

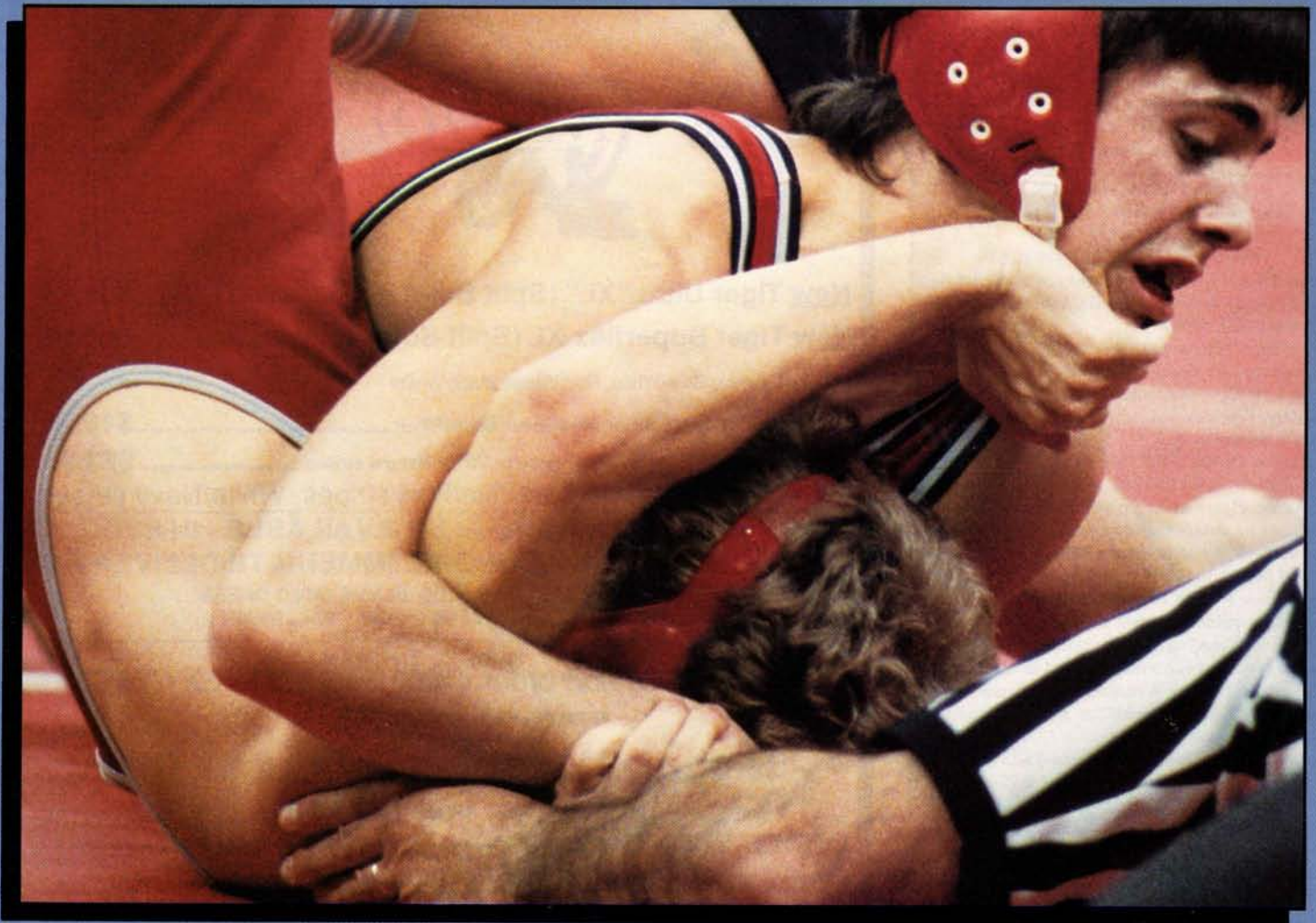


Vol. XXIII. No. 3

\$3.00

October 15, 1987

WRESTLING USA



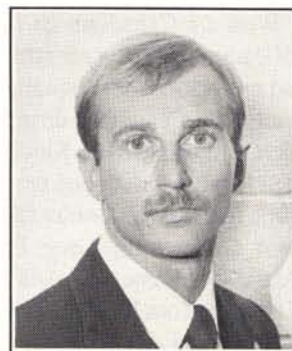
- NAIA Preview ★
- Recent Modifications InThe
Soviet Wrestling System ★
- New Perspective In
Strength Training ★

Coaching Tips

Coaching Tips is a regular feature of Wrestling U.S.A.. It's an opportunity for coaches, trainers, athletes, educators to share some helpful information with readers across the country. Tips, techniques, insights, special training, conditioning and equipment are all good meat for Coaching Tips. Let us know if you have a good idea. Send your articles to Wrestling U.S.A. today.



By Dr. Ken Cox



By Matt Brzycki, Asst. Coach, Rutgers University

The Soviets believe before a coach can interpret and fully comprehend wrestling he must have a theoretical base of scientific knowledge of the sport.

"Recent Modifications In The Soviet Wrestling System"

Introduction
I had the privilege to serve as the educational leader for a delegation of 36 North American coaches and physical educators studying at the prestigious Federal Institute of Physical Education and Sport Science of the Order of Lenin in Moscow, USSR, from June 24 to July 10, 1987. The study/tour was conducted under the terms of the 1972 Soviet-Canada agreement signed by former Soviet Premier Alexi Kosygin and Prime Minister Pierre-Elliott Trudeau. Overseeing the overall American-Soviet study/tour, which included 110 participants, was Dr. Ed Enos, founding director of the Institute of Comparative Physical Education, Concordia, University, Montreal, Canada. Dr. Enos is an internationally recognized scholar in comparative physical education.

In addition to the 15 participating wrestling coaches, the remaining 21 participants of the academic delegation were divided between coaches of gymnastics, track and field, volleyball and professional physical educators. Graduate credit for the course (PE620) was offered through San Francisco State University in cooperation with Dr. Phil Stanley, director of Study Tours Internationale. In addition a certificate in recognition of participation and successful completion of course was awarded by the Federal Institute. For those in the wrestling section the course was titled "The Science of Coaching Wrestling in the USSR Soviet Wrestling School." Each sports section studied in their particular academic department at the institute. The remaining 64 study/tour participants were competitive gymnasts, directors and officials under the direction of Gary Goodson, technical director of USAIGC.

You must separate fact from fiction in order to make a logical and practical application that are in the best interest of your wrestlers.

New Perspective In Strength Training

In 1986, Nautilus founder Arthur Jones revealed the results of a 13 year old research project. The findings have appeared in various fitness-oriented magazines as "Exercise 1986." The project identified four physiological factors which were documented by data of incredible accuracy.

Those of us who are involved in strength training are continually bombarded by huge amounts of information. From this information, we must separate fact from fiction in order to make logical and practical applications that are in the best interests of our athletes. Therefore, this article will discuss the implications of this breakthrough from a coach's viewpoint and suggest how your wrestlers can correctly apply this important information in the weight room.

RESPONSE TO EXERCISE

The first factor deals with an individual's response to exercise. Apparently, there exists at least two distinct types of response to exercise. These responses have been designated as Type S and Type G. Type S individuals have a specific response to exercise. Given a limited range exercise (such as partial movements) these individuals will experience a limited range effect. In addition, the effect is specific to the range of movement involved in the exercise. After the initial testing of 600 subjects, it appeared that roughly 72% of a random group of people have a specific response to exercise. On the other hand, it seems that about 28% of a random sample have a general response. These individuals, Type G, have an effect throughout a full range of motion even though exercising over a limited range.

How is this information meaningful? For years, most coaches have

continued page 25

Coaching Tips continued

insisted that their athletes should exercise throughout a full range of motion in order to receive a full range effect. Does the identification of this factor mean that full range exercise is no longer necessary? Certainly not! If anything, this factor firmly establishes the need for full range exercise since almost three out of every four people have a specific (or Type S) response. And even if certain individuals show a general response, the results produced in the unworked area are not in proportion to those in the worked area. Furthermore, all individuals - whether their response is specific or general - should exercise throughout a full range of motion in order to maintain or promote flexibility.

This does not mean to imply that your wrestlers should avoid limited range movements. During rehabilitation, for example, an athlete can exercise throughout a pain-free range and still manage to stimulate some gains in strength. In short, however, full range movements are more productive and should be performed by everyone.

MAGNITUDE OF EFFECT

A second factor relates to the immediate (or short term) effect of exercise. The effects of exercise vary from one individual to another. Despite training at a high level of intensity (as in achieving muscular failure), some individuals receive only a slight effect in that their momentary reduction in strength is quite small. Since they have made little inroads towards stimulating muscular growth, they receive minimal benefits. During an endurance test with 80% of their maximum, these individuals can perform a relatively large number of repetitions indicating a high degree of muscular endurance. Conversely, other individuals experience a great effect from high intensity exercise. By comparison, their momentary reduction in strength is tremendous. They can perform only a few repetitions with 80% of their maximum.

This discovery does not mean that high intensity exercise is counter-productive, although if the effect is too great it may actually prevent muscular growth. Generally speaking however, all individuals should train in a high intensity fashion.

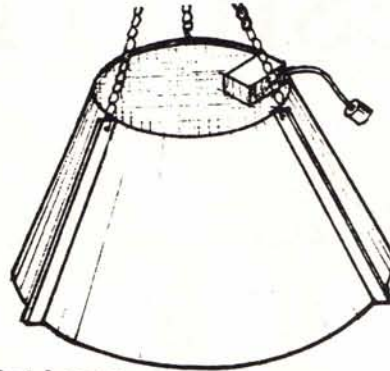
Mr. Jones' research has probably revealed a non-invasive method of determining fiber types. In all likelihood, those individuals with little effect from exercise possess a high percentage of type I (or "slow twitch") fibers while those who exhibit a great effect have a high percentage of type IIb (or "fast twitch") fibers.

A startling discovery? Absolutely. No longer must we ascertain fiber type by taking a plug of muscle tissue during a biopsy. More importantly, this implies that some of your wrestlers, because of their predominant fiber type, will require a slightly lower or slightly higher repetition range in order to maximize their response to exercise.

So how can a wrestling coach at Small-town High School determine optimal repetition range for his athletes? One way is to have each wrestler perform an endurance test with 80% of his one repetition maximum. For example, if you have a wrestler

who can do a bicep curl with 100 pounds, then 80 pounds would be used. If the athlete does a relatively high number of reps (more than about 15) with 80% of his maximum, you can assume his biceps are primarily composed of the so-called "slow twitch" fibers and adjust his repetition range to 12-15. On the other hand, if he performed a rather low number of reps (less than 5 or 6) with 80% of his maximum, it's likely that his biceps have a lot of the type IIb fibers. Therefore, his training response will be greater from a repetition range of 6-9. Since the distribution of fiber types varies from

Light-Force Mat Lamp



Light-Force Mat Lamp.....

The Force is with you when you use a Light-Force Wrestling Mat Lamp. You will sell more admission tickets with this new great way to highlight Wrestling. It's easy to install and you can remove it in 5 minutes for storage. The Light-Force wrestling Mat Lamp is Engineered to get the maximum light for your money. Designed for Wrestling Mats from 36 to 42 feet. Buy one now and make Wrestling a revenue Sport for you!

SPECIFICATIONS:

- 12/3 wiring, 110 volt capacity and 2000 watts
- Comes complete with 4 receptacles and bulbs
- Lamp made of high strength steel
- Individual components UL approved
- All wiring is done by licenced electrician
- Will custom paint your school colors

SHIPPING SPECIFICATIONS:

- Shipment within 10 days
- Shipping crate size 4 feet by 39 inches, 49 pounds

SEND: \$295.00 Each

Light Force Mat Lamps

602-775-5458

**3172 Kings Hwy North
Prescott Valley, AZ 86314**

muscle to muscle, an endurance test would have to be performed for each muscle group.

Unfortunately, determining an athlete's single repetition maximum for most exercises is somewhat dangerous when using conventional equipment and, therefore, not recommended. However, a less accurate albeit much safer means of estimating individual repetition ranges can be used. Suppose an athlete reaches absolute muscular failure on a leg extension machine using 100 pounds and a training partner reduces the weight immediately after the final rep. If the athlete can perform a few more reps with

about 70 or 80 pounds, his momentary reduction in strength was obviously quite small. This would indicate that his quadriceps probably have a high percentage of type I fibers. If it is nearly impossible for him to do but a few reps with 20 or 30 pounds, his reduction in strength was extremely high. Therefore, it's a good bet that his quadriceps are predominately "fast twitch." Again, this procedure isn't nearly as precise but somewhat safer. It should also be noted that previously suggested repetition ranges (i.e. 6-12 for the upper body and 10-15 for the lower body) still serve as excellent guide-

lines for the majority of people although it now appears that we can accelerate some individual's response to exercise by modifying those ranges slightly.

RECOVERY ABILITY

The next factor pertains to an area of major concern for wrestling coaches - recovery ability. It seems that some individuals have a rather high tolerance for exercise and recover quickly; others have a low tolerance for exercise and recover somewhat slowly. Those individuals who have a low recovery ability must train cautiously in order to avoid poor results.

Most individuals require 48-72 hours of recovery time between workouts. As a coach, you can identify those wrestlers who have a low tolerance for exercise simply by monitoring their progress in the weight room. Athletes who fail to show progress over the course of a few workouts may need additional recovery time.

Remember, an athlete need only perform one set of each exercise to the point of momentary muscular failure to achieve maximum gains. An entire routine should consist of no more than 14-18 exercises. The addition of either more sets or more exercises will only cause the demands to exceed the athlete's recovery ability and result in a loss of strength. If anything, the volume of work done in the weight room should be reduced when progress plateaus.

Incidentally, lack of progress during wrestling season is not unusual. Because of the increased activity level, gains in the weight room may be minimal at best. For this reason, your athletes should strength train twice a week at most during the season to allow for adequate recovery.

THE STRENGTH RATIO

The final factor deals with the relationship between three distinct levels of strength - positive, static and negative. Your positive, or concentric strength represents your ability to raise a weight. In a static position you can hold about 20% more than you can raise; you can lower approximately 40% more than you can raise. So, if you can lift 100 pounds, you can statically hold 120 pounds and you can lower 140 pounds. The difference in strength is a result of internal muscular friction.

These ratios have been established for a fresh muscle. Furthermore, it is a relatively constant ratio. In other words, if you increase the negative strength of a muscle, both your positive and static strength will increase accordingly. But again, this ratio is only true of a fresh muscle. As a muscle

RESILITE

World's Largest Manufacturer of Athletic Mats



OHIO STATE (Remodeled facility featuring RESILITE RSP600 1.2" wrestling mats, RSP600 permanent type wall padding and RESILITE 1/2" underlayment.) Truly one of the world's finest wrestling facilities.

FOR THOSE WHO WANT THE BEST

RSP400I (Uniroyal WTC) - 1 1/4" thick - sure footing with added protection - overall best value.

RSP600 (Ensolite® AAC) - 1" and 1.2" thick - inexpensive enough to fit any school's budget.

RSP500 (Rubatex R310V Embossed) - 1" thick - longer lasting and more durable - but more expensive.

Underlayment - 1/2" thick - adds more impact protection and protects your mat from alkaline stains.

Quality Factory Reconditioning of Wrestling Mats

RESILITE

P.O. Box 764
Sunbury, Pennsylvania 17801

OUTSIDE PA, PHONE: 1-800-THE-MATS

PA PHONE: (717) 473-3529

Wrestling Mats — Underlayment — Folding Mats — Landing Mats
Floor X Mats — Permanent Type Wall Padding — Wainscoting
Resi-Pits — Factory Reconditioning — Home Exercise Mats

tires, the ratio of strength changes dramatically. When your positive strength has fatigued to the point that you can no longer raise a weight, your negative strength reserve is still enormous. In fact, your negative strength may be as much as 50 times greater than your positive strength.

As Mr. Jones points out, this factor can be extremely important during the rehabilitation of injuries. For example, if an athlete with a severely atrophied limb does not have the strength to lift even the lightest of loads, he may be able to lower the weight. In this way, he can still stimulate the muscle to grow. And remember that an increase in negative strength will produce an increase in positive strength.

The practical application of this factor in the weight room is quiet similar. Suppose that a chin bar is the only piece of equipment that is available to train your upper back musculature. Let's also assume that your heavyweight does not possess adequate upper body strength to pull his chest to the bar. Instead of neglecting this exercise altogether, he can perform the movement in a "negative only" manner. This is done by starting the exercise in the contracted position with his chest touching the bar and then lowering himself to the stretched position in about 6-8 seconds. One set of this exercise will stimulate the musculature to increase in a "negative only" manner in order to provide for variety in their routines. The previously stated guidelines apply except that each athlete should use about 40% more weight than he would normally handle in a positive fashion.

This fashion also seems to suggest that greater gains will be produced when a few post-fatigue repetitions are performed immediately following muscular failure. When an individual reaches muscular failure, it is because his positive strength has become exhausted such that he simply cannot lift the weight. Again, his negative strength is still very high. Therefore, a training partner or coach can assist the lifter in raising the weight while the lifter resists the movement during the lowering phase. Post-fatigue reps will cause an athlete's momentary reduction in strength to be greater thereby causing a greater effect. The end result is a more efficient and more productive method of training.

Finally, since an individual can lower more weight that he can raise, it stands to reason that the negative phase of the movement should be emphasized. In other words, if you raise a weight in 1-2 seconds, you

should lower it in about 3-4 seconds. Indeed, the negative phase of a repetition is at least as important as the positive phase.

CONCLUDING REMARKS

At this point in time it may seem somewhat premature to describe Mr. Jones' research as the most significant findings ever made in the field of exercise. However, the potential far-reaching effects of these four physiological factors are staggering. Understanding these factors and properly applying them to your strength program could very well mean the difference between average results and superior one.

EDITORS NOTE:

Mr. Brzycki will have a regular column in Wrestling U.S.A. You may submit questions concerning strength training. Send your question to Matt Brzycki, Assistant Strength Coach, Rutgers - The State University of New Jersey, Division of Intercollegiate Athletics C N 5061 New Brunswick, New Jersey 08903

Wrestling USA Statement of Ownership Management & Circulation

Published 12 times yearly, 132,000 published at \$22 a year. 3018 E. Hartford Rd, Orange CA 92669

Editor and Owner, Lanny Bryant
Total No. Copies issued during 12 months - 11,000

Total Paid Circulation - 10,500, Free copies distributed - 300, Total distribution, 10,800

Copies not distributed - 200

Sunkist Kids Freestyle Open

October 30 - 31
Phoenix College
Phoenix, Arizona



SUNKIST KIDS Wrestling Club

- Must be high school graduate
- Standard international weights with 2 kg allowance
- \$10 entry fee
- 1988 U.S. A. card required
- Championship Ring Series
- Tblisi qualifier

CONTACT:

Joe Corso

PO Box 1029

Glendale AZ 85311

602-937-1641

Joe Romero

Phoenix College

602-285-7263

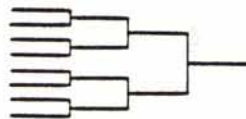
WRESTLING AIDS

A DIVISION OF

EDUCATIONAL MATERIALS CO.

Wrestling Tournament Wall Charts

Use these items and have



MORE EFFICIENCY

MORE COLOR

MORE PROFIT

A MORE

PROFESSIONAL

LOOK

A MUCH EASIER JOB

Tournament Bracket Charts

Send us the name of your tournament, number of teams and color of printing and we will print these charts for you.

- Individual Match Score Cards
- Meet Directors Scorecard
- Referee's Plastic Flip Disc
- Identifying Ankle Band
- Three Inch Mat Tape
- Wrestling Shoes
- Awards
- Practice Gear
- Nylon Conditioning Suits
- Tee Shirts
- Wrestling Bumper Stickers
- Wrestling Ranking Board
- Many other wrestling items

Tournament Charts Also Available for Other Sports

SEND FOR FULL CATALOG

WRESTLING AIDS CO.

P.O. Box 39012 • Indianapolis, IN 46239

TELEPHONE 317-862-4013