	R	A	A	M	R	M	M	A	M
	Downhill	A	S	R	R	R	M	A	M	M	M	M	A	R	S	M	N	N	A	A	R	R	R	R	A	R
	Jumping	A	M	R	R	R	R	A	M	A	M	M	A	N	S	M	N	N	A	A	N	R	R	R	A	S
Soccer		A	S	R	R	A	N	A	M	M	M	R	A	N	A	A	R	N	N	N	N	R	R	A	A	R
Swimming		A	R	R	S	A	R	A	M	M	R	N	R	M	S	M	R	N	S	N	A	N	R	R	A	S
Tennis		A	S	R	M	A	N	A	S	M	R	R	A	N	A	A	N	N	N	N	N	N	R	A	A	N
Triple jump		A	M	M	R	R	N	A	M	A	M	A	A	N	A	A	N	R	S	N	R	R	M	M	A	M
Weightlifting		A	M	R	R	R	N	A	M	A	R	M	M	N	M	A	R	N	R	N	R	N	R	M	A	A
Wrestling		A	M	M	R	S	N	A	M	A	R	R	M	N	M	A	R	N	R	N	R	N	R	M	A	M

Table 1 shows what exercises of various sports were used by East European athletes in their respective sports.

Boxing will serve as an example of how exercises from several sports are integrated into training for one sport.

Gymnastic exercises on parallel bars develop upper body strength and coordina-

tion; exercises on rings impose greater demands than exercises on parallel bars; exercises on gymnastic stalls are used to strengthen abdomen and back as well as to correct the posture of boxers. Gymnastic bars, rings, and stalls are standard fixtures in boxing gyms in Eastern Europe.

(continued on page three)

Cross Training

(continued from page 2)

Track-and-field jumps, especially the high jump, strengthen legs and develop coordination. Jumping over terrain obstacles, such as ditches and brooks, is part of an outdoor running workout.

Track-and-field throws (discus, hammer, javelin, shot put) develop speed strength and explosive strength and should be performed with either arm to help the boxers become ambidextrous. Ambidexterity (being able to use both arms with equal facility or to fight either left or right position) gives the boxer a technical and tactical advantage.

Wrestling, specifically Greco-Roman wrestling according to its standard rules, is used to develop the general strength of boxers.

Wrestling exercises such as stand-up grappling for position or for balance develop balance, familiarity with clinching, and using strength with economy in a clinch. Such wrestling exercises, with the rules altered to suit the needs of boxing—for example, prohibition of throwing—can be safely performed in the ring or even on the floor. While grappling, boxers should use skill rather than sheer force.

Rowing and kayaking develop strength and endurance of the arms, back, and abdomen.

Team games, such as ball games and hockey, develop endurance, speed, mobility, agility, quick orientation, a sense of

distance, anticipation of an opponent's movements, precision of movements in constantly changing situations, initiative, and decisiveness. Simplified team games may be used as part of a warm-up during a boxer's workout.

Tennis (lawn), develops the same attributes as the team games, but puts greater demands on the athletes because they are constantly in motion, accelerating and stopping suddenly. Table tennis perfects reaction time, a sense of distance, and orientation in space.

Gymnastic or acrobatic exercises on the floor, such as handstands, handsprings, and somersaults, develop coordination and also perfect the function of the vestibular apparatus (receptor for the senses of static and dynamic balance—very important for boxers).

Cross-country skiing develops general aerobic endurance.

Swimming develops endurance and control of breathing.

Fencing (any weapon) in its essence is similar to boxing, but it requires greater precision of perception and faster reaction.

In addition to exercises from these sports, boxers run for endurance and do general exercises with gymnastic clubs, jump rope, medicine balls, tennis balls, and weights to complement all the sport-spe-

cific work they do with partners, bags, and focus mitts.

Complex exercises with gymnastic clubs develop coordination and strength of the arms and shoulder girdle.

Jumping rope develops a sense of rhythm and coordination—specifically softness and fluidity of footwork, and if performed very fast, speed of movements.

Medicine balls are used mainly for strengthening the upper body and to teach switching from relaxation to tension (when catching the ball) and from tension to relaxation (when throwing the ball).

Exercises with tennis balls are used to develop quick reaction, coordination, and a sense of distance—for example, throwing and catching a ball bounced off the floor, off the wall, off both the floor and the wall, throwing and catching after a turn, catching one or two balls thrown at the same time by a partner.

Weights are used to develop general strength and to selectively strengthen weaker muscle groups.

References

Kukushkin G. I. ed. 1983. *System of physical education in the USSR*. Moscow: Raduga.

Szczepanik, M. 1987. Cwiczenia kształtujące zdolności koordynacyjne u dzieci i młodzieży. *Sport Wyczynowy* no. 12/276, pp. 21–7.

Self-Defense Tip

This tip will deal with selecting a gym or a martial arts school.

The first concern is what precautions are made against injuries, whether sudden or gradual-onset. Ask the instructor if he or she has completed a first aid course (including CPR), does he or she know where the nearest hospital with emergency room is, does he or she have an agreement with a physician or a nurse who will be available to help should an emergency occur during a workout or a class, is there a first-aid kit on the premises, and are ice bags always ready?

Look at the class and see what kind of floor people exercise on. If it is bare concrete, or concrete covered by carpet, wood, or a thin mat, forget this place and go elsewhere.

The only acceptable training surface for combat sports and martial arts is a springing floor which in the case of various types of wrestling (such as Greco-Roman, free-style, judo, sambo, and others) is additionally covered by the mat.

To find out if the mat lies on a springing floor, either ask the instructor or look at what happens when someone lands on it. If the shock wave travels all over the mat, then it lies on a springing floor. A

springing floor has a bounce similar to a gymnastic floor for floor exercises.

The reason self-defense or contact sports workouts should be conducted on springing floors is that such floors absorb a considerable part of an impact's energy thus protecting joints. The energy of all the hops, jumps, and throws that is not absorbed by the floor is absorbed by the joints and causes gradual-onset injuries, such as knee and back pains, shin splints, and even broken foot bones. An accidental fall in which you hit your head on a hard floor is very likely to end in tragedy, and wearing a foam helmet like those used in taekwondo may not be enough protection to prevent it.

Laying a soft mat, such as a regulation wrestling mat, on an unyielding floor protects against superficial bruises but offers little protection for the joints.

Next ask about showers and what shape they are in. Inspect them. Are they clean, without any fungi, molds, or puddles of standing water? Are the floors in the lockers and on the way to the showers clean and dry? If not, then getting athlete's foot is likely there.

No showers mean low standards of personal hygiene of the instructor and of the people who exercise in this gym. Apart from basic personal hygiene, an after-workout shower is one of the means of

speeding up recovery and should be done as soon as workout is over.

In addition to these material factors, the way the instructor conducts a workout has a bearing on the likelihood of injuries. The most obvious cause of injuries is mixing little children and grown-ups in one group. This is a serious danger for the children because an accidental bump from a grown-up can send them flying, and if struck accidentally or fallen upon by a grown-up, they can be squashed to death. Besides that, people of very different skill and fitness levels should not exercise in the same group because it is impossible to lead them through the same exercises and to have them respond similarly to these exercises. As a result of a warm-up all members of the whole group should be equally ready for the main part of the workout and during the main part their levels of arousal, their concentration, and degrees of their fatigue should be similar. If some persons are at peak of their activity but some others are too fatigued to have full control of themselves and their surroundings, and still others are too bored to pay attention, accidents can happen.

In the next two issues, you will learn how a good instructor composes and conducts a workout.

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*.

■ *Is spat taping recommended for a healthy ankle?*

It depends on what kind of action you want to tape for. It may be fine for a football game where you can twist it while falling or for a kickboxing match where you want your ankle joints to be more rigid than normal. It is not a good idea to tape healthy joints when working out in less dangerous situations.

Tape reduces the loading on the joint and the range of motion over which the joint is strengthened so it either becomes weaker or not as strong as it could be if exercised without the additional support.

This is similar to the results of using weight belts. People who do not wear weight belts while lifting weights gain more strength in the lower back and abdominal muscles than people who do the same exercises while wearing the belts (*Penn State Sports Medicine Newsletter* vol. 6, no. 9, p. 3). For a person who lifts with the belt it is risky to perform a lift without one.

■ *I've recently read through your book **Stretching Scientifically** and also through all the articles on your Web site. I know you recommend deep and heavy squats for leg strength. I train at home and don't have a spotter; nor do I have time to go to a gym. I'm a kickboxer and would like to improve my leg strength for use in my sport, and I was wondering what alternative to very heavy squats I might use, seeing as how it's not feasible to squat heavy without a spotter. Are there other exercises I could do that would produce a similar level of leg strength?*

Squats and deadlifts are the easiest lifts to self-spot. If you need a spotter for a squat, then you are lifting too much—especially in that you are a kickboxer and not a powerlifter.

■ *I am a 30-year-old woman who has been taking ballet and jazz dance classes on and off throughout my life for enjoyment and in the past 2 years consistently as an aspiring professional. I have never been able to do a front split or a side split even as a child. I want to know if your methods will help increase my flexibility in regard to dance. For example, most technical dance kicks require an upright posture with a turned out straight leg from the hip with the pelvis tilted forward. Would following your method be appropriate for the kind of body alignments I need to achieve or would they work against my goals?*

The method of stretching described in *Stretching Scientifically* affects the neural control of muscles and in case of isometric stretching also strengthens muscles in extended positions. It works regardless of the form of your movements as long as the movements themselves are not injurious.

■ *I bought your book **Stretching Scientifically** and I am eager to try your method. I don't want to hurt my muscles and so decrease my flexibility. However, I am still not quite sure how to determine when I am not overstretching, especially during dynamic stretching and isometric stretching. What are some of the feelings or signs to tell when I have stretched enough for a particular set? If pain is one of them, does that mean I should stretch till it hurts every time?*

In both dynamic and in static (isometric and relaxed) stretching you are overstretching if you feel pain. The in-depth answer to your question is on page 63 of *Stretching Scientifically*.

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

ORDER FORM



STADION

Stadion Publishing Co., Inc.
P.O. Box 447-N
Island Pond, VT 05846
(800) 873-7117, (802) 723-6175
<http://www.stadion.com>

- ___ *Basic Instincts of Self-Defense*
(video 104 min.) @ \$39.95
 - ___ *Children and Sports Training*
(hardcover 250 pages) @ \$39.95
 - ___ *Explosive Power and Jumping Ability for All Sports*
(softcover 144 pages) @ \$23.95
 - ___ *Gold Medal Mental Workout for Combat Sports*
(book, 6 audio cassettes)..... @ \$59.95
 - ___ *Power High Kicks with No Warm-Up!*
(video 80 minutes) @ \$49.95
 - ___ *Stretching Scientifically*
(softcover 160 pages) @ \$18.95
 - ___ *Tom Kurz's Secrets of Stretching*
(video 98 min.) @ \$49.95
 - ___ *The World Atlas of Exercises for Long and Triple Jump*
(softcover 136 pages) @ \$29.95
- Please circle the video system: NTSC (North and Central America) or PAL (Europe, Asia, Australia).
- SHIPPING: Air Mail for U.S.A. \$4.00 per book or video. Foreign orders: \$8.00 per book or video. Foreign orders, please pay by International Money Order in U.S. dollars only. **You may return the videos or books with original invoice and in good condition at any time for a refund of the price of merchandise (less shipping and handling).**
- The following *Special Reports* are available in electronic form only (as PDF files) and can be downloaded from our web site at <http://www.stadion.com/listrepo.html>.
- ___ #1 *How You Can Use Anatomical Tricks to Increase Stretches (15 p.)* @ \$10.95
 - ___ #2 *How Your Age Affects Your Stretching (8 p.)* @ \$5.95
 - ___ #3 *How You Can Stretch Fast for High Kicks with No Warm-Up (13 p.)* @ \$7.95
 - ___ #4 *How You Can Stretch Fast for Splits with No Warm-Up (11 p.)* @ \$7.95
 - ___ #5 *How and When You Can Do Stretches for Best Results (15 p.)* @ \$10.95
 - ___ #6 *How You Can Do Splits on Chairs (5 p.)* @ \$5.95
 - ___ #7 *How You Can Solve Typical Martial Arts Flexibility Problems (14 p.)* @ \$10.95
 - ___ #8 *How You Can Combine Stretching with Sports, Martial Arts, or Other Activities for Best Results (12 p.)* @ \$7.95
 - ___ #9 *How to Improve Your Flexibility and Prevent Injuries with Strength Training (22 p.)* @ \$12.95
 - ___ #10 *How You Can Speedup Recovery after You Were Injured (14 p.)* @ \$9.95

Name _____

Address _____

City _____

State/Zip _____

Phone _____

AmEx/Master/Visa _____

Expiration date _____

Signature _____

Checks held 14 days for clearing. No C.O.D. orders. Make checks or money orders payable to **Stadion** and mail with this order form to **Stadion Publishing, P.O. Box 447-N, Island Pond, VT 05846, U.S.A.** or call toll free: **800-873-7117**, 24 hours, 7 days a week. Fax orders: **802-723-6171**, 24 hours, 7 days a week.