

RADIATIONS SETS

***Where The Magic Happens
Science and Fast Action Bonus
Manuel***

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As was mentioned before, lifting heavy all the time isn't the best approach. You ruin your joints, hit strength plates and fry your nervous system.

Not a situation we want to be in.

This is where Radiation Sets come in. Radiation sets exploit a technique used by many olympians called altitude training.

But before we get into that, let me give a quick overview of the science about what makes these 48s so magical.

The Science, part 1 - Irradiation, In union there is strength

So there was this cool dude named Sir Charles Sherrington, an English neurophysiologist, histologist, bacteriologist, and a pathologist, who came up with Sherrington's laws. One of those laws is called the law of Irradiation.

It states that a muscle working hard recruits the neighbourhood muscles, and if they are already a part of the action, it amplifies their strength.

What does that actually mean? Let me use a metaphor to explain.

If you squeeze your fist really hard you will feel tension in the hand and forearm. If you squeeze your fist harder you will now feel tension in your upper arm along with the tension in your hand and forearm. If you squeeze your fist even harder you will now feel tension in your chest, shoulder and lat along with the tension in your upper arm, hand and forearm.

The neural impulses emitted by the contracting muscle reach other muscles and 'turn them on' as electric current starts a

motor. This co-tension from several muscles contracting strongly together will magnify your overall strength.

Another way to put it is tense all your muscles and adjacent muscles really hard during a lift not just the primary muscle being used.

What does that translate into? It translates into greater strength, greater power and lower injury risk. It really, really pays off and it really makes your body work as a single unit. What is really interesting is that a lot of people will naturally tend to use muscular irradiation more or less automatically.

By taking control and tensing by choice you are able to exploit another phenomenon known as hypoxia (or altitude) training.

The Science, part 2 - Hypoxia, Olympic level (literally) training to the rescue

It has been long known that **olympic athletes train in high altitudes** as a form of legal blood doping. The good news is that you don't have to do bicep curls on top of mount Everest to reap the same rewards.

You might have heard of "kaatsu" or tourniquet training. It's a training method that relies on lifting light weights (20-30% of your maximum for 15-30 reps) while wearing a special cuff that's tightened up around the proximal end of a limb to restrict blood flow to the muscle. Pretty scary stuff.

Studies have shown that despite the light weights being used, the muscle growth response is as big as lifting heavy weights (80% and more) without ruining your joints or nervous system.

This is because blood flow (and oxygen) is limited to the working muscle leading to an accumulation of lactate which increases the production of both hGH (growth hormone) and IGF-1.

It has been shown to increase anabolic growth hormone 290x after just 1 set using 50% less weight. Cool stuff, I know.

The lack of oxygen (hypoxic state) and increase in acidity has also been shown to increase the recruitment of fast-twitch muscle fibers. In fact, oxygen restriction to the muscle increases fast-twitch recruitment, firing rate, and spike amplitude.

Finally, exercise with restricted oxygen/blood entry in the trained muscle also leads to the production of Reactive Oxygen Species (ROS), which increase muscle satellite cell activation and proliferation (two key phenomenon involved in the muscle growth process).

The good news is that you don't have to tie off your arm and do bicep curls (or workout at the top of mount Everest) to create this oxygen/blood flow restriction to the muscle. Sustained muscle tension through forced Irradiation (as in never allowing a muscle to relax during a set) while lifting slower, can make muscle hypoxic (deprived of oxygen).

It has been found that performing sets without blocking blood flow (thankfully), but using a 3030 tempo (as in 3 seconds lifting, 3 seconds lowering) and never allowing the muscles to relax during

the set (always flexing as hard as possible during every inch of every rep) with 50-60% of your 1RM, led to oxygen levels, lactate levels and anabolic hormone surges nearly identical to tourniquet or altitude training.

But that's not all.

The 3030 slower tempo increases muscle building effectiveness by 200% according to scientists from the University of Sydney in Australia.

Furthermore a Japanese study has found that the slower lifting method (3030) actually produces more testosterone and Human Growth Hormone than the faster (1010) lifting method.

Furthermore, by using a lighter weight and lifting slower, this also encourages better form when completing the exercise.

This can be another factor in why it is superior for building muscle, as poor form is often linked with using a heavy weight due to increased momentum and swinging.

Where the radiation comes from

Essentially this concept is like a stone being dropped in a pool creating ripples through out. The size of the stone is dependent upon the degree of your muscular contraction (irradiation). The harder you squeeze, the bigger the stone and larger the ripples, which in turn **radiate out** and activate more motor units for the movement which instantly equals more power and unleashes a flood of HGH, IGF-1 and Testosterone into the body.

Putting it together

Wow, that was a lot of science.

If you skipped over all that this will sum it up for you...

The moral of the story is that radiation sets can build size and strength despite using relatively light weights and even if muscle damage is fairly low. However, if the muscle is allowed to relax during the set, oxygen and blood will flow into the muscle and you won't reach optimal benefits.

So here's how you would perform a proper Radiation set for the incline bench press.

1. Use weight that 50% of your 1RM. This should feel light.
2. Crush the bar/handle with your grip
3. Flex your core, shoulders and every muscle helping with the movement.
4. Begin the 3 second descent to your chest in a controlled manner
5. Continue crushing the bar as you move the bar up from your chest for 3 seconds
6. Perform 3 sets of 8 reps resting 60s between sets.
7. Try not to die.