

## Ross' Precision Health & Fitness Newsletter

### Issue #10 – 5/1/2007 – The Neurological Aspect of Exercise

Well it's already May, so that means the year is about one third over. I hope you had a great April and didn't splurge too much on Easter goodies. While Easter may have been a small trouble spot last month, April should have been a good month overall. The longer daylight hours and generally nice weather provided some good opportunities for exercising outdoors and adding some variety to your workout routine. If not, don't worry, because this issue is going to be all about how to get more out of indoor exercise, specifically your resistance training program.

As I have mentioned previously, there are many different types of resistance training workouts that can be used to improve a variety of physiological attributes, such as strength, muscular endurance, muscle size, power, sport enhancement, balance, bone density, stabilization, injury prevention, and of course fat loss. Knowing the characteristics you want to improve and what type of exercises or program will produce the results you are looking for is an important part of the overall process.

Having said that, I assume if you have been exercising for a significant amount of time you already have some idea about what type of training works for you. If not, finding that out should be one of your first priorities. In any case, I am not going to discuss one particular type of training, but rather explain what you should do to get the most out of any resistance training workout.

Most people take one of two approaches towards their resistance training workouts. The first approach involves paying little attention to the actual exercises and making the workout as easy or comfortable as possible. This usually involves a distraction task, such as watching TV or engaging in some other activity that takes the focus away from the exercises. This approach usually results in the exerciser just going through the motions, which is a very inefficient way to make progress.

NOTE: The above approach can be beneficial during some other activities, but this newsletter is only discussing resistance training.

The other major approach is essentially the opposite and involves paying strict attention to exercise form and the muscles being used, while blocking out as much unnecessary environmental stimuli as possible. This is by far the more effective approach, although it may take quite a while to become adept at differentiating between different muscle groups and figuring out exactly which muscles are working.

In any case, concentrating and staying focused during resistance training workouts is more important than most people realize and it really is the key to efficient and effective workouts. Since this topic is so essential and can actually be the difference between reaching your goals and failing to make continued progress, it only makes sense for it to be the subject at least a couple featured articles.

## Featured Article

# Mental Focus & Concentration During Resistance Training

### Part 1

Resistance training has become more popular in recent years among people of all ages. This is in large part due to the numerous benefits associated with this type of training. Older individuals are starting resistance training programs to increase their functional abilities (strength, endurance, balance, etc.), bone density, and general health, while many overweight people are turning to resistance training to build muscle, lose fat, and increase metabolism.

Resistance training is also essential for rehabilitating injuries and maintaining strong healthy joints. In addition virtually anyone participating in a sport can improve their performance by following a properly designed resistance training program. When looking at all the different ways resistance training can be used to improve the body, it becomes apparent why resistance training is becoming so popular.

Unfortunately, even though resistance training can be extremely beneficial to almost everyone, many people never achieve the full benefits from following this type of exercise program. Sometimes it is simply an issue of having a program that is too easy, too difficult, or performing exercises with incorrect form. However, in many cases, less than desirable results can be attributed to a lack of mental focus or concentration during workouts.

To understand how mental focus affects results, it is a good idea to start by looking at the positive attributes associated with resistance training. While there are many specific adaptations that can occur they basically fall into two categories: physical and neurological. Mental focus and concentration deal mainly with neurological adaptations, but they affect the physical ones as well.

Many people are not even aware of the neurological aspect of exercise and others know about it, but only emphasize the physical aspect during their workouts. As a result, resistance training can become oversimplified or “dumbed down” until simply moving a weight (could be bodyweight) repeatedly from point A to point B becomes the only requirement for successfully completing an exercise.

For an exercise to be effective, the weight must do more than simply move back and forth repeatedly. The most prominent issue neglected with the above approach is exercise form. Most people realize proper exercise form is critical for both avoiding injuries and maximizing exercise effectiveness, but it is often forgotten or unrealized that using specific muscles in the correct sequence is also part of having good form.

Additionally, concentration is necessary to help control the resistance as well as the muscles that are being used to move the weight. Plus, exercises that are complicated, difficult, or unfamiliar will require higher levels of concentration to be performed correctly.

If you do not concentrate enough when lifting a barbell or dumbbells, the path of the weights will be unnecessarily uneven or inconsistent, even before your muscles become fatigued. This is a sign of reduced muscle contraction, which means fewer positive adaptations including a smaller number of calories burned and less fat loss.

While these effects from poor form are bad enough, they only represent the physical effects. There are even more unwanted neurological effects resulting from a lack of concentration. Even if your form technically looks correct, if incorrect muscles are working or muscles are being activated in an improper sequence, your workout will not be as effective and a number of other problems can occur.

As most people who are familiar with resistance training can attest, your body will subconsciously try to cheat and make exercises as easy as possible, especially when you are fatigued. Constant concentration and focus on your muscles and posture is necessary to prevent improper body positioning as well as the utilization of incorrect muscles. The idea that it doesn't matter what muscles are used as long as the weight goes from point A to point B is incredibly shortsighted and will lead to problems in the future.

First, from a calorie burning and fat loss standpoint, the muscles you use significantly impact the effectiveness of a workout. This is best explained by looking at muscle efficiency. As stated above, your body will subconsciously try to make exercises easier or in other words, as efficient as possible. This means your body will try to use muscles that are stronger and easier to contract in order to overcome the resistance and complete the exercise.

This may sound like a good thing, but it is actually bad when it comes to burning calories. Whenever a muscle is used, you only use a percentage of the individual muscle fibers within the muscle. As muscle efficiency improves your body will be able to accomplish the same task with a lower percentage of muscle fibers. In other words you use less muscle to accomplish the same goal and less muscle use means fewer calories burned and subsequently less fat loss.

For example, if someone has strong and efficient shoulder muscles relative to other muscles, the shoulders will try to work when they are not supposed to. This can be fine if the person is performing exercises that focus on the shoulders, but problems will likely occur during exercises that target nearby muscles such as the chest, back, and arms.

In these situations, the natural response of the body will be to have the shoulders help out as much as possible so the other muscles can do as little work as possible. Since the shoulder muscles are more efficient, a lower quantity of muscle fibers will be used to accomplish the exercise and calorie burning will decrease. In addition, the other muscles will not be optimally stimulated and they will improve at a much slower rate than if they were used correctly during the exercise.

By the way, this happens in traditional aerobic endurance exercise (walking, biking, etc.) as well and it is one of the big causes of diminishing results and plateaus during

exercise. This almost always happens when people perform the same workout over and over for long periods of time. As fitness improves, the same workout will be less challenging and fewer muscle fibers are required to complete the workout.

Plus, if a workout is not difficult enough, it will not provide enough of a stimulus to promote further improvements. Also, if your muscles are strong or efficient enough that your overall exercise program can be completed easily from week to week, calorie burning will be significantly reduced. When this occurs it will be almost impossible to achieve further improvements in fitness or physique. This is one reason why it is extremely important to change your exercise routine frequently and keep it challenging.

While this explains how not concentrating on using correct muscles will reduce calorie burning and fat loss, there are still more serious problems that result from neglecting the neurological aspect of exercise. Using the wrong muscles or activating muscles in the incorrect sequence leads to muscle imbalances that can cause muscle and joint pain or injury, chronic postural problems, and a decrease in functional ability.

It is important to realize that all muscle actions (contractions) have a neurological component that dictates which muscle fibers are used and how intensely the whole muscle contracts. Some contractions are conscious while others, such as reflexes, happen automatically without thought. In addition, many contractions are what I refer to as conditionally or partially conscious and these are the ones we want to focus on.

By conditionally conscious, I mean these muscle contractions can be partially controlled or changed by concentrating and focusing on the muscles used during the activity. However, if these muscle contractions are not consciously controlled, your body will automatically activate muscles to accomplish the required task. The problem is your body will activate muscles that are most commonly or easily activated, from a neurological standpoint, and these muscles will often be different from the ones that should be used.

This will lead to a number of problems such as the development of muscle imbalances. Certain muscles, such as the shoulders (anterior/front portion), low back, and hip flexors all tend to be used too much during activities where they are needed secondarily at most. Plus as stated earlier, the muscle(s) that should be working will end up doing less work or they may not be activated at all.

Over time, new neurological patterns form where the body will automatically activate only the stronger overused muscle and/or the body will not be able to activate the weaker muscle(s) without contracting the stronger one at the same time. These neurological patterns will cause the weak muscles to become even weaker and ultimately used even less, while the stronger muscles work even more until they become chronically overworked and become sources of muscle and joint pain.

Probably the most common example of changing neurological patterns occurs between the lower abdominal and lower back muscles. These 2 muscle groups are

supposed to work together to stabilize and protect the lumbar spine. Over time many people stop using their lower abdominal muscles, thus increasing the demand on the low back muscles. Eventually the low back muscles become overwhelmed and chronic back pain results. These types of problems will then persist as long as the flawed neurological pattern is in place.

The good news is faulty neurological patterns can be fixed, but the improvements will not happen without concentration and mental focus. Basically this means consistently thinking about what specific muscles are being used and then focusing on using the correct muscles while simultaneously concentrating on relaxing the muscles that your body automatically tries to contract too much.

When you regularly perform a movement correctly more than incorrectly, your neurological pattern will improve. This improvement will make it easier to use the correct muscles each time you perform a similar movement. In other words, less concentration and focus will be required to perform exercises correctly over time. Just be aware that the longer a faulty neurological pattern has been used, the longer it will take and the more difficult it will be to improve.

I hope this gives you a basic understanding of neurological patterns and the importance of concentrating and focusing on using the correct muscles. Part 2 of this article will focus more on how to apply this information to improve your workouts. However, before I wrap up part 1, there are a couple more things I want to cover regarding concentration and focus during exercise.

First I want to point out an additional benefit of concentrating during exercise. When you only focus on the exercise being performed and the muscles you are using, you will be forced to stop having negative thoughts that could be bothering you. This is one of the reasons why exercise is considered a great form of stress reduction. In addition, this works much better than distraction tactics (such as watching TV) that only superficially draw your attention away from things that are causing you stress.

The final thing I want to discuss is the effect of music on resistance training workouts. Music can actually improve the quality of your workouts, but only in some situations. The effect essentially depends on how music is used during a workout. If music is used as a distraction while performing exercises, there will be less focus on the exercises and less optimal results.

The real benefit from listening to music occurs during the rest period between sets of exercises. This can indirectly improve focus during the exercises by improving your arousal level. Every activity has an optimal level of arousal, although the level will be different from person to person. If your arousal level is too high, you will feel anxious or jittery and it can be difficult to keep your focus on the exercises. Generally this is not the case with resistance training

More often, the problem is having arousal levels that are too low. When this occurs, you may feel sluggish or tired and focusing will be more challenging than usual. This is where listening to music is can really be beneficial. Listening to music that “gets you going” or “psyches you up” will actually be increasing your level of arousal. It is also important to be aware of your level of arousal and listen to music that has the effect you want. If your arousal level is too high, you may need to listen to softer or slower music.

Of course any benefits gained from listening to music will be diminished or lost altogether if your focus does not switch from the music to your muscles during the exercise. It will probably take some practice to become comfortable with quickly shifting your focus back and forth. However, when you become really good at it, you may not even hear the music at all during the set, because you will be focusing so much on your body and the muscles you are using.

#### WRAP UP:

Well that’s it for this issue. Next month will contain more information about the neurological aspect of resistance training, but with an emphasis on practical information that you can use to improve neurological patterns and enhance your overall health and fitness. Until then, take care and have a great month,

Ross