

Old-timers didn't have the training advantages that most present-day champions do, yet in spite of this "handicap" many outstanding physiques were developed. For example, how many of the modern-day champions can compare with the ruggedness of Roscoff (above) a noted European athlete? Or of Abe Boshes (below), a short man, who won physique honors back in 1905? Doesn't this make you wonder a bit?



The **HARDER** It Seems, The **EASIER** It Is!

By Art Jones

FOR QUITE A NUMBER OF YEARS, I have been urging bodybuilders to train "harder" while, in fact, perhaps I should have stated it in another way; maybe I should have urged "easier" training because, the harder training appears to be, the easier it actually is.

Let there be no doubt about this point, "... if a particular repetition seems to be almost brutally hard, then that is merely clear proof of the fact that it is actually a very easy repetition."

Likewise, "... the easier a repetition seems to be, the harder it really is; AND, the more DANGEROUS a repetition appears to be, the SAFER it really is—and vice versa.

And even as I am writing these words, I can almost hear the screams of outrage that will follow the publication of such apparently ridiculous statements but I clearly warn you don't judge too hastily. You just might be wrong in your opinion and if you disagree with the above statement, then you are wrong in your opinion—totally wrong.

While you may not understand—or even be aware of—the laws of basic physics which apply to the field of weight training, it does not follow that you can safely ignore them, nor avoid their effects. You will be subject to these effects with or without an understanding of the physical laws which produce them.

And do not now jump to the incorrect assumption that I am about to embark upon a "way out" trip into the realms of theory which will leave you far behind. On the contrary, if you fail to understand this article, then you should quit weight training

Those of you who are cautious and apprehensive about doing those last few reps may find this discussion a revelation, which may even alter your training approach. But in any case you should read it.

immediately—because, if you don't understand it, then you are a source of danger to yourself and to others. Besides, if you fail to understand something as simple as this will be, then you are in much greater need of mental improvement than you are of physical improvement, regardless of how bad your physical condition may be.

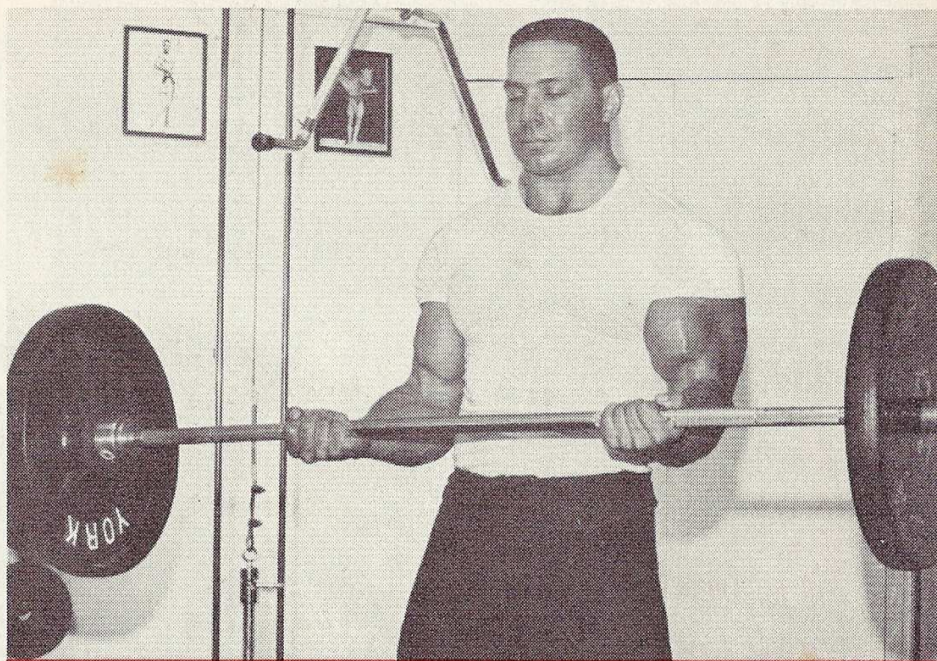
Also—as of the moment, I have yet to meet a single bodybuilder (regardless of his previous experience) who was aware of the simple facts that I am about to clearly outline, AND PROVE; yet, under the totally incorrect impression that they are aware of the facts in this matter, such people waste years of training time, primarily because they do not understand something as simple as the facts to follow.

When I have taken the time and trouble to carefully explain these facts to such people, most of them have apparently understood—and a few have not. In my opinion, those who fail to understand are simply unable to bring themselves to admit that they could have been so totally wrong in regard to such an important subject for such a long time—in short, they “refuse to understand.”

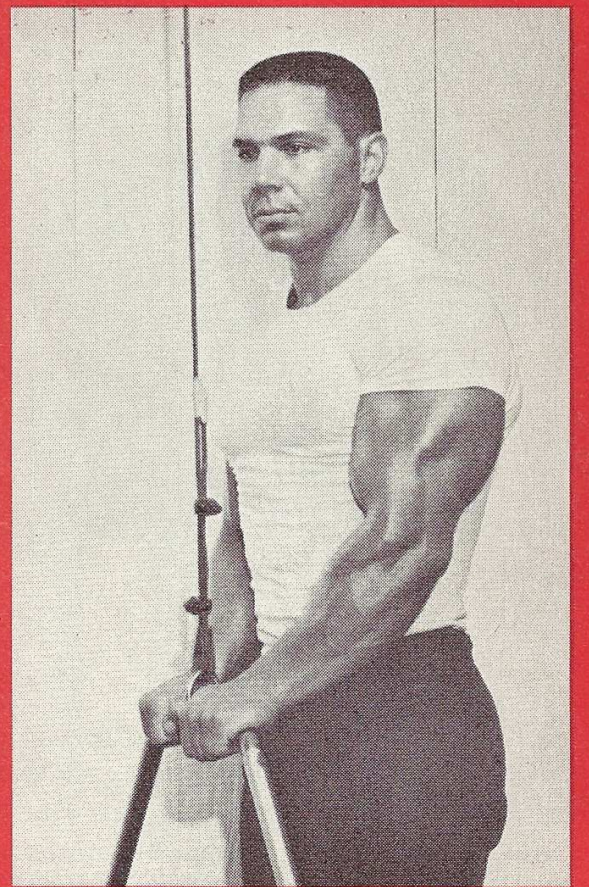
I feel that most readers of this article will understand—and I am reasonably certain that a large part of those that do understand it will be left feeling a bit ashamed of themselves for not having previously noted such an obvious self-evident truth; and I am just as sure that some readers will simply refuse to learn, probably because they are unable to admit previous errors. So be it!

But there is really nothing to be ashamed of if you are willing to learn. Today, during a long-distance telephone conversation with a teacher in a large medical school, the other party started to point out what he considered an error in my thinking, but half-way through his explanation it dawned on him that he was wrong. Whereupon, he immediately admitted the error in his thinking and we continued the conversation; this man is not only able to learn, but willing to learn—anxious to learn. Some bodybuilders apparently are not.

Now, getting down to cases we will carefully, logically examine what ACTUALLY happens in a set of barbell exercises as opposed to what you probably think is happening. For this example we will use a set of 10 repetition of the curl, but any exercise could have been used with equal validity and *(Continued on page 56)*

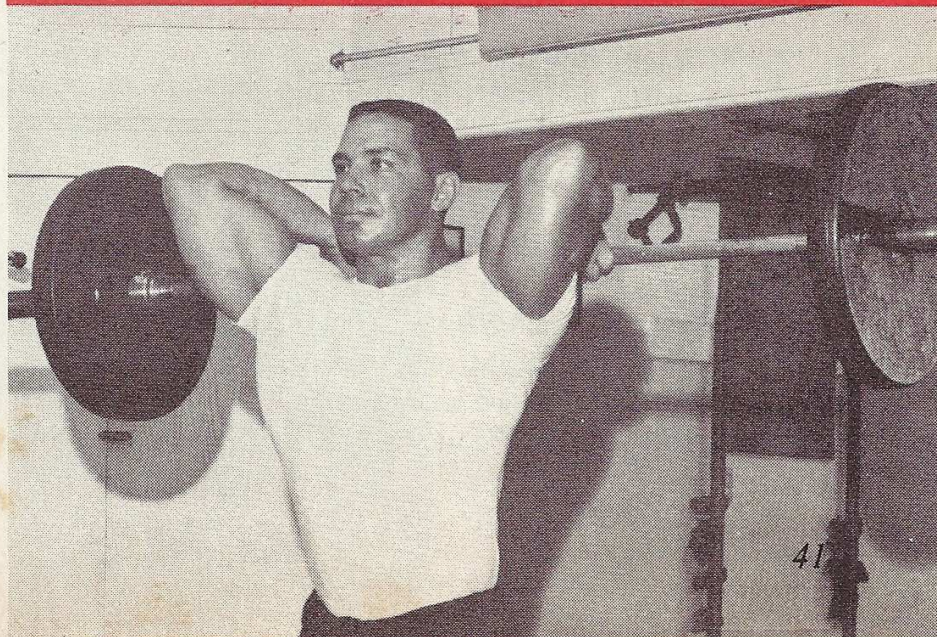


Two hands curl with barbell



Triceps extension on lat-machine

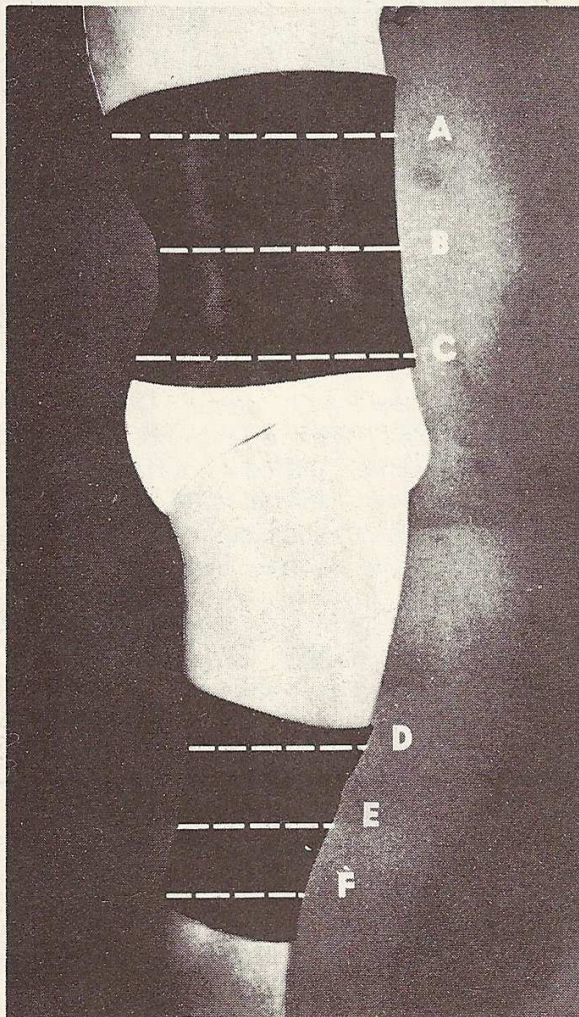
Extensions with barbell. Exercise illustrated by Bill Pearl, a modern day physique champion. (Stern)



A YORK EXCLUSIVE!

BH KNEE AND WAIST BANDS

BH Knee and Waist Bands are constructed from a completely new and different material, a product of modern technology. It is a quarter inch rubber-like material that is soft, tough, comfortable to wear, and is specially designed to provide support, heat, and massage while you train. This exclusive material clings to the skin so that it does not come loose or slide down.



BH KNEE BANDS

The knees are the most vulnerable joint in the anatomy. That's why every lifter, both Olympic and Power, bodybuilder, or person who participates in football, basketball, soccer, volleyball, wrestling, judo, skating, and track and field—all athletes who use their knees vigorously or do pivoting movements in their sport—should wear BH Knee Bands in training and competi-

tion. The BH Knee Band not only provides support but also induces considerable heat and blood circulation to help prevent knee injuries or soothe and help heal injured knees. **BH KNEE BANDS** Single—\$3.95 Pair—\$6.95

BH WAIST BAND

The BH Waist Band is a multi-purpose band as it provides support, prevents injuries, helps heal old injuries by its heat and massage effect, and is a great waist trimmer and slimmer. It will benefit weightlifters, bodybuilders, athletes, physical laborers, office workers, businessmen, housewives, or teen-agers who participate in sports or have back trouble or are overweight. **Support:** The BH Waist Band supports the abdomen and lower back, improving posture and appearance immediately. **Weightlifters, athletes, and bodybuilders** find it a valuable aid when training because of the support and warmth it provides. **Lower Back Aches And Pains:** The special type of material used in the BH Waist Band helps retain body heat once it has been generated from within. The BH Waist Band may be of great aid to those who suffer from aches and pains of the lower back because of the heat and massage effect. **Trimming And Toning The Waist Area:** Wearing the BH Waist Band while exercising causes profuse perspiration in the area it covers. Best Results for trimming or toning is obtained when worn while performing waist exercises. **BH WAIST BAND . . . \$9.95**

Combination, knee bands and waist band . . . \$15.95

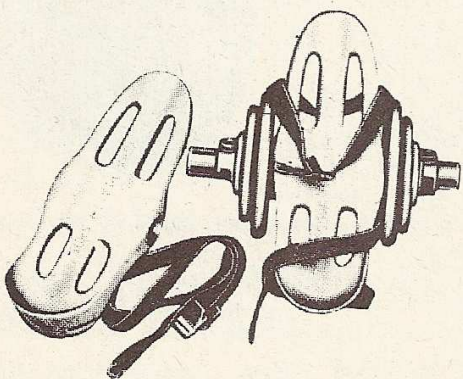
HOW TO ORDER YOUR BH KNEE AND WAIST BANDS

When ordering please give exact body measurements of girth A, B, and C—for waist band—and D, E, and F—for knee bands—as indicated by the dotted lines in the photo. Also include height and bodyweight. Measurement E should be right over the kneecap. Measurements D and F should be taken 4" above and below E measurement.

Order from:
BOB HOFFMAN, Box 1707, York, Pa., 17405

(Pennsylvania residents add 6% sales tax)

York Health Shoes



York was the first to put iron weighted shoes on the market in America. These shoes are strapped on the feet like roller skates, and numerous exercises can thus be done for the legs, just as exercises are done with the arms with dumbbells in the hands. The use of York Health Shoes will put spring in your step and shape the legs as no other exercise can. They are made in both iron and aluminum in several sizes for both men and women. Instruction Course included.

Prices per pair:	
Ladies' iron	\$6.00
Men's iron	6.00
Ladies' aluminum	9.95
Men's aluminum	10.95

F.O.B. York, Pa. Pennsylvania residents add 6% sales tax

YORK BARBELL COMPANY • YORK, PA.

over all.

You would be wise to supplement your diet with more high quality protein and that means protein of the highest biological value. Start each day with a glass or two of pure spring water. If this is not available, use the best water you can obtain. Take your protein and your vitamin-mineral supplements. Take the *Special Weight Gaining Formula* for bodybuilders. One of the most important nutrients is lecithin, the nerve muscle and tissue builder. Above all don't forget *Energol*, one of the most important food elements which is difficult to obtain from the usual diet.

Vitamins, particularly B and C, should be taken with meals for they are important to digestion metabolism and assimilation of your food. These vitamins must be taken daily for they are water soluble and excreted from the body. The oil soluble vitamins A, D, E and K, remain in the body until used. It is less possible to have a shortage of these vitamins but the others are excreted when not used. You do not have them in your body for tomorrow thus you must take them every day.

As said before, your diet is no better than the smallest amount of anyone of the essential nutrients. Nutrients are used first for maintenance and repair before there is anything left for muscular growth so supplement your diet with additional minerals, vitamins and protein. These supplements are the difference between failure and success in bodybuilding. Be sure of your nutrition and you will find it easy to gain the weight you desire.

Editor's note: The 130-page book **HOW TO GAIN WEIGHT** may be purchased for one dollar. **BETTER NUTRITION, 256 pages,** may be purchased for three dollars. Write to: **Bob Hoffman, c/o MUSCULAR DEVELOPMENT, P.O. Box 1707, York, "Muscle town," Pennsylvania. Bob will pay the postage.**

The Harder it Seems the Easier it is

(Continued from page 41)

number of repetitions—except a single repetition. Obviously, if only one repetition is being performed then no other repetition exists for comparison, and in that case, the repetition thus becomes both the easiest and the hardest, as well as the safest and the most dangerous.

If anything approaching proper form is being used, then such a set will normally proceed about as follows; the first repetitions will SEEM very light and very easy—and will be performed quite rapidly, usually in about one-third of a second.

The second rep will SEEM a bit harder, but will still appear to be quite easy, and be performed a bit more slowly, probably requiring about one-half second.

And so it will go; each following repetition will appear to become harder, will require more time, and will be performed more slowly. By the ninth repetition—the final full repetition—the weight will feel very heavy indeed, and will move very slowly. This final full repetition will require approximately three seconds of time to perform.

Up to this point in the set, each repetition has involved exactly the same amount of work, in all

cases, the same amount of weight has been moved the same distance. However, the power being produced by the muscles has been reduced enormously—the first repetition involved nine times as much power production as the final repetition did.

If the barbell weighs 100 pounds, then it is obvious that all of the full repetitions involved “something in excess of 100 pounds of force, or power production.” Because, if less than 100 pounds of power was being produced, then no movement would have occurred, and since the barbell did move, however slowly, then it obviously follows that more than 100 pounds of force was being produced in each full repetition.

Thus it should be clear that “more than 100 pounds of force” were produced even in the final repetition, and since the first repetition was performed nine times as fast as the final repetition, it is also obvious that the first repetition involved nine times as much power production, or “nine times more-than-one hundred.”

It can thus be clearly seen that the first repetition produced something in excess of 900 pounds of force—and that each following repetition produced decreased force.

Finally, in the 10th repetition, full movement is no longer produced—a point of failure is reached. Thus it is also obvious that “less than 100 pounds of force” is being produced in this 10th repetition.

If careful measurement of the actual time factors is made, it will be seen that the first repetition was something on the order of 12 TIMES as hard as the 10th repetition; that the first repetition involved 12 times as much power production. The first repetition will SEEM easier simply and only because it was performed at a time when the muscles were fresh and stronger, but in fact, this first repetition is by far the hardest one in the set.

And since the danger of injury does not increase in a straight-line “one to one ratio” in proportion to the increase in power production, but, rather, in a geometrical fashion, it is reasonable to state that the first repetition is probably twelve-times-twelve—or 144 times—as dangerous as the final repetition.

And there it is—utterly simple, unavoidably obvious, self-evident truth, undeniable fact.

Yet—almost without single exception—most bodybuilders avoid the final SEEMINGLY hardest repetitions, under the totally incorrect impression that, by so doing, they are also avoiding the danger of injury. While, in fact, all they are actually avoiding is the production of best-possible results.

In order to induce muscular mass and/or strength increases, a muscle must be exposed to any imposed workload that is beyond the ability of its momentarily-existing level of strength. Or—at the very least—a workload that is VERY CLOSE TO the maximum workload which it is momentarily capable of performing with; however, since nobody knows—and it is extremely likely that nobody ever will know—exactly what percentage of maximum workload is actually required to produce best results. It obviously follows that the only possible guarantee of working inside the required level of performance is work carried to the point of failure.

That is to say, in order to be absolutely SURE that you actually are working hard enough, you must carry each set to the point of failure, and if you stop anywhere short of that point, then

you may be doing absolutely nothing in the way of inducing muscular growth.

Or it may be that you can stop short of a point of failure, while still inducing maximum muscular response, but just how do you propose to measure the exact point required? How can you know when you have done enough?

Obviously, you can't—unless you work to the point of failure and by this point in this article, it should be clear that you certainly can NOT rely upon your “feelings” to tell you when you have done enough.

Now—one final point I have not stated, and I certainly have not meant to imply, that ALL INJURIES will result from first repetitions. But, so long as reasonably good form is main-

tained throughout the set, then the first repetition is far more likely to produce injury—since it is by far the hardest repetition in the set, and more dangerous than any following repetition by an even greater ratio.

All of the individual muscle fibers contained in a particular muscle mass CANNOT be involved in any exercise except in a position of full contraction—and all of the fibers WILL NOT be involved unless the muscle is worked to the point of failure while in such a position of full contraction.

Understand the above and gain from that understanding or attempt to deny it—and I will remind you, “. . . you can't adjust the laws of physics to suit yourself.” MD

Interesting Facts about Nutrition

(Continued from page 15)

One hundred mgs. are destroyed by each aspirin tablet you take. Cigarettes, a cup of coffee and a couple of aspirin tablets can wreak havoc with your well being.

CALCIUM is usually considered to be the most important of the 14 minerals needed in

proper nutrition. For the body to function properly, calcium is required in an approximate even balance with phosphorus. Both need vitamin D to be metabolized by the body yet most foods are badly in balance calcium-phosphoruswise with calcium being on the lower side. Liver is about the best source of calcium

muscles in the movies

Jack Lord is the attractive star of television's popular "Hawaii Five-O". One of the most versatile performers in the business, Lord has a most impressive background. Born in New York City he studied acting at The Neighborhood Playhouse. He attended N.Y.U. on a football scholarship and, upon graduation, received offers from professional teams. While in school he threw the javelin and was also on the track team. Muscleman Lord also indulges in weightlifting and keeps in top condition with barbells and dumbbells. As if being an excellent actor and fine athlete were not enough, Jack is a talented painter, writer, and photographer. His theatrical training has enabled him to create various types of roles and not just look woodenly handsome for the cameras as do so many of today's pretty-boy performers who soon fade out along with their good looks. Jack has been seen in dozens of films and starred in an earlier TV series, "Stony Burke."

jack

L
O
R
D

