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Expert Advice on Supplements and Other Means of Speeding Up Recovery

Starting with the next issue of *Stadion News* we will present several articles on use of supplements in sports training, on how physical efforts affect immunity, and on the mechanisms of fatigue. These articles will be written by Piotr Drabik, the head of the Biological Regeneration Lab and Assistant Professor at the University School of Physical Education in Gdansk.

He holds a M.Sc. in Biological Regeneration and Physiotherapy (University School of Physical Education in Gdansk), a M.Sc. in Molecular Biology (the Faculty of Biology, Geography and Oceanography, University of Gdansk), and a Ph.D. in clinical electrophysiology (University School of Physical Education in Gdansk). He also is a doctoral student at the Department of Theoretical Chemistry at the University of Gdansk.

Thanks to his background in physiology, molecular biology, and chemistry,

Piotr Drabik offers state-of-the art insight to knowledge about supplementation and speeding up recovery.

His fluency in English, Polish, and Russian, and his direct professional contacts with the Institutes of Physical Education and Sports in Poland, Russia, and Ukraine keep him very well-informed of the latest research and practices of leaders in the use of means of recovery.

Piotr Drabik, like all authors working with Stadion Publishing, is an athlete. He competed in taekwondo (WTF) with considerable success at the national level. He competed in the Junior Championships of Poland (silver in 1990), Youth Championships of Poland (silver in 1992 and 1993), Senior Championships of Poland (silver in 1992, bronze in 1995), and the International Tournament in Taekwondo, Lomza, Poland (silver in 1994). His first article will appear in the next issue of *Stadion News*.

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New edition of *Science of Sports Training* gone to press

The second edition of *Science of Sports Training: How to Plan and Control Training for Peak Performance* has gone to press and should be available in the second half of January 2001.

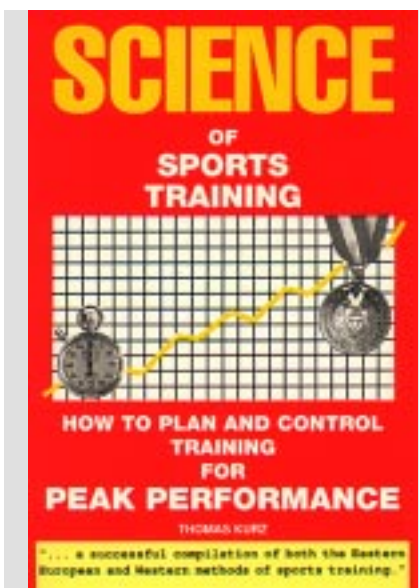
This second edition shows how to integrate nutrition with training, how and when to apply proper means of recovery for best results, and how to integrate physical training with mental training. It contains a lot of new information from East European sources never published in the West.

You will learn from this book how to plan and control sports training from workout to workout, week to week, month to

month, and year to year so you get the best results with minimum time and energy expenditure.

You will master your techniques faster, react quicker, last longer, and prevent injuries if you use the time- and energy-saving training methods revealed in this book.

The principles and methods of sports training explained in *Science of Sports Training* are illustrated by examples from several sport disciplines (track and field, swimming, cycling, boxing, wrestling, gymnastics, and ball games) presented in such a way as to make it easy to apply the conclusions to training for all other sports.



Education of a Coach and P.E. Teacher

Some readers of the two articles on cross training (*Stadion News* Spring 2000 and Summer 2000) may ask, Who can be so proficient in as many sports as is required in the examples given in those articles? In eastern Europe, at least, all professionally educated coaches—that's who.

A professional coach has to study four or six years—four years if admitted directly to coaching studies and six years if the candidate does not qualify for coaching studies but is good enough for teaching studies. During the four years of teaching studies, the candidate who competes in his or her sport may obtain a high enough standing in this sport to entitle him or her to admission to coaching studies. If this is the case, then, after completion of the teaching studies, the coaching studies take only two years.

Following is the outline of a program of studies at university-level schools of physical education in Poland that is prerequisite for further specialization in teaching and coaching. After each subject the total number of hours dedicated to it is given in parentheses.

Physical Education Subjects Outline

1. History of Physical Culture (45)
2. Organization of Physical Culture (45)
3. Theory of Physical Education (74)
4. Theory of Sports (66)
5. Physical Education for Special Needs (33)
6. Correction and Rehabilitation (33)
7. Track and Field (145)
8. Swimming and Lifesaving (108)
9. Team Handball (52)
10. Volleyball (56)
11. Basketball (48)
12. Soccer—men (48)
13. Artistic Gymnastics—women (48)
14. Gymnastics (130)
15. Judo (41)
16. Skating (39)
17. Dance (45)
18. Sailing (60)
19. Tourism and School Recreation (33)
20. Games and Plays (52)
21. Relaxation Techniques (33)
22. Technical Means of Teaching (22)

Items 5–21 on the above list are practical subjects, i.e., consist of either hands-on activity or, in the case of items 7–21, con-

sist of participation in a given activity to learn its physical skills, principles, and rules, and the methods of teaching the skills and theory. All practical subjects require passing strict tests of skills and knowledge and end with exams.

The future teacher or coach has to study more subjects than those 22 just listed, most of which deal with skills.

Studying other subjects—psychological and pedagogical sciences, natural sciences—is necessary to know what happens to people as they learn and exercise so as to optimize the process of learning and training—to know what to do with whom, and how, when, and why to do it.

Psychological and Pedagogical Sciences

1. Psychology (91)
2. Pedagogy (104)
3. Methodology of Physical Education (135)

Natural Sciences

1. Biology (45)
2. Anatomy (90)
3. Biochemistry (56)
4. Physiology (104)
5. Biomechanics (52)
6. Anthropology (39)
7. Hygiene (65)
8. Sports Medicine (66)
9. Ecology (45)

Other Subjects

1. Foreign Language 1 (127)
2. Foreign Language 2 (127)
3. Statistical Methods (33)
4. Methodology of Science (26)
5. Seminar for Master of Physical Education Candidates (68)

Social Sciences (225)

Additional Subjects Required for Specialization in Teaching

1. Methodics of Primary School Physical Education (39)
2. Physical Education at Special Need Schools (33)
3. Extracurricular Physical Education in Schools (22)

Additional Subjects Required for Specialization in Coaching

1. Theory of Recovery (22)
2. Theory of Training (22)
3. Theory and Practice of Selected Sports Discipline (228)

Book Review

The Gambetta Method by Vern Gambetta is aptly subtitled *Common Sense Training for Athletic Performance*.

In only 96 pages Gambetta introduces fundamental concepts of rational sports training. Gambetta gives sound advice without delving deeply into the science behind effective training methods, procedures, and exercises.

The Gambetta Method covers conditioning (including speed, strength, and power), rehabilitation, and planning of training.

Some differences of approach and terminology notwithstanding, this book is an excellent companion to more detailed books on sports training such as *Supertraining* by Siff and Verkhoshansky, *Periodization: Theory and Methodology of Training* by Bompa, or *Science of Sports Training: How to Plan and Control Training for Peak Performance* by Kurz.

Specialists educated within the East European system of physical culture (physical education, sports, and recreation) will find in *The Gambetta Method* a concise overview of the American state-of-the-art approach to sports training from one of the leading American authorities.

Vern Gambetta is internationally recognized as an expert in sports training. He was the conditioning consultant for the US Men's 1998 World Cup Soccer team, conditioning coach for the Tampa Bay Mutiny Major League Soccer team (1996–1997), Director of Conditioning for the Chicago White Sox organization (1987–1996), and he coached the women's track and cross-country program at the University of California, Berkeley (1977–1982).

Vern served on the advisory editorial board of the International Amateur Athletic Federation's journal, *New Studies In Athletics*, was the first director of the TAC (The Athletic Congress, currently USA Track & Field) Coaching Education Program designed to improve track-and-field coaching in the USA, was the editor of *Track Technique* (later *Training & Conditioning*), and also served on the faculty of the National Coaching Institute in Canada.

His book is available from M-F Athletic Company (www.mfathletic.com), toll-free phone (800) 556-7464 (USA and Canada only), international phone (401) 942-9363.

Our Author at the Conference of the Association for the Advancement of Applied Sports Psychology



Artur Poczwadowski, Ph.D. (right), gives individual instruction during a judo workout

Artur Poczwadowski, a sports psychology consultant, whose articles on self-confidence and mental toughness were published in the past issues of *Stadion News*, took part in the 15th Anniversary Conference of the Association for the Advancement of Applied Sports Psychology (October 18-22, 2000, Nashville, Tennessee, USA).

Together with Greg Dale (Winthrop University, USA) he organized a symposium titled "Qualitative Research Methods in Sports Psychology." Poczwadowski's presentation "Quantitative and Qualitative Research Methods in Concert: The Two Processes in Theory Generating and Testing" made during this symposium, showed

how quantitative and qualitative research methods fit into the process of scientific research and offered recommendations for future directions for sports psychology research.

Researchers using quantitative methods base their data collection and data analysis on numbers that describe different mental functions. For example, a quantitative researcher would use experimental designs and psychometric testing to find out whether with divers internal imagery is more effective than external imagery. As a result, generalization of the results to some larger population can be pursued.

Researchers using qualitative analysis, on the other hand, focus their efforts on the experiences, perceptions, and meanings that people develop in sport. For example, a qualitative researcher would conduct in-depth interviews to find out how divers use imagery and what meaning imagery training has in overall athletic experience and performance. As a result, a thorough understanding of the use of imagery by a particular diver (or group of divers) emerges.

Later during the conference Artur Poczwadowski with Clay P. Sherman

(California State University, Fullerton, USA), John M. Silva (University of North Carolina, Chapel Hill, USA), and Sean McCann (United States Olympic Committee, USA), led a colloquium exploring the issues of professional philosophy as an essential ingredient of effective sports psychology service delivery.

And finally, during the so-called poster session, together with James E. Barott (Eastern Michigan University, USA) and Keith P. Henschen (University of Utah, USA), Poczwadowski made a presentation titled "The Influence of Team Dynamics on the Interpersonal Relationships of Female Gymnasts and Their Coaches: A Qualitative Perspective." It included a portion of the results from Artur's qualitative study on athlete-coach relationships and focused on group dynamics issues and their powerful effect on the way the interpersonal relationships within the team are structured.

More information on the content of the symposium, colloquium, and of the final presentation is posted on Stadion's Web site at <http://www.stadion.com/AAASP-Conference102000.html>.

Self-Defense Tip

In this self-defense tip I continue the subject of selecting a gym or a martial arts school and instructor. The previous tip dealt mainly with the material factors that affect safety of training and also with the quality of the instructor. This tip deals with the way a workout is to be structured for most effective instruction and fitness and for the sake of safety.

In a workout run by a good instructor, exercises "flow"—each subsequent exercise in a workout builds upon the previous one. Exercises start in a warm-up from general (nonsport-specific) activities of gradually increasing intensity, with each next exercise getting increasingly similar to the main topic of the workout, to gradually becoming less intensive and more general in the cool-down.

For example, a workout for judo wrestlers with three years experience may start with walking around the mat while warming up joints of the hands and arms, then walking in a defensive posture around the mat using sliding steps, then jogging and doing roll-out falls, then a game of tag or a simplified ball game, then forming pairs and in turns with the partner walking across the mat practicing pulls of an arm sleeve. Then the same pairs practice fit-ins for a throw, which will be the central technique of this workout, in one spot or while moving in any direction on the mat. After a required number of fit-ins (from one hundred to a few hundreds for each partner, depending on the task of the workout, less if new techniques or combinations are to be learned and more if developing endurance is the

task), either a new combination involving that same throw or a new set-up is shown and practiced, or judoka (judo wrestlers) proceed to stand-up grappling practice such as *yaku-saku geiko*, *kakari geiko*, or *randori* (grappling equivalents of sparring with increasing freedom of permitted actions).

The stand-up grappling may include follow-up into groundwork right from the beginning or just in the last minutes of it. Then the groundwork-only practice may follow, which then flows into ground calisthenics that then blend with stretching and final cool-down exercises.

Such a smooth flow of exercises in a workout, with intensity of exercises gradually increasing until the main part of the workout, then staying at the reached level during the main part, and then gradually decreasing toward the cool-down prevents injuries. Abrupt changes of the character of movements cause injuries and so does an abrupt change of the intensity of efforts.

If there is a drastic drop of intensity during the main part such that athletes cool off and calm down, followed by intense exercise, it will be difficult for the athletes to mobilize for work again. Their performance will be impaired and they may get injured as they jump back into the intensive exercises.

To make exercises flow during a workout, the skills taught in consecutive workouts must build upon each other. An example of such a flow of skills where each skill builds upon the previous one is the system of learning self-defense presented on

the video *Basic Instincts of Self-Defense*. Another prerequisite for such a flow during a workout is to teach only one new major topic per workout—for example, one throw or one new combination involving known throws. The reasons for doing so is explained in the forthcoming book *Science of Sports Training*.

It is difficult to remember all the details of a planned workout, as consideration of just some of these details will suggest:

- duration, or number of sets and repetitions of particular exercises;
- the indicators of each exercise's intensity;
- alternative technical exercises for those who make errors in standard techniques; and
- other individual adjustments.

This is why a professional—one educated for the profession of instructor, coach, or p.e. teacher—will have a written lesson or workout plan. In countries where physical education is treated as equal to other academic subjects, an inspector from the ministry of education will not be content with asking whether the teacher has the plan, but will demand it while observing the lesson. Such plans, with notes on what was actually done and how, are records of training or teaching and are necessary for planning and controlling further progress. Samples of workout and lesson plans for children are in the book *Children and Sports Training* by Józef Drabik.

The next self-defense tip will deal with individualization of instruction.

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 are the best temperatures for sports training to be carried out in to ensure maximum performance?**

It depends on the type of activity. For example, temperature in a boxing gym should be 15 degrees Celsius.

For athletes of long-duration endurance events optimal temperature should not exceed 18 degrees Celsius WBGT (Wet Bulb Globe Temperature).

■ **I practice taekwondo and follow Kurz's method of stretching as described in the book *Stretching Scientifically*. I could not find an answer to my question whether [at age 14], I am ready for isometric stretching. If I am not tell me some indications I should look for, and tell me how I can get ready if I am not.**

On page 61 of *Stretching Scientifically* you will find the following statement: "Isometric stretching is the fastest method of developing static passive flexibility. It is not recommended for children and adolescent athletes whose bones are still growing." Here is my detailed explanation: Until the skeleton is fully ossified it is not safe to do isometric stretches that require maximal isometric tensions at nearly full extension. Excessively strong muscle tensions put enough compressive or tensile force on the growth cartilage to damage it and impair growth of affected bones. Very strong muscle tensions can pull away the unossified epiphysis, which can lead to a deformity of the growing bone. Full ossification of the skeleton is usually completed by the age of 17. Your physician can tell you at what stage of biological development and ossification you are.

■ **What if my legs are sore the day after a strength workout? [This is another question from the 14-year old taekwondo player.]**

Perhaps you use too great resistance or do too many repetitions for the given resistance. Children 13 to 14 years old should refrain from lifting more than 50% of their body weight. More detailed information

on the appropriate number of repetitions, sets, and frequency of workouts depending on age is in *Children and Sports Training*.

■ **I'm pretty eager about being able to do the splits in full, and was ready to follow the book *Stretching Scientifically* religiously. I heard that isometric stretching, however, can affect the growth of a person. I'm still fairly young, a teenager, and hopefully still growing, so I figured I shouldn't risk my growth if it did happen to be true. Do you recommend isometric stretching for me? Or should I just stick with dynamic, static active, and relaxed stretching?**

Relaxed stretches are safe for growing youth but isometric stretches are not. See my answer to the second question.

■ **I am training basically to have more speed in my kicks and to be able to do the splits (front and side). What types of stretching and what types of training for faster kicks (also higher) would be best for me?**

Do the dynamic stretching and the type of training shown on the video *Power High Kicks with No Warm-Up!*

■ **I am a high school football player. I need fundamentals to help me gain endurance and mostly speed. I was wondering if you knew any good book with speed drills or endurance drills?**

There are a few books that contain information on developing endurance and speed and show the speed and agility drills. The first that comes to mind is the book *Explosive Power and Jumping Ability for All Sports*. Some others, such as *The Gambetta Method: Common Sense Training for Athletic Performance* by Vern Gambetta and *Power Training for Sport* by Tudor Bompa, are listed at The Athlete's Bookshelf (<http://www.stadion.com/bookshelf.html>).

Principles of developing all physical abilities and how to reconcile development of speed with development of endurance are explained in the forthcoming second edition of *Science of Sports Training* (currently being printed and to be available soon).

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- ___ #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
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- ___ #10 *How You Can Speedup Recovery after You Were Injured (14 p.)* @ \$9.95

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