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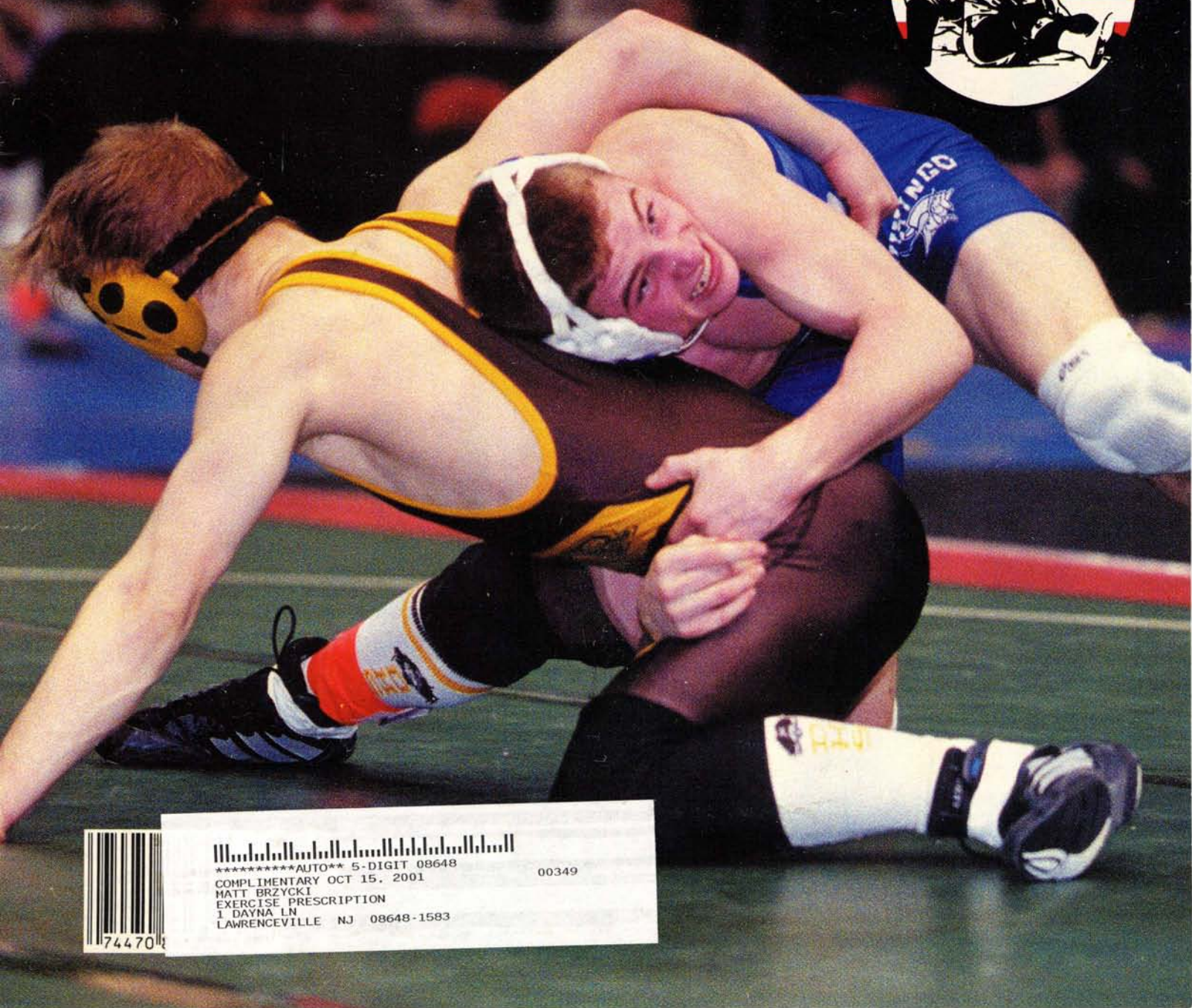
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Post - Fatigue Repetition

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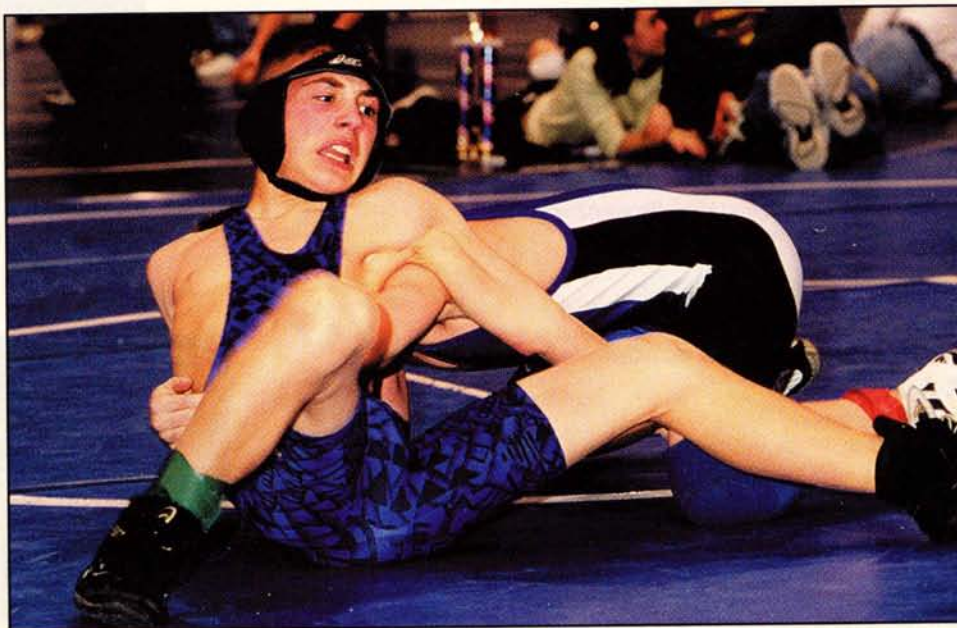
If you train to the point of muscular fatigue, you know that it requires a great deal of intensity (or effort). After you've reached muscular fatigue, you can increase the intensity even further by immediately performing several additional post-fatigue (or intensification) repetitions at the end of the set.

BACKGROUND

Before a discussion of post-fatigue repetitions, it's necessary to understand some basic concepts and terminology. Raising a weight is sometimes referred to as the "positive phase" of a repetition and involves a concentric muscular contraction; lowering a weight is occasionally referred to as the "negative phase" of a repetition and involves an eccentric muscular contraction.

Your eccentric (or negative) strength is always greater than your concentric (or positive) strength. Stated differently, you can always lower more resistance than you can raise (in a given exercise). In fact, research has shown that your eccentric strength is about 40% greater than your concentric strength (at least in the case of a fresh muscle). So if you can raise 100 pounds concentrically, you can lower about 140 pounds eccentrically.

Two points can be deduced from this information: First, when you reach muscular fatigue - that is, when you can't do any



Rocky Mountain Nationals - 12 & Under. Curtis McNary, Colorado, tries to escape from Dilliom Palzcewski, Montana. Try as he would to escape it didn't occur. Photo by Dean Vande Berg.

more repetitions - it is because your concentric strength has been fatigued to such a degree that you are unable to raise the resistance. Second, although you don't have enough strength to raise the resistance concentrically, you still have enough strength to lower the resistance eccentrically.

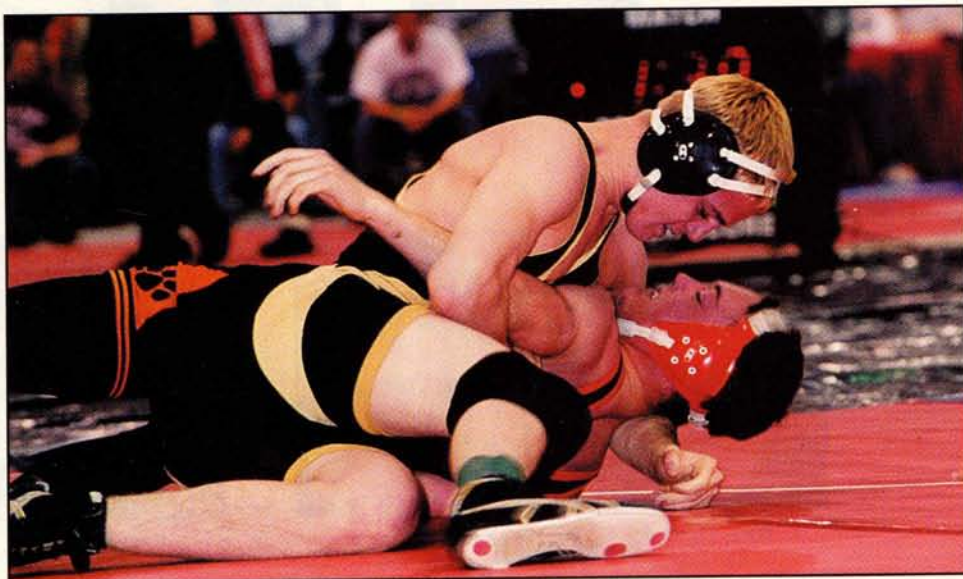
TYPES

There are two main types of post-fatigue repetitions that are quite popular and productive: negatives and regressions.

Negatives

Recall that when you can't perform the positive portion of a repetition (raise the resistance), you can still do the negative portion of a repetition (lower the resistance). This is the basis, and the value, of performing post-fatigue repetitions known as "negatives" once you can no longer raise the resistance at the end of a set. In a negative repetition, your training partner raises the resistance concentrically while you (the lifter) lower the resistance eccentrically. This is repeated for 3-5 repetitions with each repetition lasting about 6-8 seconds (depending upon the range of motion of the particular exercise).

As an example, suppose that you



Rocky Mountain Nationals - 18 & Under. Chris Zimmerman, Colorado, dominated Wilson Hahnenberg, Colorado. Zimmerman looks to his coach as he gains back points. Zimmerman scored a 7-0 decision. Photo by Dean Vande Berg.

reached concentric muscular fatigue on a barbell bench press. Your partner would help you raise the bar off your chest until your arms are extended. Then, you lower the bar under control back to your chest. (A variation of even greater intensity is to do "forced repetitions" in which your partner adds a little extra resistance by pushing down on the bar as you lower it.) In effect, these post-fatigue repetitions are positive-assisted and negative-resisted.

Performing a few negative repetitions at the end of a set allows you to reach eccentric muscular fatigue - when your muscles have fatigued to the point that you can't even lower the weight. And that's why a set-to-fatigue followed immediately by several negatives is so brutally effective: You've managed to exhaust your muscles completely - both concentrically and eccentrically.

Regressions

Unfortunately, one of the disadvantages of negative repetitions is that unless you have a training partner (or competent spotter), you can't, with very few exceptions, administer them to yourself. (For the most part, you can only give yourself negatives in push-ups, dips, chins and

situps/crunches.)

If you don't have access to a partner, you can perform another type of post-fatigue repetitions known as "regressions" (which are also called "breakdowns," "burnouts" and "strip sets"). When you reach concentric muscular fatigue, your muscles are still capable of producing force. However, their force-producing capacity is not enough to raise that particular level of resistance. But you could do more repetitions if you used less resistance.

When performing regressions, you (or your training partner) quickly reduce the starting resistance by about 25-30 percent and you (the lifter) do 3-5 regressive repetitions with the lighter load.

For instance, let's say that you just did 14 repetitions with 100 pounds on the leg extension and reached concentric muscular fatigue. You (or your training partner) would immediately decrease the resistance to about 70-75 pounds and would then attempt to perform 3-5 repetitions with the lighter load.

If you desire, you can do a second "series" of regressions. Using the previous example, you'd immediately reduce the 70-75 pounds to about 50-55 pounds and try to do 3-5 repetitions with that resistance.

MUSCULAR FATIGUE

In order to realize your potential for increases in muscular size and strength, you must produce an appropriate level of muscular fatigue. If you create too little muscular fatigue, then you may not have stimulated gains in your muscular size and strength; if you create too much muscular fatigue, however, then you may not have stimulated gains in muscular size and strength either. Therefore, these two types of post-fatigue repetitions should be used with care.

How do you know if the stimulus is too little or too much? You should monitor your performance in the weight room in terms of resistance and repetitions. If you continue to make progress in your performance, then the stimulus is appropriate.

Matt Brzycki has been involved in the strength and conditioning of collegiate wrestlers for more than 20 years. Since 1986, he has authored nearly 60 articles for Wrestling USA Magazine. He is also the author of A Practical Approach to Strength Training and the editor of Maximize Your Training, a 455-page book that features chapters written by more than 30 strength and fitness professionals.

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