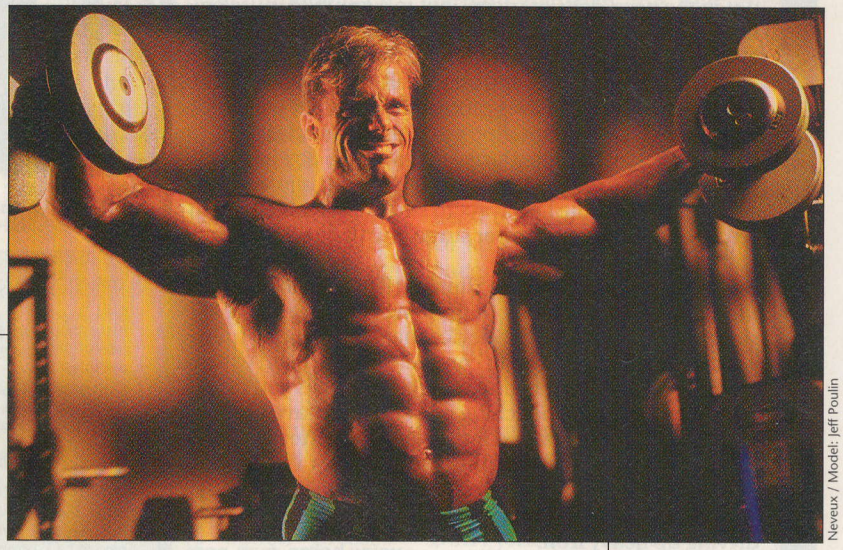
EMG

A Scientific Look at Selected Medial-Deltoid Exercises

In the past few months there's been a lot of gym hype about a new exercise for delt training. It involves an inexpensive apparatus called the Delta Force Free Weight Isolator. Many of the amateur and professional Canadian bodybuilders are using it, and Laura Binetti, the '99 Women's Professional World Bodybuilding champ, says it's excellent at isolating the medial-delt head.



Neveux / Model: Jeff Poulin

Courtesy of Delta Force

We've analyzed exercises for the middle delt in the past. In this study it was our aim to determine through scientific analysis if the hype on the Delta Force is valid or just wishful thinking. In addition to the Delta Force, we asked our subjects to perform exercises for the medial-delt head that we'd studied in a previous experiment. Through electromyographic recordings we determine ed which exercise produced the greatest amount of electrical activation in the target muscle.

Methods

We recruited four healthy volunteer athletes, two men and two women. All the subjects had at least four years' experience in strength training and had not used performance-enhancing substances for at least one year.

We tested them on two separate days. On the first day we determined their one-rep maxes for the exercises. Each athlete performed a warmup of four reps at 50 percent of one-rep max, three reps at 80 percent and two reps at 90 percent, with a five-minute rest after each set. The athletes then performed three one-rep maxes for each exercise, taking a five-minute rest after each trial.

On the second day the subjects did 80 percent of one-rep max five times, interspersed with three-minute rest intervals.

We tested the following delt exercises:

1) Delta Force Free Weight Isolator

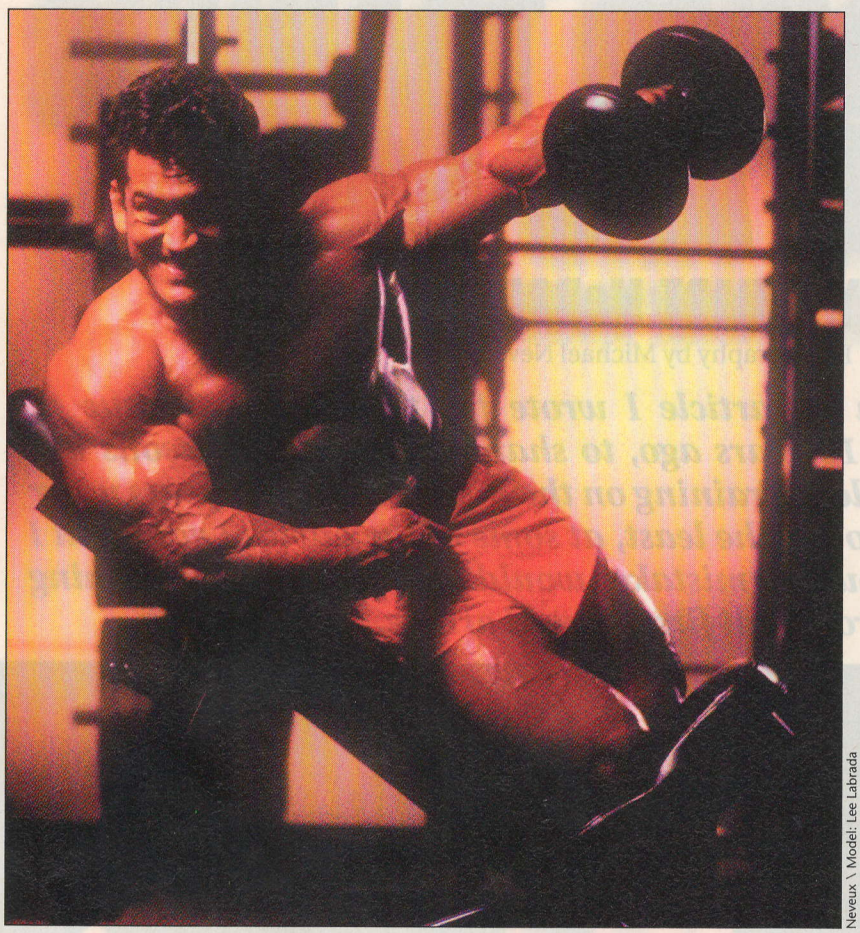
2) Incline dumbbell lateral raise

3) Seated dumbbell lateral raise

4) Standing dumbbell lateral raise

Analysis

by Lorenzo Cornacchia and Tudor O. Bompa, Ph.D.



Neveux \ Model: Lee Labrada

We measured electromyographic activity during all exercises. All EMG data was rectified and integrated for one second, which is referred to as IEMG. We designated the exercise that yielded the highest IEMG determined at one-rep maximum as IEMG max for the medial-delt head, and we determined IEMG max by taking the average of the three one-rep maxes for each exercise. We expressed IEMG values obtained during 80 percent of one-rep-max sets as a percentage of IEMG max, and we determined IEMG at 80 percent of one-rep maximum by taking the average of the five 80 percent trials.

Results and Conclusions

Our data indicated that there was no significant difference between the main exercise effects on the medial deltoid for movements performed on the Delta Force Free Weight Isolator (74 percent) and incline dumbbell lateral raises (72 percent). There was, however, a significant difference between the main effect for those exercises and that for seated dumbbell lateral raises (66 percent) and standing dumbbell laterals.

The results indicate that movements performed on the Delta Force and incline dumbbell laterals produce the greatest amount of electrical activation in the medial delt. Although the difference between the two is not significant, the Delta Force Free Weight Isolator still produces 2 percent more electrical muscular activation in the target muscle.

In this case the gym hype turned out to be valid. For those who aspire to become world-class bodybuilders or who just participate in the sport to look better, the Delta Force Free Weight Isolator is an excellent exercise for the middle deltoids.

Editor's note: *The new book* Serious Strength Training *by Tudor O. Bompa, Ph.D., and Lorenzo Cornacchia is available from Home Gym Warehouse for $19.95 plus $4.90 for shipping. To order with a credit card, call 1-800-447-0008, ext. 1.* **IM**

Group	Exercise	% IEMG Max	% Difference
4 athletes	1) Delta Force Free Weight Isolator	74	1 to 2: 2
	2) Incline dumbbell lateral raises	72	2 to 3: 6
	3) Seated dumbell laterals	66	3 to 4: 2
	4) Standing dumbbell laterals	64	

Medial deltoid analysis. % IEMG max indicates motor unit activation for the middle-delt head on various exercises.