

Pull-up Training Principles

Of the many training principles, specificity and progressive overload are among the most important in learning a new exercise and improving performance. Together, they contribute to Specific Adaptations to Imposed Demands (SAID). This means that the body will positively adapt to biomechanical and neurological stressors if applied in a specific, progressive manner. The below principles and exercises are a progression framework with the SAID principle in mind.

Specificity: Do pull-ups and pull-up progressions. During your pull-up training sessions, you should expend energy on the bar, not on supplementary exercises.

The first Pull-up: Ditch the pull-up bands and pull-up assist machines. Instead, do partner-assisted pull-ups, negatives, jumping pull-ups, partial range-of-motion pull-ups (from the top and bottom), hanging-leg raises, L-sits, dead-hangs, scapular retractions, hollow rocks, and planks (see Pull-up Progression Exercises).

Quality: Always strive for perfect quality. The number of repetitions is secondary. Poor quality work will prevent you from getting the most from your workout and can lead to injury. Quality = tight body, legs uncrossed, knees unbent, head neutral, do not lift chin at the top; do not jerk/kip; come all the way up and all the way down (if you are working towards your first pull-up, you may do jumping and/or partial range-of-motion pull-ups, etc.).

Frequency: Aim to do pull-ups 3-5 times per day, 3-5 days per week (more is better). If you perform pull-ups throughout the day rather than all in one session, you can usually perform more pull-ups without burning out. Also, breaking the same qty. of reps into smaller sessions is effective at promoting strength adaptation. In other words, one set of 5 pull-ups per day is better than 5 sets of 5 pull-ups on just one day.

Volume: Aim for high volume during most workouts. Too little volume risks not providing enough training stimulus to signal your body to make adaptations. Track your number of pull-ups daily, weekly, and monthly. As you get stronger and more efficient at pull-ups, increase the volume you accomplish daily/weekly/monthly. Vary the volume by doing more pull-ups on some days and less on others to optimize results. For example, if you intend to do 100 pull-ups in a week over 4 days, instead of doing 25 pull-ups x 4 days, you should instead do 22, 35, 28, 15 pull-ups over 4 days. Finally, if you can't meet your target goal for the day, some pull-ups are always better than none.

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 most of the time. Occasionally vary the intensity by going a closer to failure on some days. Because you sacrifice volume at higher intensities, you should limit higher intensity workouts to once per week or two. Max sets (like on the PFT) are considered "high-intensity" and should be performed once per month or so to check progress. Other high-intensity training sessions include ascending ladders to a set above 50% of one's max set, ascending ladders to failure, max weighted pull-up(s), etc. If you go to failure, train only once that day.

Repetitions: Keep rep schemes low to promote the attainment of high volume. The highest set should usually be 1/4 to 1/3 of one's max set (training set). Do not go above 1/2 of one's max set when doing moderate intensity workouts. You should strive to increase the number of reps in your training set over time to ensure the level of intensity remains adequate and to increase your overall max set. You should aim to perform 2 to 4 ladders, pyramids, or straight sets during each training session.

Recovery: The time between sets should be just sufficient to accomplish the next set. For most athletes, the time between sets within a ladder/pyramid should be ~10-20 seconds. Time between ladders/pyramids should be ~3+ minutes (within the same training session). The time between straight sets should be ~1+ minutes (within the same training session).

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.

Rest: Rest at least 2 days per week. Rest 1-2 days after a high intensity workout. Inadequate rest will hinder your body's ability to repair and recover at an ideal rate 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 and intensity 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 shoulders or elbows are overly tender or sore, you should rest, reduce training volume, reduce training frequency, reduce training days, and/or seek medical treatment.

Pull-up Training Tips

Training Sets: A useful technique to ensure the chosen rep scheme provides the appropriate amount of stimulus is to use "training sets." A training set is a specified number of repetitions unique to each person's level of conditioning. Training sets require some experimentation to determine the optimal qty of reps. Over time, the goal is to increase one's training set to 5 or 6 reps. Once you can easily do a couple of ladders in a row up to 5 or 6, with minimal rest in between ladders, your max set of pull-ups is approximately 20 reps

Estimate your training set by performing a max set of strict pull-ups then dividing the total by 4 or 3; 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, add one rep to each subsequent set, and recover between 10-20 seconds between sets. It looks like this: 1 pull-up, 2 pull-ups, 3 pull-ups, etc. Keep increasing the number of reps in each set by one until you feel yourself begin to struggle. Do not go to failure. Stop at the first sign of strain or moderate muscular fatigue, such as a slower pull-up cadence. The highest set of pull-ups successfully performed without excessive fatigue is your training set.

Pavel's Ladders: 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. In the case of strength endurance, ladders work by training muscles to be more aerobic, frequently pushing muscles to mild acidity and backing off before the real burn of glycolysis starts.

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.

"I Go, You Go": One technique for timing sets within the ladder is the, "I go, you go" approach. The "I go, you go" approach can also be used for pyramids. 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 neck/chest to bar pull-ups: Touch your necks or chest 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 Progression Exercises

Partner-Assisted Pull-ups: The best pull-up progression exercise is the partner-assisted pull-up. A partner helps you with the concentric (pulling up) portion of the pull-up by "spotting" you on the way up. By spotting you, your partner allows you to practice the full ROM by reducing some of your body weight. The concept is similar to using assistance bands or pull-up assist machines. The difference is partner-assisted pull-ups more closely resemble the mechanics of a bodyweight pull-up (if done properly). They also provide the right amount of assistance at the right time. Most importantly, they allow an athlete to practice initiating a pull-up from a dead-hang.

How to do it: Start by grabbing the bar with your desired grip (palms facing or away from you). Begin by pulling yourself up as far as you can go. Your partner should *wait* to spot you until you have no more upward momentum. In so doing, the athlete is doing a partial range-of motion (ROM) pull-up at full body-weight before being assisted. This will help you get the most out of your training. Another key point is that partners should provide assistance by pressing on 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 causes you to lose form and allows you to recruit your legs to push you up. It is also safer to spot someone on their back/shoulders.

Partial Range of Motion (ROM) Pull-ups: A partial ROM pull-up is when you 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 descent, 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/Isometric Holds: 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 is 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 and/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 outstretched 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).

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. Hang from the bar without losing form. 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. You may also touch your elbows with your knees.

L-Sits: L-sits 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. 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).

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 is 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, 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. 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. A good start-point is to aim for a minimum of 15 second holds, working towards 30-60 second holds. As adaptation occurs, begin to wear a weight vest or plate carrier.

Variations: 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. You may also add weight with a weight vest or plate carrier. Another option is to 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.

Hollow Rocks: The hollow rock is a staple of gymnastics conditioning and is crucial to learning pull-ups since it facilitates keeping the body tight.

How to do it: Lay face up on the ground with your arms stretched overhead and legs out straight. With lower back touching the ground, keep legs straight and tight together with toes pointed and arms straight and glued to your ears. Tuck your pelvis, tighten your abs, and squeeze your glutes. Raise your arms and legs about one foot off of the floor and attempt to assume the shape of a rocker on a rocking chair (hollow-body), then slowly teeter back and forth without allowing the shape to break at any point. If your shape breaks, you are too extended. You should instead maintain a static hollow body position instead of rocking.

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>.

Pull-up Training Equipment

Having easy access to pull-up bars of the appropriate height (at work and at home) is useful 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 Marines 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 attached to the side of the vertical pole post on a pull-up bar is not sufficient for most pull-up progressions. Most Marines cannot do jumping pull-ups, jumping negatives, etc., safely if at all—from a "step" mounted to the side of a vertical pole post.

Pull-up bars: 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 Marine 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 Marines 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, adjustable pull-up bars: 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 position), 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 (or instead of) bands.

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For questions, comments, suggestions, contact me at misty.posey@usmc.mil.

I teach free pull-up clinics (personal training, group sessions, train-the-trainer, etc.). Contact me for an appointment.

Pull-up Training Guide

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Current max set of strict pull-ups	Training Set (approx. 1/4 to 1/3 of person's max set)	Sample Rep Schemes			Recommended Volume (quantity reps)	
		Straight Sets	Ladder	Pyramid	Daily Volume (3 to 5 sessions per day)	Weekly Volume (3 to 5 days per week)
<1	~3 pull-up progressions Example pull-up progressions: partner assisted pull-ups, negatives, jumping pull-ups, partial range of motion (ROM) pull-ups, dead-hangs, L-sits, hanging leg raises, toes-to-bar/knees-to-elbow, scapular retractions, etc.	3 reps per set Example: X sets of 3 pull-up progressions Such as: 4 sets of 3 jumping pull-ups	3 reps = top rung of ladder Example: 1, 2, 3 reps pull-up progressions = one ladder Such as: 1 partner assisted pull-up, wait 10-20 seconds 2 partner assisted pull-ups, wait 10-20 seconds 3 partner assisted pull-ups, end of ladder	3 reps = top of pyramid Example: 1, 2, 3, 2, 1 pull-up progressions = one pyramid Such as: 1 partial ROM pull-up, wait 10-20 seconds 2 partial ROM pull-ups, wait 10-20 seconds 3 partial ROM pull-ups, wait 10-20 seconds 2 partial ROM pull-ups, wait 10-20 seconds 1 partial ROM pull-up, end of pyramid	Accumulate ~25-50 reps of any combination of partner assisted pull-ups, negatives, jumping pull-ups, and partial ROM pull-ups throughout the day <i>*Athlete should be spotted on the lower/upper back during partner assisted pull-ups & the spotter should provide assistance only after the athlete pulls up as far as s/he can go w/out assistance</i>	Accumulate ~75-150 reps of any combination of partner assisted pull-ups, negatives, jumping pull-ups, and partial ROM pull-ups throughout the week <i>*Aim for high volume and moderate intensity most of the time</i> <i>*Do a lot of sub-max sets: stop a few reps short of failure</i> <i>*Intensity-level should promote "moderate" muscle fatigue, not exhaustion</i> <i>*Quality should always be as perfect as possible</i>
1-5	~1 pull-up / 3 pull-up progressions <i>*The best pull-up progressions are partner-assisted pull-ups, negatives, and jumping pull-ups</i>	1 pull-up; or 3 pull-up progressions; or 1 pull-up + 2 pull-up progressions per set Example: 5 sets of 1 pull-up; or 5 sets of 3 pull-up progressions per set	3 reps = top rung of ladder <i>*Recover 10-20 seconds between sets within a ladder, and 3+ minutes between ladders. Repeat as many times as possible throughout the day without burning out</i>	3 reps = top of pyramid <i>*Recover 10-20 seconds between sets within a pyramid, and 3+ minutes between pyramids. Repeat as many times as possible throughout the day without burning out</i>	Accumulate ~30-60 reps of pull-ups & pull-up progressions throughout the day <i>*Do as many sets of one strict pull-up as possible without burning out, then switch to pull-up progressions</i>	Accumulate ~90-180 reps of any combination of pull-up/pull-up progressions throughout the week

6-8	~2 pull-ups	2 reps per set Example: 5 sets of 2 reps = one straight set	2 reps = top of ladder Example: 1, 2 pull-ups = one ladder	2 reps = top of pyramid Example: 1, 2, 1 pull-ups = one pyramid	Accumulate 40-70 pull-ups throughout the day	Accumulate 120-210 pull-ups throughout the week
9-12	~3 pull-ups	3 reps per set Example: 5 sets of 3 reps = one straight set	3 reps = top of ladder Example: 1,2,3 pull-ups = one ladder	3 reps = top of pyramid Example: 1,2,3,2,1 pull-ups = one pyramid	Accumulate 50-80 pull-ups throughout the day	Accumulate 150-240 pull-ups throughout the week
13-16	~4 pull-ups	4 reps per set Example: 5 sets of 4 reps = one straight set	4 reps = top of ladder Example: 1,2,3,4 pull-ups = one ladder	4 reps = top of pyramid Example: 1,2,3,4,3,2,1 pull-ups = one pyramid	Accumulate 60-90 pull-ups throughout the day	Accumulate 180-270 pull-ups throughout the week
17-20	~5 pull-ups	5 reps per set Example: 5 sets of 5 reps = one straight set	5 reps = top of ladder Example: 1,2,3,4,5 pull-ups = one ladder	5 reps = top of pyramid Example: 1,2,3,4,5,4,3,2,1 pull-ups = one pyramid	Accumulate 75-120 pull-ups throughout the day	Accumulate 225-360 pull-ups throughout the week
21-24	~6 pull-ups	6 reps per set Example: 5 sets of 6 reps = one straight set	6 reps = top of ladder Example: 1,2,3,4,5,6 pull-ups = one ladder	6 reps = top of pyramid Example: 1,2,3,4,5,6,5,4,3,2,1 pull-ups = one pyramid	Accumulate 100-175 pull-ups throughout the day	Accumulate 300-525 pull-ups throughout the week
25+	~7+ pull-ups	7+ reps per set Example: 5 sets of 7 reps = one straight set	7+ reps = top of ladder Example: 1,2,3,4,5,6,7 pull-ups = one ladder	7+ reps = top of pyramid Example: 1,2,3,4,5,6,7,6,5,4,3,2,1 pull-ups = one pyramid	Accumulate 150-250 pull-ups throughout the day	Accumulate 450-750 pull-ups throughout the week

Pull-up Performance Tips

Set up: Tuck your pelvis, tighten your abs (maintain tightness), mount the bar, tightly grip the bar (with pinky knuckle over the top of the bar), pull arms down into your shoulder sockets, pull shoulders down with your lats (opposite of shrugging), squeeze your glutes, re-tighten abs if necessary, keep legs straight and head neutral

Execution: Stay tight, lean back, pull with your elbows (not your hands), pull your elbows to your ribs, pull chin all the way over the bar (do not lift chin), lower, lock out at the bottom

Pull-up Workouts

Refer to the "Pull-up Training Guide" for training sets and target volume for each pull-up ability group.

Ladders: High volume/moderate intensity (10-20 minutes)

RX: Strict pull-ups

Scale: Partner-assisted pull-ups

Athletes should be grouped by ability (based on their training set), with 2-4 athletes per pull-up bar. Using the "I go, you go" technique, athletes should do as many ascending ladders as they can in the time allotted without burning out. The highest set of each athlete's ladder is equivalent to their training set.

Each ladder takes 1-2 minutes to complete, with 3+ minutes of recovery between ladders.

Escalators: High intensity/moderate volume (10-15 minutes)

RX+: Unbroken sets of strict pull-ups

RX: Strict pull-ups (sets may be broken)

Scale: Jumping pull-ups

Every minute on the minute, athletes add one pull-up until they miss a set. Athletes complete as many rounds (minutes) as possible. This is a high intensity workout, so avoid doing it more than once a month.

Athletes may be required to do unbroken sets of pull-ups, or may be allowed to break up their sets of pull-ups, as long as they complete the required quantity of reps within each minute.

When an athlete misses an unbroken set, or fails to accumulate enough total reps within the minute, s/he is out. The goal is to be the last person on the pull-up bar.

Minute 1 = 1 pull-up, minute 2 = 2 pull-ups, minute 3 = 3 pull-ups...until the athlete misses a set.

Pyramids: High volume/moderate intensity (10-20 minutes)

RX: Strict pull-ups

Scale: Partner-assisted pull-ups

Athletes should be grouped by ability (based on their training set), with 2-4 athletes per pull-up bar. Using the "I go, you go" technique, athletes should do as many pyramids as they can in the time allotted without burning out. The highest set of each athlete's pyramid is equivalent to their training set.

Each pyramid takes 1-3 minutes to complete, with 3+ minutes of recovery between pyramids.

Elevators: Moderate to high intensity/low volume (10-20 minutes)

RX: strict pull-ups (RX athletes will also do jumping pull-ups, partial ROM pull-ups, isometric holds, and dead-hangs because of how the training session is designed)

Scale: jumping pull-ups, partial ROM pull-ups, isometric holds, and dead-hangs

Athletes from the same approximate ability group mount the pull-up bars at the same time. Get as many athletes on the pull-up bars at the same time as possible (from the same ability group).

The coach calls out different floors: basement (athletes are laying with their chest on the ground, as in a burpee), ground floor (athletes are standing on the ground directly underneath the pull-up bar), bottom floor (athletes are hanging from the pull-up bar with arms fully extended), middle floor (1/2 way up), top floor (top position, chin above bar), roof-top (chest/neck to bar).

Athletes hold position until the coach calls out the next floor (except "roof top"—athletes automatically return to the down position/bottom floor after a chest-to-bar pull-up). For example, coaches can leave athletes in the bottom position of the pull-up (dead-hang) for several seconds before giving the next command.

Coaches should periodically call the command “ground floor” or “basement” to keep the intensity moderate. It will also give the athletes a break from hanging on the bar, allowing the training sessions to last longer and to increase volume.

Also, when working with novice ability groups, calling the command “top floor” while they are either in the “basement” or “ground floor” will allow them to do a jumping pull-up. Calling the command “middle floor” while they are in the down position (bottom floor) will allow them to do a partial ROM pull-up.

Ability groups are beginner <1 pull-up, novice 1-5 pull-ups, intermediate 6-10 pull-ups, advanced 11-15 pull-ups, expert 16-20 pull-ups. Each ability group will do elevators until the last person remains on the bar (aim for approx. 5 minutes of elevators per ability group).

Elevators are a competition workout, so the goal is to be the last person on the bar.

Bus Stops: High volume/moderate intensity (10-20 minutes)

RX: Strict pull-ups

Scale: Partner-assisted pull-ups

Athletes pause briefly in the top and/or bottom position of the pull-up for a pre-determined number of seconds, or based on a command given by the coach.

Pausing will make pull-ups more difficult, but try to use one’s normal training set. Athletes can use straight sets, ladders, or pyramids when doing pausing pull-ups. Do not go to failure and keep the rep schemes low. During partner assisted pull-ups, the athlete will still pause at the bottom and/or top position of the pull-up. S/he will just get a spot to get into the “up” position.

Moving Walkways: High volume/low to moderate intensity (15-25 minutes)

RX: Strict pull-ups

Scale: Jumping pull-ups

Every 10, 15, 20, or 30 seconds, athletes perform 1 pull-up for a specified number of rounds or until the athlete misses a set.

EMOMs: High volume/moderate intensity (15-20 minutes)

RX: strict pull-ups

Scale: Jumping pull-ups

Every minute, athletes perform a fixed quantity of pull-ups for a specified amount of time (or until the athlete misses a set). The quantity of reps does not increase or change between each minute. Pull-up sets may be broken or unbroken. One technique is to have athletes perform a straight set equivalent to their training set.

Cliffhangers: High volume/moderate intensity (10-20 minutes)

RX: strict pull-ups

Scale: Partial ROM pull-ups

Athletes with similar ability pair up and mount the pull-up bar at the same time. The first athlete executes a pullup while the other hangs in the down position. When the first athlete is finished, s/he remains on the pull-up bar in the down position while the second athlete executes a pull-up. Both dismount. Both remount the bar after they are recovered, and do two pull-ups in this fashion, etc. The goal is to do an ascending pull-up ladder in this fashion until each reaches his/her training set.

Essentially, athletes are using the “I go, you go” approach, but without dismounting the bar between sets. Athletes only dismount the bar between ladders.

If athletes have different training sets, the athlete with the lower training set will remain in the down position until the other finishes. Both athletes are required to work at the same time. If one athlete drops off the bar, the other must stop working. Work may resume when both athletes are on the bar.

Sally: Low volume/high intensity (3 minutes)

RX+: Unbroken sets of strict pull-ups

RX: Strict pull-ups (sets may be broken)

Scale: Jumping pull-ups

Do pull-ups to the song, "Bring Sally Up. Athletes can either stay on the bar the entire time, or come down between reps. The song is 3 minutes long and has 30 pull-ups in it.

Burpee Pull-ups: high volume/moderate intensity (15-20 minutes)

RX: Strict pull-ups

Scale: Jumping pull-ups

Athletes can do straight sets, ladders, or pyramids using their training set, but each pull-up is a "burpee pull-up."

Super-Sets: high volume/moderate intensity (15-20 minutes)

RX: Strict pull-ups/hanging leg-raises

Scale: Jumping pull-ups/knees to elbow

Athletes do a set of pull-ups, then a set of hanging leg-raises. Athletes can do straight sets, ladders, or pyramids using their training set, but each set of pull-ups is matched with a set of hanging leg-raises.

Face Off: low volume/high intensity (1-3 minutes)

RX: Strict pull-ups

Scale: Partial ROM pull-ups

Two athletes of similar ability both mount the bar at the same time. One athlete does one pull-up, while the other hangs on the bar. The second athlete does one pull-up, while the other hangs on the bar, etc. They match each other's sets of "one" pull-up until one misses a set. This is a high intensity workout, so avoid doing it more than once a month.

Essentially, athletes are using the "I go, you go" approach, but without dismounting the bar.

Ladders+: High volume/moderate to high intensity (15-20 minutes)

RX: Strict pull-ups

Scale: Partner-assisted pull-ups

Athletes should be grouped by ability (based on their training set), with 2-4 athletes per pull-up bar. Using the "I go, you go" technique, athletes should do as many ascending ladders as they can in the time allotted without burning out.

The highest set of each athlete's ladder is equivalent to 1/2 (50%) of their max set.

Each ladder takes 2-3 minutes to complete, with 3+ minutes of recovery between ladders.

Pyramids+: High volume/moderate to high intensity (15-20 minutes)

RX: Strict pull-ups

Scale: Partner-assisted pull-ups

Athletes should be grouped by ability (based on their training set), with 2-4 athletes per pull-up bar. Using the "I go, you go" technique, athletes should do as many pyramids as they can in the time allotted without burning out. The highest set of each athlete's pyramid is equivalent to 1/2 (50%) of their max set.

Each pyramid takes 2-4 minutes to complete, with 3+ minutes of recovery between pyramids.

Prepared by: Major M.J. Posey

For questions, comments, suggestions, contact me at misty.posey@usmc.mil.

I teach free pull-up clinics (personal training, group sessions, train-the-trainer, etc.). Contact me for an appointment.

Day 1				Day 2				Day 3				Day 4				Day 5			
Exercise / Movement		Qty	Secs	Exercise / Movement		Qty	Secs	Exercise / Movement		Qty	Secs	Exercise / Movement		Qty	Secs	Exercise / Movement		Qty	Secs
Warm Up				Warm Up				Warm up				Warm up				Warm up			
Pull-up assessment		Max effort	1	Pull-up assessment		Max effort	1	Pull-up assessment		Max effort	1	Pull-up assessment		Max effort	1	Pull-up assessment		Max effort	1
Hollow rocks		10	2	Body-weight negatives		3 seconds	8	Partner assisted pull-ups		1, 2	4	Body-weight negatives		3 seconds	8	Partner assisted pull-ups		1, 2	4
Scapular retractions		5 reps	2	Jumping pull-ups		1 rep	10	Partial ROM pull-ups (from bottom)		1, 2, 1	1	Jumping pull-ups		1 rep	10	Partial ROM pull-ups (from bottom)		1, 2, 1	1
Dead hangs		15, 30, 15 seconds	2	Modified L-Sits		5, 10, 15 seconds	2	Hanging leg raises		1, 2, 1	2	Dead hangs		15, 30, 15 seconds	2	Hanging leg raises		1, 2, 1	2
Planks		Tabata 20 seconds work/ 10 seconds rest	8	Burpees		Tabata 20 seconds work/ 10 seconds rest	8	Sprints		30 sec w/30 sec slow jog recovery between each sprint	6	Body weight (air) squats		Tabata 20 seconds work/ 10 seconds rest	8	400 meter max effort run		5 repeats w/ 400 meter slow jog recovery between each	1

Day 1				Day 2				Day 3				Day 4				Day 5			
Exercises / Movement		Qty	Secs	Exercises / Movement		Qty	Secs	Exercises / Movement		Qty	Secs	Exercises / Movement		Qty	Secs	Exercises / Movement		Qty	Secs
Warm Up				Warm Up				Warm Up				Warm Up				Warm Up			
Pull-up assessment		Max effort	1	Pull-up assessment		Max effort	1	Partner assisted pull-ups		Max effort	1	Pull-up assessment		Max effort	1	Pull-up assessment		Max effort	1
Hollow Rock		10	3	Jumping Negatives		3 seconds	8	Partner assisted pull-ups		3, 2, 1	3	Jumping Negatives		3 seconds	8	Partner assisted pull-ups		3, 2, 1	3
Scapular retractions		5 reps	3	Jumping pull-ups		2 reps	10	Partial ROM pull-ups (from bottom)		1, 2, 3	2	Jumping pull-ups		2 reps	10	Partial ROM pull-ups (from bottom)		1, 2, 3	2
Dead hangs		15, 30, 45 seconds	2	Modified L-sits		10, 15, 20 seconds	2	Hanging leg raises		1, 2, 1	4	Dead hangs		15, 30, 15 seconds	2	Hanging leg raises		1, 2, 1	4
Tabata		20 seconds work/ 10 seconds rest	8	Tabata		20 seconds work 10 seconds rest	8	45 sec w/ 45 sec slow jog recovery between each sprint			6	Tabata		20 seconds work 10 seconds rest	8	3 repeats w/ 800 meter slow jog recovery between each			1
Planks				Burpees				Sprints				Body weight (air) squats				800 meter max effort run			

Day 1						Day 2						Day 3						Day 4						Day 5							
Exercise / Movement						Qty	Sets	Exercise / Movement						Qty	Sets	Exercise / Movement						Qty	Sets	Exercise / Movement						Qty	Sets
Week 5	Warm Up					Warm Up					Warm Up				Warm Up					Warm Up					Warm Up						
	Pull-up assessment					Pull-up assessment					Partner assisted pull-ups				Partner assisted pull-ups					Partner assisted Pullups					Partner assisted Pullups						
	Hollow Hold					Weighted Negatives (10 lbs)					Partial ROM pull-ups (from top)				1, 2, 3, 2, 1					1, 2, 3, 2, 1					1, 2, 3, 2, 1						
	Scapular retractions					3 reps					Jumping pull-ups				3 reps					3 reps					3 reps						
	Dead hangs					15, 30, 45 seconds					1-Sitc				5 seconds					1 min w/ 1 min slow jog recovery between each sprint					15, 30, 45 seconds						
Pinks:						Tabata 20 seconds work/ 10 seconds rest					Tabata 20 seconds work/ 10 seconds rest																				
						16	Burpees								6																

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