Pull-up Training Guide

(Updated 15 January 2019)

Current max set of pull-ups	**Recommended Training Set** (typically 1/4 to 1/3 of max set)	**Recommended Volume (# of repetitions)**		**Sample Rep Schemes**		
		Daily Volume (reps) (perform ~3-5 sessions per day)	**Weekly Volume (reps)** (practice 3-5 days per week)	**Straight Sets** (same qty each set)	**Ladders** (different qty each set)	**Pyramids** (different qty each set)
0 reps	**1 pull-up progression** **Pull-up progression: Partner-assisted pull-ups, partial range of motion (ROM) pull-ups, jumping pull-ups, or negatives* **The most effective progression is the partner-assisted pull-up (with a back spot)* **Aim for 3-7 second descent on negatives*	**Accumulate ~10 to 20+ reps of any combination of pull-up progressions throughout the day** **Always choose partner-assisted pull-ups when a partner is available; perform other pull-up progressions when no partner is available* **Do multiple sets & sessions/day* **Do a lot of pull-up progressions, but stop short of failure during each set/session*	**Accumulate ~30-80+ reps of any combination of pull-up progressions during the week** **Each day that you practice pull-ups, try to meet or exceed the volume (total qty of reps) from the last training session*	**1** rep per set 5 sets of **1** pull-up progression (repeat 3-4 times/day) **Rest: ~15-30 seconds between "sets"* **Recover: 3 min or more between "sessions"* **Repeat: as many times as possible without burning out*	**N/A**	**N/A**
1-4 reps	**1 pull-up/2 pull-up progressions** **Do as many sets of 1 strict pull-up as possible without burning out.* **If strict pull-ups become too taxing, increase rest time or switch to pull-up progressions to avoid muscular exhaustion and achieve target volume*	**Accumulate ~10 to 20 reps of pull-ups (or combination of pull-ups + pull-up progressions) throughout the day** **Do a lot of pull-up progressions, but stop short of failure during each set/session* **It is not necessary to be sore to get better at pull-ups; progressive overload can be achieved w/moderate intensity*	**Accumulate ~30 to 80 reps of pull-ups (or combination of pull-ups + pull-up progressions) during the week** **Over time, increase daily and weekly volume* **Increasing volume will increase one's max set* **Each day that you practice pull-ups, the goal is to match or exceed the volume from the last training session*	**1** rep per set 3 sets of **1** pull-up (repeat 3-5 times/day) **Rest: 20-60 sec between "sets"* **Recover: 3 min or more between "sessions"* **Repeat: as many times as possible without burning out*	**2** reps = top of ladder **1** pull-up, **2** pull-up progressions x 2 (repeat 3-5 times/day) **When doing ladders, sets should consist of 1 strict pull-up and any 2 pull-up progressions (partner-assisted pull-ups are best)*	**2** reps = top of pyramid **1** pull-up, **2** pull-up progressions, **1** pull-up x 1 (repeat 3-5 times/day) **When doing pyramids, sets should consist of 1 strict pull-up and any 2 pull-up progressions (partner-assisted pull-ups are best), followed by 1 strict pull-up*

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		Daily Volume (Reps) (perform ~3-5 sessions per day)	**Weekly Volume (Reps)** (practice 3-5 days per week)	**Straight Sets** (same qty each set)	**Ladders** (different qty each set)	**Pyramids** (different qty each set)
5-8 reps	**~2 pull-ups** **When your current training set gets easy, increase it*	**Accumulate ~20-40 pull-ups throughout the day** **Intensity-level should promote "moderate" muscular fatigue, not exhaustion!*	**Accumulate ~60-160 pull-ups during the week**	**2** reps per set 4 sets x **2** pull-ups (repeat ~3-5 times/day)	**2** reps = top of ladder 1, **2** pull-ups x 3 (repeat ~3-4 times/day)	**2** reps = top of pyramid 1,**2**,1 pull-ups x 2 (repeat ~3-5 times/day)
9-11 reps	**~3 pull-ups** **Increasing your training set will allow you to accumulate more volume*	**Accumulate ~30-50 pull-ups throughout the day** *Do a lot of "sub-max" sets; stop short of failure!*	**Accumulate ~90-200 pull-ups during the week**	**3** reps per set 4 sets x **3** pull-ups (repeat ~3-4 times/day)	**3** reps = top of ladder 1,2,**3** pull-ups x 2 (repeat ~3-4 times/day)	**3** reps = top of pyramid 1,2,**3**,2,1 pull-ups x 1 (repeat ~3-5 times/day)
12-14 reps	**~4 pull-ups** **Increasing daily/ weekly volume will increase your max set*	**Accumulate ~40-70 pull-ups throughout the day**	**Accumulate ~120-280 pull-ups during the week**	**4** reps per set 4 sets of **4** pull-ups (repeat ~3-5 times/day)	**4** reps = top of ladder 1,2,3,**4** pull-ups x 2 (repeat ~2-3 times/day)	**4** reps = top of pyramid 1,2,3,**4**,3,2,1 pull-ups x 1 (repeat ~3-4 times/day)
15-17 reps	**~5 pull-ups** **Do a max set once per month to test progress*	**Accumulate ~50-90 pull-ups throughout the day**	**Accumulate ~150-360 pull-ups during the week**	**5** reps per set 4 sets of **5** pull-ups (repeat ~3-4 times/day)	**5** reps = top of ladder 1,2,3,4,**5** pull-ups x 2 (repeat ~2-3 times/day)	**5** reps = top of pyramid 1,2,3,4,**5,**4,3,2,1 pull-ups x 1 (repeat ~2-3 times/day)
18-20 reps	**~6 pull-ups**	**Accumulate ~60-110 pull-ups throughout the day**	**Accumulate ~180-440 pull-ups during the week**	**6** reps per set 4 sets of **6** pull-ups (repeat ~3-4 times/day)	**6** reps = top of ladder 1,2,3,4,5,**6** pull-ups x 1 (repeat ~3-5 times/day)	**6** reps = top of pyramid 1,2,3,4,5,**6,**5,4,3,2,1 pull-ups x 1 (repeat ~2-3 times/day)
21-23 reps	**~7 pull-ups**	**Accumulate ~70-140 pull-ups throughout the day**	**Accumulate ~210-560 pull-ups during the week**	**7** reps per set 4 sets of **7** pull-ups (repeat ~3-4 times/day)	**7** reps = top of ladder 1,2,3,4,5,6,**7** pull-ups x 1 (repeat ~3-5 times/day)	**7** reps = top of pyramid 1,2,3,4,5,6,**7,**6,5,4,3,2,1 pull ups x 1 (repeat ~2-3 times/ day)
24+ reps	**~8 pull-ups**	**Accumulate ~80-160 pull-ups throughout the day**	**Accumulate ~240-640 pull-ups during the week**	**8** reps per set 4 sets of **8** pull-ups (repeat ~3-5 times/day)	**8** reps = top of ladder 1,2,3,4,5,6,7,**8** pull-ups x 1 (repeat ~3-4 times/day)	**8** reps = top of pyramid 1,2,3,4,5,6,7,**8**,7,6,5,4,3,2,1 pull-ups x 1 (repeat ~2 times/ day)

Pull-up Training Principles
(Specificity + Frequent Practice = Success)

Of the many training principles, "specificity" and "frequent practice" are critical to learning a new exercise and improving performance. The reason is the body will positively adapt to biomechanical and neurological stressors if applied in a specific, progressive manner. When it comes to frequent practice, however, it is important to note that the body must be exposed to a tension that is above and beyond what was previously experienced for muscular strength and endurance to be gained. This principle is known as "progressive overload." Simply put, in order to get stronger, you must make your muscles work harder than they are used to working. However, *moderate intensity* is all that is required to force your muscles to adapt. On the other hand, "high intensity" training sessions performed too frequently are counter-productive, for they exhaust the central nervous system. You do not need to elicit delayed onset muscle soreness to improve. All you need to do is perform sub-max sets of pull-ups frequently. Doing so will strengthen the nerve impulses to the muscles involved and make them more enduring, which will make pull-ups easier to perform. In other words, do the thing you want to get good at, do it often at moderate intensity, and you will succeed!

Specificity: To get better at pull-ups, do more pull-ups. To learn a pull-up, do pull-up progressions: vertical pulling exercises on a bar using only your body weight, gravity, and a partner to train. (Ditch the pull-up assist machines and bands!) During pull-up training sessions, expend your energy on the bar, not on supplementary strength training exercises. Do supplementary strength training exercises after you are done practicing pull-ups or during your normal workout.

Frequency: Aim to do pull-ups 3-5 times per day, 3-5 days per week (more is better, but never do more reps that your body can tolerate). If you perform multiple sessions of pull-ups throughout the day rather than just one session, you can perform more pull-ups without burning out.

Volume: Aim for high volume (lots of reps, sets, and sessions). Too little volume risks not providing enough training stimulus to signal your body to make adaptations, but never do more reps that your body can tolerate. As you get stronger and more efficient, increase the volume you accomplish daily and weekly.

Repetitions: Keep rep schemes low to promote attainment of high volume without burning out. The highest set performed should *usually* be 1/4 to 1/3 of one's max set. Avoid going above 1/2 of one's max set. Increase the number of reps in your training set over time to increase your overall max set.

Intensity: Aim for "moderate intensity" during most training sessions. The highest set of repetitions should be terminated short of failure and should stay below 50% of your max set. Max effort sets are considered "high-intensity" and should be performed infrequently (during the PFT, to check progress). On the other hand, sub-max sets should be performed frequently. They train muscles to be more aerobic, which increases muscular endurance by frequently pushing muscles to mild acidity and backing off before the real burn of glycolysis starts.

Variability: Vary the volume by doing more pull-ups on some days and less on other days to optimize results. For example, if your goal is 100 pull-ups in a week, instead of doing 25 pull-ups a day for four days, you should instead do 25, 20, 30, 25 pull-ups. Also, occasionally vary the intensity (low moderate, moderate, high moderate) by going a bit closer to failure on some days (but still stopping short of muscular fatigue).

Duration: Pull-up training sessions typically last between 5-10 min (15-30 min daily), but they may be shorter/longer as needed to finish targeted volume.

Recovery: The time between sets should be sufficient to accomplish the next set. For most athletes, the time between sets within a ladder/pyramid should be 10-15 seconds; the time between ladders/pyramids should be 3+ minutes; and the time between straight sets should be 1+ minutes (within the same training session).

Rest: Rest 1-2 days per week (at least 1 day per week, and more if necessary). Inadequate rest will hinder your body's ability to recover and can be counter-productive to progress. Even though you are stopping short of failure most of the time, it is still possible to over train and/or become injured. Athletes should make an effort to gradually build volume over time while making sure their bodies can handle the load. Listen to your body. Some people might not be able to tolerate the recommended volume in this program. If your elbows, etc. are overly tender or sore, you should rest, reduce training volume, reduce training frequency, reduce training days, and/or seek medical treatment.

Quality: Always strive for perfect quality. The number of repetitions is secondary. Poor quality work will prevent you from getting the most from your training session and can lead to injury. Quality = tight/hollow body; active shoulders; full range of motion; no kip/jerk; head neutral (do not lift chin).

Pull-up Training Tips

Points of Performance: Set-up: Mount the bar with a firm grip and arms fully extended (dead-hang) with pinky knuckle over the top of the bar; pull shoulders down with lats (opposite of shrugging); tuck pelvis/pull rib cage down, tighten abs, squeeze glutes (hollow position); place feet directly beneath or slightly forward of hips; do not cross or bend legs (unless bar is too short). Execution: Stay tight, lean back, squeeze shoulder blades together (contract last), and bend elbows (rather than pulling with hands); keep pulling until chin is all the way over the bar; keep head neutral (do not lift chin); do not kip or jerk.

Training Sets: A useful technique to ensure the chosen rep scheme provides the appropriate amount of stimulus (intensity/is to use "training sets." A training set is a specified number of repetitions unique to each person's level of conditioning that can be performed multiple times in a row without burning out. If you are doing a moderate intensity workout, and you feel yourself coming close to failure as you approach your training set, stop before you fail. On your next ladder, subtract one from your training set. Or, take a longer break before beginning your next ladder and keep your training set the same.

Training sets require some experimentation to determine the optimal quantity of reps. Estimate your training set by performing a max set of strict pull-ups then dividing the total by 3 or 4; your training set is typically somewhere between 1/4 to 1/3 of your max set. For example, if a person's max set of pull-ups is 16 repetitions, his or her training set would be 4 or 5.

Validate your training set by doing an "ascending" pull-up ladder: start with 1 pull-up, adding one rep per set. Recover 10-20 seconds between sets. Keep increasing the number of reps in each set by one, paying particular attention to when you feel yourself begin to struggle. Keep going up the ladder until you miss a set. The highest set of pull-ups successfully performed without excessive fatigue are failure is your "training set."

Pavel's Ladder: In addition to determining one's training set, ladders are a particularly effective rep scheme for accumulating a lot of pull-ups without burning out. Essentially, ladders give the athlete the ability to better control the intensity of the training session.

"I Go, You Go": One technique for timing sets is the "I go, you go" approach. The "I go, you go" approach can be used for any rep scheme. This method is used by the Soviet Special Forces to meet the Spetsnaz requirement of 18 dead hang pull-ups wearing a 22 pound bullet-proof vest.

It goes like this: you do one pull-up and drop off the bar. Then your partner immediately does one pull-up and drops off the bar. You immediately do two pull-ups, and then your partner does two pull-ups. You do three, then your partner does three, etc. Once each of you reaches the top "rung" of your ladder (training set), take a break.

Once you are sufficiently recovered (1-3 minutes), start your next ladder again with one pull-up. Or, come back later in the day to do your next ladder. If you train alone, simply time the recovery between each set by estimating how long it would take a partner to match your repetitions (about 10-20 seconds).

Add weight: If you have reached a plateau, or if you want to train for higher intensity, add weight. You do not have to add a lot of weight (5-15 lbs.) to be effective. Doing pull-ups in boots and utilities is one method to add weight. You may need to subtract 'one' from your training set when adding heavier weights.

Add pauses: Pause briefly at the top, bottom, and/or middle position of the pull-up. Pausing ensures full range of motion and increases the level of difficulty.

Do chest to bar pull-ups: Touch your chest (or neck) to the bar (without kipping). This forces you to pull 'higher,' making the exercise more difficult.

Do "L" pull-ups: "L" pull-ups are challenging and a great way to add difficulty without the burden of extra equipment (such as weight vests). Form an "L" with your legs and your body while hanging on the pull-up bar in the bottom position. Your legs should be at a 90 degree angle with your torso, straight and parallel to the deck (or as close as you can get). Pause briefly. Keep your legs parallel to the deck as you pull-up as well as when you lower yourself.

Pull-up Progressions Explained

Partner-Assisted Pull-ups: The best pull-up progression exercise is the partner-assisted pull-up. A partner helps you with the "pulling up" (concentric) portion of the pull-up by "spotting" you on your back. The concept is similar to using assistance bands or pull-up assist machines, where the weight of the athlete on the bar is reduced. Partner-assisted pull-ups are better than bands and machines because they more closely resemble the mechanics of a bodyweight pull-up. They also provide the right amount of assistance at the right time. Most importantly, they allow an athlete to practice initiating a pull-up (retract their scapulae) from a dead-hang, which is the hardest part of the pull-up.

How to do it: Start by grabbing the bar with your desired grip (palms facing or away from you). Come to a dead hang. Pull yourself up as far as you can go. Your partner should *wait* to spot you until you have no more upward momentum. Another key point is that partners should provide assistance by grabbing your mid/upper back with their hands rather than "holding your feet." Most trainers discourage holding the feet for the same reason they dislike the pull-up assist machines—holding a person's feet provides "too much" assistance which allows you to recruit your legs to push you up and not use your core stabilizers. It is also safer to spot someone on their back/shoulders than their feet. Finally, spotters should provide enough assistance to prevent the athlete on the bar from burning out.

Partial Range of Motion (ROM) Pull-ups: A partial ROM pull-up is when you perform as much of the concentric portion of the pull-up as possible without assistance. either do not go all the way up, or all the way down, or do or both (anywhere from 1/4 to 3/4 ROM). If you can already perform a full body-weight pull-up, some trainers advise against partial ROM pull-ups. The problem is if you have not yet conditioned yourself to perform a full ROM, full body-weight pull-up, why not practice part of the pull-up? Partial ROM pull-ups are an especially good choice if a partner is not available to spot you. For some people, the most difficult part of the pull-up is initiating it from a dead hang. For others, the sticking point is in the middle or near the top of the pull-up. In any case, if you practice pulling up as far as you can go, eventually it will become easier. When it becomes easier, you will be able to pull higher.

How to do it: To do a partial ROM pull-up from the *bottom* position, start by grabbing the bar with your desired grip (palms facing or away from you). Come to a complete dead-hang (this is important) then pull yourself half way up (or as far as you can go), lower yourself, and repeat. To do a partial ROM pull-up from the *top* position, get your chin above the bar, pause briefly, then lower yourself half way down (or to your eyeballs if half way down is too far), then pull yourself back up until your chin is above the bar, and repeat. Partial ROM from the top position of the pull-up train the abdominal muscles in particular.

Body-Weight Negatives: One of the best pull-up progression exercises is the negative. They are a highly effective technique to train your central nervous system to learn the mechanics of a pull-up while simultaneously building strength. The negative refers to the lowering portion (second half) of the pull-up exercise, also known as the eccentric portion. Essentially, eccentric training stimulates "synaptic potentiation"—it strengthens and develops muscle fibers exceptionally well by facilitating greater force production, resulting in a boost of endurance. The idea of a negative is to make your muscles work *harder* by deliberately *resisting* gravity on the way down. This is easier than pulling up because people tend to be one and a half times stronger during the eccentric portion of an exercise. Even though you may feel like it is effortless to lower yourself from the bar, your muscles are still working in order to return your body to its starting (safe) position.

How to do it: Start by grabbing the bar with your desired grip (palms facing or away from you). They are easier to do with the chin-up grip. Use a chair, step, or partner to help you get your chin above the bar. This is the starting position for a negative and is known as the "top" position of the pull-up. Hold the top position briefly before slowly lowering yourself. Aim for a controlled, 3 to 7 second descent per negative. It might be hard in the beginning to control your decent, but with practice you will be able to lower yourself more slowly. Keep the negative movement slow and controlled and engage the upper body muscles to create tension throughout the exercise. Once you are in the "bottom" position with arms ***fully*** extended (dead-hang), dismount the bar, recover, and repeat.

Weighted Negatives: Add 5 to 10 pounds of weight. Wearing a light weight vest or an empty plate carrier is a good way to introduce external load in this exercise. You may need to reduce the length of your descent when adding weight. Progress to more weight and longer descents as adaptation occurs

Pausing Negatives: This is a form of physical exercise in which a set of muscles is tensed/flexed briefly (isometric contraction). The FAH is an example of an isometric exercise. Of note, it is especially helpful to practice isometrics with your chin below the bar, since the top position of the pull-up easier to hold.

How to do it: Start by grabbing the bar with your desired grip (palms facing or away from you). Use a chair, step, or partner to help you get your chin above the bar. Hold the top position (flexed-arm hang) briefly before slowly lowering yourself. Pause at any point on the way down, such as when your elbow is at a 90-degree right angle, and hold there for 3-7 seconds before lowering completely to the bottom position. It is especially helpful to pause at a point where you experience the most difficulty resisting gravity on the way down. You may also pause at more than one point on the way down.

Weighted + Pausing Negatives: Do weighted holds at the top/bottom position or at your weakest areas on the way down. Wearing a light weight vest (5-10 lbs.) or an empty plate carrier is a good way to introduce external load in this exercise. Progress to more weight as adaptation occurs.

Jumping Pull-Ups: Jumping pull-ups are effective because they strengthen the nerve impulses of the exact muscles necessary for full body-weight pull-ups by using explosive pushing, jumping, and pulling strength. Jumping pull-ups focus on and provide assistance with the pulling up (concentric) portion of the exercise by allowing you to use your legs to defeat gravity and help propel your body to the top position.

How to do it: Start by ensuring the height of the bar is adequate (not too tall or too short). While standing directly below the pull-up bar with your arms out-stretched above your head, the bar should fall somewhere between your forearms and "just beyond" your finger-tips. Essentially, the height of the bar is adequate if you can either reach the pull-up bar from the standing position or if you can reach it by jumping from the ground. The taller the bar, the harder the jumping pull-up will be; the lower the bar, the easier the jumping pull-up will be. If the bar is too tall, you may "shorten" it by using a plyo box or stacking bumper plates. But in either case, you should have a sturdy platform from which to "jump off" in the execution of this pull-up progression. Once you determine the height is correct, bend down, jump upward, and grab the bar with your desired grip. Go right into a pull-up without pausing, using your momentum to help you get your chin above the bar. This is one rep. Lower yourself, dismount the bar, and repeat. As adaptation occurs, add weight (weight vest or plate carrier).

Jumping Negatives: A "jumping negative" is more challenging than either the strict negative or jumping pull-up alone. Basically, these are exactly the same as a negative except you jump from the ground to get your chin above the bar instead of using some other form of assistance (such as a step, chair, or box).

How to do it: Position yourself below the bar, then bend down, jump upward, and grab the bar with your desired grip. Go right into a pull-up without pausing, using your momentum to help you get your chin above the bar. Hold the top position briefly before lowering yourself slowly. Aim for a controlled, 3 to 6 second descent. Once you are in the bottom position with arms fully extended, dismount the bar and repeat. As adaptation occurs, add weight (weight vest or plate carrier).

Equipment Assisted Pull-ups: If you do not have a partner, you may also use a box (or chair) to give you the extra "boost" you need to overcome gravity. You may also use assistance bands or pull-up assist machines. However, be sure not to become too reliant on the assistance. For example, some people get "stuck" on the bands or machines because they do not know how to progress off of them. Additionally, equipment such as pull-up bands and pull-up assist machines are not necessary if a person can do a body-weight negative. Finally, consider other options to equipment assisted pull-ups, such as jumping pull-ups, dead hangs, modified L-sits, ring rows, etc.

How to do it: Place the box (or chair) directly below, slightly in front, or slightly behind the bar depending on how much assistance you need. You can place your entire foot or just your toes on the box. Keep your feet on the box as you push through with your legs to make up for any strength deficit in your upper body. Make up for any lack of strength in your upper body with support from your legs. Be sure to use a majority of your upper body to do the pull. When you've mastered two feet, switch to having only one foot on the box at a time. If using a pull-up assist band, the following web-site provides instruction: http://www.youtube.com/watch?v=UX890SrROhQ.

Supplementary Exercises

Dead-Hangs: The dead hang is a simple exercise that involves hanging from a bar in a neutral, hollow-body position and is a great way to develop grip, forearm, and midsection strength, which are fundamental to pull-ups. It is also a great way to get pull-up novices comfortable being on a pull-up bar, in addition to feeling their full weight against gravity.

How to do it: Grip an overhead bar (or rings) and hang with feet suspended from the floor with arms fully extended. Pull your arms down into your shoulder sockets, and keep the chest up to fully engage the back muscles and to keep your arms from feeling like they are being pulled from their sockets. The body should be in a "hollow" position; rib-cage pulled down, abs and glutes tight, legs straight and together. Hang from the bar without losing form. Work on timing how many seconds you can hold the bar before your grip or shoulders give out. Aim for 15-45 second holds. As adaptation occurs, add weight.

Thick bar hangs: If your grip is already pretty strong, you can try things like "thick" bar hangs (use thick grips or wrap a towel around the bar to make the bar thicker), four or three-finger hangs, one-arm hangs, and so on.

Hanging Scapular Retractions: The hanging scapular retraction primarily targets the traps, shoulders, lats, and middle back. Like the dead hang, it is a great way to develop grip, forearm, and midsection strength, as well as learn how to initiate a pull-up.

How to do it: Mount a pull-up bar with a grip that is wider than shoulder-width. Pull your shoulders down/back with your lats (opposite of shrugging), and keep the chest up to fully engage the back muscles and to keep your arms from feeling like they are being pulled from their sockets. The body should be in a "hollow" position; rib-cage pulled down, abs and glutes tight, legs straight and together. Lean back and pull your shoulder blades down and together, without moving your arms (body will move up slightly). Hold this position for 3-5 seconds. Repeat. As adaptation occurs, begin to wear a weight vest or plate carrier.

Hanging Leg Raises: Hanging leg raises are a great way to develop grip, forearm, and midsection strength.

How to do it: Grip an overhead bar (or rings) and hang with feet suspended from the floor with arms fully extended. Pull your arms down into your shoulder sockets, pull your shoulders down/back with your lats (opposite of shrugging), and keep the chest up to fully engage the back muscles and to keep your arms from feeling like they are being pulled from their sockets. The body should be in a "hollow" position; rib-cage pulled down, abs and glutes tight, legs straight and together. Keep the legs straight, contract your abs, and raise them as far as you can go without kipping. Aim to touch the bar with your toes. If you cannot touch the bar with your toes, go as far as you can: bring your knees to your elbows or to your chest.

Hanging L-Sits: L-sits are a great way to develop grip, forearm, and midsection strength. change your leg position. Doing so will target your abdomen more. The end-state is to be able to hold your legs out in front of you at a 90 degree angle to the ground for a few seconds, also known as an L-sit. If this is too difficult, you may hold your legs out straight at a 45 degree angle position to the ground, or bend your legs and pull just your knees up to a 90 degree angle.

How to do it: Grip an overhead bar (or rings) and hang with feet suspended from the floor with arms fully extended. Pull your arms down into your shoulder sockets, pull your shoulders down/back with your lats (opposite of shrugging), and keep the chest up to fully engage the back muscles and to keep your arms from feeling like they are being pulled from their sockets. The body should be in a "hollow" position; rib-cage pulled down, abs and glutes tight, legs straight and together. Form an "L" with your legs and your body while hanging on the pull-up bar in the bottom position. Your legs should be at a 90 degree angle with your torso and parallel to the deck (or as close as parallel you can get, such as a 45%). Your legs should also be straight. Hold this position for 5 to 10 seconds x several sets. L-sits are challenging and a great way to add difficulty to dead-hangs without the burden of extra equipment (such as weight vests).

Pull-up Training Equipment

Having easy access to a pull-up bar of the appropriate height (at work and at home) is essential to increasing frequency and volume of pull-up training. In addition to accessibility, the height of pull-up bars is critical to success to learning the first pull-up, since it is difficult for athletes to perform pull-up progressions, such as jumping pull-ups, negatives, jumping negatives, partner-assisted pull-ups, etc., if the pull-up bar is too tall.

Of note, the step that is sometimes attached to the side of a vertical pole is helpful in mounting the pull-up bar if a person can already do pull-ups, but most athletes who cannot yet do one pull-up are unable to use this step to do pull-up progressions safely—if at all. For example, jumping pull-ups need a stable, flat platform from which to jump off. Also, if the bar is too tall, partner-assisted pull-ups are difficult as the

The ideal height for a pull-up bar that would accommodate the average female Marine learning pull-ups is 5'10". This would accommodate the average female Marine height of 5'3" tall. A bar at this height will allow a female athletes of average height to stand on the ground and jump to get her chin above the bar to do negatives, jumping pull-ups, etc. The ideal height "range" for a variety of pull-up bars is from 5'8" to 6'6" to accommodate female (or male) athletes doing pull-up progressions.

Door-mounted pull-up bars: These are particularly cheap and easy to install. Also, they are usually low enough to accommodate Marines doing pull-up progressions.

Free-standing pull-up bar tower: Relatively cheap, easy to assemble, and no need to anchor the tower to the ground. A good one is Gold's Gym XR 10.9 Power Tower Pull Up, Dip, Knee Raise and Push Up Station ($105.00). It can be found at Walmart or Amazon.

Adjustable pull-up bar racks: The first link has a pull-up bar that adjusts down to 72 inches (6 feet). The second link has a pull-up bar that adjusts down to 66 inches (5.5 feet). http://www.shop.steelfitstore.com/ ($650.00); http://torqueathletic.com/collections/pull-up-systems (~$500.00)

Plyometric (Plyo) Boxes: These are a cheap and easy way to make pull-up bars "lower." They can be placed under existing pull-up bars that would otherwise be too tall to facilitate the performance of vertical pull-up progressions. Build your own plyo boxes or purchase them. A full set of plyo boxes is ideal since it would accommodate Marines of different heights. Sets range in height from 12", 18", 24", 30", to 36".

Thick bar grips: Training with thick bars promotes grip strength and forearm training. This will make pull-ups seems easy by comparison on a thinner bar.

Gymnastics Rings or TRX suspension equipment: This equipment is especially useful in the performance of supplementary pull-up exercises from underneath a pull-up bar (where the body is in a horizontal rather than vertical positon), such as ring rows.

Pull-up Bands: The following pull-up bands are better than 'all-rubber' pull-up bands: "Perfect Fitness Perfect Pull-up Assist" and the "Chin-up Max-Pull-up Assist Band." They are part rubber, part cloth (red and black). In general, bands are not needed unless a person cannot do a body-weight negative. Even in this case, ring rows, dead-hangs, modified L-sits, etc., should be used in addition to pull-up bands.

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For questions, comments, suggestions, contact me at misty.posey@usmc.mil or visit my website at www.anyonecanlearnandimprovepull-ups.com
I teach free pull-up clinics (personal training, group sessions, train-the-trainer, etc.). Contact me for an appointment in person or over the phone/e-mail.