

## ADVANCED TRAINING TECHNIQUES

The more advanced you are in strength training, the harder it is to continue making progress. In this part of the book, we will provide you with tips that will help you reach a higher level using innovative training techniques and the most effective recovery methods.

### TARGET MUSCLES WITH SURGICAL PRECISION

#### EXCESSIVE OVERLOADING IS NOT NECESSARILY THE SOLUTION

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When you have a weak point, you try to progress by using heavier and heavier weights. Sometimes it works, but often, you fail. Why? During a squat, the work done by the quadriceps is relatively important past a weight that is equivalent to 60 to 70 percent of your maximum strength.<sup>1</sup> By adding weight, the tension is transferred from the quadriceps to the glutes. In fact, the quadriceps do less work with 90 percent of the maximum weight than with 80 percent. The difference in tension is ensured by the recruitment of the glutes.

The same thing happens during bench presses.<sup>2</sup> The recruitment of the pectoral muscles (compared to the shoulders and the triceps) during the bench press is dominant up to 70 percent of the maximum weight. At 80 percent of the maximum, the recruitment of the pectoral muscles plateaus, and the shoulders and triceps do significantly more work. At 90 percent of the maximum, the pectoral muscles are only working slightly more, and the shoulders and triceps take on an even bigger role. At the maximum weight, the front of the shoulders and, to an even greater degree, the triceps largely take over from the pectoral muscles, whose recruitment is decreased.

Obviously, these are averages that may vary from one person to another. They accurately describe, however, what happens in people who have difficulty recruiting the desired muscles using multijoint exercises. Beyond a certain weight, you feel the target muscle less than you do with lighter weights, even though, in theory, the heavier the weight you use in a squat or in a bench press, the more you should work your thighs or your chest.

You have to find strategies that help you to target more specifically the muscles that you want to develop. Better yet, within a single muscle, is it possible to hypertrophy a specific zone rather than another? In other words, can you change the shape of a muscle and, if so, how? Science shows us that it is possible, and we will provide paths for you to explore. A study illustrates this perfectly. For three months, a group of men trained their thighs twice weekly.<sup>3</sup> The first group did only squats, in sets with eight reps each. The second group also used leg presses, deadlifts, and lunges. The weight and the number of sets were kept as close to the same as possible in both groups.

Though the overall growth in the quadriceps was the same for all participants, a specific analysis showed that the squat favored growth in the outside of the quadriceps. However, doing several exercises created more equal growth across all the heads of the quadriceps.

### **A MUSCLE RARELY DEVELOPS IN ITS TOTALITY**

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Muscles rarely develop uniformly overall. Even though, when you train your biceps, the entire muscle is supposed to contract equally along its entire length, this is not what science has revealed really happens. Training the biceps for 12 weeks increased the hypertrophy of

- 12 percent of the fibers located in the upper biceps,
- 7.5 percent of the fibers in the middle, and
- 5 percent of the fibers in the lower part.<sup>4</sup>

Researchers also measured differences in the activation of the triceps during multi-joint exercises that were done in a person's first strength training session.<sup>5</sup> The middle part of the triceps was recruited significantly more than the upper region. So it is not surprising that the middle of the triceps, rather than the upper part, developed after 12 weeks of training using these same exercises.

### **THE METHOD OF CONTRACTION INFLUENCES THE MUSCLE AREA THAT IS RECRUITED**

For eight weeks, a group of men did squats in two different ways: explosively or with heavy weights using slow contractions.<sup>6</sup> The hypertrophy of the quadriceps was more pronounced in the upper thighs with the heavy weights. But the explosive work increased the size of the lower thighs. In the same way, training for 14 weeks on an isokinetic machine promoted growth lower in the quadriceps than normal training.<sup>7</sup>

Other men followed a thigh program over a period of 10 weeks.<sup>8</sup> The first group trained using the positive phase of the exercises while a second group trained using only negatives. At first glance, the effect of the different trainings seemed similar.

Muscle volume increased by

- 8 percent with the positives.
- 6 percent with the negatives.

Strength increased by

- 9 percent with the positives.
- 11 percent with the negatives.

The different types of contractions produced specific effects (hypertrophy) in different parts of the thigh. The lower part of the thigh increased in size by

- 2 percent with the positives.
- 8 percent with the negatives.

The middle of the thigh increased in size by

- 11 percent with the positives.
- 7 percent with the negatives.

We can clearly see that, depending on the type of contraction, the tension created affects a variety of areas within the same muscle. This gives hope to bodybuilders who wish to change the shape of their muscles. Unfortunately, even though these studies highlight differences in muscle recruitment, these specific things are not gigantic. Restructuring a muscle takes time and requires serious effort. But at least we know that this specific targeted work within a muscle is really possible, and not something that exists only in the imaginations of bodybuilders.

## **STRATEGIES FOR ADJUSTING REST BREAKS BETWEEN SETS**

You should think of adjusting rest breaks as a tool. As with all tools, some changes in rest breaks are more appropriate than others depending on the situation. Generally, though, you need all of your tools to be able to work effectively. We think that settling for a set amount of rest for all exercises and in all situations is inappropriate. You need to know how to benefit from short rest breaks as well as how to reap the benefits of long breaks.

### **DOES A LACK OF REST BETWEEN SETS REDUCE THE ANABOLIC RESPONSE?**

Short rest breaks are popular, especially because they save time. By quickly moving from one set to the next, you do not have to spend as much time in the gym. However, many studies have shown that, to gain muscle, this is not an ideal strategy. Take as an example the study where the men trained their thighs with a weight that was 75 percent of their maximum.<sup>9</sup> In one group, breaks between the eight sets performed were 1 minute long versus 5 minutes in the other group. With the shorter rest breaks, the volume of work was between 13 and 17 percent lower than in the group with longer breaks. Following the training, a muscle biopsy showed that anabolism increased by

- 76 percent with 1 minute of rest.
- 152 percent with 5 minutes of rest.

Paradoxically, these short breaks created a larger increase in testosterone levels in the 40 minutes following the workout. Even though this seems logical, it is good to remember that the longer the rest break is between sets, the more time the muscle has to recover its strength. This means that men can do 28 percent more repetitions during a workout using 3-minute breaks instead of 1-minute breaks.<sup>10</sup>

Fatigue accumulates faster with short breaks. For example, with 1 minute of rest, the decrease in performance from one set to the next is obvious as soon as the second set of the same exercise. With 3 to 5 minutes of rest, this fatigue is not seen until