

# INTENSITY RATIOS

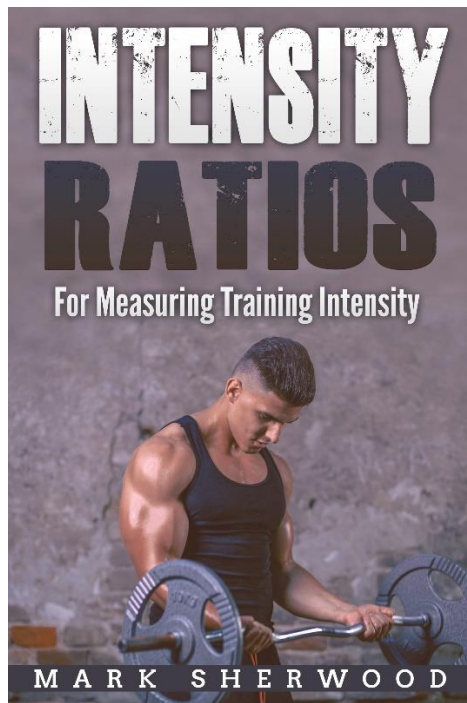
For Measuring Training Intensity



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Intensity Ratios: For Measuring Training Intensity

By Mark Sherwood

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# Introduction

Most people involved in weight training would agree that training intensity plays an important role in the development of strength and muscle mass. Intensity is a term that generally refers to the amount of effort it takes to complete a rep or a set. Terms such as *high intensity*, *low intensity*, or *moderate intensity*, are sometimes used when trying to describe the amount of effort exerted when training. There are more specific ways to measure intensity. One way is to use intensity ratios and quality ratios. There are two types of intensity ratios and one type of quality ratio that will be discussed in this book. These ratios consist of:

1. Intensity Ratios based on max reps
2. Intensity Ratios based on quality reps
3. Quality Ratios based on the number of quality reps vs. weak reps

How do you define these three ratios?

## 1. Intensity Ratios Based on Max Reps

Intensity ratios based on max reps are a measure of how many reps a lifter performs within a set compared to the maximum number of reps they are capable of performing.

## 2. Intensity Ratios Based on Quality Reps

Intensity ratios based on quality reps are a measure of how many quality reps a lifter performs within a set compared to the number of quality reps they are capable of performing. **Quality reps** are reps that can be performed while using a steady even rep pace before fatigue sets in and rep speed starts to slow down. In order to use intensity ratios based on quality reps, a lifter must know the maximum number of quality reps they can perform with a given weight. They compare this number to the number of quality reps they actually performed.

If a lifter pushes a set beyond their capacity to maintain quality reps, they will be forced to transition into **weak reps** which are slower and less forceful than quality reps. Weak reps should be completely avoided when using intensity ratios based on quality reps. If you push to the point of encountering weak reps, use intensity ratios based on max reps instead.

## 3. Quality Ratios

Quality ratios can be used for lifters who push a set past their capacity to maintain quality reps. This will require them to finish the set with one or more weak reps. Quality ratios state the number of quality reps followed by the number of weak reps within a set.

As you read through this book, examples and explanations will be given to help you understand the meaning and application of each type of ratio. The goal of this is to give you a tool for measuring your training intensity and training quality in order to zero in on an intensity level that maximizes positive results.

# Chapter 1

## Intensity Ratios Based on Max Reps

Some lifters believe in high intensity training and train to failure on every set of every exercise with the exception of their warm up sets. This simply means that they push themselves to perform the maximum number of reps that they can possibly perform within a set. These lifters don't really need to use intensity ratios because they have already predetermined that their level of intensity will always be 100% for every set.

Not all lifters train to failure on every set or every workout. They may train to failure for some of their sets or some of their workouts, but they don't train to failure all of the time. These lifters would benefit from using intensity ratios in order to track the intensity of their sets and workouts across the time span of a training cycle that lasts a week or more.

### **Two Numbers**

An intensity ratio is made up of a very simple concept based on two numbers:

1. **The first** number tells the number of reps a lifter performed within a set.
2. **The second** number indicates the number of reps a lifter could have done if he pushed himself to do the maximum number of reps possible. He must determine this by referring to past experience and/or by having an accurate feel for how many reps he could have performed with maximum effort.

The two numbers are then written as a fraction.

In order to gain a clear understanding of how intensity ratios work, let's look at some specific examples of how intensity ratios are measured.

### **Example of an Intensity Ratio of 7/10**

We will imagine that Dan performed a set of seven reps, but he could have performed ten reps if he pushed himself to do as many reps as possible. In this example, Dan's intensity ratio would be 7 to 10, or 7/10.

### **An Intensity Ratio of 6/8**

John performed a set of six reps, but he could have performed eight reps if he pushed himself to do as many reps as possible. His intensity ratio is 6 to 8, or 6/8.

### **An Intensity Ratio of 8/20**

Bruce was doing a warm up set consisting of eight reps while using a weight that he could have lifted for twenty reps if he pushed himself. Bruce was using an intensity ratio of 8 to 20 or 8/20 for his warm up set.

### **An Intensity Ratio of 6/6**

Jim performed a set of squats with 315 pounds and pushed himself to do 6 reps which was the maximum number of reps that he could perform. Jim's intensity ratio was 6 to 6 or 6/6 for his set of squats. This would be an intensity ratio of 100%.

Some lifters never max out with max reps. Such lifters can use an alternative method when using intensity ratios based on quality reps which will be discussed in chapter two.

## Chapter 2

### Intensity Ratios Based On Quality Reps

Some lifters never do slow grinder reps at the end of a set; they only repeat reps as long as they can maintain a steady even rep pace. If they repeat reps to the point where they grow fatigued, they stop the set before doing any slower reps. These lifters only perform what I refer to as strong reps or **quality reps**. They avoid weak reps which means that they avoid pushing to the point where their rep speed starts to slow down at the end of a set. Such lifters will have a hard time using intensity ratios based on the maximum amount of reps they can perform because they never push to the point of max reps. They would be better off using intensity ratios based on their capacity for quality reps.

The lifters who prefer to stay within the boundaries of quality reps often focus on applying a high degree of force, speed, and power into each rep. Pushing a set to fatigue is avoided because when fatigue sets in, rep speed slows down. When rep speed slows down, the amount of quality within the context of force, speed, and power is decreased. When force, speed, and power decrease, the strength building effect is compromised. The idea is to use effort to maximize the quality of forceful lifting instead of using effort to maximize fatigue. These lifters are much better off using intensity ratios that are based on quality reps.

When using quality reps as the basis for intensity ratios, lifters compare the number of reps they performed within a set to the number of quality reps that they are capable of performing. Some examples will help to clarify this concept.

#### **An Intensity Ratio of 3/6**

Sam blasted out three reps while attempting to apply as much force as possible into each rep. He knows from experience that he could have maintained a steady even rep pace for a total of six reps if he pushed himself to do as many quality reps as possible. In this example, his intensity ratio based on quality reps is 3 to 6 or 3/6.

While Sam knew he could perform six quality reps, he also knew that he could squeeze out another two reps for a total of eight reps by pushing for max reps. However, the last two reps would have been weaker slower reps. This means that if Sam were using an intensity ratio based on max reps, the ratio for his set would have been 3 to 8.

#### **An Intensity Ratio of 5/5**

Jason did five even paced reps while imparting a high degree of force into each rep. He stopped after his fifth rep because he could sense that fatigue was accumulating to the point where his sixth rep would have slowed down in comparison to the first five. He could have done more reps, but they would not have been quality reps. In this example, Jason's intensity ratio was 5 to 5 or 5/5 based on the amount of quality reps he could perform.



## Chapter 3

### Quality Ratios

The concept of measuring intensity can be combined with the concept of measuring how many reps are quality reps compared to how many reps are weak reps. This would be most applicable when a lifter does as many quality reps as possible using a steady even rep pace, but they continue to do at least one more rep that turns out to be weaker and slower before stopping the set. The number of quality reps compared to the number of weak reps would form a quality ratio. Some examples would be helpful.

#### **A Quality Ratio of 7 /2**

Jeff performed seven quality reps using a steady even rep pace. When performing his eighth and ninth reps his rep speed slowed down. Jeff stopped his set after his ninth rep. In this example, Jeff's quality ratio is seven quality reps to two weak reps, or 7/2.

#### **A Quality Ratio of 5/3**

Dan pushed himself to do as many reps as possible when performing the bench press. He was able to do eight reps and would have failed if he tried a ninth rep. When performing this set, he was able to maintain a steady even rep pace for five reps, but his last three reps were weaker, slower reps. In this example, Dan's quality ratio was 5 to 3 or 5/3.

#### **Taking It A Step Further**

You can take the quality rep ratio concept a step further by identifying the maximum amount of reps that could have been performed. In order to explain this, I will refer back to the previous two examples of Jeff and Dan.

#### **A Quality Ratio of 7/2 With 1 Rep Left In The Tank**

Recall that Jeff had a quality ratio of 7/2. Once again, this means that Jeff performed seven quality reps followed by two weak reps for a total of nine reps. If Jeff pushed himself to do as many reps as possible, he could have done ten reps instead of nine. A lot of lifters would describe this by saying that Jeff left one rep in the tank. This simply means that Jeff stopped his set after nine reps, but he could have done one more rep if he pushed himself to the point of maximum effort. If you combine Jeff's quality ratio of 7/2 with the fact that he left one rep in the tank, you could use the following terminology to describe Jeff's set: **A quality ratio of 7/2 with 1 rep left in the tank.**

#### **A Quality Ratio of 5/3 With No Reps Left In The Tank**

If we refer back to Dan's example, he did a total of eight reps with a quality ratio of 5 quality reps to 3 weak reps or 5/3. Dan pushed himself to do max reps in order to reach eight reps. When combining Dan's quality ratio of 5/3 with the fact that he had 0 reps left in the tank, we would describe Dan's set using the following terminology: **A quality ratio of 5/3 with no reps left in the tank.**

### **More Quality Instead of More Reps**

If either of these lifters want to get stronger, they don't necessarily need to try to do more reps per set, they simply need to improve the quality ratio by doing more quality reps per set. A quality ratio of  $7/2$  for nine reps can improve to a quality ratio of  $8/1$  for nine reps. A quality ratio of  $5/3$  for eight reps can improve to  $6/2$  for eight reps. When the number of quality reps improves, it usually indicates that strength has improved, even if the lifter is doing the same number of total reps per set.

Even if the only weak rep is the last rep of a set, you don't need to add reps to improve, you can improve by training until you gain enough strength to perform every rep as a quality rep. Using this approach is the basis of Marker Rep Training, which is discussed in more detail in the next chapter.

## Chapter 4

### Marker Rep Training

Any time you perform a set that has a quality ratio consisting of strong reps plus just one weak rep at the end of the set, you can apply the concept of Marker Rep Training. This means that when training with quality ratios such as 4 /1, 5/1, 9/1, 11/1, 14/1, or any number to 1, you can apply the strategy of Marker Rep Training.

#### **The Marker Rep**

What is Marker Rep Training? It is based on doing as many quality reps (or strong reps) as possible followed by **just one weak rep**. The weak rep is the last rep of the set and is called the **marker rep** because it marks the initial point in a set where weak reps will begin to appear. The whole goal of marker rep training is to repeat workouts until the marker rep transitions from a weak rep into a strong rep. This can only be accomplished if strength is gained. An example will help to explain this.

#### **Example: Quality Ratio Improves from 5/1 to 6/0**

We will assume that Mike is doing a set of six reps when squatting 250 pounds. His quality ratio is 5/1 which means he is able to do five quality reps followed by one weaker, slower rep for a total of six reps. The fact that the sixth rep is slower than the previous reps indicates that the sixth rep is significantly more difficult and stressful than the first five reps. Mike's body is more comfortable with quality reps than the weak rep because quality reps are easier and less strenuous. This being the case, Mike's body would prefer the sixth rep to be a quality rep rather than a weak rep. His body can make this happen by gaining enough strength to cause Mike's sixth rep to transition from a slow, strenuous, weak rep into a faster, easier, quality rep. When the transition takes place, all six reps will be done using the same rep pace and the quality ratio will transition from 5/1 to 6/0.

#### **Goal: The Same Training Becomes Easier**

One of the main goals that your body is trying to accomplish when it gains strength is to help you lift the same amount of weight and reps with greater ease. Marker rep training is one of the best ways to allow your body to achieve this. You must understand that your body gets stronger in order to reduce the discomfort of a high intensity training stress, so let your body accomplish its goal by converting a slower more strenuous weak rep into a faster easier quality rep with Marker Rep Training.

One reason I included this chapter is because I believe Marker Rep Training is one of the best ways to zero in on an intensity ratio that will work consistently over the long term.

## Chapter 5

### Experience And Feel

I wish I could promise that intensity ratios and quality ratios would provide an error free way to measure intensity and quality. However, the method is only as accurate as a lifter's ability to interpret how close they are to either max reps, or the maximum amount of quality reps. Beginners who lack experience and lifters who lack motivation may feel like they have done as many reps as possible when they actually have three or four more reps left in the tank if they were forced to push themselves. Such lifters have not yet developed a feel or a sense that is necessary in order to use intensity ratios with accuracy.

#### **Experience Is Necessary For Accurate Intensity Ratios**

Lifters who do not push for max reps to failure on a fairly regular basis are not going to be able to have an accurate determination for intensity ratios based on max reps. They won't know how many reps they can actually perform when pushing for max reps and will only be able to guess with uncertainty.

Lifters who never learn to use a steady even rep pace when lifting are not going to be able to use intensity ratios based on quality reps with very much accuracy. It takes a deliberate effort to develop a habit of using a steady even rep pace in order to clearly identify the transition point where quality reps end and weak reps begin. It also takes a sense of feel and enough past experience for a lifter to know how close he has come to reaching his capacity for quality reps.

Those who use intensity ratios accurately will only be able to do so if they use them in the context of the type of lifting that they have experience with. The more a lifter develops a conscious awareness in regard to the maximum amount of reps they can perform, or the maximum amount of quality reps they can perform, the better they will become at using intensity ratios. Likewise, the more a lifter develops an awareness of distinguishing the difference between quality reps, and weak reps, the better they will become at using quality ratios.

## Chapter 6

### When To Use Intensity Ratios

Intensity ratios can help you develop an accurate sense in regard to the amount of intensity you are using. The goal is to be able to identify the amount of intensity you should be using based on the amount of intensity that proves to produce the best results.

#### **Work Sets**

I believe the best starting place for using intensity ratios is with your hardest work set(s). You may do several sets for each exercise, but if you are adding weight from set to set, the intensity will probably change as you progress from set to set. I suggest that you tune in to the intensity ratio of your heaviest set, or your hardest set before you try to figure out the intensity ratio of your other sets. If you are using the same weight from set to set, evaluate the intensity ratio of your last set because the intensity level of your last set will probably have the greatest influence on the results of your workout.

#### **Warm up Sets**

While the intensity level of your work sets is top priority, do not neglect to evaluate the intensity level of your warm up sets. Overdoing it with too much intensity on your warm up sets can diminish the effectiveness of your work sets. Be aware of your warm up intensity so that this does not happen. The opposite problem of not using enough intensity during your warm up sets can also hinder your work sets. If your warm up sets do not provide enough intensity, your nervous system will not fire at full capacity and your muscles will not function optimally. The result will be a decrease in the quality of your work sets. Be aware of your warm up sets and learn the amount of intensity that has the greatest effect on the quality of your work sets.

#### **Training Cycles**

Many lifters vary their intensity from workout to workout over the course of a week or more. Even if you use the same amount of weight across three workouts during the same week, you can vary the intensity ratio for each workout. For example, you may use an intensity ratio of 8 to 10 during your first workout, followed by an intensity ratio of 6 to 10 in your second workout, and a intensity ratio of 10 to 10 in the third workout. The main thing is to learn patterns of changes in intensity that work. This can only be done if you have a system for carefully tracking your intensity levels from workout to workout.

#### **Journaling**

Many lifters keep a training journal and write out the exercises, sets, reps, and the amount of weight used for each workout. They may also include notes about how hard the workout was and how they felt during and in between workouts. If you use intensity ratios and quality ratios, it will provide you with an accurate measure that you can refer back to when evaluating patterns of intensity that produce the greatest results.

Intensity ratios and quality ratios are not magic, they are simply a tool that is designed to help you to develop an accurate understanding between the intensity you are using and the results you are getting. Of course, this can only be accomplished if you have an accurate way to measure intensity, and intensity ratios are an excellent way to measure intensity. My hope is that the concept of intensity ratios gives you one more tool to move you closer to your training goals. I wish you much success and the best of training.

## About The Author

Mark Sherwood is a long-time fitness enthusiast who has pursued weight training and other fitness activities for over thirty years. His educational and professional background include a B.S. degree as an exercise specialist in physical education from the University of Wisconsin Madison, and positions as a fitness instructor and physical education teacher.

One of Mark's passions is to distinguish between strength training concepts that are consistently effective as opposed to those that are effective for a short time period. Through his education, research, and personal trial and error, he has endeavored to gain the necessary knowledge to share effective training strategies with those who desire to maximize their training results.

Mark resides with his family in Southern California. For more training resources from Mark, you can visit [www.precisionpointtraining.com](http://www.precisionpointtraining.com). In addition, you can view more books on strength training that he has authored on the next page.

## Additional Resources

A Quick Guide To Strength

Beginning Strength Training

Bottom Up Loading

Cluster Set Training

Easy Progression With Mini Sets

Force And Frequency Training

Fusion 3: Book 1

Giant Pyramid Training

High Frequency Strength Training

High Volume 5's

Heavy Frequency Training

Individualized Workouts For Hardgainers

Marker Rep Training

Never Miss A Lift

Overcoming Strength Training Plateaus

Quick Workouts For Quick Muscles

Rest-Pause Training

Strength Challenge 20/20

Strength Training Capacity

Strength Training Thresholds

Strength To The Max

Strength To The Max And Beyond

The 1 x 100 Challenge

The High Frequency Training Pyramid

The Peak Strength Principle

12-10-8-6: A Workout Plan For Building Size And Strength



