

Isometric

Isometric actions are ones in which the muscle attachments closest and furthest from the center of the body (proximal and distal) remain at a constant length. You reach the isometric phase when the force you're exerting equals the force of the load.

Because the isometric phase is actually a contraction, it's trainable just like every other muscle action. Same as the eccentric phase, the isometric phase has two neurological processes that need to be trained to maximize the force transfer from the eccentric to concentric contractions. When muscles need to increase their level of force production, like they do when they decelerate and stop an eccentric contraction, they have two options:

Motor unit recruitment: Increase the number of muscles fibers that fire.

Rate coding: Increase the rate at which each fiber fires, which increases muscular tension.

Again, these physiological processes are outside the scope of this article. Just understand they are important to developing force. When you look at Figure 1, this becomes apparent. At some point on the graph, both lines have a transition point—a point where the line changes from a negative, eccentric slope to a positive, concentric one. That exact point is where the isometric contraction takes place. It is not like the eccentric phase, which has an entire line you can see and follow. Yet this single point is hugely important, because it acts as the springboard that launches the force from the stretch reflex and stretch-shortening cycle into the concentric contraction. The harder the stop, the better the total force recoil and the more explosive the action.

Specific attention to isometric training will result in improved force and power outputs for an athlete. Improving the qualities of the nervous system in this regard allows for high amounts of energy to be absorbed, diverting maximal energy from the eccentric directly to the concentric with little to no loss of energy. This enables an athlete to maximize the power of both the stretch reflex and the stretch-shortening cycle. Add these to a strong, concentric contraction, which we will learn about in the next part of this series, and you'll feel like you're jumping off a trampoline instead of out of a sand pit.

Perform high-load isometrics at the beginning of your workout. Isometric contractions aren't as neurally taxing as eccentric training. As a result, lightened-load isometrics can, and should, be used throughout the entire workout. When I say "lightened," I mean assistance lifts—exercises that use lighter loads compared to large compound movements, such as Lunges or Closed-Grip Bench.

Stay safe and get the best results by following four rules during your isometric work.

1) Hit the ground like a brick.

When performing a resisted-load isometric, move through the eccentric portion quickly, pulling the bar down before trying to instantly stop its momentum. You *must* hit the isometric like a brick hitting a pavement floor—no give whatsoever!

2) Squeeze your muscles.

Squeeze your muscles as you hit the isometric contraction. For example, if you're performing a Back Squat, squat down to where you will be performing the isometric contraction during your sets. Once you have squatted down, squeeze your legs and glutes as hard as possible for several seconds. Once you experience what the isometric contraction feels like, you can begin your work sets.

3) Always use a spotter.

During triphasic training, your body will be reach maximum fatigue. Since your muscles could give out at any time, it is crucial that you use proper spotting.

4) Always finish an isometric-focused lift with an explosive, concentric movement.

By incorporating an explosive movement at the end of your lift, you're training your nervous system.

TABLE 3.4: RESISTED ISOMETRIC LOADING PARAMETERS AND THEIR RESPECTIVE MESOCYCLE				
LOAD	TOTAL TIME OF ISOMETRIC (SECONDS)	REP RANGE	SETS	MESOCYCLE
85%	3-4 (ASSISTED; HELP UP)	1-2	4-5	ABOVE 80%
80%	3-4 (ASSISTED; HELP UP)	2-3	4-5	
75%	4-5	3-4	3-4	55-80%
70%	4-5	4-5	3-4	
65%	4-5	5-6	3-4	
60%	4-5	5-6	3-4	
55% AND BELOW	ISOMETRICS NOT IMPLEMENTED WITH THESE LOADS DURING THIS TRAINING CYCLE			BELOW 55%

Example Exercises with Isometric Means and Coaching Points

Back Squat - Isometric

1. Set up with the bar on the back of the shoulders, keeping the chest up and the back flat.
2. Sit back and descend into the bottom of the squat rapidly.
3. Once in the bottom, become a statue and pause for the prescribed time.
4. Once the time has been reached, explosively fire up back to the start.

Front Squat - Isometric

1. Set up with the bar on the front of the shoulders, keeping the chest up and the back flat.
2. Sit back and descend into the bottom of the squat rapidly.
3. Once in the bottom, become a statue and pause for the prescribed time.
4. Once the time has been reached, explosively fire up back to the start.

RDL - Isometric

1. Grab the bar just outside of the thighs with the feet shoulder width apart.
2. Keeping the back flat and the chest up, lower the bar rapidly along the thighs.
3. Once the bar passes the knees, become a statue and pause for the prescribed time.
4. Once the time has been reached, explosively fire up back to the start.

Bench Press - Isometric

1. While laying on your back, grab the bar one thumb length away from the knurling.
2. Unrack the bar and pull it rapidly toward the chest.
3. Right before the bar hits the chest, stop it completely and pause.
4. Once the time has been reached, explosively fire up back to the start.