

[Click Here](#)



























Share on PinterestRg Studio/Getty ImagesHow many exercises you should do per muscle group depends on several factors, including your fitness level and goals. Here are healthy tips. We know that strength training is good for you — great, actually. From increased muscle mass and stronger bones to better balance and weight management, incorporating strength training into your exercise routine is a no-brainer. What’s infinitely more confusing is figuring out the logistics of it all. Is there a magic number of days per week you should work out? Should you split upper and lower body? How many reps and sets? There’s a lot of information available and many ways to approach training. In this article, we’ll explore the topic of how many exercises you should do per muscle group. It varies depending on several factors, including your fitness level and goals. For example, research is clear that the more weekly sets you perform, the more muscle hypertrophy — or size increase — you’ll see. But what about if you’re interested in gaining strength? Or muscular endurance? In general, a range of 1 to 3 sets of an exercise can provide benefits based on your goals, and even just one exercise per muscle group can give you results.To gain strength, it’s best to stick with a few foundational exercises and concentrate your reps and sets there. If size is your goal, you’ll want to vary your exercises more, spreading your reps and sets between them. Should you think about exercises per muscle group in a weekly view, or per workout? To understand this topic better, we should start with addressing training volume. Training volume = reps x sets x weight.The correct training volume for you will depend on several factors, including your fitness level and goals. Training volume is best to approach as a weekly target, as it accounts for how many workouts per week you plan to train a specific muscle group. Whether you’ll train each muscle group once per week or three times per week, your volume target will stay the same. You’ll just adjust your target number of reps and sets per workout. It’s also important to think about your workouts in sets versus reps.When thinking about your weekly training volume, the more reps you complete, the fewer number of sets you’ll need to do. This likely means a lower weight load. On the flip side, the fewer reps you complete most likely at a heavier weight — the more sets you’ll need to do. Your goals come into play here:Lower rep ranges of 5 and under are best for strength gains. Moderate rep ranges of 6 to 12 are best for a combination of both strength and muscle size (hypertrophy).High rep ranges of 13 to 20 are most beneficial for muscular endurance. Once you’ve identified your goals, you’ll know whether your workouts will be set-heavy or rep-heavy. Another important consideration: whether you want to knock out your weekly training volume in one workout or spread it out across several.The frequency of your muscle group training — or the number of sessions per week — can make a difference in your results. Utilizing three to four sessions per week to hit your training volume will likely provide better results than doing it all at once because of one key factor: recovery.You’ll be less fatigued and your muscles will be allowed to rest, allowing for better performance even at the end of your sets. Instead of viewing all of your workouts through a “full body” lens, workout splits target individual muscle groups or regions during different workouts, looking at things from a weekly or even monthly perspective. For instance, a very basic split routine would be upper body-lower body. Or you could even break it down further with a chest/triceps/abs day, a back/biceps day, a leg day, and a shoulder day each week.The point of a workout split is to give specific muscle groups time to rest before challenging them again while still hitting the full body every week.Recovery is an important part of seeing results — especially as your training volume increases — so these breaks are key.A full-body split is just that: Your workout will hit all major muscle groups. This approach is especially good for beginners or those who are strapped for time, as the training volume will be more manageable. An example of a full-body split looks like this:Monday: full bodyTuesday: restWednesday: full bodyThursday: restFriday: full bodySaturday: restSunday: full bodyTuesday: restAllowing your body at least 1 day to recover between each full-body workout is key, so three sessions per week is a good baseline to start with. Within these workouts, you’ll choose one exercise for each muscle group — back, chest, shoulders, legs, core — and, as a beginner, aim for 3 sets of 10 to 12 reps.A body-part split workout routine targets major muscle groups individually throughout the week. While this method will surely increase muscle size and strength, it will have you training at least 5 days a week, which is a big commitment. If you do have the time to adopt a body-part split routine, here’s a sample schedule:Monday: chest Tuesday: legs Wednesday: rest Thursday: backFriday: shouldersSaturday: absSunday: restFor a body-part split — which is best for more advanced skill levels — you’ll concentrate on fewer reps and more sets. Choose five exercises per workout and utilize rep ranges of less than 12.In an upper body-lower body split, you’ll divide your workouts into upper and lower body days. A 4-day weekly routine lends itself well here, with 2 upper body days and 2 lower body days. Monday: upper bodyTuesday: lower bodyWednesday: restThursday: upper bodyFriday: lower body Saturday: restSunday: restTo start, choose two exercises per muscle group, aiming for 3 sets and 10 to 12 reps as a beginner.In a push-pull workout split, you’ll focus on the “push” muscles in one workout — chest, triceps, shoulders, quads, and calves — and the “pull” muscles — back, biceps, and hamstrings — in another. Four days per week also works well for a push-pull split, allowing for two push and two pull workouts. A sample schedule could look like this:Monday: push Tuesday: pullWednesday: restThursday: pushFriday: pullSaturday: pullSunday: restTo start, choose one to two exercises per muscle group, aiming for 3 sets and 10 to 12 reps as a beginner.No matter which routine you adopt, there are a few things you should keep in mind. In general, a good rule of thumb is the more you’re lifting, the longer rest you should take between sets. In lower rep ranges, aim for at least 2 minutes between sets. In higher rep ranges, aim for 30 seconds to 1 minute. Low-, moderate-, and high-rep ranges are predicated on the fact that you’re challenging yourself to the very last rep. If the last rep isn’t hard to get through, you’re not lifting enough weight. Reps you do just to get through, you’re not challenging yourself, so you’re just resting. Components like nutrition and sleep are important, too. Make sure the whole package is there, including a well-balanced diet and plenty of Zzz’s to ensure you’re maximizing your results. To build strength, you’ll want to stick in the range of 1 to 5 reps and 4 to 5 sets. Truly challenge yourself with the load. If you feel as though you could continue, add some more weight in the next set. A simple, no-frills approach is the best to build strength. Stick with these foundational exercises over 3 days per week to keep the concentration and effort on your load and form. A sample routine could look like this:Remember: Recovery is an important part of seeing results — especially as your training volume increases — so breaks like this are key.hip thrustrowgoblet squatRemember: Recovery is an important part of seeing results — especially as your training volume increases — so breaks like this are key.Analyzing your fitness goals is the first step in figuring out how many exercises you should do per muscle group.It doesn’t have to get complicated, however. Research shows that even fewer than 5 sets per exercise per week can grow muscle. So get moving and fine-tune your approach as you go!Nicole Davis is a writer based in Madison, Wisconsin, a personal trainer, and a group fitness instructor whose goal is to help women live stronger, healthier, happier lives. When she’s not working out with her husband or chasing around her young daughter, she’s watching crime TV shows or making sourdough bread from scratch. Find her on Instagram for fitness tidbits, #momlife, and more.Healthline has strict sourcing guidelines and relies on peer-reviewed studies, academic research institutions, and medical journals and associations. We only use quality, credible sources to ensure content accuracy and integrity. You can learn more about how we ensure our content is accurate and current by reading our editorial policy. “How many sets should I do to build muscle?” The answer depends on two factors: How long you’ve been training and how much time you have to train. “Time is a single enough. If I told you the best way to build muscle is to spend three hours a day in the gym, most of you would probably say, ‘That’s not realistic.’” Training is a bit more complicated. It’s not the same as “working out.” It means you’re following a program with the goal of making specific adaptations. In this case, you’re trying to change the way your body looks and performs by making your muscles bigger and stronger. I divide training experience into three categories: Beginner, less than 12 months of consistent, proper training experience. Intermediate, 1 to 4 years of consistent, proper training experience. Advanced: more than 4 years of consistent, proper training experience. I need to clarify one more term before we get to my recommendations: We count sets based not on the exercise, but on the muscles involved in the movement. So a set of bench presses counts as one set for your chest, one set for your front delts, and one set for your triceps. It’s still one set of one exercise, but it applies to three different muscles. Same with a set of lat pulldowns. It counts toward your weekly total for your back, rear delts, and biceps. A set of curls, meanwhile, counts as one set for your biceps. Beginner If you’re new to training, you don’t need to spend a lot of time in the gym. You can build muscle with just 1 to 5 sets per muscle per week. You could easily manage that with two full-body workouts per week. For your compound exercises, you could do 2-3 sets per exercise. For any isolation exercises, you could do just 1-2 sets per exercise and get the job done well. There’s no harm in spending more time in the gym, though. If you have the time and ambition, you could start with 4 to 8 sets per muscle per week, and work your way up to 8 to 12 sets. Doing those extra sets will likely get you gains a little faster, but not by much. It’s up to you if you want to prioritize quick and effective workouts (that get most of the results) or less quick but more optimal workouts. Intermediate Your first year in the weight room is when you get those coveted “newbie gains.” Just about anything you do will make you bigger and stronger, and possibly leaner as well. You should still make progress in your second and third years of training, but you’ll have to work harder for it. 4 to 8 sets per muscle per week is now your minimum. Pure Bodybuilding Program. This is far serious intermediate-advanced level lifters who want to build muscle as fast as possible. Until next time, Jeff Atwood/Getty ImagesHow much evidence has shed light on the optimal number of sets you should do to get the most out of your training? Until this point, various studies have suggested that muscle gain will increase as volume increases, with different muscle groups requiring different amounts of sets for optimal muscle growth. However, it hasn’t been studied to the same extent as this particular piece of research. In a YouTube video shared by Dr. Mike Israetel, who holds PhD in Sport Physiology, and sport scientist PhD Dr. Milo Wolf, the two experts discussed the findings of the study which was published in Medicine & Science in Sports and Exercise. Focusing on the quadriceps and trained squats, leg presses and leg extensions, the study compared three training volumes: Group 1 (Low Volume): 22 sets of quad training per week, split evenly over 2 workouts. Group 2 (Medium Volume): 22 sets of quad training, adding 4 sets of weekly quad training every 2 weeks, resulting in 52 sets per week. This was 38 sets per week on average for the 12-week study. Group 3 (High Volume): 22 sets of quad training, adding 6 sets of weekly quad training every 2 weeks, resulting in 52 sets per week. This was 38 sets per week on average for the 12-week study.The results found that the high volume group (52 sets per week, 38 on average) resulted in greater muscle thickness and size as well as an improvement in strength gains. The study concluded that progressively adding four or six sets per week every two weeks elicited greater lower body strength and size over the 12 weeks.What is Progressive Overload?Does this mean we should be completing 52 sets per week? The experts said it’s unlikely. Linking this study back to our training, it’s suggested that we could increase hypertrophy and strength by completing more than 22 sets a week. This could be achieved by adding 4-6 sets per week. However, that’s not as simple as it may seem. The study also mentioned that the limited certainty of the findings warrants caution due to the variation between results. For example, in the groups there were quite wide differences in results between participants. It’s also important to add that in this study, the participants were training extremely hard. What’s Considered a Hard Bench Press?WeightTo put this into context, the high volume group completed 26 sets of quads with 2 minutes rest. The programme contained 9 sets of squats/9 sets of leg press/9 sets of leg extension/9 sets of pretty brutal to say the least, not to mention how much time this would take. A 30-minute lunch break without this ain’t, M!T says. Not everyone can add more volume to their training, especially to this degree and with every single muscle group. Doing so would likely sacrifice adequate recovery and therefore increase the risk of injury, so of course work within your limitations. To Train to Failure or Not for Muscle Growth?The key takeaway is that despite this study’s findings, you don’t have to work to such high levels as 52 sets per week. However, you could focus on increasing weekly volume from where you are now and ensure you are working close to failure at the end of those sets. How Many Sets for Building Muscle?As a rule of thumb work 0.5 reps from failure, with an amount of sets suitable for your experience level.How to Use the RPE Scale for Strength and SizeReferring to a more recent systematic review, it found:If you want to absolutely maximise muscle growth: 30-40 sets would deliver the best results, but it’s important to note that above this point isn’t for everyone. 10-20 sets would be a more realistic goal.This could look like:3-6 sets close to failure for a particular muscle group per workout, working on the basis that you train 3 times a week.You could start here and increase weekly sets gradually as you get stronger and more acclimatised to the amount of work. The most important variable is to train with intensity on a consistent basis.Using the new research as well as taking an individualised approach to your programming will likely improve your muscle gains, without you needing to skip the stairs. Resistance training is a combination of putting in hard work and programming your routines correctly so you can hit your goals. We can’t bring the intensity for you, but we can tell you how to properly set up your workouts so you have the ideal number of exercises, sets, and reps per muscle group and workout, no matter your goal. Research indicates that each major muscle group must be trained twice weekly for best muscle-building results. However, there are several unique variables that can impact this, which we’ll cover in this article. We’re about to answer the question: How many exercises and sets should you do per week or per muscle group? In addition, we’ll provide programming tips for several different goals, and break down the most effective exercises for each muscle group. Table of Contents: Understanding Sets & Reps Determining Sets & Reps Choosing Rep Ranges For Goals Number of Exercises Per Workout Tailoring Exercises For Your Goals Recommendations For Beginners Optimal Frequency For Training Each Muscle Group Best Exercises For Each Muscle Group Understanding Sets and Reps Two of the most common words you will hear in the fitness world are sets and reps. Reps stand for repetitions, or the number of times you do a specific exercise. Sets means the number reps you’re completing before taking a rest. For example, if a workout calls for 3 sets of bench press with 12 reps in each set, then you would be expected to do 12 reps three times for a total of 36 repetitions. Determining Sets & Reps When you are figuring out how many sets and reps you should do per muscle group and workout, there are 3 factors to consider. Fitness level (beginner or advanced) Goal (mass building or fat loss) Workout frequency Recommendations The American College of Sports Medicine states that 2-3 sets of 8-12 reps, coming close to failure on the last rep of each set, is ideal for muscular hypertrophy1. Choosing Rep Ranges For Goals The number of reps you do per set should be aligned with your end goals, which will include increasing power and/or strength, building muscle, and increasing muscular endurance. Reps to Increase Power: 1-3 reps of big compound movements at 70-95% of your 1 rep max. Reps to Increase Strength: 4-6 reps of compound movements at 85-90% of your 1 rep max. Reps to Build Muscle: 8-15 reps of compound and isolation movements using 65-75% of your 1 rep max. Reps to Increase Endurance: Over 15 reps of smaller compound and isolation movements using 30-60% of your 1 rep max. Number of Exercises Per Workout Follow these guidelines so you can effectively create a training program using the correct number of exercises per workout. Guidelines: Total sets per workout (10-20) Examples based on sets per exercise (e.g., 3 sets per exercise = 5-8 different exercises per workout or 7-12 exercises if you’re doing two sets of each exercise) Goal is to stay at or under 20 sets per muscle group per week if you’re working the same muscle group twice a week Aim for each workout to have 15-25 sets total, but with less than 10 sets for a specific muscle group on one day Include 8-10 multi-joint exercises per week Also, don’t focus so much on how long your workout should be, but rather, make sure you’re hitting all of your muscles with effective exercises. Want to pack on pounds of lean muscle in 90 days? Check out our SFS Hypertrophy Program developed by Garrett Reid (NSCA, CSCS, CISSN, M.S.E.S.S.). BEST MUSCLE-BUILDING PROGRAM Prepare to maximize your gains with our exclusive 12-week hypertrophy training program. Choose between a 4 or 5 day training split and gain 2-12 pounds of muscle over 90 days... Tailoring Workouts for Fat Loss and Muscle Building Whether your goal is fat loss or muscle building, we’ve got you covered! Here’s how you can personalize your program to hit your goals. Fat Loss Strategies: To lose fat you should be doing a high volume of reps per set while still sticking within the guidelines above. In addition, you must increase the intensity of these exercises. You can reduce rest times between sets for extra calorie burn. You can also try to execute HIIT or EMOM or AMRAP circuits to get that heart pumping, that sweat dripping and those calories melting. Guidelines: High-rep sets Reduce rest times High intensity Incorporate HIIT, circuit training, EMOM, or AMRAP Focus on heavy compound lifts as well (with adequate rest time between sets) Muscle Building Strategies: To build muscle, utilize the concept of Time Under Tension (TUT), which is the amount of time the muscle is under tension or strained during a particular exercise. In essence, you should try to lengthen the time of each phase of the movement. The phase of the movement we are most concerned with is the stretching phase where you should try for slow eccentric movement. Guidelines: Focus on Time Under Tension (TUT) Incorporate heavy compound lifts Rep ranges of 6-12 reps per set Recommendations For Beginners Those new to fitness should start with full body workouts until their bodies get accustomed to exercising. In each full body workout, each muscle group should be targeted, completing 2 sets of 10-12 reps. Make sure to give yourself adequate rest and recovery between workout days. Starting Point Guidelines: Full body workouts 2 sets of 10-12 reps for each muscle group Optimal Frequency for Training Each Muscle Group Numerous studies have been conducted in this area with the majority agreeing that more volume/sets leads to more growth. This 2010 study saw that people who did 4-6 sets per week per muscle group had around 80% more muscle growth compared to those who completed one set per muscle group per week2. This study in 2017 reinforced the findings that the more sets and exercises per muscle group you do the better the results3. There is however a limit to when higher sets/volumes are beneficial and can actually become detrimental to your gains. The same researcher from the aforementioned study, James Krieger, studied the meta-analysis and concluded that 10 sets per muscle group seems to be the upper limit of beneficial outcomes. If you’re doing more than 10 hard sets of a particular muscle group in one day you might be doing more harm than good as this “junk volume” can hinder your recovery. Take this with a grain of salt, as the exact effects can vary depending on the person’s fitness level, how long they’ve been training and the type of exercises being performed. For example, a total of 10 hard sets comprised of squats, deadlifts and lunges will be more taxing on your muscles than leg extensions, quad curls and calf raises. Recap of Study Findings: Train each muscle group twice a week for optimal results Training each muscle group twice weekly let’s you workout hard with a high intensity without over-training in one particular workout session More sets per muscle group weekly is best for muscle building Exceeding 10 sets per muscle group can negatively impact muscle recovery How many sets you do weekly is also dependent on your fitness level and training age MAJOR MUSCLE GROUPS There are over 600 muscles in the human body! We will briefly touch on some of the best exercises for certain muscle groups. The following 12 major muscle groups that should be targeted in your exercise regimen. Trapezius Shoulders Chest Back Abs Triceps Biceps Forearms Glutes Quads Hamstrings Calves Let’s now take a look at the best exercises you can do for each muscle group. Best exercises to build traps The following big tips help to build strength and size in the traps: Deadlifts, Snatches, Cleans, The best exercise to build traps are direct shrug variations. The more targeted trap exercises include: Military Press/Overhead Press Farmer’s Walk Shrugs Lateral Raises Face Pulls Upright Rows Check out the Best Trap Exercises for even more ideas! Best shoulder exercises to build muscle The king of shoulder exercises to build muscle is The Military Press. Overhead press is the best shoulder exercise there are plenty of others that will also help make your shoulders stronger. The shoulder muscles are also engaged in other exercises such as incline bench press and deadlifts. Some exercises to build shoulder strength are: Arnold Press Single Arm Overhead Press Handstand/Wall Push Ups Front/Side/Rear Raises Upright Rows Best chest exercises to build muscle You often hear people talking about how much they can bench as a sign of strength but when was the last time you heard someone saying how many weighted dips they could do? The best exercises to build a strong chest are bench press and dips but there are a number of exercises that assist in developing the chest muscles, including: Dips Incline/Decline Press Push Ups (wide/close grip/weighted/elevated) Flys Pullovers Cable Crossovers There is an endless assortment of exercises that can target your chest from all angles. Check out the Best Upper Chest Exercises, Best Lower Chest Exercises, Best Inner Chest Exercises, and Best Outer Chest Exercises and you’ll never run out of workout ideas! Best back exercises Back exercises can usually be separated into two areas: exercises to increase the depth of the back and exercises that improve the width of the back. Deadlifts are a great example to get a thicker back with push ups being a perfect exercise to increase the width. A strong back is necessary as we age to help fend off back pain or other injuries. The best exercises for back include: Deadlifts Pull Ups/Chin Ups Rows Pendlows Back Extensions Best ab exercises to build muscle The best ab exercises you can do are actually not really considered “ab” exercises. By doing some major compound exercises such as deadlifts, squats, overhead presses, you will force your abs to be engaged which will help to build strength. However, if you do want to target your core more specifically there are a number of exercises that will do the trick. Always remember, we all have abs, they are just hiding underneath that belly fat. The old saying goes, “Abs aren’t built in the gym but in the kitchen,” which is half true but if you want strong well defined abs you have to put in the hard work. You will also need low body fat to see a glimpse of those abs. Some of the best isolated ab exercises are: Crunches Hanging Leg Raises Planks For more ideas, check out the Best Upper Ab Exercises, Best Lower Ab Exercises, Best Oblique Exercises, and Best Transverse Abdominis Exercises. Best triceps exercises to build muscle The best triceps exercises are found in compound movements such as: Pushups Overhead press Close/reverse grip bench press Pullovers Dips There are multiple isolation exercises for the triceps that can help with improving the definition of the muscle, for example: Press downs Skull Crushers Overhead Triceps Extensions For more ideas, head to the Best Barbell Triceps Exercises and Best Dumbbell Triceps Exercises. Best bicep exercises to build muscle Once again some of the best exercises you can do to build strength in your biceps are compound movements such as: Rows Pull Ups Close grip chin ups You can add some isolation exercises into the mix if you want to improve those beach muscles. Do these exercises for a massive pump: Crossbody Curl Preacher Curl Incline Curl Alternating Dumbbell Curls Best forearm exercises to build muscle When doing most upper body exercises your forearms will come into play by holding and gripping the weight or bar. The best compound lifts for your forearms include: Farmer’s Walk Deadlift Pulls Ups Besides the big lifts you can improve your forearm strength with: Reverse Wrist Curls Pinwheel Curls Wrist Curls Check out the Best Forearm Exercises for more ideas! Best glute exercises to build muscle The best exercises for building your glutes are based in large movements such as squats. Many gyms these days are adding glute specific workout equipment amongst their lineup as the trend of bigger biceps continues. There are also glute specific exercises you can try for example: Booty Band Lateral Walks Glute Bridges Fire Hydrants Best quadriceps exercises to build muscle The best exercises for quadriceps are large compound movements such as: There are numerous variations of both squats and lunges so you should never get bored working out those muscles. There are also isolation exercises such as leg extensions or terminal knee extensions (TKE) if you want to specifically target the quads or sprt rehabbing an injury. Some of the best exercises to build the quad muscles include: Zonal Squats Front Squats Hack Squats Lunges Sumo Squat Ready for more ideas? Head to the Best Quad Exercises an the Best Dumbbell Quad Exercises. Best hamstring exercises to build muscle The best hamstring exercises for building muscles are different types of deadlifts where your legs stay straight and get a massive stretch like stiff legged deadlift. Most gyms also have machines like the lung muscle curl to isolate the effort of the hamstrings. The overall best exercises for hamstrings are: Stiff Legged Deadlift Romanian Deadlift Good Mornings Kettlebell Swings The possibilities don’t end there, either. Check out the Best Hamstring Exercises and Best Dumbbell Hamstring Exercises to find your favorite moves. Best calf exercises to build muscle While some people are born with the genetics to have strong thick calves, others have to work extra hard to add mass to these muscles. If you’re one of the lucky ones you can get a good calf workout in while doing other exercises such as lunges and split squats. If you’re one of the unlucky ones then you might have to put some extra effort into building up your calves. Whatever the case, don’t be the one walking around with a massive upper body and chicken legs. Try some of the best exercises for building muscle in your calves: Standing Calf Raises Seated Calf Raises Leg Press Calf Raises Exercises & Sets Per Muscle Group & Workout: Final Takeaways There isn’t a magical equation to find how many exercises, sets, and reps you should do for each muscle group to maximize muscle growth. Fitness is a personal journey where you have to do the hard work to see what works best for you. There are plenty of fitness gurus on the web that preach a certain number of sets/reps is the best but that’s probably because it’s what worked best for them. The only way to determine what sets, reps and exercises are right for you is to get out there and get after it. If you need help getting started, follow a structured program that includes an exercise set, and rep range that aligns with the goals we discussed above. Then, if you find you need more or less volume than the program recommends, you can adjust accordingly. The bottom line is, if you’re a natural, that is, if you are a natural, that is, after all, otherwise you would have narrow training sessions every day and grow kind of endlessly. Coach Christian Thibaudeau says about this: The whole purpose of training to build muscle is to trigger protein synthesis. Once it’s been triggered, there is no added benefit in continuing to punish a muscle – it will not grow more. In fact, it might even lose size! The study by Barbalho ea from June 2019 shows this in particular. In it, 37 moderately trained men followed a 24-week training program in which they did 5, 10, 15 or 20 sets per week for each muscle group. Please note: all sets were completed in one workout for each muscle group. At the end of the day, the men who did only 5 sets per week had achieved the most muscle gains, and participants in the 20 set group the least. This suggests that there is a growth ceiling of around 5 sets per training. If you do more sets (during that training), you will only cause unnecessary fatigue, which can be at the expense of muscle growth. Since, in principle, muscle failure was trained throughout the study, that ceiling will probably be a bit higher if you keep a few repetitions in the barrel. Update 11-9-2020: Imperfections have been found in the design of this and other Barbelho studies. Its results are therefore called into question. CONCLUSION Beardsley concludes from the studies studied that you can do a maximum of 5 sets per muscle group of productive volume per training, if you train all sets to muscle failure. If you stay slightly away from muscle failure (1-3 RIR) you can probably do a little more productive volume, generating more stimulating reps on balance. But even then, the growth stimulus will decrease sharply after 5 sets, only to stagnate around 10 sets. The growth stimulus during a training therefore approximately follows the curve below. The first set normally stimulates the most growth, perhaps 60 per cent, then the second, perhaps 40 per cent, and the third, perhaps 20 per cent. After the third set, the growth stimulus is already diminishing, the principle of diminishing returns. In other words, the weekly amount of growth stimulus is limited (if you are a natural, that is). After all, otherwise you would have narrow training sessions every day and grow kind of endlessly. However, in training volume recommendations, most coaches only use direct sets. As a result, the recommended volumes for arms, shoulders and trapezius are lower. After all, these are muscle groups that are also trained indirectly. In summary, For the calculation of training volume, we assume “hard” sets that are trained with medium to heavy weights and with sufficient effort (1-3 RIR). VOLUME REQUIREMENT How much training volume you need to keep growing depends in part on your training status. The more advanced you are, the more volume you need. This is because your body, through adaptation, gradually becomes insensitive to a certain volume. Research shows that beginners can achieve optimal results with about 10 sets per muscle group per week. After one to one and a half years of training you can call yourself intermediate and you will probably no longer have enough of those 10 sets. Instead, aim for 15 sets per muscle group per week. Advanced users may need as many as 20 a week. Roughly speaking, the volume requirement evolves during a training career as follows: beginners: ~10 sets per muscle group per week intermediates: 10-15 sets per muscle group per week advanced: 15-20 sets per muscle group per week advanced: 20+ sets per muscle group per week In summary: Beginners can grow optimally with 10 sets per muscle group per week. As you get more advanced, the volume requirement grows to about 15-20 sets per muscle group per week. VOLUME PRODUCTIVITY If you look at the scientific literature, the above recommendations are not obvious. Scientific author Chris Beardsley collected and analyzed six relevant, high-quality studies on the effect of training volume on muscle growth (see article). He noticed that the results of these studies differ widely and are more likely to contradict each other. In one study it appeared to make no difference whether you do more or fewer sets, while in the other study an increase in the number of sets led to significantly more muscle growth. How can these differences be explained? Quite simply: actually: through the training frequency. In studies in which high training volume was used (in one study 10 sets per muscle group per week, in another 20 sets per muscle group per week), the training frequency was low. In other words, the weekly amount of growth stimulus was spread over several weeks’ sessions. Doing less volume per session apparently increases the effectiveness of your training. However, in training volume recommendations, most coaches only use direct sets. As a result, the recommended volumes for arms, shoulders and trapezius are lower. After all, these are muscle groups that are also trained indirectly. In summary, For the calculation of training volume, we assume “hard” sets that are trained with medium to heavy weights and with sufficient effort (1-3 RIR). VOLUME REQUIREMENT How much training volume you need to keep growing depends in part on your training status. The more advanced you are, the more volume you need. This is because your body, through adaptation, gradually becomes insensitive to a certain volume. Research shows that beginners can achieve optimal results with about 10 sets per muscle group per week. After one to one and a half years of training you can call yourself intermediate and you will probably no longer have enough of those 10 sets. Instead, aim for 15 sets per muscle group per week. Advanced users may need as many as 20 a week. Roughly speaking, the volume requirement evolves during a training career as follows: beginners: ~10 sets per muscle group per week intermediates: 10-15 sets per muscle group per week advanced: 15-20 sets per muscle group per week advanced: 20+ sets per muscle group per week In summary: Beginners can grow optimally with 10 sets per muscle group per week. As you get more advanced, the volume requirement grows to about 15-20 sets per muscle group per week. VOLUME PRODUCTIVITY If you look at the scientific literature, the above recommendations are not obvious. Scientific author Chris Beardsley collected and analyzed six relevant, high-quality studies on the effect of training volume on muscle growth (see article). He noticed that the results of these studies differ widely and are more likely to contradict each other. In one study it appeared to make no difference whether you do more or fewer sets, while in the other study an increase in the number of sets led to significantly more muscle growth. How can these differences be explained? Quite simply: actually: through the training frequency. In studies in which high training volume was used (in one study 10 sets per muscle group per week, in another 20 sets per muscle group per week), the training frequency was low. In other words, the weekly amount of growth stimulus was spread over several weeks’ sessions. Doing less volume per session apparently increases the effectiveness of your training. However, in training volume recommendations, most coaches only use direct sets. As a result, the recommended volumes for arms, shoulders and trapezius are lower. After all, these are muscle groups that are also trained indirectly. In summary, For the calculation of training volume, we assume “hard” sets that are trained with medium to heavy weights and with sufficient effort (1-3 RIR). VOLUME REQUIREMENT How much training volume you need to keep growing depends in part on your training status. The more advanced you are, the more volume you need. This is because your body, through adaptation, gradually becomes insensitive to a certain volume. Research shows that beginners can achieve optimal results with about 10 sets per muscle group per week. After one to one and a half years of training you can call yourself intermediate and you will probably no longer have enough of those 10 sets. Instead, aim for 15 sets per muscle group per week. Advanced users may need as many as 20 a week. Roughly speaking, the volume requirement evolves during a training career as follows: beginners: ~10 sets per muscle group per week intermediates: 10-15 sets per muscle group per week advanced: 15-20 sets per muscle group per week advanced: 20+ sets per muscle group per week In summary: Beginners can grow optimally with 10 sets per muscle group per week. As you get more advanced, the volume requirement grows to about 15-20 sets per muscle group per week. VOLUME PRODUCTIVITY If you look at the scientific literature, the above recommendations are not obvious. Scientific author Chris Beardsley collected and analyzed six relevant, high-quality studies on the effect of training volume on muscle growth (see article). He noticed that the results of these studies differ widely and are more likely to contradict each other. In one study it appeared to make no difference whether you do more or fewer sets, while in the other study an increase in the number of sets led to significantly more muscle growth. How can these differences be explained? Quite simply: actually: through the training frequency. In studies in which high training volume was used (in one study 10 sets per muscle group per week, in another 20 sets per muscle group per week), the training frequency was low. In other words, the weekly amount of growth stimulus was spread over several weeks’ sessions. Doing less volume per session apparently increases the effectiveness of your training. However, in training volume recommendations, most coaches only use direct sets. As a result, the recommended volumes for arms, shoulders and trapezius are lower. After all, these are muscle groups that are also trained indirectly. In summary, For the calculation of training volume, we assume “hard” sets that are trained with medium to heavy weights and with sufficient effort (1-3 RIR). VOLUME REQUIREMENT How much training volume you need to keep growing depends in part on your training status. The more advanced you are, the more volume you need. This is because your body, through adaptation, gradually becomes insensitive to a certain volume. Research shows that beginners can achieve optimal results with about 10 sets per muscle group per week. After one to one and a half years of training you can call yourself intermediate and you will probably no longer have enough of those 10 sets. Instead, aim for 15 sets per muscle group per week. Advanced users may need as many as 20 a week. Roughly speaking, the volume requirement evolves during a training career as follows: beginners: ~10 sets per muscle group per week intermediates: 10-15 sets per muscle group per week advanced: 15-20 sets per muscle group per week advanced: 20+ sets per muscle group per week In summary: Beginners can grow optimally with 10 sets per muscle group per week. As you get more advanced, the volume requirement grows to about 15-20 sets per muscle group per week. VOLUME PRODUCTIVITY If you look at the scientific literature, the above recommendations are not obvious. Scientific author Chris Beardsley collected and analyzed six relevant, high-quality studies on the effect of training volume on muscle growth (see article). He noticed that the results of these studies differ widely and are more likely to contradict each other. In one study it appeared to make no difference whether you do more or fewer sets, while in the other study an increase in the number of sets led to significantly more muscle growth. How can these differences be explained? Quite simply: actually: through the training frequency. In studies in which high training volume was used (in one study 10 sets per muscle group per week, in another 20 sets per muscle group per week), the training frequency was low. In other words, the weekly amount of growth stimulus was spread over several weeks’ sessions. Doing less volume per session apparently increases the effectiveness of your training. However, in training volume recommendations, most coaches only use direct sets. As a result, the recommended volumes for arms, shoulders and trapezius are lower. After all, these are muscle groups that are also trained indirectly. In summary, For the calculation of training volume, we assume “hard” sets that are trained with medium to heavy weights and with sufficient effort (1-3 RIR). VOLUME REQUIREMENT How much training volume you need to keep growing depends in part on your training status. The more advanced you are, the more volume you need. This is because your body, through adaptation, gradually becomes insensitive to a certain volume. Research shows that beginners can achieve optimal results with about 10 sets per muscle group per week. After one to one and a half years of training you can call yourself intermediate and you will probably no longer have enough of those 10 sets. Instead, aim for 15 sets per muscle group per week. Advanced users may need as many as 20 a week. Roughly speaking, the volume requirement evolves during a training career as follows: beginners: ~10 sets per muscle group per week intermediates: 10-15 sets per muscle group per week advanced: 15-20 sets per muscle group per week advanced: 20+ sets per muscle group per week In summary: Beginners can grow optimally with 10 sets per muscle group per week. As you get more advanced, the volume requirement grows to about 15-20 sets per muscle group per week. VOLUME PRODUCTIVITY If you look at the scientific literature, the above recommendations are not obvious. Scientific author Chris Beardsley collected and analyzed six relevant, high-quality studies on the effect of training volume on muscle growth (see article). He noticed that the results of these studies differ widely and are more likely to contradict each other. In one study it appeared to make no difference whether you do more or fewer sets, while in the other study an increase in the number of sets led to significantly more muscle growth. How can these differences be explained? Quite simply: actually: through the training frequency. In studies in which high training volume was used (in one study 10 sets per muscle group per week, in another 20 sets per muscle group per week), the training frequency was low. In other words, the weekly amount of growth stimulus was spread over several weeks’ sessions. Doing less volume per session apparently increases the effectiveness of your training. However, in training volume recommendations, most coaches only use direct sets. As a result, the recommended volumes for arms, shoulders and trapezius are lower. After all, these are muscle groups that are also trained indirectly. In summary, For the calculation of training volume, we assume “hard” sets that are trained with medium to heavy weights and with sufficient effort (1-3 RIR). VOLUME REQUIREMENT How much training volume you need to keep growing depends in part on your training status. The more advanced you are, the more volume you need. This is because your body, through adaptation, gradually becomes insensitive to a certain volume. Research shows that beginners can achieve optimal results with about 10 sets per muscle group per week. After one to one and a half years of training you can call yourself intermediate and you will probably no longer have enough of those 10 sets. Instead, aim for 15 sets per muscle group per week. Advanced users may need as many as 20 a week. Roughly speaking, the volume requirement evolves during a training career as follows: beginners: ~10 sets per muscle group per week intermediates: 10-15 sets per muscle group per week advanced: 15-20 sets per muscle group per week advanced: 20+ sets per muscle group per week In summary: Beginners can grow optimally with 10 sets per muscle group per week. As you get more advanced, the volume requirement grows to about 15-20 sets per muscle group per week. VOLUME PRODUCTIVITY If you look at the scientific literature, the above recommendations are not obvious. Scientific author Chris Beardsley collected and analyzed six relevant, high-quality studies on the effect of training volume on muscle growth (see article). He noticed that the results of these studies differ widely and are more likely to contradict each other. In one study it appeared to make no difference whether you do more or fewer sets, while in the other study an increase in the number of sets led to significantly more muscle growth. How can these differences be explained? Quite simply: actually: through the training frequency. In studies in which high training volume was used (in one study 10 sets per muscle group per week, in another 20 sets per muscle group per week), the training frequency was low. In other words, the weekly amount of growth stimulus was spread over several weeks’ sessions. Doing less volume per session apparently increases the effectiveness of your training. However, in training volume recommendations, most coaches only use direct sets. As a result, the recommended volumes for arms, shoulders and trapezius are lower. After all, these are muscle groups that are also trained indirectly. In summary, For the calculation of training volume, we assume “hard” sets that are trained with medium to heavy weights and with sufficient effort (1-3 RIR). VOLUME REQUIREMENT How much training volume you need to keep growing depends in part on your training status. The more advanced you are, the more volume you need. This is because your body, through adaptation, gradually becomes insensitive to a certain volume. Research shows that beginners can achieve optimal results with about 10 sets per muscle group per week. After one to one and a half years of training you can call yourself intermediate and you will probably no longer have enough of those 10 sets. Instead, aim for 15 sets per muscle group per week. Advanced users may need as many as 20 a week. Roughly speaking, the volume requirement evolves during a training career as follows: beginners: ~10 sets per muscle group per week intermediates: 10-15 sets per muscle group per week advanced: 15-20 sets per muscle group per week advanced: 20+ sets per muscle group per week In summary: Beginners can grow optimally with 10 sets per muscle group per week. As you get more advanced, the volume requirement grows to about 15-20 sets per muscle group per week. VOLUME PRODUCTIVITY If you look at the scientific literature, the above recommendations are not obvious. Scientific author Chris Beardsley collected and analyzed six relevant, high-quality studies on the effect of training volume on muscle growth (see article). He noticed that the results of these studies differ widely and are more likely to contradict each other. In one study it appeared to make no difference whether you do more or fewer sets, while in the other study an increase in the number of sets led to significantly more muscle growth. How can these differences be explained? Quite simply: actually: through the training frequency. In studies in which high training volume was used (in one study 10 sets per muscle group per week, in another 20 sets per muscle group per week), the training frequency was low. In other words, the weekly amount of growth stimulus was spread over several weeks’ sessions. Doing less volume per session apparently increases the effectiveness of your training. However, in training volume recommendations, most coaches only use direct sets. As a result, the recommended volumes for arms, shoulders and trapezius are lower. After all, these are muscle groups that are also trained indirectly. In summary, For the calculation of training volume, we assume “hard” sets that are trained with medium to heavy weights and with sufficient effort (1-3 RIR). VOLUME REQUIREMENT How much training volume you need to keep growing depends in part on your training status. The more advanced you are, the more volume you need. This is because your body, through adaptation, gradually becomes insensitive to a certain volume. Research shows that beginners can achieve optimal results with about 10 sets per muscle group per week. After one to one and a half years of training you can call yourself intermediate and you will probably no longer have enough of those 10 sets. Instead, aim for 15 sets per muscle group per week. Advanced users may need as many as 20 a week. Roughly speaking, the volume requirement evolves during a training career as follows: beginners: ~10 sets per muscle group per week intermediates: 10-15 sets per muscle group per week advanced: 15-20 sets per muscle group per week advanced: 20+ sets per muscle group per week In summary: Beginners can grow optimally with 10 sets per muscle group per week. As you get more advanced, the volume requirement grows to about 15-20 sets per muscle group per week. VOLUME PRODUCTIVITY If you look at the scientific literature, the above recommendations are not obvious. Scientific author Chris Beardsley collected and analyzed six relevant, high-quality studies on the effect of training volume on muscle growth (see article). He noticed that the results of these studies differ widely and are more likely to contradict each other. In one study it appeared to make no difference whether you do more or fewer sets, while in the other study an increase in the number of sets led to significantly more muscle growth. How can these differences be explained? Quite simply: actually: through the training frequency. In studies in which high training volume was used (in one study 10 sets per muscle group per week, in another 20 sets per muscle group per week), the training frequency was low. In other words, the weekly amount of growth stimulus was spread over several weeks’ sessions. Doing less volume per session apparently increases the effectiveness of your training. However, in training volume recommendations, most coaches only use direct sets. As a result, the recommended volumes for arms, shoulders and trapezius are lower. After all, these are muscle groups that are also trained indirectly. In summary, For the calculation of training volume, we assume “hard” sets that are trained with medium to heavy weights and with sufficient effort (1-3 RIR). VOLUME REQUIREMENT How much training volume you need to keep growing depends in part on your training status. The more advanced you are, the more volume you need. This is because your body, through adaptation, gradually becomes insensitive to a certain volume. Research shows that beginners can achieve optimal results with about 10 sets per muscle group per week. After one to one and a half years of training you can call yourself intermediate and you will probably no longer have enough of those 10 sets. Instead, aim for 15 sets per muscle group per week. Advanced users may need as many as 20 a week. Roughly speaking, the volume requirement evolves during a training career as follows: beginners: ~10 sets per muscle group per week intermediates: 10-15 sets per muscle group per week advanced: 15-20 sets per muscle group per week advanced: 20+ sets per muscle group per week In summary: Beginners can grow optimally with 10 sets per muscle group per week. As you get more advanced, the volume requirement grows to about 15-20 sets per muscle group per week. VOLUME PRODUCTIVITY If you look at the scientific literature, the above recommendations are not obvious. Scientific author Chris Beardsley collected and analyzed six relevant, high-quality studies on the effect of training volume on muscle growth (see article). He noticed that the results of these studies differ widely and are more likely to contradict each other. In one study it appeared to make no difference whether you do more or fewer sets, while in the other study an increase in the number of sets led to significantly more muscle growth. How can these differences be explained? Quite simply: actually: through the training frequency. In studies in which high training volume was used (in one study 10 sets per muscle group per week, in another 20 sets per muscle group per week), the training frequency was low. In other words, the weekly amount of growth stimulus was spread over several weeks’ sessions. Doing less volume per session apparently increases the effectiveness of your training. However, in training volume recommendations, most coaches only use direct sets. As a result, the recommended volumes for arms, shoulders and trapezius are lower. After all, these are muscle groups that are also trained indirectly. In summary, For the calculation of training volume, we assume “hard” sets that are trained with medium to heavy weights and with sufficient effort (1-3 RIR). VOLUME REQUIREMENT How much training volume you need to keep growing depends in part on your training status. The more advanced you are, the more volume you need. This is because your body, through adaptation, gradually becomes insensitive to a certain volume. Research shows that beginners can achieve optimal results with about 10 sets per muscle group per week. After one to one and a half years of training you can call yourself intermediate and you will probably no longer have enough of those 10 sets. Instead, aim for 15 sets per muscle group per week. Advanced users may need as many as 20 a week. Roughly speaking, the volume requirement evolves during a training career as follows: beginners: ~10 sets per muscle group per week intermediates: 10-15 sets per muscle group per week advanced: 15-20 sets per muscle group per week advanced: 20+ sets per muscle group per week In summary: Beginners can grow optimally with 10 sets per muscle group per week. As you get more advanced, the volume requirement grows to about 15-20 sets per muscle group per week. VOLUME PRODUCTIVITY If you look at the scientific literature, the above recommendations are not obvious. Scientific author Chris Beardsley collected and analyzed six relevant, high-quality studies on the effect of training volume on muscle growth (see article). He noticed that the results of these studies differ widely and are more likely to contradict each other. In one study it appeared to make no difference whether you do more or fewer sets, while in the other study an increase in the number of sets led to significantly more muscle growth. How can these differences be explained? Quite simply: actually: through the training frequency. In studies in which high training volume was used (in one study 10 sets per muscle group per week, in another 20 sets per muscle group per week), the training frequency was low. In other words, the weekly amount of growth stimulus was spread over several weeks’ sessions. Doing less volume per session apparently increases the effectiveness of your training. However, in training volume recommendations, most coaches only use direct sets. As a result, the recommended volumes for arms, shoulders and trapezius are lower. After all, these are muscle groups that are also trained indirectly. In summary, For the calculation of training volume, we assume “hard” sets that are trained with medium to heavy weights and with sufficient effort (1-3 RIR). VOLUME REQUIREMENT How much training volume you need to keep growing depends in part on your training status. The more advanced you are, the more volume you need. This is because your body, through adaptation, gradually becomes insensitive to a certain volume. Research shows that beginners can achieve optimal results with about 10 sets per muscle group per week. After one to one and a half years of training you can call yourself intermediate and you will probably no longer have enough of those 10 sets. Instead, aim for 15 sets per muscle group per week. Advanced users may need as many as 20 a week. Roughly speaking, the volume requirement evolves during a training career as follows: beginners: ~10 sets per muscle group per week intermediates: 10-15 sets per muscle group per week advanced: 15