My First Half-Century in the Iron Game

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Just how much exercise is required to produce the best results? That being a question that will probably never be answered to the satisfaction of everybody.

But just what does science have to say on that subject? Damned near anything you want to hear, and quite a few things that should never have been heard by anybody since they are nothing short of outright bullshit.

One of the supposedly "classic," so-called "scientific" studies that was performed in an attempt to answer that question was conducted by Dr. Richard Berger of the University of Illinois thirty-four years ago; he compared the strength increases produced by one set of an exercise to gains from both two sets and three sets; his conclusion being that one set was just as good as two sets but that three sets was better. Really?

But if you simply ignore Dr. Berger's stated conclusions and instead look at his "raw data," the actual changes in strength that occurred, then it should be immediately obvious that any difference in results between one set and three sets was so small that it was meaningless. With the group that used one set of a bench-press exercise the average change in strength was 26.9 pounds, from a starting level of 124.7 to a finishing level of 151.6; while the change from three sets was 29.5 pounds, from 123.1 to 152.6.

While Dr. Berger called that a "significant" difference, it was in fact such a small difference that it represented nothing apart from a usual random variation, the same small difference that will always occur when different groups are compared.

Using Dr. Berger's own figures, it appears that one set produced a strength increase of 21.6 percent, while three sets increased strength by 23.9 percent. Which, to me, is such a small difference that it is utterly meaningless: a difference of only 2.3 percent. And when the fact that three times as much exercise was required to produce that slight difference is considered, then it should be obvious that his conclusions were far off track.

SECONDLY: when we look at the actual numbers, and consider the exercise that was used (the bench press), it should be immediately obvious that he was using a group of subjects who were far below average strength even for people with no previous exercise experience; such weak subjects thus having much more than average potential for strength increases.

THIRDLY: personally, I consider the actual strength gains that he produced from a twelve-week program as being somewhere between pitiful and awful. If I ever trained such a group of subjects and produced similar results I would probably go insane and kill all of them; even twice his level of results would be viewed by me as almost outright failure.

I have never met Dr. Berger, but twenty-odd years ago, while he was being paid by one of my then competitors, he published a savage attack upon me; knowing nothing about me or my work he nevertheless considered himself an expert on the subject of Arthur Jones. If, at that time, he had been prostituting himself to me instead of to my competitor, then I am sure that his published statements would have been almost the opposite of what he actually stated. But perhaps not; maybe he is simply as stupid as his published statements make him appear to be.

Another self-declared "expert" in this field, Dr. Pavo Komi from Finland, who claims to be an expert on the subject of the negative part of exercise, but who in fact knows less than nothing about it, came to this country at my expense twenty-odd years ago, bringing his wife and children with him, also at my expense, for the purpose of telling me his opinions in regard to negative exercise. It was not my desire to put words in his mouth; quite the contrary, I hoped to learn something from him. But I never did, for the simple reason that he refused to even discuss the subject that I was interested in; instead, he spent the entire time that he was here arguing about whether it should be called "negative" work or "eccentric" work. Both of which terms have been used in a large number of published scientific articles by many different authors.

Why would he refuse to discuss the subject? I don't really know, but I suspect that he was afraid to discuss it; he had, I believe, and probably for the first time in his life, encountered somebody (me) who actually did know something

about negative work, and thus he was probably afraid that his own ignorance would be immediately obvious if he did try to discuss the subject. Yet, in the scientific community, he is still considered one of the "real experts" on that subject. While many of these same people still look upon me as either a fool or a fraud, or both; or do, at least, after I refuse to give them money for research.

Ten years ago, before I sold the Nautilus Company, we conducted a series of more than 240 medical seminars on my farm near Ocala, Florida, using a fleet of privately-owned, jet-powered airplanes for the purpose of bringing thousands of medical professionals to Florida for these seminars. During each of these seminars we performed strength tests on most of the people in attendance, a total of several thousand such tests; and, simultaneously, we were performing several research programs with other subjects. One such research program was performed with a dozen sets of identical twins for a period of twenty weeks; another program involved subjects who were already very strong at the start as a result of several years of previous heavy exercise, subjects who were then exercised very briefly: one set, once or twice a week.

ILLUSTRATION NUMBER ONE shows the results produced by one of the subjects as a result of only 21 sets of the exercise (leg extension) over a period of 13 weeks. The strength curve shown at the bottom of the gray area on this chart shows his starting level of strength, while the curve at the top of the gray area shows his strength 13 weeks later. The green area represents strength increases.

fig. 1

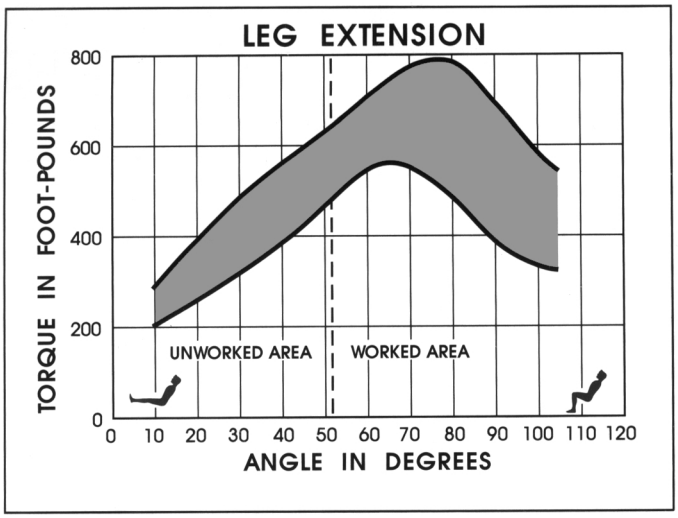
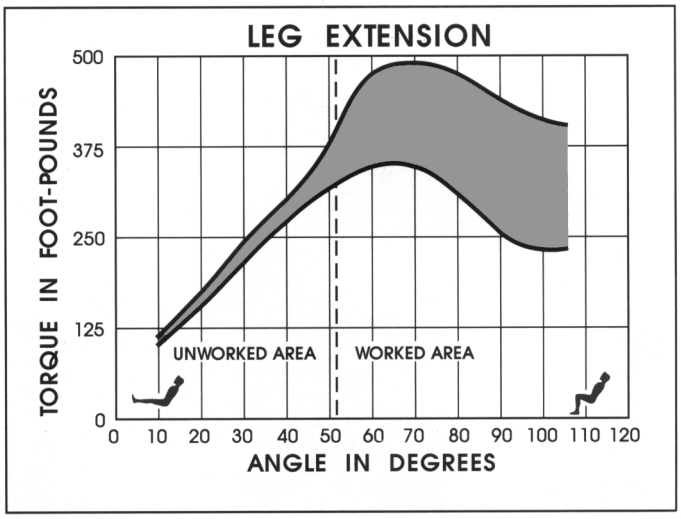


fig. 2

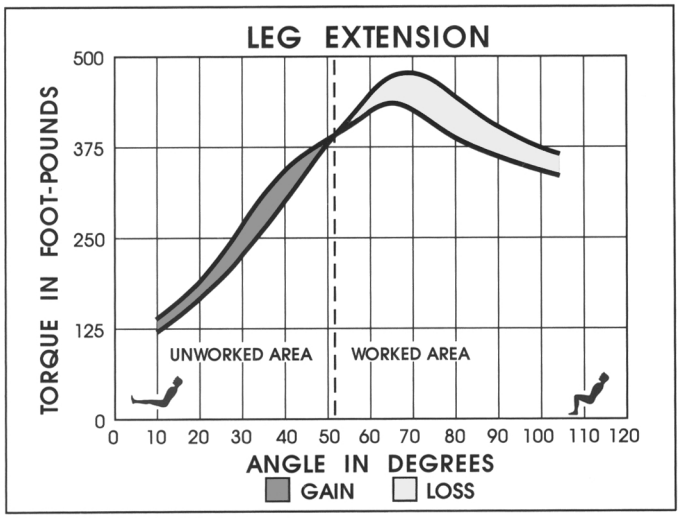


Prior to the start of this research program, this subject had been training regularly for several years, performing 9 sets of leg-extensions every week, but had made no strength increases in more than two years of such steady training.

So the only real change that occurred was that we reduced his exercise from 9 sets a week to less than two sets each week (21 sets in 13 weeks), and he immediately started to produce rapid strength gains. He had, in fact, previously been preventing any additional strength gains by overtraining.

ILLUSTRATION NUMBER TWO shows the results produced by another subject as a result of only 17 sets of leg-extension exercise performed over a period of 18 weeks and 3 days, less than one set each week. But in this case the subject's exercise was limited to only half of a full-range movement; the gray area between the two strength curves on the right side of this chart show the strength gains produced in the "worked area," the part of a full-range movement where he was exercised, while the gray area on the left side of the chart shows strength gains in the "unworked" area.

fig. 3



Which label, the "unworked area," is somewhat misleading, since in fact some exercise was performed in that area; nevertheless, it is obvious that far more gains were produced in the worked area than were in the unworked area. Which is clear proof that "full range" exercise is required for full-range results.

Following the results shown above, this subject was switched to a program of two sets each week for a period of several months, in an attempt to determine if "more" exercise would produce better results; but, in fact, such increased exercise produced no additional strength gains at all.

So, then, we changed his training routine again: started training only the last half of a full-range movement rather than the first half as we had been doing previously. ILLUSTRATION NUMBER THREE shows the results of five weeks of such limited range exercise, with only one set of the exercise each week. After months of no results from the previous program of exercise, he immediately started to gain strength in the worked area while LOSING strength in the unworked area. Gains on one end of a full-range movement and losses on the other end of the same movement; additional clear proof of the need for full-range exercise for full-range results.

These are the kinds of results that you SHOULD PRODUCE, and that you probably WILL PRODUCE, if you train properly; which means, primarily, if you train hard enough, but do not train too much. In the case of exercise, at least, "more is not always better," and is usually worse. Additional exercise is far more likely to be a problem than it is to be a solution.