

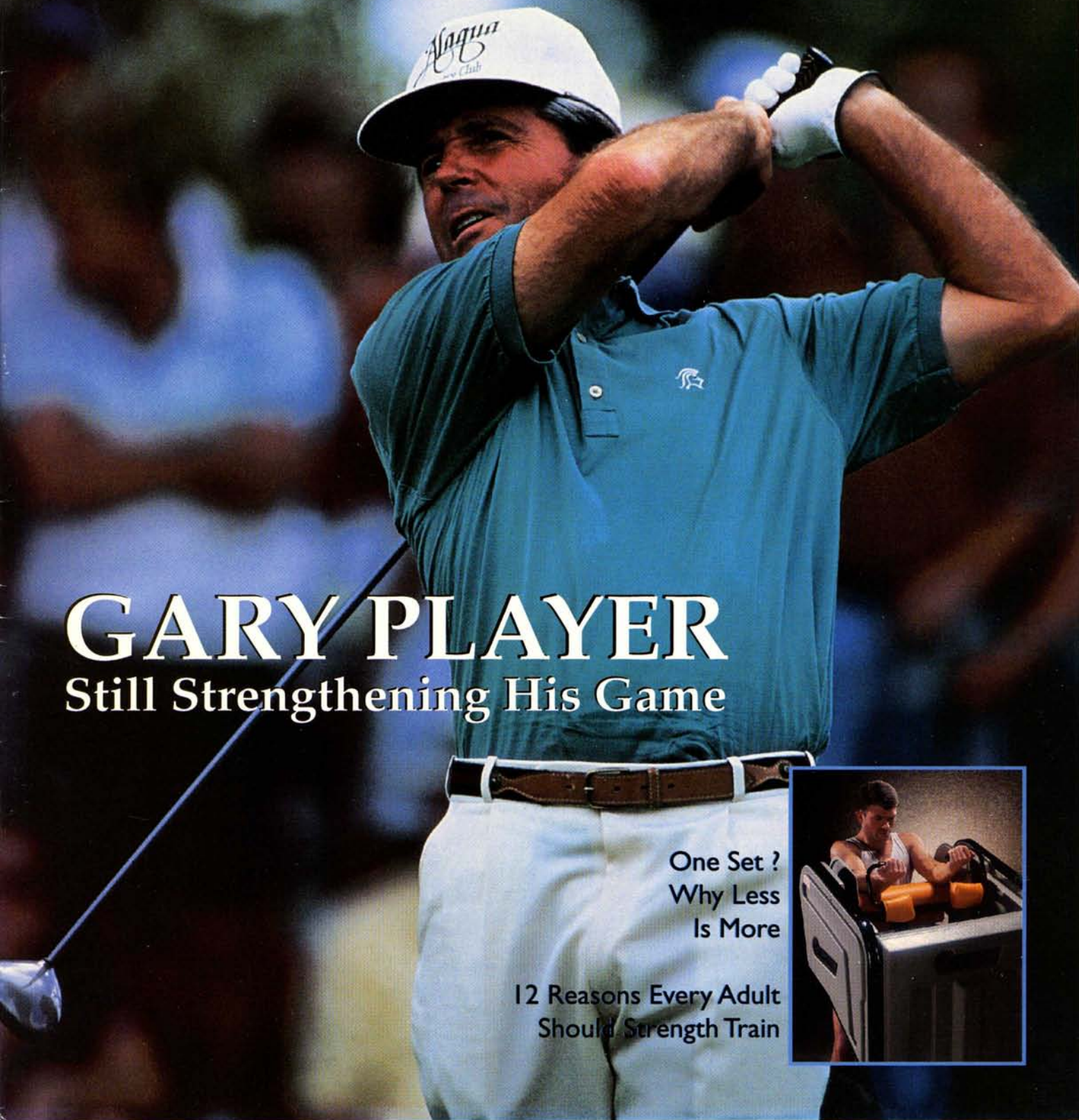


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AMERICA'S FITNESS MAGAZINE



GARY PLAYER

Still Strengthening His Game

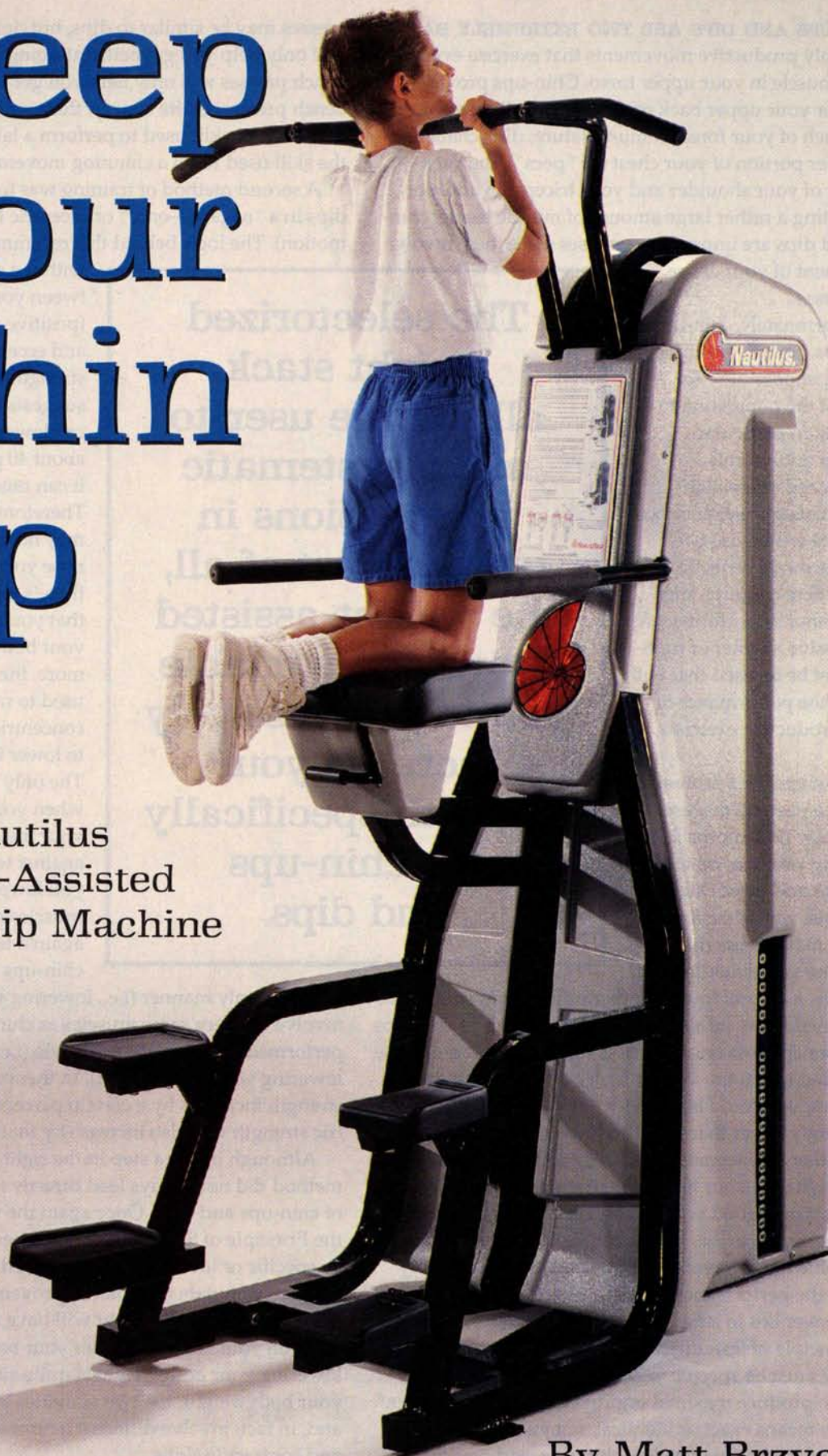
One Set ?
Why Less
Is More

12 Reasons Every Adult
Should Strength Train



Keep Your Chin Up

The Nautilus
Weight-Assisted
Chin/Dip Machine



By Matt Brzycki

CHIN-UPS AND DIPS ARE TWO EXTREMELY BASIC yet highly productive movements that exercise every major muscle in your upper torso. Chin-ups provide work for your upper back region (or "lats"), your biceps and much of your forearm musculature; dips challenge the lower portion of your chest (or "pecs"), the back portion of your shoulder and your triceps. In addition to affecting a rather large amount of muscle tissue, chin-ups and dips are important exercises since they involve movement of your entire body mass.

Unfortunately, chin-ups and dips can be very difficult—if not impossible—for much of the population to perform. In particular, younger adolescents, females and overweight individuals often experience difficulty with these two valuable movements. In cases where chin-ups and dips cannot be performed, a progressive manner of training must be devised that will lead to the performance of these productive exercises.

Addressing The Problem

In the past, there were essentially two approaches used as a progression to chin-ups and dips. One technique was to perform similar movements that exercise the same muscles. For example, a lat pulldown or other pulling movement was recommended to influence the same muscles as chin-ups and a bench press or other pressing movement would be suggested to use the same muscles as dips. With these exercises, you could begin with a resistance that was sufficiently lower than your bodyweight. The resistance would then be increased gradually and systematically until, in theory, your muscular strength increased to a level that permitted you to perform chin-ups and dips.

At first glance, this may seem like a viable solution to the problem. However, this practice didn't necessarily lead to the performance of chin-ups and dips. Why not? The answer lies in a fundamental law of motor learning: the Principle of Specificity. This principle states that an activity must be specific to an intended movement in order to produce maximal improvement, or "carryover." Specific means exact or identical, not just like or similar. So lat pulldowns may be like chin-ups, and bench

presses may be similar to dips, but doing lat pulldowns will only help you get better at doing lat pulldowns and bench presses will only help you get better at doing bench presses. Quite simply, there's no carryover between the skill used to perform a lat pulldown and the skill used to do a chinning movement.

A second method of training was to do chin-ups and dips in a "negative-only" or eccentric fashion (lowering motion). The logic behind this recommendation has to do

The selectorized weight stack allows the user to make systematic progressions in weight. Best of all, the weight-assisted movements enable you to progressively increase your strength specifically for chin-ups and dips.

with the relationship between your concentric (positive or raising motion) and eccentric levels of strength. Some research suggests that a fresh muscle can lower eccentrically about 40 percent more than it can raise concentrically. Therefore, even though you may not be strong enough to raise your bodyweight, there's a good possibility that you are able to lower your bodyweight. Furthermore, the same muscles used to raise a resistance concentrically are also used to lower it eccentrically. The only difference is that when you raise a weight, your muscles are shortening against tension and when you lower a weight, your muscles are lengthening against tensions. So, chin-ups and dips done in a

negative-only manner (i.e., lowering your bodyweight) involve the very same muscles as chin-ups and dips performed in a conventional style (i.e., raising and lowering your bodyweight). In theory, as your eccentric strength increases by a certain percentage, your concentric strength will also increase by that same percentage.

Although it was a step in the right direction, this method did not always lead directly to the performance of chin-ups and dips. Once again the reason pertained to the Principle of Specificity. Remember, an activity must be specific or identical to an intended movement in order to stimulate maximal improvement. In this case, lowering your bodyweight will have a marked improvement on your ability to lower your bodyweight. Though lowering your bodyweight is quite similar to raising your bodyweight, the two activities are not identical and, in fact, involve different neuromuscular patterns and contractile skills.

An Innovative Solution

In the early part of 1992, Nautilus introduced a Weight Assisted Chin/Dip Machine. This revolutionary device provides lift assistance from a platform that is linked to a selectorized weight stack. The machine's patented four-bar linkage system permits a biomechanically correct motion that matches the user's natural body arc, thereby making the movement feel remarkably smooth. In addition, the selectorized weight stack allows the user to make systematic progressions in weight. Best of all, the weight-assisted movements enable you to progressively increase your strength specifically for chin-ups and dips. In other words, you are actually performing chin-ups and dips, with mechanical assistance, thereby enhancing improvements in the specific contractile skills necessary to accomplish those movements with your bodyweight.

The Exercises

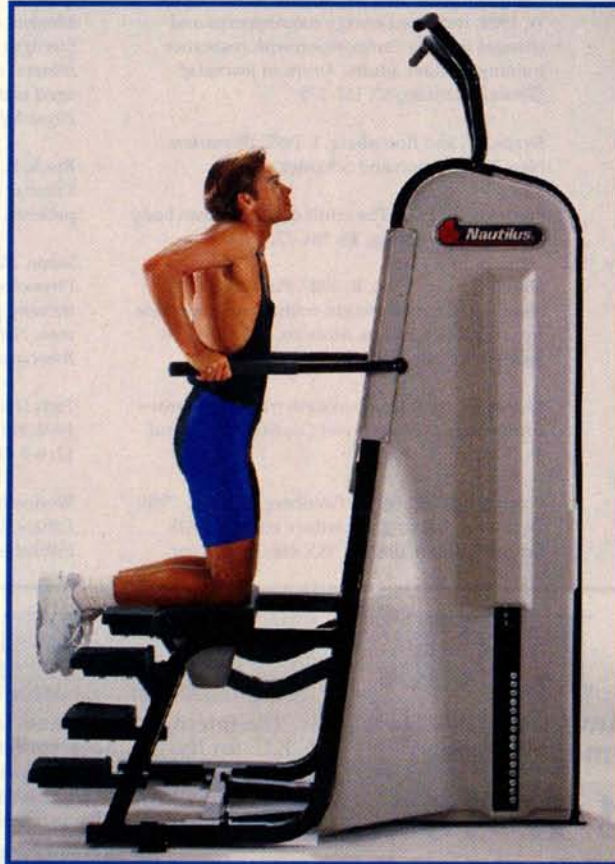
Regardless of whether you're doing chin-ups and dips with assistance, resistance, or simply your bodyweight, there are several general guidelines that you should follow to maximize your response. First of all, it should take about one to two seconds to raise your body and about three to four seconds to lower it. In effect, each repetition should last approximately four to six seconds. Chin-ups and dips should be performed for about eight to 12 repetitions. Once 12 repetitions can be performed with good technique, you should increase the amount of resistance (adding extra weight by using fewer plates on the machine).

The following are some specific guidelines for performing weight-assisted chin-ups and dips:

Chin-ups: After selecting the desired level of assistance, grasp the dip handles and walk up the two sets of footsteps. After reaching the upper footsteps, reach up and grasp the chin bar with your palms facing you. Your hands should be spaced approximately shoulder width apart. While holding the chin bar, carefully kneel on the knee pad. To perform the exercise, pull yourself up so that your upper chest touches the bar and your elbows are rotated backward. Pause briefly in this position, then

lower yourself back to the starting position (arms fully extended) at the end of each repetition to provide a proper stretch. After completing the exercise, slowly remove your knees from the knee pad and walk down the footsteps.

Dips: After selecting the desired level of assistance, grasp the dip handles and walk up the two sets of footsteps. If needed, push the chin bar away from you to the rearmost position. Regrasp the dip handles. Individuals with narrow shoulders should grasp the narrow part of the handles (closer to the machine); those with wide shoulders should grasp the wider part of the handles (farther from the machine.) While holding the dip handles and with your arms almost fully extended, carefully kneel on the knee pad. To perform the exercise, lower your body to a point where the angle between your upper and lower arms is about 90 degrees. Push yourself back to the starting position (arms almost fully extended). It is important not to lock or "snap" your elbows in this position. Doing so takes the tension off your muscles and may hyperextend your elbows. After completing the



exercise, slowly remove your knees from the knee pad and walk down the footsteps.

Chin-ups and dips as a comprehensive exercise are valuable to people of all ages. Not only does the exercise provide excellent muscular strength training, but there is a sense of accomplishment in being able to do a chin-up or dip. The Nautilus Weight-Assisted Chin/Dip Machine allows those who previously did not have the strength to do chin-ups or dips on their own the opportunity to work specifically toward the unassisted performance of chin-ups and dips.

Matt Brzycki is the coordinator of Health, Fitness, Strength and Conditioning Programs at Princeton University. He has authored more than 140 articles on strength and fitness and a book, A Practical Approach to Strength Training, which is in its third edition. He has also coauthored the book Conditioning for Basketball.