

ISOMETRICS

Louie Simmons

Isometrics have been around since the 1950s. It was an effective method to develop strength at a particular angle and affordable to most because of the limited amount of equipment needed.

The famous Bob Hoffman of York Barbell fame manufactured an isometric power rack in the 1960s. T Hettinger and E. Mueller found that a small workout daily for 10 weeks would increase strength about 5% per week, which was maintained for a month.

There has always been the question, which is more productive, dynamic or isometric exercises? In my opinion, both must be trained. There are always pros and cons for any type of training. Here are the benefits:

- * Isometrics take less time and energy to perform a workout.
- * You can maintain speed strength while doing isometric training.
- * For those wanting to remain in a particular weight class, isometrics won't add muscle mass.
- * They fortify technique in crucial positions. A coach can watch to see form breaks at many different angles of the lift.
- * Maximal effort can be displayed longer than with dynamic work.

When doing dynamic work, maximal effort is displayed for a fraction of a second at the mini-max, or sticking point. While doing speed deadlifts, all looks well. The bar is blasted from the floor to lockout. However, with a max effort deadlift, the bar stops at the knee or just before lockout. Hardly any work is done at the mini-max. It's just too fast. A 3-second isometric hold can be equal to many dynamic contractions.

- * The work at a particular angle is radiated 15% either above or below the point where the force is applied.
- * It sounds contradictory, but holding your breath can boost endurance. Remember, a swimmer inhales only once every 3 or 4 strokes.

The following points are disadvantages of isometrics.

- * Isometrics are not to be used before puberty or if one is a novice.
- * Isometrics can fatigue the central nervous system.
- * If done alone, a loss of some coordination will occur.
- * Holding your breath for a long time can have a negative effect on the cardiovascular system.

How are isometrics performed? Here is how Westside does them. The simplest way is to push or pull

against a pin, which can be placed at different positions. For example, if you are weak at the floor, pull on a fixed bar at that position, or just below the knee, at the knee, and possibly at the lockout.

Like all isometric contractions, you can use submaximal or maximal efforts while exerting on the bar. Also, the duration that you push or pull on the bar can vary from 2 to 6 seconds per exertion.

Quasi-isometrics is pushing or pulling slowly, over a certain range of motion. This can be done by attaching a series of Jump-Stretch bands to the bar. For example, loop a series of bands over a bar placed on the floor. Now it is possible to lift the bar very slowly through a predetermined range of motion. Adjust the bands to work that part of the lift that needs to be improved.

Dynamic isometrics is pulling or pushing a bar against a fixed pin as fast as possible with a brief contraction. Because of the short contraction, it is possible to do several efforts. However, it is essential to perform the movement as fast as possible to produce a steep force/time curve, like slower isometrics, where the contractions are sometimes 3-6 seconds per effort. The dynamic effort can be limited to 1 second per effort. Three efforts of 1 second can replace a 3-second effort if done dynamically.

Do 3-5 positions for static work, with the work radiating 15 degrees above and below the point being pushed or pulled upon. This will satisfy the entire range of motion. Although isometrics are found to develop absolute strength, as you can see, they also increase dynamic strength. Verkhoshansky found that the time one holds a position isometrically is as important as the intensity of the hold.

I have always preferred the Hoffman method. For example, lift 400 pounds upward a predetermined distance into a fixed pin. Hold for 3-6 seconds. A weight of 400 would be 75% of a 600-pound max. It is very hard to calculate how much you are truly exerting against a chosen pin. For absolute strength, hold maximal tension. For explosive strength, use maximal speed and exert 70-80% against the pin. The faster you get to 70-80%, the better.

Isometrics are very effective but also very taxing. The faster the lift is performed, the less time the mini-max is worked. All training methods must be used during training. It is up to the coach to know when to utilize a particular training method.

For a more detailed explanation of the above, see Verkhoshansky (1970), or *The Fundamentals of Special Strength-Training in Sport*.

Remember, the faster the rate of force development against the pin, the better. The longer the exertion against the bar, the greater the results, even with different intensities. Don't exceed 10 minutes of isometric work per workout. Like any training, rotate isometrics throughout the year. For explosive strength, one must produce maximum speed as fast as possible against the pin. The simplest form of isometrics is just tensing the muscles, as in a bodybuilding pose. This was advocated by Vorobyev in 1978 and as early as the 1900s by Anokhin and Proshek, by forcefully tensing the agonists and antagonists for every joint.

I hope just some small part of this article will awaken your mind to try a new method of training.