How to Use Lifting to Failure: A PDF Guide

Last Updated: 29.09.2017

You already know that the only way to get stronger and build muscle over time is to put in the work and build up the training volume.

That much is clear.

But what about lifting to failure? How does it fit into the whole picture? And, more importantly, how can you use it to your advantage without burning yourself out.

Well, that's exactly what I'm going to share with you in today's blog post.

Because this is a controversial topic and there are all kinds of mixed opinions on the topic, my goal is to give you an unbiased, science-backed answer to help further your training.

What is Lifting to Failure, Exactly?

It's not a secret to most of you reading this:

Lifting to failure is a popular term that gets tossed around and there are a ton of mixed feelings among people.

Some deem it the holy grail of muscle growth and strength gain. Others consider it an unnecessary part of training, only good for burning yourself out.

In essence, training to failure is the simple process of lifting a weight to a point where the muscles at work cannot produce enough force to move it anymore. But, this does not mean that your muscles are completely exhausted, it only means they are exhausted relative to that load.

So if you were curling a pair of 45-pound dumbbells to a point where you couldn't lift them through the full range of motion anymore, that would be an example of lifting to failure.

But, you could still ‘drop’ the dumbbells to 35s, 25s, 15s, etc. and be able to bang out a few more reps.

In fact, this is a tactic used to ‘force’ growth by going beyond failure and it’s called drop sets.

What is the Logic Behind Lifting to Failure?

If you think about it, training to failure makes sense. You need to push your body past its comfort zone if you ever want to get jacked and strong.

You can’t lift the same weight year after year and expect to make gains, it doesn’t work that way.

Many people consider training to failure to be the best way to do that.

So why, given the strong logic behind it, is lifting to failure getting so many mixed reviews? Go hard or go home, right?

Well, it’s possible that some people take things too literally. They think that the only acceptable way to leave the gym is by crawling out of it.

Another possible reason might be the required effort one must put to reach failure all the time.

I mean, who would want to train that way all the time? And also, there are different ways to achieve progressive overload. Taking sets to failure all the time is not needed.

So we’ve got two camps:

- The enthusiastic newbie who is willing to go through a thousand hells to build some damn muscle.
- The smarter, more advanced lifter who knows lifting to failure all the time is not a good long-term strategy.

Drawbacks and Benefits of Training to Failure

Pushing yourself to the limit on a given set does have benefit. You are doing the most work your body is capable of and you’re taking as much from the set as you can.

You’re recruiting the most muscle fibers and causing the most damage to the muscles.

But, where you could be failing is to understand how taking one set to failure could impact the rest of the exercise and workout.

Let’s take a look at an example of training to failure vs. training close to failure and see where we end up:

Example #1:

Training to failure on all sets on the barbell back squat:
Set 1: 255 pounds for 10 reps
Set 2: 255 pounds for 7 reps
Set 3: 255 pounds for 5 reps
Set 4: 255 pounds for 2-3 reps
Total reps done: 24-25

Example #2:

Training close to failure on all sets for the squat:
Set 1: 255 pounds for 8 reps
Set 2: 255 pounds for 8 reps
Set 3: 255 pounds for 8 reps
Set 4: 255 pounds for 6-8 reps (possibly hit failure before 8)
Total reps done: 30-32

See the difference there?

Even though the first dude went all out and took the old saying *"Squat 'till you drop!"* seriously, he was behind the second guy who managed his fatigue much better.

The second guy could fail to get 8 on his last set due to the accumulated fatigue. But, he would still get more repetitions in without having to bust himself up in the process.

The accumulated volume the second guy has is more. If he can manage his fatigue throughout the entire workout, he will build up more training volume. And that, over the weeks and months can and will result in much greater strength and muscle gains.

An example where training to failure can help you:

Say you're doing a set of seated dumbbell shoulder press and you get 8 reps on the first 3 sets, stopping close to failure. Now, on the 4th set, you can push it to failure and increase your training volume.

Depending on how long you rest, you might be able to get as much as 9 or 10 repetitions.

In this example, you would be:

- Managing your fatigue better throughout the exercise.
- Getting the benefit of training to failure.

Training to Failure and Technique Breakdown: How it Relates

A big drawback of training to failure is the breakdown of form. As we perform more and more reps and get more fatigued, our form can break down and that could lead to an injury.

This is especially true for the complex lifts: the squat, the deadlift and the bench press.

A good rule of thumb to follow is this:

The more complex an exercise is, the better it is to train within your limit and not push to failure.

Side lateral dumbbell raises? Sure, take the set to failure.

Deadlifts? You should leave a rep in the tank (unless that rep is your 1RM).

There are 3 categories of exercises when it comes to taking them to failure. I'm going to list some of the most popular below:

Category #1: Safe to take to failure, but could reduce the effectiveness of the exercise.

These are mostly accessory exercises for various muscle groups. They don't pose a risk of injury but can become less effective the closer you get to failure.

- Pretty much all types of curls for biceps(barbell, dumbbell, preacher, crucifix, etc.)
- Some tricep exercises that don't involve lifting free weights above your head (kickbacks, cable pushdowns, seated machine dips, machine/cable overhead extensions, etc.)
- Most shoulder isolation exercises (side lateral raises, front raises, facepulls, reverse flyes, etc.)
- Some chest exercises (chest press machines, cable flyes, push ups, pec deck machine)
- Certain back exercises (most machine rows, pull-ups, pull-downs)
- Some quad and hamstring exercises (leg extensions, lying and seated hamstring curls, hack squats)
- All calf raise variations. Those are simple movements where form breakdown isn't anything more than half-repping.

As you can see, the exercises I've listed above are either:

1. Simple, isolation movements;
2. Are done on a machine where the range of motion is controlled.

Granted, those aren't the only exercises you can take to failure. If you're ever wondering, keep these 2 requirements in mind.

Category #2: Mostly safe to take to failure, as long as you've got a spotter there to save your life.

These are exercises that you can take to failure only if there is a spotter next to you if anything should go wrong.

- Some triceps exercises (dumbbell overhead tricep extension, skullcrushers, close-grip bench press)
- Some shoulder exercises (seated dumbbell and barbell shoulder press)
- Some chest exercises (flat barbell and dumbbell bench press, incline dumbbell and barbell bench press, decline barbell and dumbbell bench press and dumbbell pullovers)
- Some leg exercises (most squat variations, done within a power rack)

Category #3: Risky to take to failure, form breakdown can lead to a serious injury or other accident.

There is going to be some overlap with the above section of exercises. The reason being, most of them are complex movements and form breakdown is dangerous.

- Standing barbell and dumbbell shoulder press – chance of a lower back injury. I recommend using a lifting belt if testing one rep max but don't train to failure otherwise.
- Skullcrushers – that name is not accidental. Your spotter should be on his toes because if he isn't... Let's just say that I've seen some dudes catch the bar with their face once or twice before.

- Bench press (flat, incline and decline) – These exercises are mostly safe but there is always the small risk of injury when testing 1RM or taking a set to failure. As long as you're doing everything right and aren't experiencing any pain, you should be okay.
- Dips of all types, especially if using extra weight – Unless you've got a forklift next to you, using a spotter is out of the picture and the potential risk of a shoulder or elbow injury only increases as you get closer to failure.
- Deadlifts of all types – Unless you're testing 1RM, just don't. Form breakdown happens easily and the risk of injury skyrockets. Train within your limits on all deadlift variations!
- Barbell rows – Similar to the deadlift, this is a complex movement and form breakdown can result in a serious injury. Train within your limit.
- Barbell front & back squats and most other types of squats – Even though using a spotter could potentially keep the bar from flattening you, you should avoid taking these complex exercises to failure. Only do so when testing 1RM.
- Olympic lifts (snatch, clean & jerk, push-press, etc.) – Just.. don't, okay? Aside from getting a serious injury, you could also end up dropping the bar on your head. Not cool.

Okay, now that we've covered most exercises, I would like to give you a tip:

If you're experiencing any pain when performing ANY exercise in the gym, the best thing you can do is stop the set. If the pain persists, seek a specialist.

Most exercises will be safe to perform, within your limits. But, they can also be dangerous if you don't listen to your body or let your form break.

Training to Failure and Overtraining: Is There a Higher Risk?

Most people associate regular training to failure with a higher risk of overtraining. Let's take a look at what the literature on the topic has to say:

Generally speaking, athletes train to increase performance. Performance increases are achieved through increased training loads. Increased loads are tolerated only through interspersed periods of rest and recovery—training periodization. Overreaching is considered an accumulation of training load that leads to performance decrements requiring days to weeks for recovery. Overreaching followed by appropriate rest can ultimately lead to performance increases. However, if overreaching is extreme and combined with an additional stressor, overtraining syndrome (OTS) may result.

This is a direct quote from this study. Now, let's dissect it further:

Increased loads are tolerated only through interspersed periods of rest and recovery—training periodization.

To achieve progressive overload, you need to give your body enough rest and recovery. The best way is through periodizing your training.

That makes sense and most people use some sort of a periodization model with their training. Whether it be linear, non-linear, daily undulated periodization or conjugate.

Periodization allows the lifter to have periods of higher effort work and of lower effort work and still make progress.

With heavy sets that help build more raw strength over time. As well as lighter sets that help build up the training

volume required for growth.

With exclusive training to failure, you can see how this doesn't work in the long run. I'll quote a section from the paragraph above:

if overreaching is extreme and combined with an additional stressor, overtraining syndrome (OTS) may result.

Overreaching can refer to different things, but for our example, let's assume it means constant training to failure.

We can also assume that the extra stressor may not be your training. Yet, they can increase your chances of overtraining.

Where you'd normally have periods of lighter training, you are going balls to the wall as usual. And there is no structure that promotes continual progress.

What the Literature Says About Training to Failure

This meta-analysis took 8 studies that met the 5 following criteria:

1. Randomised and non-randomized studies;
2. Resistance training intervention where repetitions were performed to failure;
3. A non-failure comparison group;
4. Resistance training interventions with a total of ≥3 exercise sessions;
5. Muscular strength assessment pre- and post-training;

In 4 of the 8 studies, training volume was controlled. The methodological quality of the included studies was moderate. Exercise compliance was high for the studies where this was reported.

Their findings:

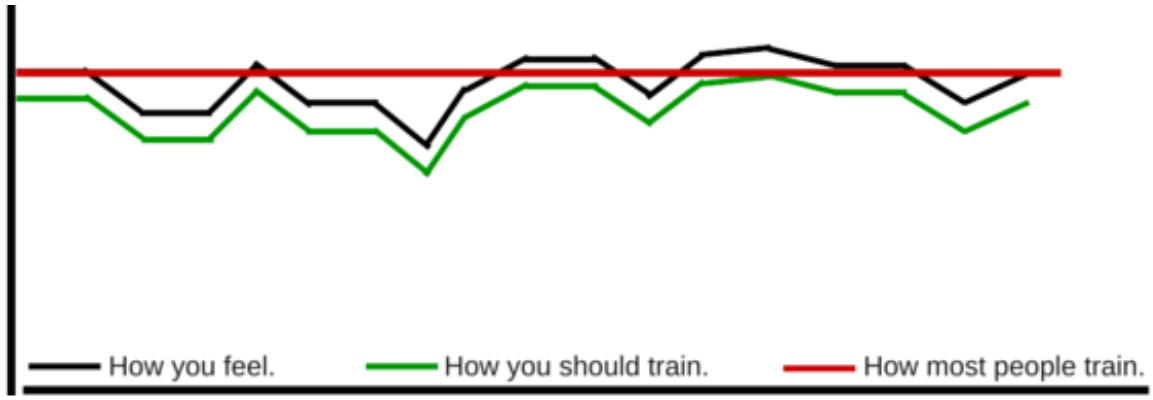
Overall, the results suggest that despite statistically significant effects on muscular strength being found for non-failure compared with failure training, the small percentage of improvement shown for non-failure training is unlikely to be meaningful. Therefore, it appears that similar increases in muscular strength can be achieved with failure and non-failure training. Furthermore, it seems unnecessary to perform failure training to maximise muscular strength; however, if incorporated into a programme, training to failure should be performed sparingly to limit the risks of injuries and overtraining.

My previous argument stands:

Only training to failure will not result in more progress in the gym. Yet, it can increase the risk of injury and overtraining.

But, this does not mean that training to failure is useless. In fact, if used in a strategic manner, it can enhance your results and progress over time.

Readiness, Autoregulation, and Lifting to Failure



Readiness refers to the level at which you are able to perform in a given training session.

I'm sure you've experienced fluctuations in your performance. One week you can squat 225 for 8 reps and the next, you can barely get 5 reps. The hell is going on..?

There are a lot of things that can influence your level of readiness. Such are life events, recovery, physical activity, etc.

But whatever the reason(s) may be, bad days happen and there is not much you can do about them.

This is where autoregulation comes. You're likely going to hear about its importance from experienced lifters. They've learned that progress and performance are never linear.

Autoregulation is a simple process. Your only job with it is to listen to your body and adjust your training based on how you feel. The biggest obstacle is swallowing your ego, a difficult task, might I add.

Being able to assess the difficulty of a given set can be a huge plus in your training. I've talked about counting training volume and the importance of it.

But there are bad days and your training volume might be less from previous workouts. Instead of trying to match it by hitting failure, work within your limit and do the best you can for that day.

A lot of inexperienced lifters out there don't know how to handle bad days. And, in desperate attempts, try to match their previous performance.

This happens through constant training to failure which only furthers the issue.

My recommendation is:

Swallow your ego. Realise that all workouts are not created equal and learn how to manage your fatigue better.

Just because you could get a certain number of reps with a given weight last week, doesn't mean that you will be able to do it today.

Bad days happen, learn to deal with them well.

So, Given all That, Should I Train to Failure and If Yes – When and How?

We've come to a common ground:

Training to failure is not bad when used intelligently. We can now find out when it's appropriate.

From my personal experience and what I've seen work for others, I can think of 4 scenarios. In them, training to failure can enhance your results without negatively impacting you in the long run:

Scenario #1: Last Set of an Accessory Exercise for a Given Muscle Group

This is the perfect time to train to failure. During the previous sets, you've managed to build up a good amount of volume to stimulate growth. Now, the last one or two sets taken to failure will likely result in even more stimulus and growth over time.

Here's an example of what that might look like:

Let's say you're doing a chest fly variation as your last exercise for your chest. You have done 2 sets already along with 11 sets of previous exercises. Now, you've got 2 more sets to go and you can take them to failure.

If you managed to get 12 reps, stopping short of failure, you can now push the last 2 sets to 14+ reps and promote extra growth.

I know a few reps here and there doesn't look like that big of a deal right now but think of it long term:

Over a period of a year, that would amount to hundreds of reps worth extra training volume.

Scenario #2: When Testing 1RM Strength on a Lift.

This is a no-brainer but often lifters fall in one of two camps:

1. They overreach all the time and test their strength every week.

   Or..

2. They focus so much on building their strength but never test it.

If you constantly try to break your old PRs recognize that:

- Is not optimal for your body or central nervous system.
- You're likely going to injure yourself with egotistical training.

The latter is not that big of an issue. But, knowing how you're progressing over time can serve as a motivator to continue pushing yourself.

Scenario #3: When Doing a Scheduled AMRAP Set.

If you're following a program such as Beyond 5/3/1 by Jim Wendler you've come across the + sets. Those are scheduled sets within your training where you do as many repetitions as you can.

The fact that these AMRAP sets are so few and far in-between is a good indicator of its own that training to failure all the time is not ideal. And the expert coaches out there know it.

Scenario #4: When You're Trying to Meet Progression Requirements of Your Program.

Again, if you're following a program, you've got progression numbers you need to hit each week to move up the ladder.

But, sometimes we can stall a bit and progress might not come as smoothly as we want it to.

Assuming that the progression is reasonable, you can allow yourself to take a set or two to failure, just so you can meet your required numbers.

What About Lifting to Failure During Fat Loss Periods?

To lose fat, you need to be in a caloric deficit, that much is clear. But what about muscular failure? Should you reach it? Is there a benefit to doing so or should you avoid doing it at all cost?

When you restrict your calories, your body's ability to repair itself and grow stronger reduces. Depending on how long you've been lifting, that could mean anything from *"Making slower progress."* to *"Struggling to keep the muscle and strength I have."*.

Aside from eating enough protein, smart lifting is another crucial element of proper fat loss. Building up enough training volume week after week is needed. Lifting with high intensity and maintaining your strength is also needed.

But when it comes to lifting to failure, you need to be careful. Because your body is compromised in a way, pushing yourself to your limits can do more harm than good.

Guys often try to overcompensate for their lacking performance by taking every set to failure. That can result in overtraining or possible injuries.

My recommendation is to avoid lifting to failure ever more so than when you're trying to build lean muscle.

Take the last set or two of an exercise for a given muscle group to failure. But, don't put yourself through more stress than is needed to maintain your muscle mass.

Conclusion

With all that being said, I recognize that we can't be 100% strict all the time. Sometimes we feel better than usual, other times we want to show off.

Taking a set to failure on purpose even though you shouldn't isn't going to be the end of the world.

What is important is to know the guidelines and follow them most of the time.