



A Totally New Exercise And

by Arthur Jones

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Exactly how do such exercises work? Well, a detailed explanation would require a lengthy book — but I can rather briefly describe the working of one or two of these exercises; and this explanation, together with the pictures forming a part of this article, should make the involved principles understandable.

Illustration number one shows a subject seated in a "pullover-type" lat machine, in the fully extended starting position of the exercise; individual hand grips and a cross bar are provided for possible use; but if the exercise is performed properly then the resistance is moved by the elbows, **NOT BY THE ARM MUSCLES.**

Obviously, since the arms are moved by the lats, the arms must move during the exercise; but if the exercise is performed properly, the muscles of the arms are not involved in the movement at all. In effect, you are lifting weights (moving the resistance) with your elbows, not with your hands. Effort is expended by pressing against the elbow pads with the backs of the upper arms; what you do with your hands and forearms is of no concern.

In the starting position shown, the elbows are forced back well behind the head, and in this extended position the lats are quite weak; if heavy resistance is employed in this position, then it would be impossible to start the movement. Thus the resistance must be variable; it must be light in this position, and heavier in other positions. In order to effect this variation of resistance, we have employed what we term the "Nautilus System" of spiral pulleys; the large, spiral-shaped pulleys located on each side of the machine.

In this starting position, the radius of the pulley is quite small, and thus the resistance is low. Later in the movement the radius

Charles Amato has a really outstanding physique displaying unusual definition of the muscles with great shape and proportion and posing skill in displaying it.

Photo by Swan.

Concept In Equipment

of the pulley is greater and the resistance is increased in proportion. At the finishing position of the movement, as shown in the second illustration, the radius of the pulley is at its greatest, and the resistance has reached its highest point as well.

Or, at least this is true in general terms, although, in fact, while it is constantly changing, the radius of the pulleys (and thus the resistance) does not always increase; in some cases, the resistance increases up to a certain point and then decreases, as it must in order to remain in balance with changing strength levels produced by changes in involved body parts positions.

While it is perfectly true that the strength of a muscle constantly increases as the body parts move from an extended to a flexed position, it does not follow that this increase takes form in a straight-line fashion; that is to say, the increase in strength is not constant at a given rate of increase.

Second, changing positions bring about greater and lesser degrees of involvement of other muscular structures, and thus "total" strength may be decreasing while the strength of a particular muscle is increasing; for example, in the exercise illustrated, most of the effort is provided by the latissimus muscles, but the movement is assisted during part of the range of movement by the pectorals, the abdominals, and the trapezoids, as well as by several smaller muscular structures. Thus, while the strength of the latissimus muscles increases during the entire movement, "total" strength for the movement (the strength total provided by all of the involved muscles) actually decreases near the end of the movement.

So, in order to remain in balance with this total strength level, the resistance must increase up to a point, and then decrease slightly, and this variation in resistance is exactly provided by the variation in the curve of the spiral pulleys.

It should be noted that the subject is seated in such a position that his "axis of rotation" of the
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Charles Collras is another man with very outstanding definition and fine shape. He is proof that you don't need huge bulk to win titles, as he has won a lot of them even though he weighs around 160 lbs. most of the time. Both Amato and Collras have tremendous abdominal development. Photo by Swan.