

The Secret to Pull-up Success: Specificity + Frequent Practice¹

“It is so obvious, most people don’t get it...If you want to get good at pull-ups, why not try to do...a lot of pull-ups?”
Pavel Tsatsouline, Chairman “Strong First, Inc.,” a School of Strength,
and former Soviet Special Forces Physical Training Instructor

“Of all the exercises, the one with the largest mind game attached to it is the PULL-UP. One thing I have learned is that women AND men CANNOT do pull-ups IF they do not PRACTICE pull-ups. On the flip side, the common denominator among those men AND women who can do dead-hang pull-ups, are those who practice pull-ups.”
Stew Smith, Certified Strength and Conditioning Specialist and former Navy SEAL

When I first joined the Marine Corps, I used to stand on male Marines’ backs to get “lifted” into the starting position for the flexed arm-hang (FAH). Lifting my own body weight was not a requirement, nor did I think I was capable of doing so. A lot has changed since then. I no longer stand on the backs of my buddies because I can now lift my own chin over the bar. My ability, however, is neither unique nor distinct. I do not have a biological advantage over other women nor was I conditioned at an early age to be strong. I was never a gymnast. I did not play team sports as a child, in high-school, or college. I just recently began lifting weights, many years *after* I learned my first pull-up. The reason I succeeded in learning how to lift my chin over the bar was because I learned *how to train* for pull-ups. In other words, do you want to learn and improve pull-ups? I did. So I did it. You can too. The naysayers are wrong. Anyone in reasonable shape can go from 0 to 20+ pull-ups.

I succeeded in learning the elusive first pull-up because I received a crucial bit of pull-up training advice, “Get off the pull-up assist machine and onto a pull-up bar!” A gunnery sergeant who worked in the gym on Marine Corps Recruit Depot San Diego advised me to do partner-assisted pull-ups, negatives, jumping pull-ups, and half pull-ups (partial range-of-motion) instead. He said the pull-up assist machine was a crutch. I was not entirely convinced, but since my approach did not seem to be working, I decided to give his technique a try. To my surprise, after five days of training on the pull-up bar, I did my first pull-up. I had intended to pull myself up as far as I could go, which was about half way, but I kept going and found myself at the top of the bar. I was amazed. After months of struggling, could it be that easy? When I proudly showed the gunny my progress, he said to start doing sets of one pull-up several times a day, every time I came within 100 feet of a pull-up bar. This time, I followed his advice earnestly. Subsequent reps were easier to learn and it was not long before I could do several sets of 5 in a row.

Although many Marines marveled at my pull-up prowess, I knew I was not special and suspected that the key to success was technique and not gender. In the 20 years or so since I figured out how to lift my chin over the bar for the first time, I have researched, studied, trained, and taught pull-ups. Significantly, I have replicated my results with female Marines, male Marines, small women, large women, light women, heavy women, boys, girls, mothers, even grandmothers. Marine Corps Colonel Robin Gallant went from 0 to 15 pull-ups in 9 months. She is 55 years old and a grandmother of ten. By teaching over a hundred Marines and civilians to learn pull-ups, I have discovered that the first pull-up is the most difficult to learn, but absolutely attainable. I also learned that the first pull-up does not require several months to achieve; it is possible to go from 0-to-1 in weeks, days, or minutes. I also observed that after the first pull-up, progress thereafter is much easier. It is not uncommon for people to add a pull-up a week to their max score using the techniques I discovered. Thus, the below information is intended to help Marines conquer their first strict pull-up and master 20+ repetitions as quickly as possible. The PFT aside, mastering pull-ups is essential for all Marines, for the battlefield is non-linear. Being strong is crucial in a combat environment, and an essential aspect of strength includes the ability to move one’s body through resistance and effectively handle one’s body weight. Pull-ups are one of the best exercises for building this kind of dynamic upper-body strength and functional fitness and they have a direct correlation to a variety of physically-demanding combat tasks and occupational activities.² The good news is there is nothing magical about pull-ups. They can be achieved by anyone with the correct progression and determination.

Overcoming the Psychological Barrier

“Ma’am...I just wanted to send you a quick note thanking you for inspiring me to learn pull ups. My excuse before was that I didn’t want to even attempt them because I was embarrassed for not being able to do any. I previously had always struggled with them and was easily discouraged...”

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Many civilian athletes, like female Marines, have the goal of learning strict pull-ups. They are an indicator of athletic prowess; learn a pull-up and you are the master of your own strength. Pull-ups, however, have taken on a

mystique all their own. The reason is learning to perform even one repetition usually requires specific skill-work, which is not the case with most other exercises, such as the push-up. Thus, even though pull-ups are a “learned skill” rather than an “innate capability,” women often believe they cannot learn one pull-up—let alone twenty. For female Marines, this psychological barrier is partially due to the existence of the 40 year-old requirement to perform the FAH on the physical fitness test (PFT). The FAH has created a false perception of women’s physical potential. Many think that physical weakness is their natural and *irreversible* condition. The belief that the *average* woman is incapable of lifting her own body weight is why some individuals oppose the Marine Corps’ decision to transition to pull-ups for female Marines—they think it is unfair. This erroneous belief is deepened when they observe some female Marines train diligently but struggle to do one pull-up. On the other hand, people *expect* men to do pull-ups. Male Marines have been required to perform pull-ups since the 1950s. When a man cannot do a pull-up, it is because he is weak. When a woman cannot do a pull-up, it is because she is a *woman*.

Yet if women cannot do pull-ups, why are there women *doing* pull-ups? Most people’s explanation is that these women are hard-charging anomalies—deviations from the norm, exceptions to the rule. This belief begs the question: What makes the women who *can* do pull-ups different from the women who *cannot*? Women are not so physically different from each other, after all. Rather than give the incongruity serious thought, most people shrug their shoulders and categorize the accomplishments of strong women as “abnormal.” When faced with growing evidence that the average woman *can* do pull-ups, however, some people strengthen their belief that it is unfair to require pull-ups of female Marines—pull-ups are *too difficult* and take *too long* for women to learn; it is too difficult for *older* women and *mothers* to learn pull-ups. The problem is that these beliefs are all untrue. Women of all ages and sizes can learn pull-ups, and it does not take as long as one might think. Thus, a woman performing pull-ups is not an “exception” to the rule that women are naturally and irreversibly weak. She is simply closer to her athletic potential than other women because she learned how to train. Thus, the answer to the incongruity—why some women can do pull-ups and some women cannot—is their *training*.

Fortunately, the gradual accumulation of physical performance data demonstrates that women *can* perform pull-ups and the paradigm is finally changing. Once a female Marine overcomes the psychological barrier, however, there still remains training obstacles, which can be harder to negotiate. There is an absence of useful information and an abundance of training misconceptions when it comes to starting with zero pull-ups. For example, two popular and effective pull-up programs—Recon Ron and The Armstrong Method—do not include instructions for how to go from zero-to-one pull-up. Why should they? They were written for male Marines who can already do at least three pull-ups. For the above reasons, the material below identifies training pit-falls and offers potential solutions for how to conquer the elusive first pull-up.

Negotiating Training Obstacles

“I bought my own pull up bar for my room and have been consistently practicing...”

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When it comes to pull-ups, most people know that the key to improving is to simply do pull-ups. Therein lays the conundrum. How does a person practice pull-ups when one cannot *do* pull-ups? A solution is to perform vertical raising and lowering exercises on a pull-up bar using gravity and one’s own body weight to train. I call these exercises “pull-up progressions.” Training on a bar with just your body weight and gravity builds strength in the exact muscles required for the pull-up while *simultaneously* training your nerves, ligaments, muscles, tendons, and central nervous system the mechanics of a pull-up. Thus, you train muscles through “movement” rather than “isolation.” Training muscles through movement is essential for functional fitness and especially important for learning pull-ups. Most people—Marines included—are not aware of this fact. Many erroneously assume they cannot or should not train on a pull-up bar *until* they can perform *at least one* unassisted pull-up and consequently banish themselves from the piece of equipment that is most helpful to their success. Complicating matters, most pull-up novices do not come to these conclusions on their own. It is not uncommon for them to receive training advice from fitness coaches, personal trainers, and people who can already do pull-ups, such as “Do lat pull-downs *until* you can do a pull-up.” Most of these people did not learn pull-ups from zero, however. Consequently, they are not necessarily familiar with the best techniques to go from zero-to-one.

As a result of this misconception, there are a couple of approaches individuals often take to try and conquer pull-ups. The first is to focus their strength training on their pull-up muscles—their forearms, biceps, shoulders, lats, back, and mid-section. Accordingly, these people tend to spend time in the gym doing exercises such as push-ups, ring-rows, bicep curls, bench press, lateral pull-downs, planks, etc. The problem with this approach is they isolate each muscle group, but the *pull-up exercise* requires the *pull-up muscles* to work together in coordination.

The central nervous system needs to learn the “motor pattern” of the pull-up in order to know what to *tell* the muscles to do. That is not to say that targeting the pull-up muscles during strength training is not beneficial. There is simply more skill transfer to learning pull-ups by performing vertical pull-up progressions. Push-ups and ring rows, for example, place the athlete in a horizontal rather than vertical position. As such, these exercises should not *replace* skill work on a pull-up bar if a person has the goal of learning or improving strict pull-ups. Matter of fact, if these kinds of exercises are used as the *sole* means for learning a pull-up, a person may not reach his or her goal. As such, I consider these exercises to be “supplementary” exercises, not pull-up progressions. Personal trainer Tony Gentilcore stated it more simply, “There are plenty of guys out there who can crush ten reps equivalent to their bodyweight on the bench press...yet often struggle performing one pull-up.” In other words, moving one’s body weight is a skill that requires specific practice *moving one’s body weight*.

The second approach people often take to learning their first strict pull-up is to use pull-up assist machines and pull-up bands. On the surface, this approach appears advisable because it seems to be training the motor pattern of the pull-up. It is also logical to use these devices because this is *precisely* the purpose for which they were designed. The pull-up assist machine uses a counter-weight to reduce lifting resistance, thereby allowing a person to pull up only a fraction of his or her body weight. Pull-up bands also reduce lifting resistance. The idea is to lift more weight in gradual intervals over time, with the goal to eventually lift 100% body weight. Nonetheless, even though these devices mimic the motor pattern of a pull-up, it does not mean they are particularly effective. Rather, they are suboptimal for many people because they provide *too much* assistance at the *wrong* time and they *ignore* some of the pull-up muscles. The pull-up assist machine, in particular, recruits a slightly different motor pattern than strict pull-ups. It places the individual in a fixed position and does not require the use of core stabilizers (abs) during performance of the exercise. It more resembles a lateral pull-down than a pull-up. The bands are slightly better than pull-up assist machines because they require an athlete to train on a pull-up bar. They negate the need to pull the shoulder blades down and back when initiating a pull-up, however, which is one of the most difficult parts of the pull-up to learn. They also allow individuals to bounce out of the bottom position of the pull-up. Essentially, neither piece of equipment adequately replicates the motor pattern of the pull-up and both allow athletes to inadvertently cheat their pull-up training.

Another reason pull-up assist machines and bands are largely ineffective is because some people become overly-reliant on the assistance and are reluctant to give up the support. Additionally, many people use them as their *sole* means for working the pull-up movement pattern. Typically, the only time they mount a pull-up bar is to *test* their progress towards an unassisted pull-up. Not surprisingly, many athletes fail to lift themselves even a few inches, despite the fact they can perform several repetitions with the thinnest-of-bands or lowest-of-settings on the pull-up assist machine. After a “failed” unassisted pull-up attempt, the tendency is to go back to the pull-up assist machine and/or bands *exclusively*. In so doing, some people get really good at ‘assisted’ pull-ups. Colonel Gallant said, “I never came close to a pull-up using bands...I trained hard for 7 months and could do 8 to 10 pull-ups on the thinnest band, but it was like my muscles were frozen without one. I couldn’t pull myself up even an inch.” Personal trainer Al Kavadlo had a similar experience, but with pull-up assist machines, “When I was a rookie trainer, I used to put clients on the assisted pull-up (Gravitrone) machine. In theory, every few weeks I’d be able to lower the amount of assistance until they didn’t need it anymore. In theory. In reality, none of my clients ever made the leap from not being able to do a pull-up to being able to do one using the Gravitrone.” Of course, pull-up assist machines and bands can be useful, just as supplementary exercises that target specific pull-up muscles have their place in a strength-training routine. They can be used effectively to *augment* training on a pull-up bar. Athletes should take care to ensure most of their time and energy is spent on a pull-up bar doing pull-up progressions, however. If too much time and energy is spent doing supplementary exercise, athletes may actually hinder their progress towards the first pull-up.

Pull-up Progressions: The First Pull-up

“I have been applying all the techniques you taught us—negatives, jumping pull ups, and pull up Ladders...Within the first week, I got my first pull up.”

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Now that we have covered the importance of mounting a pull-up bar during training, the next task is to learn *what* to do on a pull-up bar. In short, one should do pull-up progressions, which consist of raising, lowering, and static exercises on a pull-up bar with the body in a vertical position. There are three general categories of pull-up progressions. The first includes doing partial range-of-motion (ROM) pull-ups at full body weight. For example, if you cannot pull yourself all the way up yet, why not practice just *part* of the pull-up? Examples are negatives,

jumping pull-ups, and half/quarter (partial ROM) pull-ups from the top and bottom positions. The second category includes full ROM pull-ups at partial body weight. In other words, if you cannot lift your full body weight, why not practice lifting part of it? Examples are partner assisted pull-ups and equipment assisted pull-ups. The third category includes various exercises that directly target the pull-up muscles while hanging from a pull-up bar. Examples are dead-hangs, L-sits, hanging leg-raises, scapular retractions, and isometric holds. Finally, there are numerous variations to these exercises, such as weighted negatives, jumping negatives, pausing negatives, pausing partner-assisted pull-ups, partial ROM pull-ups from the top, partial ROM pull-ups from the bottom, etc.

The pull-up progression exercises with the most skill transfer to strict pull-ups are partner-assisted pull-ups, negatives, and jumping pull-ups. If an athlete has only a limited amount of time to train, s/he should focus on these three pull-up progression exercises. Of note, during partner assisted pull-ups, partners should provide assistance by spotting athletes on their mid/upper back, not by holding their legs. Partners should also allow athletes to pull as high as they can go without assistance before they spot them, even if this is only an inch (or less). See the “Pull-up Training Guide” for a comprehensive list of pull-up progressions and detailed explanation of how to perform them.

Athletes should practice pull-up progressions 3 to 5 times per week, 3 to 5+ times per day. The more frequent trips to the pull-up bar, the better. The goal is to do as many pull-up progressions as possible in a given day without burning out. High volume at moderate intensity is most easily accomplished by keeping rep schemes low and stopping short of failure. By following these training principles, it will not take long for a person to achieve an unassisted pull-up. The amount of time typically varies from 1-6 weeks. The most important point to remember is once a person can do one pull-up, the best way to improve is to keep doing pull-ups—a lot of them.

Adding repetitions: 2 to 20+ pull-ups

“By week two, I could do two [pull-ups]. Now two months later I can do six. I am so excited to continue developing my strength and be able to perform eight when I check into my unit in Okinawa.”

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Once an athlete can do one unassisted pull-up, it is time to add repetitions. Adding repetitions is typically easier and faster than learning the first pull-up. The formula is specificity + frequent practice = success.³ I learned this formula from a Marine friend who has a degree in kinesiology. I consulted him for advice because I needed to increase my max set of pull-ups—fast. I had challenged a peer to a pull-up competition who said it was impossible for any woman to do 20 pull-ups. I bet him that I would not only do 20 pull-ups on the next PFT, but that I would do *more* than him. The problem was my training lacked focus—I simply did pull-ups whenever I was near a pull-up bar. I had been stuck at 14 pull-ups for a while and the PFT was 8 weeks away. I called my Marine friend for assistance because if there was a quick way to increase pull-ups, he would know about it. He explained the formula for success in detail, which he had learned from Pavel Tsatsouline, former Soviet Special Forces physical training instructor and founder of StrongFirst, Inc. The plan was simple and made sense. I followed his advice faithfully (I didn’t want to lose my bet). In 8 weeks, I added 8 pull-ups to my max set. I did 22 pull-ups on the PFT and beat my competitor by 3 reps. Since then, I have used this formula to set a personal record of 30 pull-ups and have maintained the ability to do 20-25 reps. Below are the specifics on how anyone can use this formula to quickly add reps to their max set as well.

As stated previously, the best method to get better at a particular exercise is to perform the *actual* exercise (specificity) *often* (frequent practice). ‘Specificity’ is straightforward; it means *do* pull-ups. When it comes to the ‘frequent practice’ portion of the formula, the approach is a bit more nuanced. How much practice is enough? The basic question is how do individuals maximize results with the time they have to train? Pavel’s approach favors high volume at moderate intensity, which manifests as multiple sub-max sets of pull-ups. The theory is called “synaptic facilitation” and tends to deliver more pull-ups in less time. By doing frequent, non-exhaustive (sub-max) sets of a specific exercise, muscles gradually get more *efficient* at the movement. During the process of becoming more efficient, it becomes *easier* for a person’s muscles to repeat that movement (aka success).⁴ In other words, by performing multiple sub-max sets of pull-ups, you maximize the amount of stimulation without overly fatiguing the neuromuscular system. By not overly fatiguing the neuromuscular system during a pull-up workout, you can typically avoid delayed onset muscle soreness (DOMS). Avoiding DOMS is beneficial since it typically allows a person to train pull-ups more often. In other words, sore muscles after a workout are not necessary to get good at pull-ups. Accordingly, it is not necessary to develop large, bulky muscles to increase one’s max set of pull-ups because muscles do not necessarily have to grow in size to grow in strength. More mass may actually be counterproductive to pull-ups if the corresponding level of strength is not developed. Thus, one can optimize pull-up performance by striving for an optimal strength-to-weight ratio and by doing a lot of pull-ups.

By comparison, another approach favors low volume at high intensity. For Marines, it typically manifests as a few max sets of pull-ups 2 to 3 days per week. Although this technique usually yields lower volume, any pull-up routine that involves practicing pull-ups several days per week will likely produce results; the most important pull-up training principle is to practice pull-ups *often* and there are many valid approaches. Moreover, if a person has found a technique that works, there is not necessarily a requirement to change. However, it is not uncommon for some people who use a high intensity approach to hit a plateau before reaching their pull-up goals. Additionally, pushing muscles to failure too often places undue stress on the central nervous system and compromises training volume. In order for strength to be gained and performance to increase, the human body must be forced to adapt to a tension that is above and beyond what it has previously experienced, but that amount need not trigger DOMS to be sufficient. I have experimented with both approaches and found that Pavel's technique of high volume, moderate intensity training works best at increasing one's max set of pull-ups quickly and effectively.

As such, keep rep schemes low (less than 50% of one's max set) and stop a few reps short of failure (at the first sign of moderate muscular fatigue). By stopping short of failure, a person can perform tens to hundreds of pull-ups (and pull-up progressions) daily without burning out. Occasionally do higher-intensity, lower volume training sessions (but still stop short of failure). It is okay to test your progress with a max set of pull-ups periodically (no more than once a month), but "all out" pull-up sets—especially if your max is 20 or higher—damages and even destroys the mitochondria, aerobic power plants you have been building in your fast-twitch fibers by training at moderate intensity. Also, always strive for perfect quality. The number of repetitions is secondary. Do as many quality reps as possible while being as fresh as possible, 3 to 5 days per week, 3 to 5+ times per day (more is better). Poor quality work will prevent an athlete from getting the most from his or her practice and can also lead to injury. While quality stays constant, volume should increase daily and weekly over time to increase one's max set of pull-ups. See the "Pull-up Training Guide" for training principles and tips for success.

Finally, although most anyone can learn to perform pull-ups, carrying excess body fat greatly increases the level of difficulty. Thus, for some people, diet and cardiovascular exercise are as crucial to learning the first pull-up as are pull-up progressions. In particular, anaerobic exercises, such as circuit training and sprints work exceptionally well in shedding body fat while preserving strength. It is worth noting that the additional body-fat *healthy* women carry as compared to men does not inhibit their ability to do pullups. A study on college-age women's ability to learn pull-ups revealed that the mean body fat % for those who could do pull-ups at the end of the training program was 29.3% (versus 33% for those who could not), which is higher than men's body fat ranges.⁵

Conclusion

"Now that I know how to teach myself how to do [pull-ups], I will be able to teach my Marines when I get to the fleet. Pull ups are daunting, but taking them one step at a time makes them a very achievable thing. Thank you for the inspiration to accomplish something I didn't see possible before."

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Marines now know the formula to succeed at learning and improving pull-ups efficiently and effectively. In particular, female Marines need not discover for themselves through trial and error how to achieve their first strict pull-up. They can learn from individuals, like me, who cracked the code and eventually found their physical strength. The paradigm is changing—strength is a skill that can be developed and acquired by *anyone* who pursues it. Marine leaders should help female Marines be a part of this change, for strength has a greater purpose. Protect yourself and the Marine to your left and right. Be better at your military occupational specialty. Become a leaner, more muscular version of yourself. Reach higher levels of speed, power, and endurance. Whatever your goal, you must become strong *first*.⁶ All Marines becoming stronger will make the Marine Corps more combat effective. "Sparta, Rome, the knights of Europe, the Samurai...all worshipped strength—because it is strength that makes all other values possible."⁷ Most of us have not even 'scratched the surface' of our strength potential. Let's get started.

¹ Pavel Tsatsouline, "Chain Yourself to the Squat Rack and Call Me in a Year," *MILO*, (1999).

² McGuire, Brian, "Correlation of the Pull-up to Combat-Related Tasks and Other Physically Demanding Activities," Information Paper, (6 Dec 2013).

³ Pavel Tsatsouline, "Chain Yourself to the Squat Rack and Call Me in a Year," *MILO*, (1999).

⁴ Pavel Tsatsouline, "Chain Yourself to the Squat Rack and Call Me in a Year," *MILO*, (1999).

⁵ S.P. Flanagan, P.M. Vanderburgh, S.G. Borchers, and C.D. Kohstall, "Training College-Age Women to Perform the Pull-Up Exercise," *Research Quarterly for Exercise and Sport* 74, no. 1 (March 2003): 56.

⁶ StrongFirst, Inc. <http://www.strongfirst.com/>.

⁷ *Ibid.*