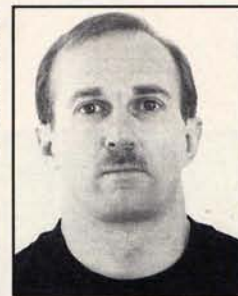


Weight Training

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Metabolic Conditioning - Part 2

You can improve your metabolic conditioning by simply performing your strength training with a high level of intensity while taking very little rest between exercises. Performed in this fashion, the shared demands placed on your major biological systems create a metabolic conditioning effect that cannot be approached by traditional methods of training. The two most popular types of metabolic workouts are high-intensity training and circuit training.

HIGH-INTENSITY TRAINING (HIT)

One form of metabolic conditioning that has recently seen a renewed interest is high-intensity training or, simply, HIT. In the early 1970s, Nautilus inventor Arthur Jones popularized the brief, intense strength-training workouts that would later become known as HIT in the mid-1980s. In recent years, HIT has gradually become increasingly popular among highly competitive male and female athletes in a variety of sports and activities. HIT is currently used by professional athletes in the National Basketball Association (NBA), the National Hockey League (NHL) and Major League Baseball (MLB) as well as nearly one dozen teams in the National Football League (NFL). In addition, HIT is used by thousands of collegiate athletes who participate in virtually every sport imaginable -- and the numbers are growing.

There are many interpretations and variations of HIT. However, most versions of HIT have several common denominators. As the name implies, HIT is characterized by intense, aggressive efforts -- each exercise is typically per-

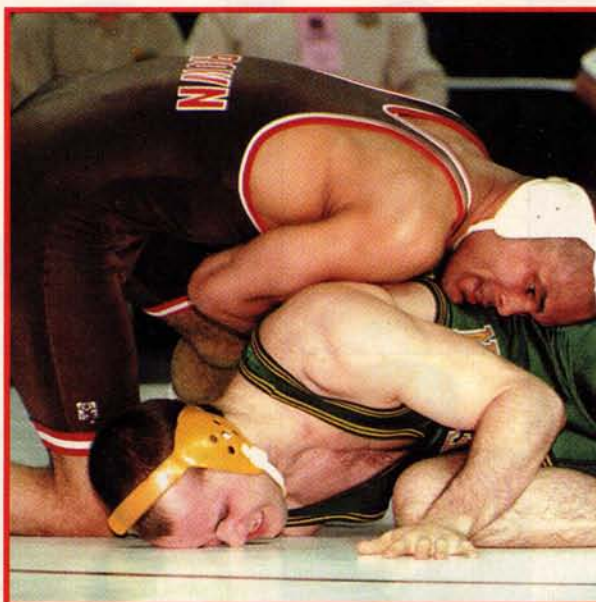
formed to the point of muscular fatigue or "failure." A minimal number of sets is usually performed -- often only one set of each exercise but sometimes as many as three sets. Another characteristic of HIT is the emphasis on progressive overload -- whenever possible, an attempt is made to increase either the repetitions that are performed or the resistance that is used from one workout to the next. With safety as a major concern, HIT doesn't include explosive movements or momentum -- all repetitions are done with a controlled speed of movement. Additionally, HIT is comprehensive -- training all of the major muscle groups is a priority.

In general, HIT also involves very brief workouts with a minimum amount of recovery taken between exercises. The short recovery interval between exercises enables you to maintain a fairly high heart rate for the duration of the workout. Like other forms of metabolic conditioning, the length of the recovery interval taken between exercises depends upon your present level of metabolic fitness. The recovery period isn't structured, timed or predetermined. Initially, however, a recovery time of perhaps three minutes may be necessary between efforts; with improved fitness, your pace should be quickened to the point where you are moving as rapidly as possible between exercises.

In short, HIT places an incredible workload upon every major muscle in your body and, at the same time, stresses your circulatory and respiratory pathways. Furthermore, this type of workout can be used to improve your metabolic conditioning in a safe and time-efficient manner.



1998 NCAA Division I Championships. 142 lb. Oregon State's Oscar Wood pins Missouri's Mike Harp in 1:26.



1998 NCAA Division I Championships. 2nd round, 158 lb. Brown's Tivon Abel controls Oregon's Sean Morgan on his way to a 8-4 win.

CIRCUIT TRAINING

One of the oldest and most popular forms of metabolic conditioning has been dubbed "circuit training." The birth of circuit training can be traced back to England in the 1950s. With circuit training, the idea is to perform a series of exercises (or activities) in a sequence or "circuit" with a very brief recovery period between each "station." In a sense, therefore, circuit training is a form of interval training.

Circuit Weight Training

The merger of circuit training with weight training is known as "circuit weight training" or, simply, CWT. Usually, CWT is performed on a multi-station apparatus -- such as a Universal Multi-Gym. There are several advantages in using multi-station equipment for CWT. First of all, the exercises of multi-station equipment are in close proximity to each other which allows you to move quickly around the circuit. Secondly, the selectorized weight stacks of multi-station equipment enable you to make faster and easier adjustments in resistance. Nevertheless, CWT can also be performed with single-station pieces and/or free weights provided that the distance between the equipment isn't too great.

CWT is very versatile -- the number of exercises/stations, the number of repetitions performed and the amount of recovery taken between movements can be manipulated. The number of exercises done in the circuit and the amount of recovery taken between the exercises is a function of your level of fitness. However, a comprehensive session of CWT involves a series of about 12-14 exercises or stations that target each of your major muscle groups. A total-body circuit on a Universal Multi-Gym might be as follows: leg press, leg curl, leg extension, bench press, dip, pull-up, lat pulldown, seated press, shoulder shrug, bicep curl, tricep extension, wrist flexion and sit-up. (Several other productive exercises can be done on most multi-station equipment including the upright row, knee-up and side bend.)

At each station, you can either perform a given number of repetitions or do as many repetitions as possible during a specified time frame (with a controlled speed of movement). At a pace of 60 seconds per exercise with 30 seconds of recovery

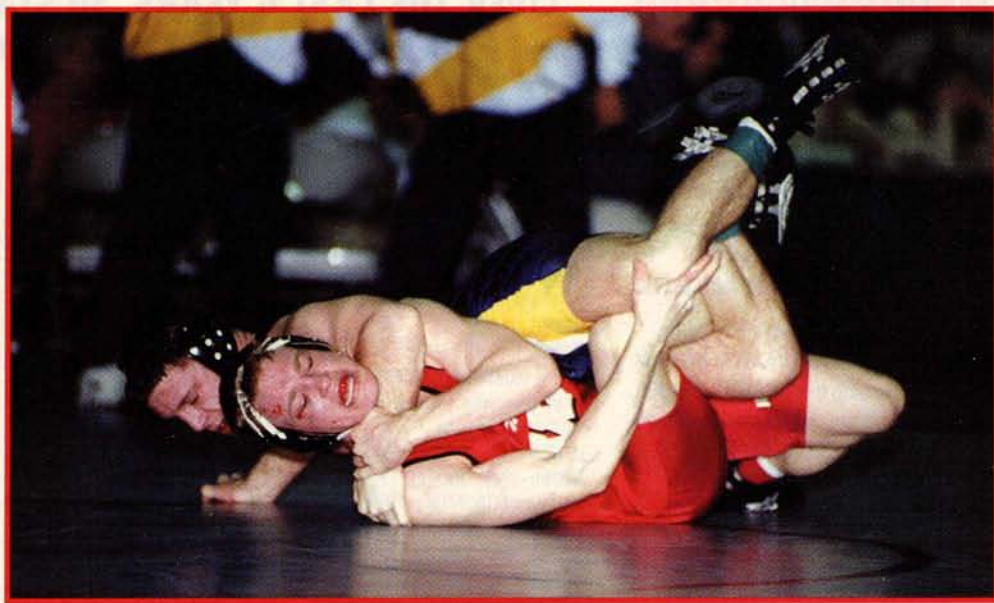
between stations (including the set-up for the next exercise), you can complete a circuit of 12 - 14 stations in as little as 18 - 21 minutes. It should be noted that the resistance used at each station should permit you to reach muscle fatigue by the end of the allotted exercise time.

To ensure that you obtain continued metabolic improvements from CWT, your metabolic system can be progressively overloaded by (1) increasing the resistance used at a given station; (2) increasing the length of the work interval (thereby doing more repetitions); (3) decreasing the length of the recovery interval taken between stations; or (4) any combination of the three previous options.

To summarize CWT: You begin at a particular station and complete one set of an exercise. After this, you move to the next station in the circuit, prepare for the next exercise and rest for the remainder of the recovery period. This cycle is repeated over and over again until you complete the entire circuit.

Circuit Aerobic Training

In the last few years, there's been a growing interest in circuit aerobic training (CAT) which involves a series of aerobic cross-training activities or stations. The circuit can be designed a number of different ways -- the number of cross-training activities, the duration and intensity of each activity and the amount of recovery taken between stations can be varied. Most of these variables are dependent upon your fitness level. Your goal, however, is to perform the equivalent of about 20-60 minutes of aerobic activity with an appropriate level of effort. Keep in mind that thirty minutes of exercise can be done as one 30-minute session, two 15-minute sessions, three 10-minute sessions or even six 5-minute sessions. So, you might exercise for 10 minutes on a stationary cycle, 10 minutes on a rower and 10 minutes on a stair-climbing machine for a total of 30 minutes of cross-training activity. Or, you might perform each of those same three activities for 5 minutes but repeat the circuit twice for a total of 30 minutes. Regardless, your level of intensity should be as high as possible during the efforts. (It probably wouldn't be practical -- or permissible -- for you to monop-



1998 NCAA Division I Championships. 150 lb. West Virginia's Mike Mason gets back points on Wisconsin's Don Pritzlaff on his way to 9-4 win.

olize a group of activities for intervals of less than five minutes per station in a commercial facility.)

Other Variations

Yet another version of circuit training is to integrate weight-training exercises with one or more aerobic-training activities. For instance, you might do a strength-training exercise, pedal a stationary cycle for 1 - 3 minutes, do another strength-training exercise, pedal a stationary cycle for another 1 - 3 minutes and so on.

The "Fitness Trail" is a form of circuit training that originated in several of the Scandinavian countries. This method of circuit training is performed outdoors in a natural environment such as a park. A typical fitness trail consists of numerous stations that are positioned several hundred yards apart and arranged along a circuitous route. A wrestler would run to a station, stop and perform some type of agility (i.e., hurdles, log walks and vaults), calisthenic (i.e., push-ups, sit-ups, chins, dips) or flexibility exercise and then proceed to the next station.

THE METABOLIC CHALLENGE

Metabolic conditioning presents an



US Open National Women's Freestyle. 101.25 lbs. Final. Afsoon Roshanzamir, California was defeated by a fall in 2:08 by Rosemarie Unpingco-Penin of Orlando, Florida. Photo by Sonja Stanbro.

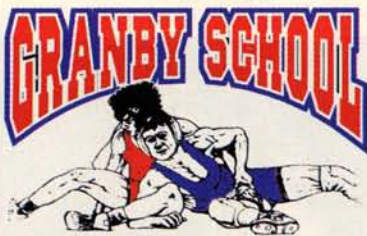
enormous physiological challenge to your musculoskeletal, respiratory and circulatory systems. By combining strength training with aerobic activities, you can improve your metabolic fitness and better

prepare yourself for wrestling -- a sport in which you are required to integrate your muscular strength with your aerobic conditioning.

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