

WHICH IS BEST—BARBELL OR ISOMETRIC?

BY TERRY TODD

Iron Man (June 1962): 22-23, 43-50.

Preface: Terry's first published article appeared in Iron Man magazine in June of 1962. Peary Rader was clearly impressed with the piece, describing it in his editor's note as, "one of the most enlightening articles we have had the pleasure of presenting." Terry was then a doctoral student at The University of Texas where he also worked as a graduate assistant and taught weight training classes. As a lifter, he had not yet made the turn from weightlifting and like many other weightlifters of that era, he had begun experimenting with the latest training fad—isometric contraction. He even built his own power rack for this experiment.

The study he organized at the University of Texas was inspired by a Strength & Health article written by Bob Hoffman in the November 1961 issue, called "The Most Important Article I Ever Wrote." Hoffman's article extolled the benefits of isometric contraction as a training methodology on one page of Strength & Health and carried an ad for a new product—the power rack—on the facing page. Terry later wrote about Hoffman's advocacy for isometric contraction in an article for Sports Illustrated called "The Steroid Predicament," published on 1 August 1983, in which he discussed the synchronicity of the rise in popularity of isometric contraction with Dr. John Ziegler's introduction of anabolic steroids to members of the York Barbell weightlifting team. In this Iron Man article, written when Terry was just 24, he has not yet had that moment of insight. I've included it because it was both his first published article, and his first research article. It was also the first piece for which he received money. Rader paid him \$15.00. ~ Jan Todd



EDITOR'S NOTE

by Peary Rader, Editor of Iron Man

We had prepared an article reporting the progress and activities of readers who have been working with the isometric and isometronic systems of training as presented in *Iron Man*, but just as we were about to go to press the following article came to our desk and we felt it so significant that we replaced the other article with this one.

I know that you readers want to know what others are doing and it has been our plan to tell you this by printing letters from readers. Some advanced lifters have reported amazing gains in their lifts. We hope to present these letters next issue, and if you have had a good experience with isometric training, just let us know.

As you may recall, your editor tested this system on himself and during the period of test did no barbell exercise whatever, and made most amazing gains in a few workouts, at the age of 52.

The following article details the testing of the system with two control groups under conditions as even as possible, with one group doing nothing but isometric contractions and the other group (not idle as in most cases with control groups) using what has been considered the most effective, to date, system of strength and bodybuilding.

While we have not recommended isometric contractions for muscle building even though some of the men have made gains, because while initial gains seem possible, these muscle building gains do not seem to continue (perhaps newer methods of application will show us how to continue these gains), we note that the isometric contraction group made bigger gains in measurements than the barbell group. Also bear in mind that these two groups were new to both the barbell and the isometric exercise.

Incidentally, while talking of isometric contractions, we wish to point out that the use of contraction, in



In 1961, when this photo was taken, Terry had not yet become a powerlifter as the sport wasn't officially recognized. He competed as a member of the UT weightlifting team, run by Roy J. McLean (back right), who served as its coach and faculty sponsor. In 1963, Terry won the AAU Junior National Weightlifting Championships—the term “junior” meaning only that competitors in this contest had never won a “senior” or major national title. In 1964, he switched fully to powerlifting.

this instance, is wrong. There is no contraction (shortening or drawing together; see your dictionary), there is only tensing in true isometric exercise and we should not term it contraction, for then it becomes isotonic. Even the word isometric is not an exact description of this exercise, but it has been applied and I suppose it will stick.

One more remark—we have found a few fellows who seem to get a severe headache from doing maximum isometric exercise. This is probably not the fault of the type of exercise, but due to lack of condition on the part of the person using it. In other words, there is something wrong somewhere and this is usually due to a system overloaded with fatigue poisons. We have noticed the same reactions from heavy barbell workouts. In other words, if a man has become overworked, tired and worn out over a long period of time, he is likely to suffer from headaches from either barbell work or isometric exercise.

Now for one of the most enlightening articles we have had the privilege of presenting. The author, Terry Todd, is a barbell man of some ability, having recently made 320, 265 and 365 for a 950 total while weighing

280 at 6'2". His snatch was a power snatch, without squat or split. He has also made: power clean 330; dead lift from knee height, 905; jerk 400; cont. press 385. He wears size 58 suit coat and 20½ collar, the only measurements we know about since, like many other strong men, he cares little about measurements. His arms are a bit over 20 inches though.

Incidentally, he is also an outstanding tennis player, having attended university on a tennis scholarship. He was also shot-put champion and table tennis champion, something most people could not conceive of so big a man doing.

Note the photos with this article illustrating the construction and use of another homemade power rack for both isometric and isometronic exercise. —P.R.



During the fall semester of 1961-62, in the large, well equipped weightlifting room at the University of Texas, an experiment was conducted, in which an effort was made to compare the relative merits of isometric contraction and regular progressive barbell exercise. A group of young men, predominantly of Freshman and Sophomore rank, who had enrolled for a beginner's weightlifting class, were the test subjects. The class met twice each week and each meeting was for approximately fifty minutes.

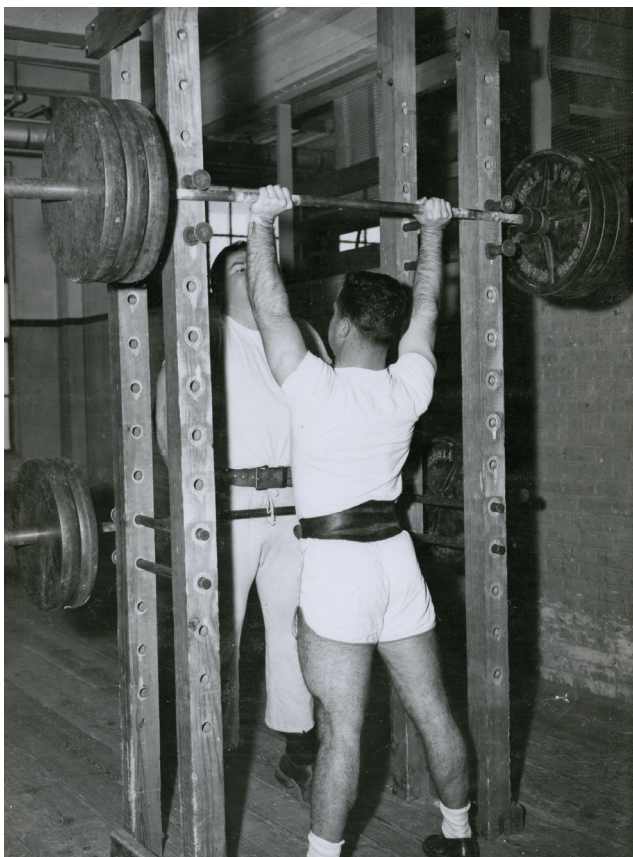
Being well acquainted for several years with Louis Riecke, I had been fortunate enough to be an eyewitness at most of the weightlifting meets in which he made his astonishing improvements. There was much conjecture as to what program Riecke was using to achieve such results, but Lou was not talking. It was not until the Senior National weightlifting meet in California in the summer of 1961, that I learned from Riecke what this new system was—isometric contraction. Since then much has been published about this revolutionary technique, and having read all of the material available on this subject, including Mueller's original study, I decided to test a class of beginners in a slightly different manner, the difference being that these beginners would practice I.C. only twice each week, and test themselves with barbells only once every three or four weeks. Most studies had been based on daily practice with regular weekly workouts with weights, and we were interested to see if progress could be made with much less frequent training.

I decided to conduct an extensive program of conditioning and barbell practice before attempting to divide the class. This decision was made to insure that the class was divided as evenly as possible, based on bodyweight, height, strength, and measurements.

The class was given two weeks or four workouts of vigorous calisthenics and running, both jogs and wind sprints, followed by three weeks of specialized training on the three exercises that had been chosen as the test lifts. The exercise program was designed to put the emphasis on strength, not skill, so the I.C. group would be at no technical disadvantage. Bearing this in mind, I chose the two-handed press, power clean and dead lift. During this three week period, the class worked on learning correct position and performance

of the three test lifts. After a session of calisthenics consisting of side-straddle hops, good morning exercises, push-ups and squats, they practiced each of the three lifts, two sets of six repetitions. After three weeks on this program, each student was carefully tested to determine his single effort limit on each of the test lifts, and the following workout each student was measured before any exercise was taken. The measurements taken were the neck, normal chest, right and left upper arm, right and left forearm, waist, thigh, and calf. With this data at hand, the class was divided into two equal groups.

The I.C. work was carried out on a rack installed in the fall of 1960, before the advent of the I.C., as a widespread form of exercise. It was designed by the author to serve as a squat and bench press rack, as well as for heavy support work at various levels. It was constructed to be serviceable on both sides at the same time, and as the accompanying photograph illustrates, it is built of four 4x4s secured at the ceiling and floor, with holes bored at



On the rack that Terry made for his research study, the subjects pushed against pins over their heads to strengthen their pressing power, and pulled against pins in the top position of the deadlift.

four inch intervals. The lowest hole is ten inches from the floor and the highest is ninety inches. To save on expense, the pegs were made of old heavy duty exercise bars, cut into the desired lengths and welded so as to form a secure notch. This type of rack is simple, economical, and capable of supporting enormous loads with maximum safety by placing the bar in between the 4x4s. These pins at four inch intervals make the rack ideal for I.C., and the fact that both sides can be used simultaneously was very important since the rods had to accommodate about fifteen or twenty men in a short period of time.

The I.C. group was briefed very thoroughly on the theory behind the system they were to use, and seemingly as a result of this, they maintained a high degree of enthusiasm toward the pro-

gram. This group started the first day with one press, one pull and one squat, but by the third meeting they were on the workout they followed for the remainder of the semester. The program was based on six efforts and was preceded each day by the four calisthenics mentioned earlier. These calisthenics were done to insure that each man was ready and able to exert maximum force with minimum chance of injury. The six efforts were: the press at chin level, press at the top of the head, pull just below the knees, shoulder shrug, quarter back squat, toe raise, with a middle curl thrown in once each week or every other workout. The taller men worked on one side of the rack and the shorter men worked on the other, thus facilitating the program by decreasing the number of height changes of the bar.

The regular exercise group practiced exclusively on the three test lifts plus the parallel squat. Each day they performed three sets of five repetitions in the two hand press, power clean, dead lift, and parallel squat. Every

third workout they performed two sets of six repetitions in the two hand curl. This group also started each class with the same four calisthenic movements done by the I.C. group. Every effort was made to see that this group had the opportunity to improve as much as possible on this system of training. Because of our ample equipment, this group had a York Olympic Standard Barbell for every two men, and a 30'x40' platform on which to lift. They were carefully supervised and encouraged to add weight whenever possible.

The semester started with 39 young men, but due to drops, excessive absences, and such injuries or disabilities as made practice of one or all of the test lifts impossible, we wound up with eleven in the regular exercise group and ten in the I.C. group who had been present for all the tests and measurements and passed all the above requirements. The results are in the chart. The gain in body weight was approximately two lbs. for each group.

It can be seen from the data presented that the I.C. group showed a decided superiority in anthropometric gains while each group picked up almost exactly the same amount of weight. This is quite thought-provoking since it is the opinion of some that the great value of I.C. lies in the field of strength and not in that of increased muscular size.

The data contained in the table reveals that the groups were fairly close in regard to strength gains, even though the I.C. group suffered from the handicap of practicing the lifts only about every three weeks when they were tested. It is interesting to note that the lift in which the regular group surpassed the other was the power clean which requires more practice to perfect than the other two, since it is a snappy movement when done correctly.

Adding to this is the fact that the I.C. group would have benefitted from another pull done at groin level, but because of the difficulty of balance and the time factor, it was not included.

Perhaps the gains in strength and muscle size seem a bit small, but when it is borne in mind that after the class was tested and measured the first time, they worked out only sixteen more times during the term, and when you subtract the four days of testing limits, it is seen that each group, working on its separate system, realized these improvements from twelve days of exercise. In the light of this, the fractions of inches begin to take on a bit more significance.

The real value of the study, however, seems to be that these gains were made in such a short period of two day a week training on I.C. Equally as important is the fact that the subjects only lifted weights every three of four weeks. Each of these facts violates the general principles of I.C. training, but the results speak for themselves. Perhaps daily I.C. workouts and weekly lifting would bring even greater results. However, it would certainly seem that this more strict system of training is not necessary for marked improvement at the beginner's level.

In any program of this sort there are many time-saving and beneficial steps that can be taken to insure a greater degree of success. First, always keep several 45 pound Olympic plates or something else of comparable thickness and durability so that the subject performs the effort at the correct height. These can be easily slipped under the feet of the shorter men. Second, it is wise to have some gymnastic chalk around to prevent the hands from slipping from the bar on the pull and shoulder shrug.

Third, the men should be encouraged often and be convinced that the program is beneficial, since it is easy to loaf on a system without movement. Finally, I think the calisthenics program should include a vigorous waist exercise such as the jackknife, since the I.C. workout does not provide enough activity to keep weight from accumulating around the midsection.

We realize that this small bit of research falls far short of answering all the questions concerning the relative merits of I.C. and regular progressive barbell work, but it has given us cause here at Texas to look deeper into a field which may one day, because of its simplicity and brevity, revolutionize the field of heavy exercise.

Gain in Inches		
	Regular Group	Isometric Contraction Group
Neck	3/8"	5/8"
Chest	1/4"	1 7/8"
Right Biceps	1/8"	3/8"
Left Biceps	1/8"	3/8"
Right Forearm	1/16"	1/4"
Left Forearm	--	1/4"
Waist	Minus 1/8	1/4"
Thigh	--	3/4"
Calf	--	--
Gain in Pounds		
Press	16 9/10 lbs.	16 1/2 lbs.
Power Clean	21 4/10 lbs.	13 lbs.
Dead Lift	52 3/10 lbs.	62 lbs.