

Starting Strength

The Ultimate Strength Exercise

Isotonic-Isometric Contraction

by
Bill Starr

In the early sixties, a new form of strength training burst on the scene and swept across the country like wildfire. It was called functional isometric contraction and was the brainchild of Dr. John Ziegler, a physician from Olney, Maryland and promoted by Bob Hoffman, owner of the York Barbell Company in York, Pennsylvania. While very few sports coaches or athletic directors in high schools and colleges approved of lifting weights, they embraced the isometric system wholeheartedly. What the school administrators and coaches liked about isometric training was it was neat, no plates to store or pick up after, safe, and quick. An entire football team of forty players could go through a workout in a half and hour. Sometimes even less than that.

Power racks sprung up everywhere. YMCAs, commercial gyms, high schools, colleges, and in home gyms. These were typically made of wood, two vertical pieces, usually two by fours or two by tens, which were attached to a small wooden platform and secured at the top with another piece of wood. Into the uprights were drilled holes large enough to pass a bar through. How many holes were drilled depended largely on how many positions were going to be used during a workout.

There were also metal models available and Hoffman had a monopoly on these for many years before a few other manufacturers of weight training equipment jumped in this lucrative market. York sold a wide range of racks and one portable isometric gadget which consisted of two 18-inch bars and a length of chain that were attached to the bars at different intervals to allow the athlete to do a wide range of isometric movements. It only cost \$5.95, but the top-end model, the Super Power Rack went for \$99.95. Not a staggering sum now, but this was in the Kennedy era where a hundred dollars was often a week's wages for most Americans. It was in my own case. Hoffman also sold a smaller Portable Power Rack, which cost much less than the bigger model which was perfect for anyone training alone or training in an area with a low ceiling. Originally, there were also a couple of wooden power racks available, but Hoffman quickly discontinued them because he believed customers were using them to make copies. He was right about that.

Hoffman was praising the isometric system every month in the pages of *Strength & Health*, the house organ for the York Barbell Company. There were articles on how to do this miraculous new method of training, yet none contained the entire process. To obtain that information, an athlete had to buy the 54-page manual on the subject. Price \$5.00. There were articles about the

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amazing progress athletes in a wide range of sports had accomplished after using the isometric system. Indiana University had the number-one swimming team in the nation and Coach Jim Counsilman had adopted isometrics enthusiastically. His swimmers began breaking even more national and world records, which prompted every swimming coach in the country to install power racks and to use isometrics.

Isometrics was also a big hit in track and field. Jim Beatty broke the world record in the indoor mile after training with isometrics. Jay Sylvester broke the world record three times in the discus and praised isometrics for his increase in strength. What the coaches of track and swimming, plus others, liked about the system was that an athlete didn't have to add any bodyweight to gain strength.

Which brings us to competitive weightlifting that has strict bodyweight divisions. Olympic weightlifting was the sport that really sent isometrics to the forefront. That was no accident; Hoffman called himself the Father of American Olympic Lifting and *Strength & Health* covered the sport thoroughly and at the same time published the improvements made by the York lifters who were using the new training system. In the beginning, this was all about Bill March, a 23-year-old, 181-lb. Olympic lifter who lived in Dover, not far from Hoffman's residence. Bill weighed 176 and had won the 1960 Middle Atlantic Title with a three-lift total of 745.

Bill was the poster boy for isometric training. His lifts climbed steadily at a pace that few could believe. He blew past an 800 total and kept right on going. He moved up to the 198-lb. class and started winning everything in sight. No one had ever seen anyone make such startling improvement in so short a period of time. At the '63 Philly Open, Bill pressed 354 to set a world record in the middleheavyweight class. Hoffman couldn't manufacture power racks fast enough to keep up with the demand.

Fast forward six years. Isometrics and also the combination of isotonic and isometrics had all but disappeared from strength training in sports. There were a group of Olympic lifters, mostly who had learned the system directly from Dr. Ziegler or someone who had trained under him, but swimmers, track and field athletes, and other sports like fencing, tennis, football, baseball, and soccer had totally abandoned the concept. Quite a few writers in the field would use the word "farce" whenever they mentioned isometrics. How did this abrupt change take place? It's a story worth telling because it involves two of the most important characters in the history of strength training and Olympic weightlifting, and the way that the isometric system captured the interest of the nation had never happened before. A similar reaction came in the following decade when Nautilus came along, but the isometric movement was unique.

Dr. John Ziegler was a man of science who enjoyed digging into research to find new ways to improve the health of his patients. He was a surgeon and general practitioner in Olney, Maryland, a suburb of Washington, D.C. He specialized in physical rehabilitation, a field of medicine that he became interested in after being severely wounded during World War II while serving with the Marines in the Pacific. He carried metal plates in his head and leg for the rest of his life. He had used weight training to help rebuild his body, and had great respect for Olympic weightlifters, whom he considered to be the strongest athletes in the world.

With Olney only 90 miles from York, it was inevitable that he would venture up there to get acquainted with some of the people he had read about in *S&H*: Hoffman, Grimek, Terpak, and Stanko. Hoffman was taken by Ziegler right away. He liked big men and Doc was 6'4 1/2" and weighed close to 300 lbs., almost identical to Hoffman in height and weight. And Hoffman saw the

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advantage of having a medical doctor on staff. It would add a certain amount of credibility to his assertions about training, health, and nutrition. (Hoffman regularly wrote articles under the name Dr. D. A. Downing for that same reason. Dr. Downing was his dentist.)

An agreement was made, and Ziegler, now part of the York organization, traveled with the United States Olympic Weightlifting team to the 1954 World Championships in Vienna as the team physician. What he learned there would ultimately change strength training forever. The American lifters and coaches didn't like the Russians and went out of their way to avoid fraternizing with them. Ziegler, in contrast, was extremely gregarious and loved to party. More than one lifter found out that when he joined Doc for a night of revelry that one night often stretched to two or three days.

Doc happily joined the Russians after the lifting was over. The vodka ran freely and he became a regular at their celebrations. They were impressed by his size, his education, and his friendly demeanor. However, the thing that won them over was that they greatly admired his ability to drink. His capacity for handling mass quantities of any type of liquor was without peer, and he liked vodka.

During one of the drinking bouts, well past midnight, the Russians' tongues began to loosen up and Doc knew the right questions to ask. Ziegler learned that the lifters were experimenting with strength-enhancing drugs and also using a form of exercise that helped make them stronger by exerting maximum pressure against a bar in a fixed position.

Back home in Olney, Ziegler began scanning the research, something he enjoyed. He came across enough pure research to convince him that the concept of isometric training could produce results and put together a program which he used on himself in his well-equipped home gym next to his house and office. He also built the first power rack that would be the prototype for the Super Power Rack that Hoffman would sell later on. He pitched his idea to Hoffman, but Bob wasn't interested. What Ziegler was proposing was too close to the dynamic tension system that Charles Atlas and George Jowett had made a living on for a good many years. Bob had been speaking out against dynamic tension ever since he had taken over *Strength & Health* magazine. He saw no way to make money on isometrics at that time.

Meanwhile, Ziegler dug around in yet more research and came up with a formula to make a drug that would help build muscle and attachment tissue. This was to be used to help rehabilitate burn patients or those who had been bed-ridden for a long time. His specialty was physical rehabilitation, and he believed he had a miracle drug in the making. He took his idea to CIBA Pharmaceuticals. They quickly saw the value of such a drug, and in 1960 produced a little pink pill called Dianabol (the color was later changed to blue for some reason I can't determine).

Again, Ziegler tested the drug on himself and used isometrics at the same time. Within a few months, he knew he was onto something big and once again approached Hoffman. Ziegler wanted to try his new drug and new form of training on a young Olympic lifter.

For several years, Hoffman had resisted Ziegler's overtures about marketing isometrics through *S&H*. Then, in 1959 a renowned authority in the field of kinesiology and applied anatomy, Dr. C. H. McCloy of Iowa State University, submitted a study for publication. The study showed that non-apparatus exercise done in an isometric fashion led to marked increases in strength. This was the exact same thing that Ziegler had been telling him for several years.

There were two things that motivated Hoffman: greed, and an almost obsessive hatred of Joe Weider. This isometric idea was going to take off, and if he lollygagged any longer Joe was

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going to jump in and make it his own. And since both Ziegler and McCloy had noted that isometrics were not only useful to athletes in a wide variety of sports, and for competitive weightlifters, they were equally as beneficial to bodybuilders. He let Ziegler know he was ready to sponsor the testing of the isometric program and also the strength-enhancing drug. In the meantime, he set about ordering a shit-load of power racks to be made at his foundry.

What both men agreed on from the very onset was that this experiment, as they liked to call it, had to be done in secret. Ziegler wanted it kept on the sly so that no one else would attempt to copy what he was doing. Once he had proven his point he didn't care who else used the program, but until he was positive he was on the right course, he didn't want others, especially those adept in the field, to get ahead of him. Hoffman had another motive for keeping everything hush-hush. Should Ziegler's ideas bring the results he promised Hoffman, the lifters of the York Barbell team would have a tremendous edge over their opponents, both in the U.S. and on the international level. And he'd sell a lot of power racks and courses.

However, before the experiment got under way there was a hitch in plans. Doc insisted that the test subject come to his facility in Olney. He didn't want to train anyone at the York Barbell Gym because there would be too much of a chance of someone figuring out what was going on and leaking that information to others. Suffice to say, Doc Ziegler was a tad paranoid, but he wouldn't be swayed. The problem was Bill March wasn't keen on the idea of driving 180 miles round-trip five days a week. Ziegler had a huge house and invited Bill to stay with him and his family, but Bill was a homebody and nixed that idea right away. Plus, he had recently been married.

That's when Dick Smith stepped in to save the day and the experiment. Smitty had hung around the York Gym as a youngster and when his close friend, Vern Weaver, became a part of the York team, Smitty became a regular at the gym. He never entered any competitions but enjoyed working out alongside Grimek, Stanko, Jules Bacon, Weaver, and Kono, Sheppard, Emrick and others when they were in town. He enjoyed the atmosphere at the YBC so much he quit his job as a machinist and hired on at the Barbell. He became a jack-of-all-trades and the trainer of the lifting team.

When he heard of the predicament, he volunteered to do the driving and act as Ziegler's assistant during the workouts. It needs to be noted just how indispensable Smitty was to the success of this venture. I believe that if Smitty hadn't stepped forward, Bill would have grown weary of all the driving and would have stopped going very early in the program. And in all likelihood, Doc would have given up on the project and moved on to some other project he was working on, such as a machine he called the "Isotron" which could contract muscles involuntarily, another device for rehabilitating bed-ridden patients.

Smitty made sure that Bill was delivered on-time five days a week. Doc would put him through his workout and give him his daily dose of Dianabol, one tablet for two weeks, two for two weeks, and four for two more weeks. He never gave Bill a prescription for the drug. In fact, I never knew anyone who got a script for any drug from Ziegler. He was extremely conservative about handing out medication and knew that an athlete would always cheat to some degree. Their highly-competitive personalities would prompt them to take more and more to achieve the success they were seeking. So Bill went through an isometric workout five times a week and did the three lifts plus squats on Saturday at the York Gym. His progress came fast and often until he was one of the best in the world in a matter of only a few years.

Ziegler, in the meantime, was making some alterations in his concept. One of the major

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drawbacks with pure isometrics is that the athlete can never be certain that he is putting forth 100% effort. In fact, Ziegler often stated that no one is capable of exerting 100% unless their life depended on it. When I did isometrics, this was something that concerned me as well. I really thought I was pushing, pulling, or squatting with a total effort, but I couldn't be sure because the bar was locked into a set position.

Doc upgraded his idea, utilized it on March and through happenstance picked up a second test subject. When the 1960 Olympic team was training in York prior to heading to Rome, a clinic was held and several of the top prospects were invited to attend. One of the lifters invited was Louis Riecke of New Orleans. While he was in York, Riecke purchased some new clothes that gave him a rash around his waist. He went to see Doc Ziegler, the team physician for the Olympic team who was staying at the Yorktown Hotel. After Ziegler had provided him with some ointment for his rash, Riecke took the opportunity to ask Doc about the buzz going around the YBC concerning March's training regime. Riecke was curious how anyone could make so much progress so fast. He had been competing since the early '40s and while he was still one of the best lightweightweights in the country, he had never made gains as rapidly as Bill was currently.

Doc wasn't really looking for a second test subject for his experiment, and even if he were, at 34 Riecke was well past his prime. Yet there was much about the gentleman from New Orleans that Ziegler liked a great deal. Louis had a pleasant personality, was extremely intelligent, and had some medical training. He had a fierce desire to try the new system of strength training that Doc had developed, and was willing to do whatever program Doc laid out for him. He also vowed to keep what he was doing a secret. Doc was impressed with the maturity of the New Orleans lifter and said he would think about it and contact him with his decision when he got back from the Olympics.

The idea of applying his training methods and the use of Dianabol to an older, experienced lifter had appeal to Doc. He decided that Riecke would make a good test subject and in November, he became a part of the experiment.

While I kept track of Bill March's meteoric rise in the sport, what Riecke accomplished in a short period of time made a much greater impression on me. The York Barbell was to Olympic lifting what the New York Yankees are to baseball – what transpired in York didn't relate to what was going on in the other weightlifting facilities in the country. At least, that's what I thought. I didn't bother even trying any isometric contractions until Riecke made his amazing improvement.

In the fall of '60, I competed against him in Dallas and he did a 255 press, 265 snatch, and a 315 clean and jerk as a 181er. I was 20 lbs. behind him in the press, 30 in the snatch, and cleaned 10 lbs. more than he did. I envisioned that in a couple of years I would be able to challenge him. The next time I lifted against him was in Houston in March of '61. Any thoughts I had of catching him vanished in a heartbeat. He did 295, 285, and 360. Like every other lifter there, I was stunned. Increases like that were simply not possible, yet I'd watched him do the lifts with my own eyes. No one had ever heard of someone so far past his prime make such unbelievable gains in such a short span of time. He informed everyone that he was using Doc Ziegler's new training method of isotonic-isometric contractions.

Doc was testing this new idea on Riecke and March and it was working even better than pure isometrics. The idea was to move a weighted bar a short distance before locking it into an isometric contraction. This has many advantages over pure isometrics, where the bar doesn't move at all. First and foremost, it allows the lifter to know, for certain, if he is applying a maximum

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effort. Should he not be able to hold the weighted bar up against the top pin inside the power rack for the required count, he was using too much weight. Conversely, if he could hold the bar against the top pins for several seconds longer than was required, which was typically an 8-12 count, more weight would be added the following session.

It also had the positive effect of letting the athlete know how strong he was in certain positions, and this helped him identify weaker areas. In addition, when locking into an isometric hold with a weighted bar, form had to be much more precise than when the bar was unloaded. With a pure isometric contraction, an athlete could lean way back or be too far forward on a pulling movement, but when he did that with weight on the bar, he wouldn't be able to keep it up against the pins.

So those lifters who had power racks at their disposal started doing the more advanced isotonic-isometric system. What they weren't able to do, however, was also take Dianabol. This was still a heavily-guarded secret. But it slowly started leaking out. Hoffman, the man who wanted this to be kept hush-hush for his own benefit, was not able to keep his mouth shut. When he visited Houston for a contest in 1960, Nat Heard picked him up at the airport and Bob told him about Ziegler's experiment, including the use of a strength-building drug. It didn't take long for that news to spread across south Texas, although the Houston and Austin lifters made sure the Dallas lifters didn't find out about it.

By the mid-60s, things began to change. Suddenly, average lifters were making gains similar to those that March and Riecke were making. Those who had a connection to York found the true source of how to gain strength faster than those who did not. Yet it was not public knowledge. When I came to York to be Tommy Suggs' assistant at *Strength & Health*, it was five months before I found out about Dianabol. Suggs and Bednarski were already using the drug. At our morning coffee breaks and during our training session we discussed the notion that Dianabol should be the exclusive domain of the York lifters, and came to the conclusion that to keep the sport on a level playing field, that information should be made available to every Olympic lifter in the country.

And we proceeded to do just that. Whenever we traveled to a meet in a different part of the country, we informed the lifters there of just what was going on in terms of isometrics and the magic drug. It didn't take very long before the entire country knew about Dianabol, and we received a great deal of criticism for spreading the word. Yet the alternative was just not fair, in our minds. If everyone had access to the same information, the better lifter was going to come out on top. Without that information, the uninformed lifter was at a great disadvantage.

Once the weightlifting community discovered the truth behind what was going on at York, isometrics and isotonic-isometrics took a huge hit. This was because whenever a strength athlete started taking Dianabol, he got stronger regardless of what type of routine he used. That's when the terms "Isometric Hoax" and "Isometric Farce" began appearing in not only fitness magazines but in the popular press as well. And as rapidly as isometrics had appeared on the scene, it vanished even quicker.

Which brings me to the question, does pure isometrics or isotonic-isometrics really work? Yes they do. I made gains from doing pure isometrics while I was still in college. Nothing compared to March or Riecke, but solid improvement. Those track athletes and swimmers I mentioned earlier made significant strength gains and they never even heard of Dianabol. I knew many fellow lifters who swore by pure isometrics. And later on, when I was at York and learned how to do the isotonic-isometric system, my lifts shot up appreciably, even before I swallowed my first pink pill.

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I've used the isotonic-isometric system for all of my advanced athletes and every one has responded favorably. It is a viable way to gain strength and in the next installment, I will get into the nuts and bolts of how to utilize the concept. It's information that every serious strength athlete and coach needs to have at his disposal, because there are only a handful of people still alive who know how to do the concept correctly.

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