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POWERSOURCE

ACTIVATING TOTALLY

by Frederick C. Hatfield, Ph.D., World Champ

few years ago, some devilishly clever fellow invented a device that allowed the user to apply maximum force towards a bar throughout a full range of motion. He called his brand new device an "isokinetic" device. The invention was gobbled up by the device industry moguls and heralded because the greatest innovation in weight training that the world had ever seen.

Tons of research followed, attesting to the amazing advantages of isokineÂ-tics over the now all-but-dead concept of isometrics, and even over the old standby techniques of isotonics_ However, a lot of the research was done along with primary and interested interests at stake. The reÂ-searchers often had to prove the efficacy associated with isokinetics or not get paid. (A lot loot was on the line?)

Nevertheless, some of the claims set forth by these types of investigators are indeed very true_ Many too are not. It is now well-known that isokinetics are a treÂ-mendous adjunctive exercise modality,

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although not an efficient solitary one. It is my belief additionally that the vast majority of the early scientists interested in isokineÂ-tics missed what may well he the point of greatest significance. It seems that the most valuable effect of isokinetic trainÂ-ing, by itself, might reside in the central nervous system rather than in the muscle vis-a-vis growth in size or even strength.

My own investigations into isokinetic effects indicate that maximum power gains (as measured on slow-speed isoÂ-kinetic movement) do not increase nearly as significantly as do the gains in power output (because measured by highÂ-speed isokinetic movement). This was over a good eight-week period of training bro-h ; solcinetically in addition to with conÂ-ventional weight training techniques typÂ-ically used in a peaking program.

The slowest speed setting on the isoÂ-kinetic machine enables movement at apÂ-proximately the speed of one foot per second-plenty of time to elicit maxiÂ-

mum motor unit recruitment during the movement. However, when the pace setting is gone to live in two feet for each second, there appears to end up being insufficient time to obtain such total hiring, and the total pressure that's applied is really a lot diÂ-minished with the increased speed (or,

decreased recruitment time).

By gradually increasing the speed of movement over an eight-week time period, I found that while strength increased only somewhat, the increases within one's ability to obtain maximum recruitment were draÂ-matic. By the end of an eight-week peÂ-riod of peaking, the typical lifter was able to exert just as much force in the fastest speed setting as he was able to exert initially on the slow speed setting!

This particular, friends, is very much the definition of POWER! Power, in athletes' terms, may be the ability to get as many motor units (or even muscle cells) innervated in order to contract as possible inside a sudden burst of motion.

The strength increases noticed over the eight-week time period are not unusual, as well as normal peaking procedures generally account for such power increases. But, never have I noticed this kind of marked inÂ-creases in power through the use of conventional weight training methods in so short a period of time! The addition of isokinetic training seems to be the key to these tremendous raises in power.

Scott McFarland trains to totally activate his strength in competition.

This effect is hypothesized to become the result of "muscle learning.Inch One literÂ-ally "learns" to generate maximal motor unit involvement. The mechanism(s) reÂ-mains unclear, nevertheless. It may be that the excitation thresholds associated with certain moÂ-tor units are substantively lowered so that they're recruited easier. It may be, alternatively or furthermore, that greater amounts of demo-chemical discharge are feasible, thereby equaling or surÂ-passing the relatively high excitation thresholds of some infrequently used motor units. The solution remains to be found.

To explain what has happened, let's utilize some simple mathematics to the squat. A lifter may perform five sets of five reps in this exercise, but how much of the total power expenditure is actually advantageous? What percentage of the total number of reps actually constiÂ-tutes adequate overload to force an adaptive process in the organism? I susÂ-pect that at least 75 percent associated with his efforts are wasted! Consider that a 'lifter just "strains" in the lower 25 percent of the range of movement within the squat. (The upper amounts of movement involve much better leverage, and therefore the weight feels lighter-so light that little benefit from

overload is derived.) Furthermore, just the last two reps are difficult enough to amount to significant overload. (The first three are easy because fatigue has not set in as yet.) So, what are we playing in terms of total overburden? SomeÂ-where around 75 percent squandered moveÂ-ment and 25 percent helpful overload.

What if someone came up with a method of getting nearly 100 percent efficiency from every repetition and set of squats? That would require which overload be applied throughout the entire range of motion for every rep and every set. If this were feasible, theoreticians tell us, there may well be a chance that previously unused (or untaxed) motor units would have to get involved owing to the greater needs placed on the musÂ-cle. There are only two useful ways of accomplishing this instruction objective: 1) isokinetically, and 2) through compenÂ-satory acceleration.

Isokinetics have been discussed above. Compensatory acceleration is similar to isokinetics, except that rather than controlling the pace of movement so complete effort can be applied throughout the rangc of motion, one compensatorily speeds up his own movement in order to accomÂ-modate for increased leverage. In other

words, as a lifter ascends out of a deep squat position, their leverage advantage increases. Unless he would push harder and harder (accelerate), the overload facÂ-tor might necessarily diminish commenÂ-surately with the lessening of the load, So, rather than shed this opportunity to overburden by slowing down, the actual lifter speeds up! The result is, as it was with isokinetics, increased efficiency in achieving adaptive overload Now, what took a lifter four workouts to accomplish in the

gym, takes a lifter using compenÂ-satory acceleration only one workout!

1, and the bodybuilders who train beside me, have been using compensatory acceleraÂ-tion year 'round in our training, and applying isokinetics during the peaking cycle prior to powerlifting meets. It is obvious in our minds the use of these two techniques of training account for at least hundreds of pounds being added to our somme. We have come to think that these two techniques of training are perhaps the most important methods of training that there are in most of weight training for both powerlifters and athletes alike.

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Frederick C. Hatfield Ph.D is a world champion weight lifter who knows a think or two about how to do things right. To read more about weight training exercises please visit this a natural supplements blog. Happy Training!

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