

January 1990

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Recommended Citation

L Kravitz and C J. Cisar. "Resistance-training techniques" *IDEA Today* (1990): 47-49.

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By Len Kravitz, MA, and Craig Cisar, PhD

Resistance-Training Techniques

After clients or students have been training for an extended period of time, you need to stimulate their muscles in different ways to break through the inevitable plateaus so they can make further gains. Many of the most popular training techniques (several of which are described in this article) have been used successfully by bodybuilders and power lifters, although they have yet to be fully tested scientifically to find out why they work.

Nevertheless, these techniques are sound, and their effectiveness rests upon the most fundamental principle of conditioning: progressive overload. Along with increasing resistance, they add variety to a workout. By diversifying your training programs, you can avoid overtraining muscle groups because you are systematically manipulating and changing the training stimulus on the body.

Not all training techniques give the same result for each individual. Fitness level, heredity and motivation affect the nature of the gains with each training system. If you're working one-to-one, we encourage you to keep a dated training log as you introduce these methods,

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frequently assess each method, and regularly seek feedback from your clients.

To get greater results from your training programs, whether in personal training or a muscle-conditioning class, try some of these training techniques.

MUSCLE PRIORITY TRAINING

Each semester we survey and/or test the participants in our fitness classes to identify specific body areas of concern. The answers allow us to utilize a technique called "muscle priority training." This method involves working the less developed muscle groups early in the workout when the exerciser has the most physical and mental energy. This system is also effective in cutting back the intensity of training for muscle groups that are identified as relatively strong.

PYRAMID TRAINING

One of the most popular and easy-to-introduce resistance-training techniques is pyramid training—ascending and descending. Ascending pyramids follow a light-to-heavy progression of sets. The first, and lightest resistance, set is performed for 10 repetitions. The second set increases the resistance slightly and has eight repetitions. The third set progresses in resistance and has six repetitions. If a fourth and fifth set are desired, the resistance sequentially increases while the repetitions decrease.

Ascending Pyramid

1st set	10 reps	20 lbs
2nd set	8 reps	25 lbs
3rd set	6 reps	30 lbs
4th set	4 reps	35 lbs
5th set	2-3 reps	40 lbs

Descending pyramids, on the other hand, follow a heavy-to-light progres-

sion of sets. An advantage of this technique is that the participants can optimize their time by employing shorter rest periods between sets.

Descending Pyramid

1st set	2 reps	40 lbs
2nd set	4 reps	35 lbs
3rd set	6 reps	30 lbs
4th set	8 reps	25 lbs
5th set	10 reps	20 lbs

You can incorporate a descending pyramid quite effectively with a push-up. Using this heavy-to-light technique, perform the first set of push-ups with the standard straight-body, full-range-of-motion procedure. To decrease the resistance in the second set, place the legs in an open or straddled position. To further decrease the resistance in the third set, place the knees on the floor (matted for protection). You could finish with a lighter set of "half" push-ups or push-ups performed against a step, bench or wall.

SUPERSETS

Supersets are two exercises performed consecutively followed by a short rest interval. Supersets may involve working the same muscle group with different exercises or working antagonist muscle groups, such as biceps/triceps, shoulders/lats or chest/back muscles. For example, after completing a set of repetitions on the leg curl machine, the participant moves directly to the leg extension machine and performs the required repetitions, then rests for 60 seconds. The exercise/rest sequence is repeated three to five times. (Which exercise starts the superset is unimportant.)

Supersets recruit many motor units of the overloaded antagonist muscles. The

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increase in innervation to both of the working muscles results in more muscle fibers firing—making both muscles do more work. For most people, it is a very effective technique for overall fitness or for specialized training.

Superset

exercise 1	(i.e., leg curls)	1 set
exercise 2	(i.e., leg extensions)	1 set
Rest 60 seconds. Repeat 3 to 5 times.		

TRISSET SYSTEM

As the name implies, the triset system consists of three exercises performed in succession with no rest between them. As a fitness practitioner, you have the op-

tion of either incorporating three exercises for different body parts or overloading a specific muscle group with three exercise variations. For instance, you could instruct the student to perform three distinct back exercises, as is shown in the example. The participant moves from one exercise to the next, resting only when all three sets are completed. The sequence is repeated two to five times.

Triset

exercise 1	(i.e., variation row)	1 set	5 lbs
exercise 2	(i.e., single-arm row)	1 set	5 lbs
exercise 3	(i.e., upright row w/elastic)	1 set	
Rest. Repeat 2 to 5 times.			

GIANT SETS

A giant set consists of four to six exercises performed one after another, then repeated after a rest. One of the most effective applications for giant sets is abdominal work because you are able to stimulate a great number of abdominal muscle fibers.

Giant Set
(ABDOMINAL EXERCISES)

- slow crunch, feet on floor
 - reverse crunch, lifting lower torso
 - rotational crunch
 - lateral flexion crunch
 - crunch lifting shoulders & lower torso
- Perform 8 to 16 reps of each exercise in sequence. Rest briefly and repeat.

Sample Triset System

The following exercises can be used in muscle-conditioning classes or individual strength programs. For best results, perform two to three sets to reach the following goals:

- strength—4 to 8 reps
- strength and endurance—8 to 12 reps
- endurance—12 to 15 reps

Note: Photographs show the starting position on the left and the end position on the right.



Single-Arm Row (latissimus dorsi, rhomboids, biceps, brachialis)—performed with 2- to 5-lb dumbbells (or more) on a step or bench.

Starting Position: Place one leg on the step, extending the arm on the opposite side of the body straight down (holding the dumbbell). Bend the other arm at the elbow and rest it on the knee. The back is bent forward but straight, with the chest squarely facing the floor. The leg on the floor is slightly bent.

Action: Pull the weight directly upward, keeping elbow along the side. Lower the weight slowly and repeat. Perform on other side.

Training Tip: Participants have a common tendency to twist the trunk outward as the elbow is drawn up, which can injure the lower back. Chest and hips must face the floor squarely.



Upright Row (upper trapezius, levator scapulae, deltoids, biceps, brachialis)—performed with elastic resistance on a step or bench.

Starting Position: Stand on the step with body erect and arms extended to the side. Grasp the elastic resistance, which has been looped under the step.

Action: Slowly pull the arms up until the hands are near the chin. Return to starting position and repeat.

Training Tip: It is good to vary the width of the pull. If the hands move out toward shoulder width, the exercise will work the deltoids more.



Variation Row (middle and upper trapezius, posterior deltoids, rhomboids)—performed with dumbbells (2 to 5 lbs or more) on a step or bench.

Starting Position: Sit on the step with legs bent and feet placed squarely on the floor. Arms are bent at a 90-degree angle at each side. Back is straight and bent slightly forward.

Action: Slowly pull the arms/elbows up and back as far as is comfortable. Return to starting position and repeat.

Training Tip: Try a “peak” contraction with each repetition by holding the arms for a few seconds at the farthest point back and focusing on tightening all the back muscles.

To vary the giant set, you can easily change the sequence of your exercises and/or modify the tempo. We also recommend periodically combining different exercises into new giant sets to offer a new stimulus to the body part.

QUALITY TRAINING

Quality training combines the physiology of muscle contractions with proper training techniques to get optimal results. These advanced training techniques are new tools to use in your exercise sessions. When performing all exercises, encourage your clients to focus on the muscle, contracting it to its fullest throughout the complete range of motion. By physically and mentally recruiting the maximum number of muscle units possible, they will be intensifying the technique and will come that much closer to achieving their goals. ■

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