Nautilus
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Athletic Journal
Articles

ArthurJonesExercise.com

The Most Important Area of the Body
Featuring the Lower Back Machine

While the title of this article may lend itself to argument, it is certainly true that the lower back is, at the very least, one of the most important areas of the body... an area that is generally neglected; a neglect that frequently leads to trouble.

If you happen to be one of those relatively rare people who have never suffered from problems associated with the lower back, then the importance of this subject may be lost on you... for the moment. But the odds against a lifetime of such continued bliss are against you.

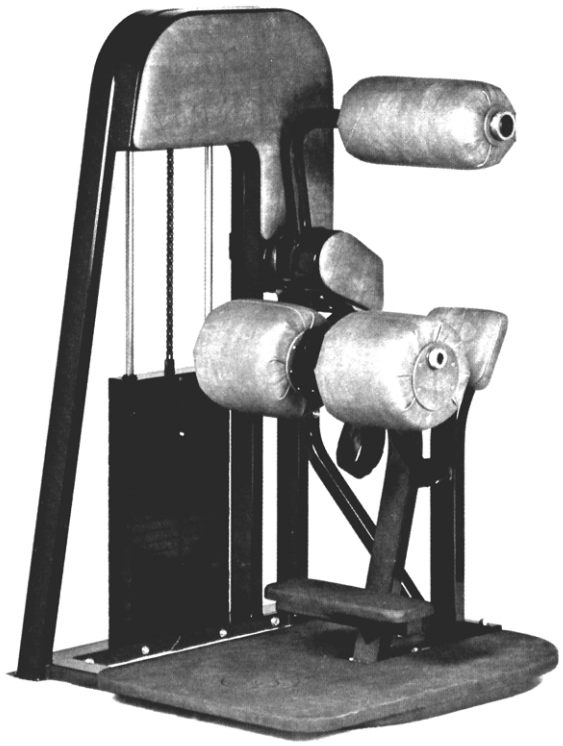
Sooner or later, if you live long enough, the odds are probably about ten to one that you will have trouble with your lower back... and if you do, then you will appreciate the importance of this subject. Take my word for it.

When your lower back is out, then nothing else works very well either... even you fell like doing something that doesn't involve the lower back, which you won't. If you can think of something that doesn't involve the lower back, one way or another.

A very large part of these problems can be prevented... but they seldom are. Instead, most people ignore the lower back until it gives them trouble. Something along the lines of a bumper sticker that I saw on a car recently... "Just ignore your teeth and they will go away".

Ignoring your lower back may not cause it to go away, but ignore it long enough and your ability to use it will certainly go away.

The muscles that provide the required strength in your lower back need exercise just like any other muscle in your body... and without that exercise they react like the rest of your muscles, they quietly go away; not entirely, perhaps, but to the point that they are no longer capable of doing their job, cannot support your back properly.



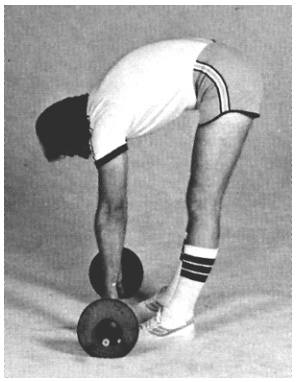
When this happens, and it will if you neglect these muscles, then it is usually just a matter of time until you are in for a very rude surprise.

Yet you have been told repeatedly since you were old enough to understand, and probably before that, not to lift with your back... "use your legs, don't strain your back."

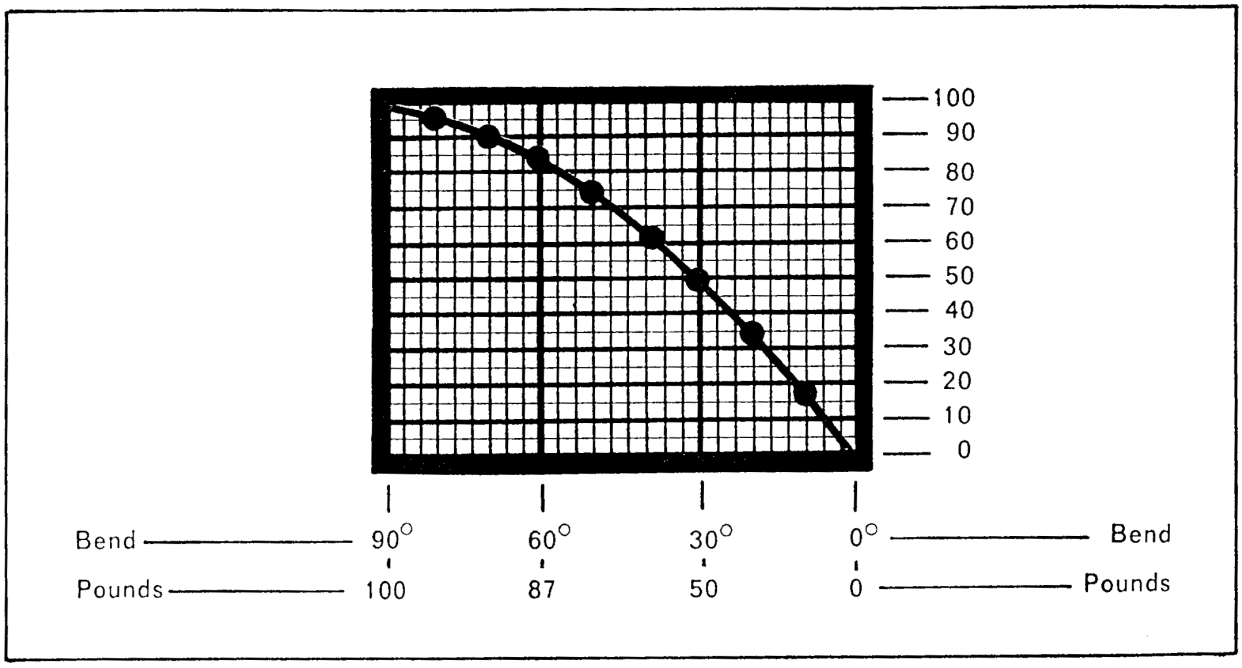
Having heard that some advice for over fifty years, and having given the matter a great deal of thought for over forty years, I still haven't been able to figure out how to do it. When I tried lifting something in the style suggested by this advice I always managed to hit my head on the concrete when I fell over backwards.

Which results from the fact that we have only two legs, and the fact that we have to maintain our balance on those two legs while lifting... which, in the real world, means that you simply cannot lift anything of any consequence without bending your back.

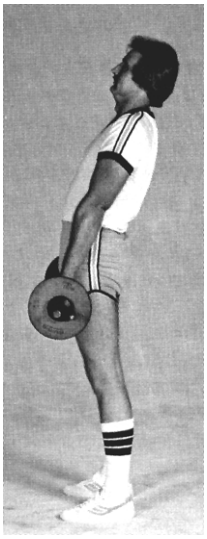
Oh, you say... but you should bend at the hips, keep your back straight, and lift with your legs.

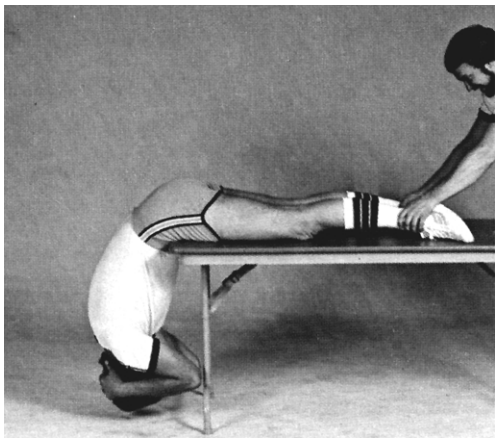


Dead Lift

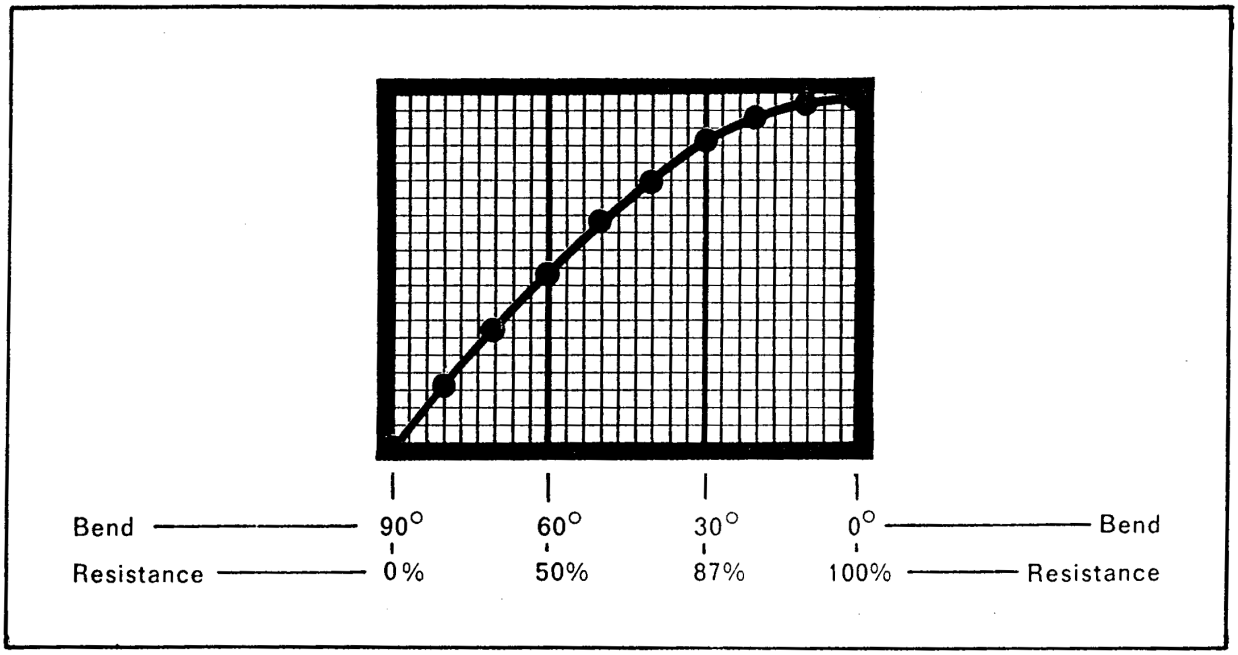


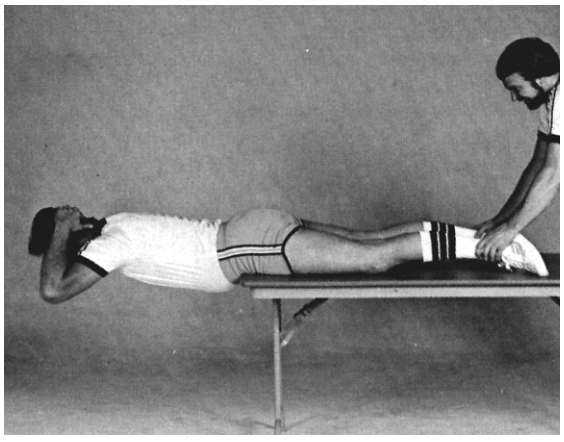
The curve of resistance provided by the stiff-legged deadlift starts high and ends low. Assuming a barbell weight of 100 pounds, with no consideration for the body mass of the individual performing the exercise, and assuming a movement of 90 degrees rotating around the axis of the hips while maintaining stiff legs and a flat back, the resistance would be 100 pounds at the start of the upwards movement and zero at the end of the movement. Additional resistance would of course be provided by the body mass of the person performing the exercise, but would vary in the same manner. And, at the end of the movement, in the upright position, 100% of the resistance would be exerting compression forces on the spine while providing no resistance at all for the muscles of the lower back.





Hyper-Extension





The curve of resistance provided by the hyperextension exercise starts low and ends high... a resistance curve that is opposite to that which is provided by the stiff-legged deadlift exercise. Assuming that the exercise is performed using only the body mass of the individual as a source of resistance, and assuming that a range of movement of 90 degrees is involved, rotating around the axis of the hips with the back being maintained in a straight line, then no resistance is provided at the start of the upwards movement while maximum resistance is provided at the end of the movement.

In marked contrast to both of these exercises, the Nautilus Lower Back Machine provides proper resistance throughout the entire movement... while also providing a greater range of movement... while totally removing the compression forces that are involved in the stiff-legged deadlift, and without requiring the hyper-extension that is normally involved in the other exercise.

Which is difficult to do unless the weight is very light... but even if you can lift in that fashion, the muscles of your back are still required to keep your back straight.

The usual result of such well intentioned but misdirected advice being exactly the opposite of the intended result. The muscles of the lower back need exercise just like your other muscles do, and the strength of your lower back is a lot more important than the size of your arms. I promise you, if your lower back is out you won't care how big your arms are.

Over the years, quite a variety of exercises have been tried... deadlifts... stiff-legged dead lifts... hyper-extensions using your own bodyweight and a number of other movements intended to strengthen the muscles of the lower back. None of which exercises really fill the bill, and all of which movements frequently lead to trouble.

Recently, quite a few thousand football players and other athletes have been advised to practice such lifts as the power clean as an exercise to strengthen the lower back... which advice is nothing short of criminal malpractice, regardless of the source. Power cleans have probably ruined at least a thousand backs for each one they have helped, if they have helped any, which I seriously doubt.

The next time somebody tells you to move quickly during exercise, to produce a sudden or jerky movement against resistance... then smile and walk away, you are talking to a fool; which advice may well be the most important thing I can tell you about exercise, any exercise, but particularly an exercise involving the muscles of your lower back.

Sudden movements of the back are directly responsible for killing a few thousand people every year, and the backs that have been ruined by such movements number in the millions. Did you ever hear of "whiplash"?

Well you can get a whiplash just as quickly in the lower back as you can in the neck, and the result is frequently the same... and you can get a whiplash of the lower back just as easily from a power clean as you can from a car wreck.

The problem of neck injuries in football could be solved in a very simple manner by incorporating the helmet into the shoulder pads in such a fashion that the neck was totally protected... which would solve one problem and create an even bigger problem; because the forces would then be transmitted directly to the lower back, and the nature of the game being what it is this would lead to even more "spearing" than we have now, and a lot of broken backs.

Force is force, and your body doesn't know or care what the source of the force may be... the result is the same in any case; and sudden movement against resistance creates an enormous level of force.

An injury is caused when a force is imposed on the body... within reasonable levels. If the force of gravity is removed from your body for even a few days, the body reacts to this abnormal situation by starting to demineralize the bones... which reaction has created a very serious problem for astronauts in the weightless environment of outer space, where exercise literally becomes a matter of life or death.

Your muscles also require force, and they react to a lack of force by atrophy... a loss of both size and strength.

So the force must be at least high enough to maintain the normal level of minerals in your bones, and it must be at least high enough to maintain the strength of your muscles... but it must not be high enough to rip your muscles out by the roots or break your bones; and sudden or jerky movements against resistance can easily do both.

Even jogging involves G forces as much as three times normal gravity, which means that a 200 pound man may experience a force of 600 pounds when his foot strikes the ground; so just imagine what happens when you suddenly move a barbell, perhaps creating G forces that can reach a level fifteen times as high as normal gravity, forces into the thousands of pounds.

All of which dangers can be easily avoided by the use of a bit of common sense... which seems to be in short supply at the moment, at least in some circles in the field of exercise.

High levels of force caused by a sudden movement of some sort are probably responsible for almost 100% of the injuries produced by exercise... which should be obvious to anybody. Properly performed exercise can and will go a very long way in the direction by preventing injuries... but improperly performed exercise, which usually means sudden movement against resistance, will eventually hurt you.

All of which is important to every muscle in your body which produces movement of any sort... of particular importance to the muscles of your lower back.

Ten years ago, in an attempt to solve the problems involved in exercises for this important area of the body, Nautilus introduced the Hip and Back machine, and there are a lot of people walking around today who would not be walking if it were not for this machine.

But the problems associated with exercises for the lower back were not entirely solved even by the Hip and Back machine, so we have continued to work on these problems ever since... and the problems have now been solved.

The final solution to this problem was a result of an attempt on our part to solve another problem... the problem of providing proper exercise for the muscles of the lower back for people who literally cannot tolerate even a low level of compression forces on their spine, people suffering the effects of osteoporosis, demineralization of the bones.

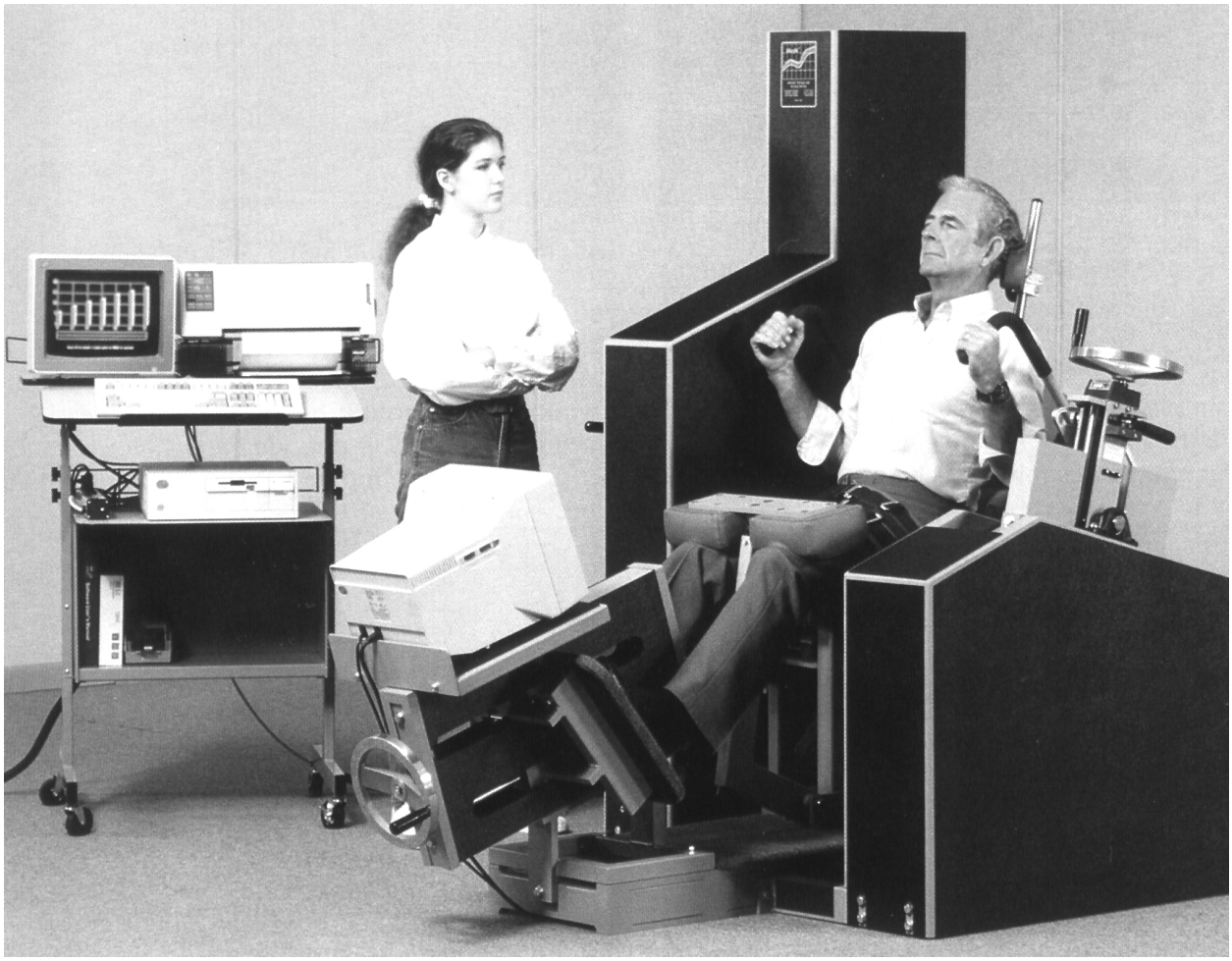
Nautilus is now providing the entire funding, in excess of three million dollars, for a ten-year research program to be conducted in cooperation with the School of Medicine at the University of Florida... a study intended to help determine the effects of exercise for the purpose of preventing osteoporosis or for the rehabilitation of people suffering the effects of osteoporosis.

It now appears that exercise is perhaps the single most important factor required for either the prevention or rehabilitation of osteoporosis, a condition that affects literally tens of millions of people in this country, particularly older women.

At the very least we certainly know that a total lack of exercise will cause osteoporosis, and now we are going to try to find out just what sort of exercise is required to prevent it, or perhaps even provide some degree of rehabilitation.

We don’t know the answers to these questions yet, and we are not even very certain about many of the questions themselves; but we intend to find the answers if we can.

The Arthur Jones Collection



Arthur Jones' final word on lower back rehabilitation, the **MedX** Low Back Extension Machine.

The Nautilus lower-back machine was invented by me and the patent was issued in my name; to the best of our knowledge it was the first machine ever built for the express purpose of exercising the lumbar-extension muscles. Supposedly it has been copied by a number of other companies producing exercise machines, and several slightly different variations of this machine are now being marketed.

When I designed that machine I clearly understood that it provided exercise for both the hip and thigh muscles... but I then believed that it also provided meaningful exercise for the lumbar-extension muscles; an assumption that I now realize was wrong. The machine is misnamed, is in fact a hip and thigh machine, provides meaningful exercise only for the muscles of the buttocks and rear of the thighs.

I founded Nautilus Sports/Medical Industries, Inc., in 1970, and served as chairman until it was sold in June of 1986; selling controlling interest in the company in order to devote my full attention to the continued development of specific testing and exercise equipment for several critical areas of the body, with particular emphasis on the lumbar spine, the cervical spine and the knee. The project that eventually did lead to the development of safe, accurate, specific testing and exercise equipment was started more than twenty-two years ago while I was directing Nautilus; but was not successful until after I sold the company.

This clear statement of fact must not be misunderstood as an indictment of Nautilus or any other product of that company; we all make mistakes, and the misnamed lower-back machine was one of my mistakes, a mistake now being copied by several companies in the field of exercise.

Arthur Jones

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