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38

The Harder It Seems – the Easier It Is

In the author's opinion, the subject of this chapter is the most important single point raised in the field of physical training during this century; and it is certainly a point that was never raised previously – simple as it is, undeniably true as it is, important as it is, it was apparently totally overlooked because it runs directly counter to widely accepted belief. "The harder a particular repetition seems, the easier it actually is; and, the apparently most-dangerous repetition is actually the safest repetition, by far the safest."

Yet, in spite of the simple, undeniable truth of that statement, literally millions of weight-trainees have wasted billions of hours of training time – because, without single exception that I have ever encountered, or even heard of, apparently all of them sincerely believe exactly the opposite.

In a set consisting of one repetition, there is no basis for comparison; the one repetition is "all things" – it is the easiest repetition, and the hardest, and it is also the safest repetition, and the most dangerous.

But in a set consisting of two or more repetitions – where there is a basis for comparison – then, in all cases if anything even approaching proper form is being maintained, the first repetition is the hardest repetition, and it is by far the most dangerous one. And I want it clearly understood that this has absolutely NOTHING to do with the fact that you may or may not be properly warmed-up; the warm-up – or lack of a warm-up – has nothing to do with the matter.

Secondly, it should be clearly understood that the type of equipment being used has nothing to do with the matter either; nor does the particular exercise being performed – nor the amount of weight being used.

Remember, we are concerned here with actualities – not with appearances; we are interested in facts, not opinions.

Keeping it clearly in mind that the following would be equally – that is to say, "perfectly" – true in any possible example, regardless of the exercise involved, no matter how many repetitions were used, and with any possible amount of weight, let us examine what actually happens during the performance of a set of curls with 100 pounds; as opposed to what "seems" to happen. In this example, we will assume that you are capable of performing nine full repetitions – but then fail during an attempt to perform the tenth repetition, in spite of an all-out effort.

The first repetition will seem quite easy, and it will move rapidly; the second will appear to be a bit harder, and will move slower; by the time you reach the ninth repetition, you will be moving very slowly, and that final full repetition will seem very hard; the tenth repetition will not move, and will appear to be impossibly hard.

So much for appearances; now let us see what actually happened. In all ten repetitions the barbell weighed the same, 100 pounds; and during the first nine repetitions the "distance of movement" was the same, approximately two feet.

Now it should be obvious that "something less than 100 pounds of force" was generated during the tenth repetition; because, any amount of force in excess of 100 pounds would have caused movement in the tenth repetition – and since movement was not caused, it is thus clear that less than 100 pounds of force was involved.

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And, in the ninth repetition, where movement was produced, it is also obvious that "more than 100 pounds of force" was produced. Even though the movement was actually quite slow – requiring something on the order of three seconds for full movement.

If we measure the actual amount of force being produced in the ninth and tenth repetitions we will find that it works out to about 110 pounds of force in the ninth repetition, and about 80 pounds of force in the tenth repetition.

But in the first repetition movement was faster, far faster – the full movement required only about one-third of a second; the weight was moving nine times as fast during the first repetition as it was during the ninth repetition – and nine times as much force was required to move it that fast, and since nine times 110 equals 990 it should be obvious that the first repetition was much harder than the later, seemingly harder but actually easier repetitions.

In the above example, the first repetition involved the production of approximately twelve times as much power as the tenth repetition did – and it was at least 144 times as dangerous as the tenth repetition; because the danger factor can only be calculated by squaring the differential of force application.

But, in fact, since the first repetition involved not only much more speed of movement but, as well, far greater acceleration factors, it is obvious that the actual danger factor was far greater than a ratio of 144 to 1 would indicate; it was probably something on the order of at least 1000 to 1 –that is to clearly say, the first repetition was probably at least one-thousand times as dangerous as the tenth repetition.

Then why did the tenth repetition "seem" so much harder?"

Because, at that point in the exercise, your muscles were exhausted – and the 80 pounds of force that you were able to generate in a failing attempt to move the last repetition represented 100% of your momentary ability; whereas, during the first repetition, you were fresh and strong, and at that moment you were probably capable of generating something on the order of 3000 pounds of force – and thus the 990 pounds that you actually were required to use represented only about a third of your momentary ability, and felt quite easy for that reason.

Yet out of a totally invalid fear of injury – most weight-trainees avoid the last, seemingly hardest repetitions; thinking that, by so doing, they are avoiding the danger of injury – whereas, in fact, all they are avoiding is the production of best-possible results.

And if a full understanding of the above leaves you feeling a little embarrassed for not having previously been aware of such an obvious point, such a plainly self-evident truth – then remember that millions of people watched a wheel come up out of the east and go down in the west every single day for thousands of years before it occurred to one of them to punch a stick through the middle of a similarly-shaped object and attach it to a sledge.

Thus, in fact, "...the harder a particular repetition seems, the easier it actually is; and, the apparently most-dangerous repetition is actually the safest repetition, by far the safest."