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Flexibility as a Result of Exercise

By Arthur Jones

EXERCISE should increase flexibility, and it can . . . but it seldom does. Proper, full-range exercise will increase flexibility, but improper, mid-range exercise may have an opposite effect.

Contrary to popular opinion, the size of your muscles has absolutely nothing to do with your flexibility . . . but the method you use to build those muscles is important. Distance runners normally have very little in the way of muscular size, so you might expect them to be very flexible, but in fact, quite the opposite is true . . . as a rule, distance runners have very little flexibility, and many of the injuries so common among distance runners are direct results of their inflexibility.

In contrast, gymnasts are very muscular . . . and very flexible. So it should be clear that there is no relationship between muscular size and flexibility.

Flexibility is a result of stretching, so exercises that involve stretching will increase flexibility . . . while exercises that do not involve stretching will not increase flexibility; will not, in fact, even prevent a gradual loss of flexibility . . . may even produce a loss of flexibility.

Thus, where possible, exercises should involve stretching . . . but in practice, very few exercises do involve stretching. In order to provide stretching, the range of movement in an exercise must actually exceed the possible range of movement of the athlete. In effect, you must reach your limit of movement and still encounter resistance; if it is possible to relax in the extended position of an exercise and remove the resistance, then stretching is not provided.

For example, a bench press does not provide stretching . . . because, at the bottom of the movement, the weight is supported by your chest.

In contrast, a properly performed parallel dip exercise does provide stretching for the chest and shoulder muscles . . . because, in the low position, the resistance is not removed. Regardless of your existing level of flexibility, the resistance will still be imposed even when you have reached the limit of movement.

But, please note . . . I said a properly performed exercise. It is also possible to perform the exercise incorrectly, and it usually is performed incorrectly . . . and if so, then stretching is still not provided.

If the downwards movement is stopped too soon, as it usually is, then the limits of possible movement will never be reached, and stretching will not be provided. So go as low as possible in this exercise . . . but, a word of warning, do not bounce. Move into the bottom position smoothly and fairly slowly, do not drop suddenly into this position . . . dropping into the bottom position of a parallel dip may impose a load of several thousand pounds on your muscles and connective tissues, and might rip them out by the roots.

Performing the exercise properly . . . that is, going as low as possible and both lifting and lowering the body in a smooth, steady, and fairly slow fashion . . . will force you to use less resistance; but do not let that disturb you in the least, since an exercise performed properly with a lower weight is far superior to the same exercise performed incorrectly with a much heavier weight.

You certainly should use as much weight as possible . . . as much as possible in good form; but do not sacrifice good form for anything . . . in exercise, as in most things, good form is frequently the only difference between very good results and no results at all.

So, for the purpose of increasing flexibility, the choice of exercises is very important, since some exercises do provide stretching and some do not . . . but the style of performance is equally important. In the parallel dip, for example, most people do approximately half of the exercise, the top half, and they do the movements much too fast. Starting at the top, they quickly lower themselves down to about the mid-range of possible movement, then bounce back up to the top as quickly as possible.

By performing the exercise in this manner you certainly can use more weight, but you just as certainly will not produce more than a small percentage of the benefits that would have been produced by performing the exercise properly with much less weight.

In one sense, the parallel dip is almost unique . . . it is one of the few conventional exercises that does provide a proper degree of stretching. The only other conventional exercises that provide even a reasonable degree of stretching are . . . one, the stiff-legged dead lift performed on a bench . . . two, the shoulder shrug . . . three, the triceps curl performed on an incline bench . . . four, the wrist curl performed on a decline bench . . . five, heel raises performed on a high block . . . and, six, the full squat.

Again, contrary to popular opinion, most of the exercises that are usually considered stretching exercises actually involve little or no stretching. For example, using a wide grip during a pulldown exercise does not provide stretching . . on the contrary, a wide grip in this

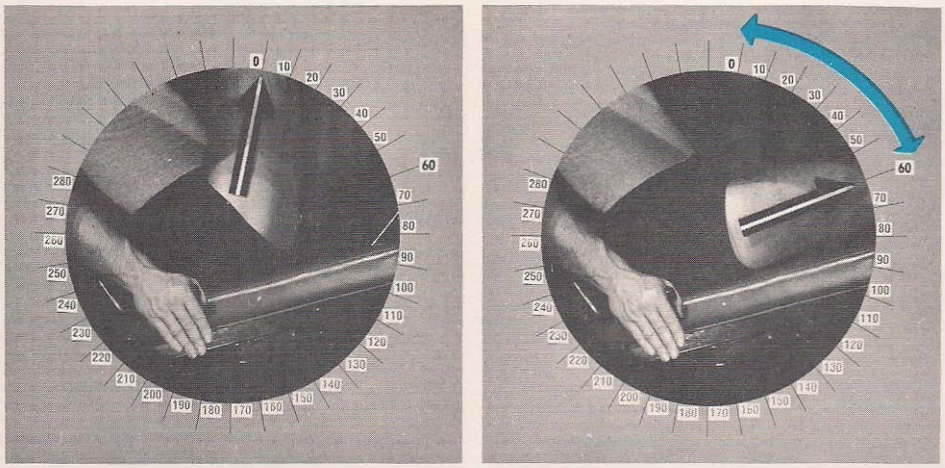

Illustration 3. The leg press provides very limited, mid-range exercise for the hip and thigh muscles. From the starting position to the finishing position, notice that the thigh moves only 60 degrees.

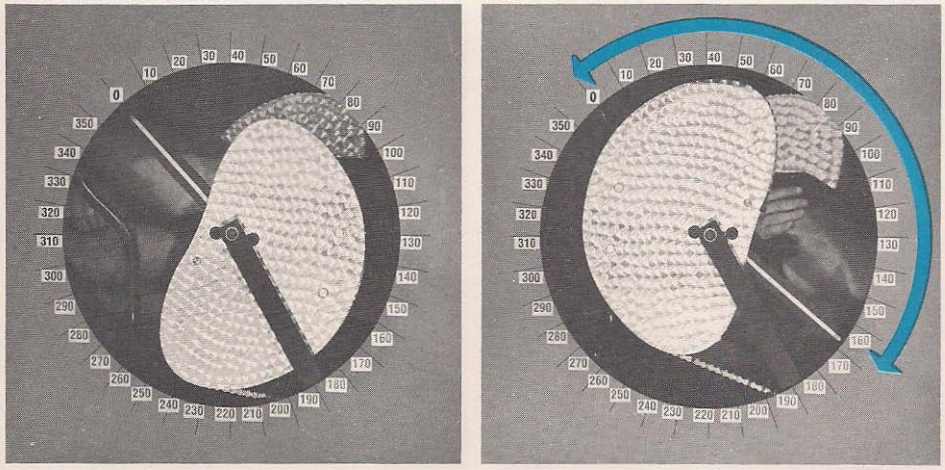

Illustration 4. In contrast to the leg press, the Nautilus hip and back machine provides a range of movement of the thighs around the hips of over 160 degrees . . . more than 2½ times that of the leg press. Properly performed repetitions on the hip and back machine will not only increase the flexibility of your athletes, but simultaneously increase their strength throughout a full range of possible movement.

ly unable to keep up.

The unavoidable results being that the muscles are yanked very hard at the start of the movement, yanked dangerously hard . . . and then coast through the rest of the movement against little or no resistance. So such a style of training will produce injuries, but will not produce much if anything in the way of actual strength increase.

Yet it probably remains the most commonly used style of training . . . which also explains why most people produce so very little in the way of worthwhile results, and why training injuries are so common.

So even if the exact answer remains unknown at this time, the question is certainly known . . . and, properly worded, the question should be "how slow should we move during exercise?" Not how fast . . . how slow?

And do not be misled into believing that an isokinetic form of exercise provides the answer . . . it does not. On the contrary, and in spite of many claims, it leaves a great deal to be desired.

Since the subject of this article deals primarily with flexibility, I will restrict my remarks mainly to this area . . . the area of greatest weakness for any form of isokinetic exercise.

Remember, flexibility is a result of stretching . . . and while it is true that very few conventional exercises provide enough stretching, if any, it is also true that isokinetic exercises provide absolutely no stretching.

Isokinetic resistance is based on friction . . . which, by it's nature, does not provide the back pressure required for stretching. In fact, the makers of isokinetic exercise devices point to this actual fault with apparent pride . . . hoping, I suppose, to give the impression that a major fault is actually an asset.

Some asset. Without stretching, no exercise of any kind will do anything for flexibility . . . and the prolonged practice of exercises that do not provide stretching will actually reduce flexibility.

During the course of an extensive research program conducted at the United States Military Academy, West Point, in April and May of 1975, two groups of varsity football players were compared on the basis of changes in flexibility produced by different styles of training.

Both groups of subjects were involved in spring football practice during the course of the experiment, and both groups were exposed to the normal stretching exercises that form a part of football practice . . . and both groups were involved in strength training programs, but here there was a difference.

One group was trained exclusively on *Nautilus* equipment . . . trained very briefly but very hard; a total of only seventeen workouts during a period of six weeks . . . workouts that averaged less than thirty minutes each.

The other group, the control group, performed conventional strength training exercises.

Both groups were carefully tested for flexibility before and after the period of training . . . and both groups improved their flexibility as a result of their training, but they did not improve equally.

In the first area of movement, the *Nautilus* trained group improved ten times as much as the conventionally trained group . . . not 10 per cent more, ten times as much, literally a 1,000 per cent increase.

In the second area of movement, the *Nautilus* group improved elev-

exercise actually reduces the possible range of movement, and thus removes the small amount of stretching that might have been provided if the exercise had been done with a much narrower grip.

And the same thing is also true in the bench press, a wide grip does not produce stretching; instead, it actually reduces the amount of stretching provided by a bench press performed with a narrow grip.

A moment's study of Illustrations 1 and 2 comparing these two exercises, as performed with both a narrow grip and a wide grip, will make it obvious that in both cases the wide grip actually reduces the amount of stretching provided. Yet, in practice, most people do use a wide grip in these exercises . . . and if you ask them why, they will usually tell you that a wide grip provides more stretching. And they may believe it . . . but believing certainly does not make it so.

If we went by what most people believe, then we would never change anything, and without change there could be no improvement. And while I do not mean to imply that change necessarily produces improvement, it should be obvious to anyone that there can be no improvement without change.

And, having changed something, it will then be different, therefore, strange . . . and most people immediately object to anything the least bit strange; because it usually frightens them . . . frightens them because they do not understand it.

so if you change the style of your exercises, which you should if you have been doing them in the usual fashion . . . then you can expect some people, perhaps most people,to object.

And their arguments will be many and varied . . . "Look at the results I produced," some will say. But when they do, then ask yourself just how long it took them . . . and was it really worth the price?

"Perform the movements as fast as possible," others will say, "fast movement in exercise builds fast muscles." Hogwash . . . pure hogwash, very dangerous hogwash, almost criminal hogwash. Fast movements in exercise produce absolutely nothing except injuries

At this point in time, January of 1977, an enormous controversy exists on the subject of the proper speed of movement during exercise . . . and this question probably will not be settled to the satisfaction of everybody for many years, if ever.

So . . . in order to set the record perfectly straight, let it be clearly understood that I do not know the best speed of movement during exercise. But neither does anybody else . . . although some people would like to have you believe that they do.

But the fact that I do not know the best speed does not mean that I know absolutely nothing on the subject . . . on the contrary, certain points are obvious, and it is obvious that a fast speed of movement during exercise is both dangerous and unproductive. Dangerous because it imposes enormous forces on the muscles, connective tissues and joints . . . and unproductive because it literally removes the resistance from the muscles during a large part of the exercise.

When an exercise movement is performed rapidly, the results are undeniable . . . first, the forces at the start of the movement are increased enormously, are multiplied by acceleration of the weight . . . then, secondly, after the weight starts moving, it moves so rapidly that the muscles are literal-

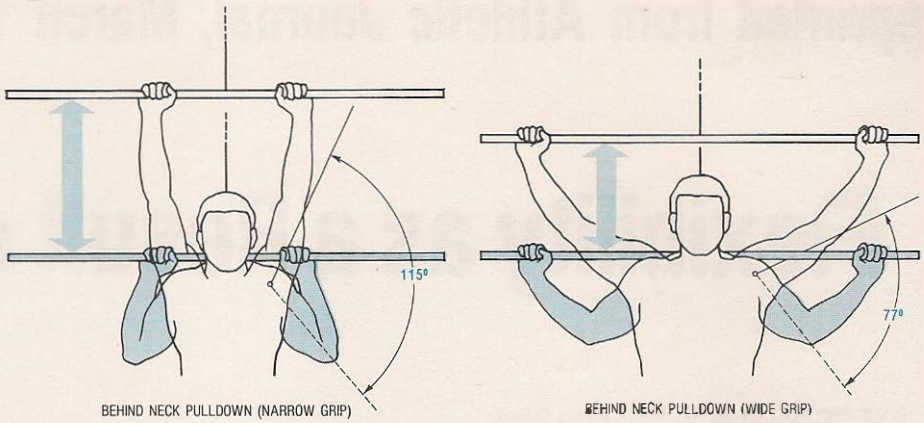

Illustration 1. A wide grip pulldown behind the neck provides a range of movement of 77 degrees, while the same exercise performed with a narrow grip provides approximately 115 degrees of movement . . . a difference of 38 degrees. If in doubt about which of several exercises to perform, always choose the exercise that involves the greatest range of movement.

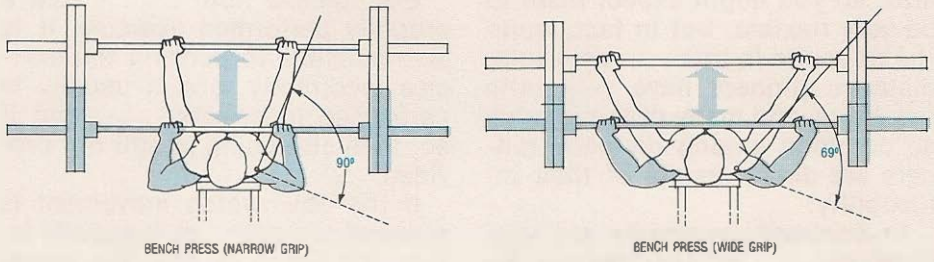

Illustration 2. Notice that the bench press performed with a narrow grip allows approximately 21 degrees more movement than a wide grip style of performance. In neither case, however, does the bench press with a barbell provide much in the way of stretching for the chest and shoulder muscles. A far better conventional exercise for the chest and shoulder muscles is the dipping movement performed between parallel bars.

en times as much as the conventional group, an 1,100 per cent increase.

And in the third area, the *Nautilus* group improved more than twenty times as much as the conventional group, more than a 2,000 per cent increase.

And, at the same time, while greatly improving their flexibility . . . the *Nautilus* trained group also increased in strength an average of nearly 60 per cent. In only six weeks, as a result of only seventeen brief workouts . . . a total training time of approximately eight hours.

So it is obvious that properly conducted strength training will increase both strength and flexibility . . . and will do so rapidly.

And while it might be supposed that more training would have produced even better results . . . in fact, quite the opposite is true. Brief training is far more than a mere possibility . . . for best results, brief training is an absolute requirement.

For the purpose of increasing strength, a high intensity of work is beyond any question the single most important factor . . . and, given a truly high intensity of work, you literally cannot stand a large amount of training.

High intensity exercise is required to stimulate growth . . . but it also makes deep inroads into your recovery ability; so it should not be overdone . . . no more than three high-intensity workouts should ever be performed within a period of a week, and no single workout should last much longer than thirty minutes.

Multiple sets are neither necessary nor desirable . . . one properly performed high-intensity set of each exercise is all that is required to provide a maximum degree of growth stimulation. Additional sets will merely make unnecessary inroads into your recovery ability . . . and much in the way of additional training may well prevent growth.

Study the comparison photographs that form a part of this article and clearly understand that important differences exist between exercises performed for the same stated purpose . . . and also understand that a proper style of performance can also provide an important difference.

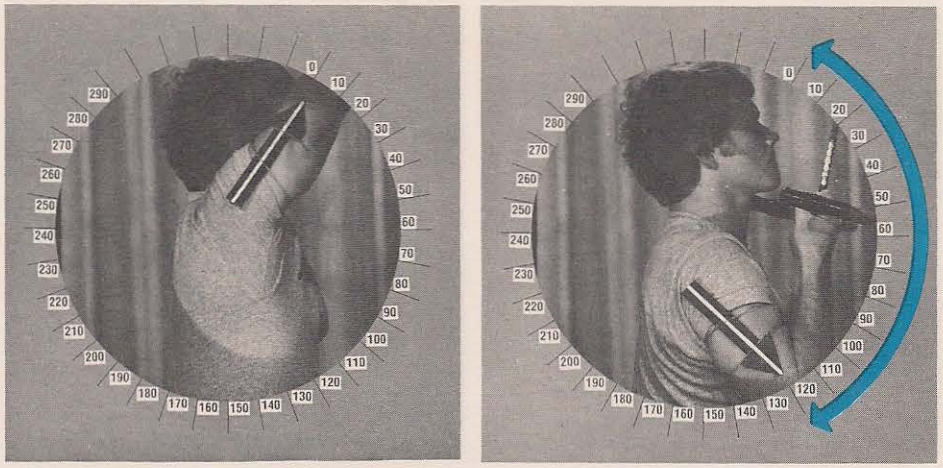

Illustration 5. Only 120 degrees of movement around the shoulders are provided in the typical pulldown exercise . . . and there is no resistance on the torso muscles in the starting position or the finishing position.

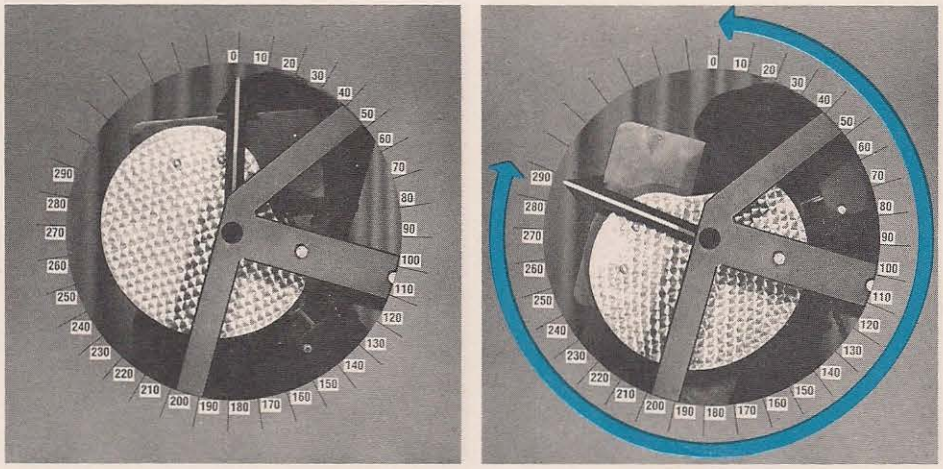

Illustration 6. Notice that the Nautilus pullover machine provides a possible range of movement around the shoulders of over 280 degrees . . . an enormous difference when compared to the pulldown exercise. Furthermore, the pullover machine stretches the torso muscles in the starting position and provides full-range resistance throughout the entire movement, including the position of full muscular contraction.

Notice the enormous range of movement provided by the pullover machine, for example Illustration 6 . . . and compare this with the very limited range of movement involved in a pulldown exercise (Illustration 5). Yet both exercises are performed for the same stated purpose, to develop the major muscles of the torso.

The pulldown exercise involves resistance over a range of movement of only about 120 degrees . . . and does not involve any actual stretching, or resistance in the fully contracted finishing position, which is never reached in this exercise.

In contrast, the pullover machine provides resistance over a range of movement in excess of 280 degrees . . . and it does involve stretching, for even the most flexible athlete, and it does have resistance in the fully contracted finishing position. The pullover machine does provide proper full-range exercise for the torso muscles . . . and it is the only exercise that does.

The use of such proper full-range exercises will increase flexibility, while simultaneously increasing strength throughout a full range of movement . . . and nothing else will.