



GYMNASTICS TRAINING GUIDE

CrossFit
TRAINING



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The CrossFit Gymnastics course was developed by Coach Jeff Tucker and is taught by his team of instructors. The goal is to empower you as a coach and student of gymnastics.

The seminar is designed to educate coaches about basic gymnastics movements. Understanding and practice of these movements with proper form undoubtedly helps athletes progress and improve their general physical preparedness.



Athletes have different goals. For some, the goal is to live a more comfortable and healthier life. Others might have jobs in which their lives and the lives of others depend on their physical abilities. Some athletes simply want to dominate workouts. Regardless of the goal, the skills, drills, and concepts in this course, basic or otherwise, allow all athletes to improve in a safe and effective manner.

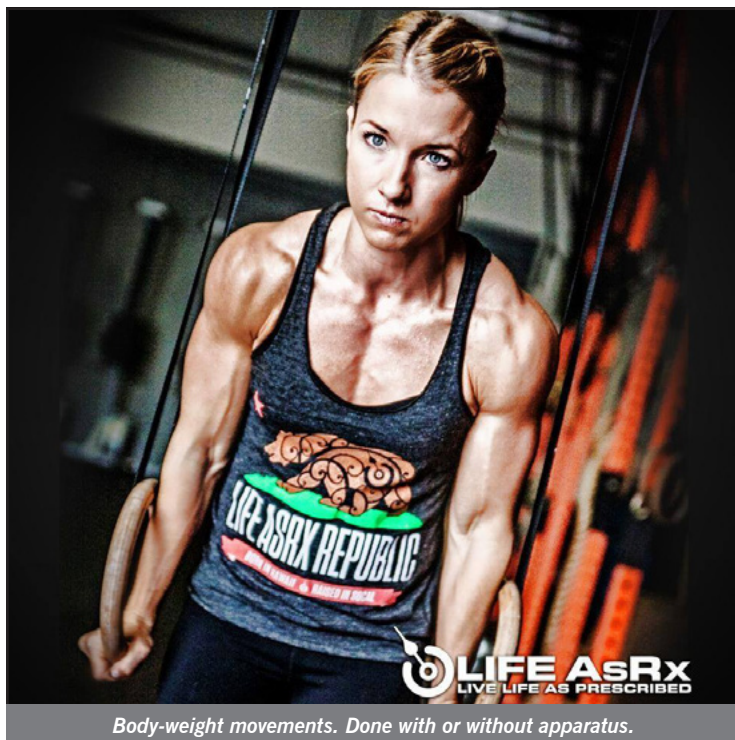
We want and expect coaches to become very comfortable with a variety of movements. We want them to understand how to break them down, to see and correct movement faults, and to be able to use a variety of spotting techniques.

We encourage coaches to keep an open mind, ask questions, and approach the weekend with an adventurous attitude.

WHAT IS GYMNASTICS?

TYPES OF GYMNASTICS

There are many types of gymnastics, with artistic gymnastics being the classic style seen at the Olympics. Women contest four events: vault, uneven bars, beam, and floor. Men contest six events: vault, high bar, pommels, rings, parallel bars, and floor.



Another gymnastics genre is acrobatic gymnastics. More people understand this as the “crazy stuff” seen in Cirque du Soleil and other similar shows. Trapeze, straps or ribbons, random balancing acts, and trampolines are just some of the elements in acrobatic gymnastics. Rhythmic gymnastics use items including ribbons, batons, balls, and hoops.

Gymnastics movements can also be found in other places: the sport has influence on various types of stunt work used in movies or various live shows.

BRIEF HISTORY

The origin of gymnastics dates back to antiquity. The Greeks and Romans were proponents of gymnastics and used gymnastics training to prepare their military forces for the physical demands of combat. For instance, gymnastics can help a soldier master skills such as mounting and dismounting horses. In addition to military training, gymnastics movements were used to provide entertainment.

Modern gymnastics appeared in the 18th century, when two physical educators decided to create apparatus such as the high bar and parallel bars (originally fashioned from a ladder with the rungs removed). A pommel was turned sideways and the handles were removed to create the apparatus needed to vault.

Men's gymnastics was eventually accepted into the modern Olympic Games in 1896, and women were welcomed in 1928.

The U.S. Navy adopted gymnastics in 1942 as a way to make naval aviators fearless and to give them better spatial awareness. The 101st Airborne Division of the U.S. Army later used the Navy's guide to gymnastics and tumbling in order to develop agility, balance, strength, and confidence in soldiers.

When CrossFit Founder and CEO Greg Glassman reintroduced this piece of literature to the public in the February 2005 CrossFit Journal article "[Gymnastics and Tumbling](#)," copies were difficult to find, so the entire guide was scanned and made available to the community. It can be found later in this document.

WHAT IS CROSSFIT GYMNASTICS?

In CrossFit, body-weight movements are considered gymnastics (e.g., air squat, push-up, pull-up, etc.). We are taking skills from the sport of gymnastics and applying them to workouts. In CrossFit, the gymnastics label is applied any exercise in which you move your body through a range of motion (ROM) or extended range of motion (EROM) without an external load. Isometric holds are also considered gymnastics.

CrossFit uses short parallel bars ("parallettes"), the floor, still rings, pull-up bars, dip bars, climbing ropes, and other equipment to implement gymnastics training.



Gymnastics establishes functional capacity for body control and range of motion.

WHY DO WE DO IT?

Gymnastics is one of the three foundational modalities of CrossFit. If gymnastics movements are performed properly, they influence every aspect of your life and have a dramatic effect on your fitness. Gymnastics assist in development of many of the 10 components of fitness: accuracy, agility, balance, coordination, cardiovascular endurance, flexibility, power, speed, strength, and stamina. Nothing beats gymnastics in terms of developing the four neurological components of the 10: coordination, agility, balance, and accuracy. Furthermore, gymnastics training produces impressive strength gains without requiring an external load.

Gymnastics is a cornerstone of CrossFit, along with weightlifting and monostructural metabolic-conditioning (or just “monostructural”) movements. It is an essential element in the Theoretical Hierarchy of Development of an athlete, the CrossFit “pyramid” (see “[What Is Fitness?](#)”). The hierarchy reflects foundational dependency and time ordering of development as follows: nutrition, cardiovascular efficiency, body control, external-object control, and sport-specific application. According to the hierarchy, you can only maximize competency in one category if you have laid the foundation in the category before it. This hierarchy puts a larger emphasis on gymnastics proficiency – body control – before weight training and sport.

DEFINITIONS FOR GYMNASTICS

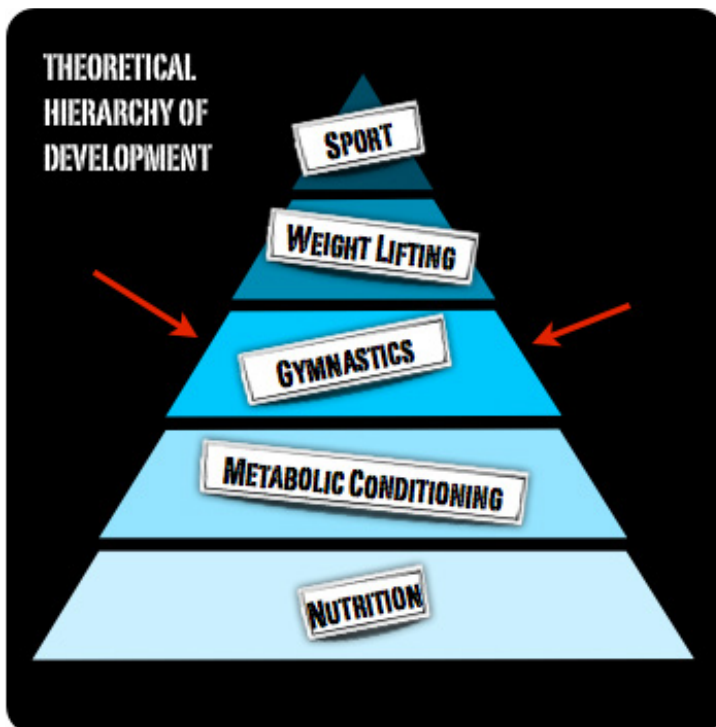
From Thefreedictionary.com

Used with a plural verb: Physical exercises used to develop and display strength, balance, and agility. Especially those performed on or with apparatus.

Used with a singular verb: The art or practice of such exercise.

GYMNASTICS

Our use of the term “gymnastics” not only includes the competitive Olympic sport but also activities in which the aim is body control—climbing, yoga, calisthenics, and dance, for example.

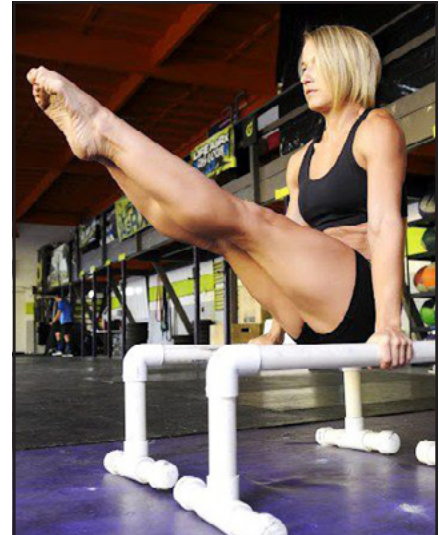


Strength is required for proper form, and proper form is required to demonstrate body control. As such, gymnastics has a clear emphasis on strength in body-weight movements. More than anything else, strict form establishes mastery in a movement, and for this reason we promote strict movement before we apply momentum. The strength gains from mastering the strict movements are well worth the effort, and the possibility of injury is reduced substantially when strict movements are practiced first. Small moves will bring great rewards. You do not rush these movements. You learn them and earn them!

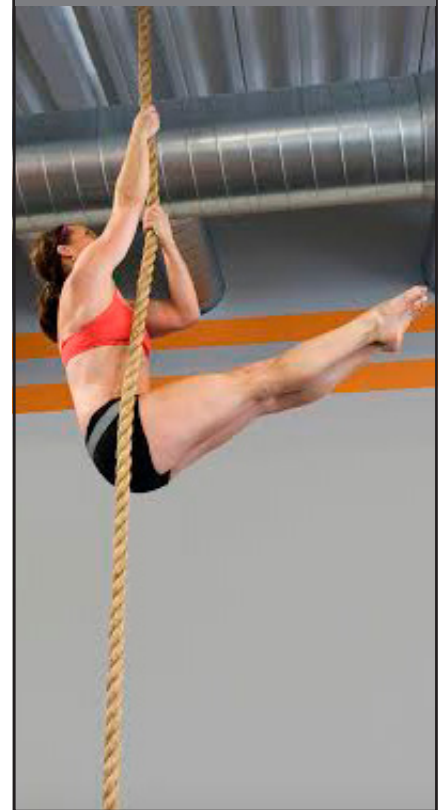


CROSSFIT GYMNASTICS TERMINOLOGY

- Active Tissue** Muscles that do work even during transitional movement.
- Hollow** A position used to create stability, characterized by strong midline contraction with active tissue from toes to fingers.
- Strict** Movement absent a kip. The athlete relies on muscle control and strength to complete the movement.
- Kip** A dynamic movement from a lower plane to a higher plane.
- Load** The forces created while body weight is in motion.
- Core** Musculature that ranges from the top of the glutes up to the traps, including the front, back, and sides of the torso but excluding the extremities.
- Form** The manner or method of doing a movement correctly while striving for perfection.
- Static Apparatus** Stable and does not move (floor and bars).
- Dynamic Apparatus** Unstable and moves (rings).
- Skill Set** Training for form and strength before going for time.
- Mobility** Movement around a joint.
- Active Flexibility** Contracting opposing muscles to stretch or hold a position.
- Passive Flexibility** Stretching a muscle that does not require contraction of opposing muscles.
- ROM** Range of motion.
- EROM** Extended range of motion.
- Spotting** Giving assistance to an athlete if needed as part of a progression or in order to prevent injury.



Strength is imperative for proper form.



When introducing new skills or working toward a particular skill, the coach should always question whether the athlete is strong enough. Always demand strength, strength, and more strength. Also consider the mobility and flexibility of the athlete. Are certain areas restricting proper movement or position? If strength and mobility are in line, determine if the athlete needs work on spatial awareness or coordination. These are the basic requirements of skill progressions.



In terms of development of movement, there are some basic rules to follow. Always use static apparatus before dynamic apparatus (with occasional exceptions when scaling loads). Opt for strict movement before adding momentum to the movement whenever possible. It is true that some movements can only be learned by applying momentum, but prerequisite strength must be established long before ever attempting any such skill.

MECHANICS, CONSISTENCY, THEN INTENSITY

Kipping movement allows for higher power output, which is directly related to intensity.

Intensity brings about a lot of favorable adaptations, including changes in work capacity and body composition. Kipping is not a bad thing, but it can be problematic for athletes who are unable to perform movements with control. As taken from the Level 1 Certificate Course, follow the charter of: mechanics, consistency, then intensity. The ability to enforce this progression separates good trainers from great trainers.

Spotting is a valuable tool that is often underutilized, and it can be useful for athletes who might struggle with certain movements. In a class setting, there are obvious challenges and restrictions on spotting each individual, but it is very effective in a one-on-one setting.

Spotting is a major part of this course. You will get a lot of chances to try some new movements, but remember why you are here: the course is designed to help you become a better athlete and develop your coaching skills. We encourage you to get hands on and get comfortable spotting.

WHY DO WE SPOT?

We spot for a variety of reasons, but safety is first and foremost. The safety of your athletes should be important to you, and the way you care for your athletes affects your reputation as a coach. Not a lot of people are going to return to a gym if they are dropped or injured, and you only have one chance at spotting. Never have a bad spot! If an injury can be prevented, it should be prevented.

Beyond safety, spotting also develops trust and confidence. Trust between athletes and coaches is important to help athletes progress. Confidence is a two-way street: you will develop confidence as a coach as the athlete develops confidence in the movement.

WHAT TO LOOK FOR WHILE SPOTTING

Spotting is not just assisting in a movement or reducing the load. As a coach, you must be on guard and actively looking for indicators from the athlete and apparatus.

Not all communication is verbal. A lack of active tissue or signs of muscle fatigue are important clues that the athlete either needs a more generous spot or should get out of the movement altogether. Form faults can often be associated with the above indicators, but sometimes they are completely unrelated. For example, the athlete might lack kinesthetic awareness. In such cases, spotting can often help fix form faults as long as the coach is perceptive enough to find them.

Another important thing to look for is the athlete's secure connection to the apparatus. Is the athlete connected to the equipment safely? To secure connection to rings, bars and other apparatus, the thumbs should be wrapped with a strong grip. Is the equipment connected securely? Coaches should always ensure the apparatus is safe; for example, ensure straps on the rings are properly threaded and not slipping or frayed. Although we do not go through any release movements in this course, gymnastics spotters often have the responsibility of making sure the athlete reconnects to the equipment.

Spotting is an art in and of itself, and like any skill it takes practice. Study and practice spotting. Your athletes will love you for it.

If an injury can be prevented, it should be prevented.

WHY DO WE SPOT?



Safety, trust, confidence
What do we look for while spotting?

- Active tissue
- Muscle fatigue
- Form issues
- Connection to equipment

A KEY COMPONENT IN GYMNASTICS MOVEMENT

Grip is far more important than many people realize, and it is tremendously important to develop a strong grip. The biggest biceps and lats are of little use if you cannot also hold onto the bar.

There are several grips in gymnastics: crimp grip, friction grip, pinch grip and crushing grip. The two often seen in gymnastics and CrossFit are friction grips and crushing grips. Both use friction as a base, but one has a distinct advantage: the thumb. In this course, we train with thumbs around the bar and around the rings. Humans developed opposable thumbs over millions of years, so we will use them to our advantage. By employing the thumb, you will notice increased grip strength and you will also greatly increase your safety.

If you are one of those who believes the thumb is not needed for a solid grip, think about rope climbs. Would you ever not wrap your thumbs around a rope? Would you ever attempt a max set of unbroken hang cleans without using your thumbs? Doing so would be crazy, right? So get comfortable using your thumbs.

If it feels like you do not have as strong a grip when you wrap your thumbs, it is usually an indicator that you are not squeezing the bar, you lack grip strength, or the diameter of the bar is too great.

If you watch gymnastics, you will notice men swing on a bar of smaller diameter and always wrap their thumbs. Meanwhile, girls swing on much thicker bars and typically do not wrap their thumbs. If the bar is 1.5 inches or less in diameter, you have no reason not to use the thumb.

DEVELOPING GRIP STRENGTH

Hanging from apparatus or frequently picking things up develops your grip strength. However, a variety of auxiliary work can be done to develop grip strength further.

A phenomenal resource for grip-strength development is Ironmind.com. The website supplies information along with a host of special tools.

Without specialized tools, various wrist push-ups, assorted barbell wrist curls for the extensors and flexors of the forearms, and tennis-ball squeezes are ways to improve grip and wrist strength.

YOU CAN ALSO MAKE YOUR OWN TOOLS:**Bucket of Beans**

Fill a tall bucket full of beans, sand, or rice. Work a pronated hand down into the beans up to mid-forearm. Squeeze a handful of beans and rotate your hand into supination. Open the hand completely, extend and separate the fingers, then re-grip a handful of beans and rotate back into pronation. Repeat as tolerated.

Wrist Roller

Drill a hole in the middle of a 14-inch dowel or piece of PVC. Feed a rope through the hole and tie a knot. Fasten a carabiner to the other end of the rope, and attach small plates (2.5, 5, 10 lb.) to the end of the rope using the carabiner. Hold the dowel at shoulder height with the arms extended. Use one wrist at a time to raise and lower the weight by rotating the dowel toward or away from you.

Wrist Push-Ups

Start from your knees and slightly pike your hips to reduce resistance. With palms on the floor, practice pushing up until your arms are locked, then continue pushing up onto your fingertips. Next, place the backs of your hands on the floor (palms up) with your fingers pointing toward each other. Press up until your elbows are locked out, then continue to extend the wrist until you are supported on your knuckles. Both of these push-up variations are very challenging. To increase difficulty further, work toward a normal push-up position (full plank).

MOVEMENT AND INJURY CONSIDERATIONS

The shoulder joint has impressive range of motion in many different planes, but it also has a significant amount of laxity, which often results in instability issues such as rotator-cuff impingements, subluxations, and dislocations. The price of mobility is often reduced stability. This concept applies generally throughout the body but particularly in the shoulder joint.

The shoulder joint is frequently injured because of its anatomical design, and a number of factors contribute to injuries, including shallowness of the glenoid fossa (or cavity), laxity of the ligamentous structures, and lack of strength and endurance in the shoulder muscles, which must stabilize the joint during dynamic movements.

Specifically, the rotator-cuff muscles (subscapularis, supraspinatus, infraspinatus, and teres minor) play a vital role in maintaining the correct orientation of the head of the humerus in relation to the glenoid fossa while the more powerful muscles around the joint move the humerus through a wide range of motion.



Shoulders are typically injured in three ways: falling, traction injuries, and SLAP tears (superior labrum tear from anterior to posterior).

Traction injuries occur when the arm is pulled suddenly from the socket. This type of injury occasionally occurs when owners are walking their dog and the dog suddenly takes off after another dog, squirrel, or postal worker. The yank on the leash that is attached to the person's hand is sudden, and the injury occurs due to the traction of the biceps and labrum pulling off the glenoid. The same thing sometimes occurs when an athlete kips above the plane of the bar but lacks the appropriate strength to control the descent. An athlete who has a "clunk" at the bottom of the pull-up is at high risk of a traction injury.

The other common injury is the SLAP tear. This is a very common injury seen in baseball pitchers. During a throwing motion, the shoulder is aggressively forced into excessive external rotation. The same thing often occurs during the kipping pull-up. We can prevent

this from happening by keeping pull-up form tight and not violently throwing the body forward during the kip. This control prevents the shoulder from rotating too far into external rotation and keeps the ligaments of the shoulders in a more neutral position. In order to accomplish this, the legs must be under control and not flailing too far forward or backward during the swing. The legs need to be underneath the athlete, with the hips in slight extension. This position is in contrast to out-of-control kipping movements in which the athlete excessively bends the knees, extends the hips and arches the back.

Tears are more common as athletes get older because tissue is not as soft, spongy, and pliable as it was in adolescence and early adulthood. A 40-plus-year-old client who has never done a pull-up before needs to be far more cautious when developing these movements.

Rehab from a surgical repair can be lengthy: six weeks of intermittent sling use, with no reaching, lifting, or actively elevating arm. Therapists will start moving the arm through passive range of motion, stretching your arm without you actively moving it. Typing and writing are acceptable at this stage. After six weeks you can actively move your arm by yourself. Basic/moderate strength will return within four months, followed by another three to four months of increasing strength. It typically takes nine months to one year to get back full strength. More information can be found at www.321gond.com.

HOLLOW AND ARCH POSITIONS

HOLLOW BODY POSITION

The hollow body position defines midline stability for gymnasts. It is the basis for solid gymnastics movement. The hollow is characterized by a strong core contraction with active tissue from the big toes all the way to the fingertips. As the midline is shortened, there is a posterior pelvic tilt, and the spine is pulled into lumbar flexion. Degrees of lumbar flexion will vary depending on how it is being applied. For example, when used on the ground, the position is “more aggressive” or exaggerated in order to develop strength.



We have found that athletes who demonstrate proficiency in the hollow tend to find all other core and stabilizing activities to be exceedingly simple. Find someone who can complete a Tabata hollow hold or hollow rock (eight intervals of 20 seconds of work and 10 seconds of rest) without loss of form and assuredly you have found someone with superior core strength.

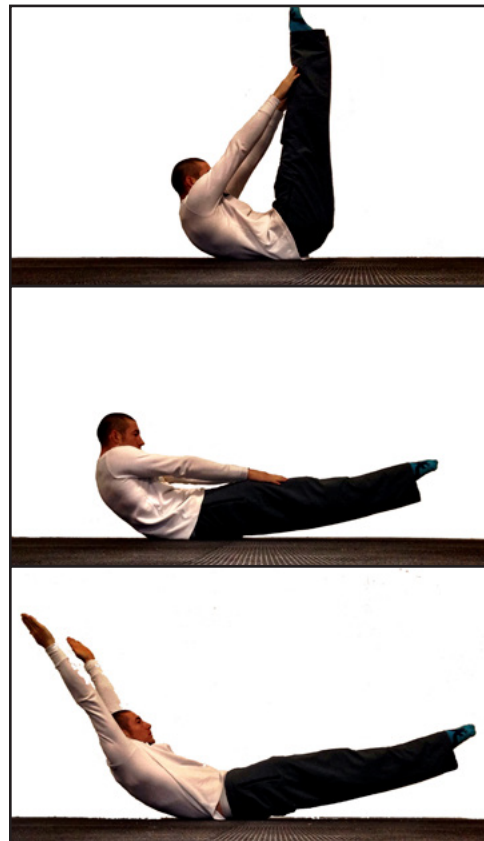
HOLLOW BODY POSITION (SUPINE ON THE FLOOR)

- No space between lumbar spine and floor
- Scapulae are elevated off the ground
- Hip is extended with a posterior pelvic tilt
- Knees and elbows are locked
- Arms are by the ears with active shoulders
- Ankles in plantar flexion with pointed toes

Lying on the back, begin by pointing the toes to the sky and reaching the hands high up on the shins. Press the low back into the ground, closing out all space. The scapulae should be lifted off the ground (this can also be done in a tucked position).

Without losing your torso position, lower the legs as far as possible while letting the fingers trace the legs. Pause once the feet are six inches off the ground. The toes are pointed, glutes are tight, abs are on, and scapulae are up.

Then proceed to bring the arms up overhead and tuck the biceps to the ears with active shoulders. The limbs are locked, and active tissue is engaged throughout the entire body.



ARCH BODY POSITION

The arch body position is achieved through a strong contraction of the posterior kinetic chain while lying prone on the ground. Much like the hollow, tissue is active throughout the body. Most athletes have an easier time establishing this position as it is less technical than the hollow. An aggressive arch will depend upon active flexibility of the shoulders, spine, and hips.

ARCH BODY POSITION (PRONE ON THE FLOOR)

- Chest and quads are lifted off the floor
- Knees and elbows are locked
- Arms are by the ears with active shoulders
- Ankles are in plantar flexion with pointed toes



DRILLS AND SKILLS

- Hollow sit-ups
- Hollow rocks
- Shotguns
- V-ups
- Arch chest lifts
- Arch leg lifts
- Arch rocks
- Arm haulers

Alligator Drills

- Hollow hold to arch hold
- Hollow rocks to arch rocks
- Shotguns to arm haulers

Alternate between hollow and arch positions, transitioning from one to the other by rolling while maintaining form.

Armadillo Drills

- Elbows on knees
- One leg extended
- One leg one arm extended

Rock the athlete up and back at any tempo while they maintain a midline contraction. If the ground is smooth and soft, more aggressive movements can be employed, such as tipping the athlete from side to side or spinning him or her.



PULL-UP

Primary movers: Latissimus dorsi, biceps brachii, brachioradialis.

RING ROW

Performed with the feet on the ground, the ring row begins with lat activation, then a pull to the rib cage. It is a good strength progression for pull-ups.

STRICT PULL-UP

- Performed with arms locked out at the bottom and chin above the bar at the top. Lat activation initiates the movement before the arms begin to bend, and the hollow is maintained throughout.
- A prerequisite for kipping pull-ups.
- Slow Close/Open Drill (Hollow/Arch)
- Pause in hollow (close)
- Back to neutral (hanging straight, no swing or sway)
- Pause in arch (open)
- Beat Swing (Kip Swing)
- Close/open (hollow/arch) fast
- Become still with control (able to stop on a dime)

2-FOR-1 KIPPING PULL-UP

- Swing, swing, pull
- More lat activation on the pull (close the angle of the shoulder)
- Pull into the bar, then press away
- Teaches how to control the swing

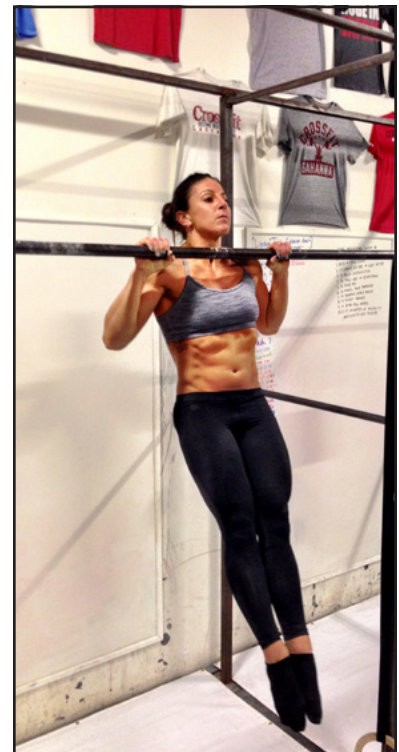
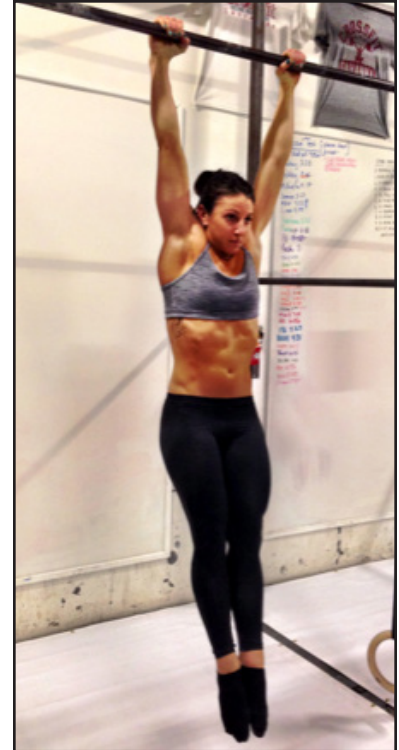
KIPPING PULL-UP

As the feet tap forward, the hollow position is employed and the lats are actively engaged, effectively closing the shoulder angle and creating a slight weightlessness before a pull into the bar. A push away occurs at the top, and the athlete passes back through the same position that was achieved on the way up. Active tissue is maintained throughout—even during transition movement.

The kipping pull-up is an outstanding example of speed and power and requires both organic adaptation (strength and stamina) and a neurological adaptation (agility, coordination, and accuracy).

BUTTERFLY PULL-UP

In this course we do not cover the butterfly pull-up. Many of the things we do in CrossFit have value as progressions from one movement to another. For example, we do front squats to help our cleans and overhead squats to help our snatches. The butterfly pull-up is considered a “dead-end progression” and does not lead to anything else. We consider it a third-wave adaptation as proposed by Stephen Seiler (see [“What Is Fitness?”](#)): an efficiency needed for competition. This has value for someone who is specializing in the sport of CrossFit. CrossFit Games athletes make up less than 1 percent of all CrossFit athletes, and the other 99 percent do not need to work on third-wave adaptations. The goal for most CrossFitters is to stay healthy and active for as long as possible.



However, learning new movements and skills is incredibly fun and rewarding. If an athlete demonstrates strong proficiency in strict and kipping pull-ups, then by all means encourage and help him or her to learn the butterfly kip or other new skills.



KNEE-TO-ELBOW AND TOE-TO-BAR

Primary movers: Latissimus dorsi, rectus abdominis, iliopsoas, rectus femoris.

FLOOR DRILL

Pretest: without the hollow position or lat activation, try to bring the knees to the elbows slowly. Most will find this difficult or impossible. Next, try the movement with a strong hollow position and lat activation. The movement is now easily achieved.

STRICT KNEE-TO-ELBOW

- Stay compact with arms straight
- Knees flex and lift away from the floor
- Knees to elbows (focus on closing the angle of the shoulder)
- Spot at low back and hamstrings

STRICT TOE-TO-BAR

(Flexed or Extended knee)

- Stay compact with arms straight
- From knees-to-elbows position, extend the knee to contact the bar with the foot
- Straight leg to parallel (touch the bar and back to an L-sit)
- Straight-leg toes-to-bars (from a complete hang to feet touching the bar; requires more lat activation)
- Spot at low back and hamstrings



WITH A KIP

If you can do the movement strict, the kipping variety is easy.

- Give the athlete a target, and raise it up as long as they can maintain a the kip movement.
- Hips will be slightly behind the frontal plane
- Bent-leg toes-to-bars (stay compact and flick the feet)
- Straight-leg toes-to-bars

When trying to cycle toes-to-bars quickly, some athletes will prefer straight legs, while others will prefer a knee drive with a toe flick. Preference is in large part dependent on the athlete's build and hamstring flexibility. In general, the least effort is required by always keeping weight distribution close to the frontal plane. It is easier to do this with a knee drive and a flick of the feet than with a straight-leg movement.

As with all movements in CrossFit, you should practice different variations. Just because you learn how to jerk does not mean you should stop doing strict presses. The same goes for knees-to-elbows and toes-to-bars: Practice them strict and with a kip. For toes-to-bars, practice the following variations: strict straight leg, strict bent leg, straight-leg kip, bent-leg kip.

Once you have become proficient in these variations, challenge your self with these auxiliary drills:

- Around the world
- Windshield wipers

Around the world can easily be scaled by going over a shorter barrier: PVC and a couple of plates to anchor it. Also try bent-leg variations. Windshield wipers can be scaled by staying in a tuck position.



BALL-UP

Primary movers: Latissimus dorsi, rectus abdominis.

POINTS OF PERFORMANCE

- Arms stay straight throughout the movement.
- In the inverted position the hips are inline with the arms.

The ball-up is a strict straight-arm movement in which an athlete slowly pulls himself or herself to inverted from hanging while maintaining a tight tuck position. The knees are pulled into the chest, the heels are pulled to the glutes, and the chin is tucked (find you inner doodle bug).

While the athlete is developing the strength required to pull into and lower out of this position, spotters are usually needed. The spot is initiated at the low back and hamstrings. As the athlete moves into inversion, the hand at the low back will transfer to the shins and the hand at the hamstrings will transfer to the low back.

An athlete who can successfully pull slowly into this position will find pull-ups and toes-to-bars easy. The skills needed for the ball-up can also be applied to rope climbs in which the athlete is permitted to use the legs.

The ball-up is a prerequisite movement for the pass-through, skin the cat, and straight-body inversion on the rings.



PASS THROUGH

Primary movers: Pectoralis major, anterior deltoid.

POINTS OF PERFORMANCE

- From the inverted position in the ball-up, the hips continue past the frontal plane and lower until they are in line with the shoulders.
- The line created by the shoulders and hips will be parallel to the floor.

In the pass-through, a tight tuck position is still maintained, with the arms straight and toes pointed. In spotting, the hands continue to hand off to one another as the athlete is transitioning. Both hands will be spotting at the shins.

Once the athlete achieves and feels the position, spot him or her during movement back to the inverted ball-up and then to the ground. The arms stay straight throughout.

The pass-through is a scaled version of a back lever, which we will get to later.

FRONT LEVER

Primary muscles: Latissimus dorsi, rectus abdominis, rectus femoris.

The front lever is a static hold in which the body is held supine (face up) while gripping the rings or bar. The shoulders, hips, and ankles are in alignment parallel to the ground. This movement requires a great amount of strength!

FLOOR DRILL

In a hollow position on the floor, try to pull a piece of PVC to your quads with your lats while your partner pulls up on the PVC. The palms will always face down in the front lever.

GET INVERTED

From the ball-up position, the toes extend toward the ceiling. If you are on a rig, the shins will be touching the bar. Spotters will spot at the low back and hamstrings.

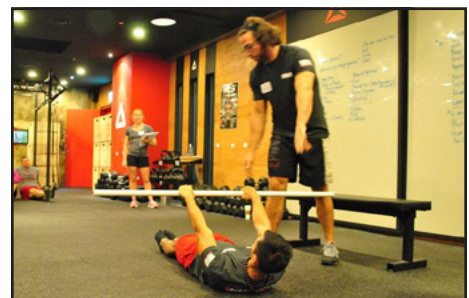
LOWER IN DEGREES

While developing this movement, practice lowering the body a small distance, then pulling back to inversion: five degrees, 15 degrees, 30 degrees, etc. If you get beyond the point where you can pull back to inversion, simply lower slowly down to the ground.

SCALING

You can also develop this movement by shortening the lever. Various scaling options include a tuck position, a one-leg tuck position, and a straddle.

“Ice cream scoops” are another great way to develop the front lever. From the top of a pull-up, pop out to a front lever and return back to the top of the pull up. The body stays straight the entire time, and the goal is to move between a bent-arm position with the body vertical and a straight-arm position with the body horizontal.



BACK LEVER

Primary muscles: Pectoralis major, anterior deltoid.

The back lever is a static hold in which the body is held prone (face down) while gripping the rings or bar. The shoulders, hips, and ankles are in alignment parallel to the ground. This skill also requires a great amount of strength but is sometimes considered easier because the shoulders naturally help stop your range of motion in shoulder extension.

FLOOR DRILLS

Lie face down on the floor try to press a piece of PVC to your hamstrings while your partner pulls up on the PVC. Try it with supinated and pronated grips to see which feels better. It is recommended that athletes whose elbows hyperextend use a pronated grip. However, the supinated grip is more technical and considered proper in gymnastics as it allows better transition to more advanced skills on the rings.

GET INVERTED

From the ball-up position the toes extend toward the ceiling. If you are on a rig, the calves will be touching the bar. Spotters should spot at the abs and quads.

LOWER IN DEGREES

While developing this movement, practice lowering a small distance and then pulling back to inversion: five degrees, 15 degrees, 30 degrees, etc. The spotter's role becomes increasingly important as the athlete gets closer to a full back lever. If needed, simply pull the knees back toward the body (ball up) and get out of the movement.

SCALING

You can also develop this movement by shortening the lever. Practicing the pass-through is a great scaling option.



RING SUPPORT

Proper execution of a ring support is done by actively pressing down into the rings. There is a slight turnout of the hands (about 45 degrees) so the arms are not relying on the straps for stability. The hands stay pressed to the sides. The athlete should look forward, creating a straight line from head to pointed toes. Shoulders are neither externally nor internally rotated to excess.

PROGRESSIONS

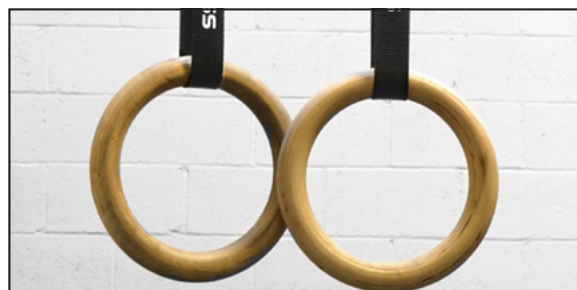
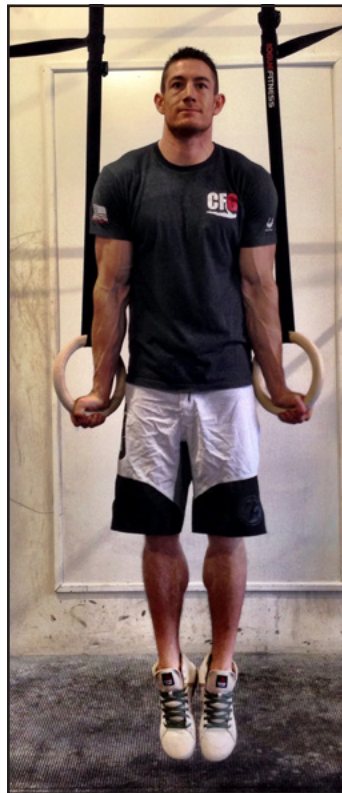
The hands can be turned inward 45 degrees or brought parallel to each other.



IRON-CROSS

As with most skills, shortening the lever is the easiest way to scale the iron cross. Feed the hand through the straps and grab onto the ring from the outside. The top of the ring will be touching the inside of the forearm. From here, hop up to support. As you allow the hands to come away from your sides, the strap will effectively shorten the lever – instead of shoulder to wrist, the lever becomes shoulder to about forearm or elbow. Practice lowering yourself in degrees - five, 10, 15, etc. - until you can pause in position with the hands and shoulders level with each other. Concentrate hard to keep the elbows locked out!

You can also practice without the aid of the straps by lowering in degrees from a normal ring support, or with the use of specialized equipment such as the Ring Thing from Power Monkey.



DIP

Primary muscles: Pectoralis major, triceps brachii, deltoid.

PARALLEL-BAR DIP

- Static apparatus before dynamic
- Strength progression for ring dips

BOX RING DIP

The feet are elevated onto a box to scale the load. This is a good scaling option for athletes who can do parallel-bar dips but are not stable on the rings.

RING DIP

The ring dip is a controlled movement with the eyes fixed on the horizon. The end range of motion puts the shoulders parallel with or below the elbows. EROM is as low as possible. To complete the movement, press back up to support to re-establish locked-out elbows with a slight turnout of the hands.

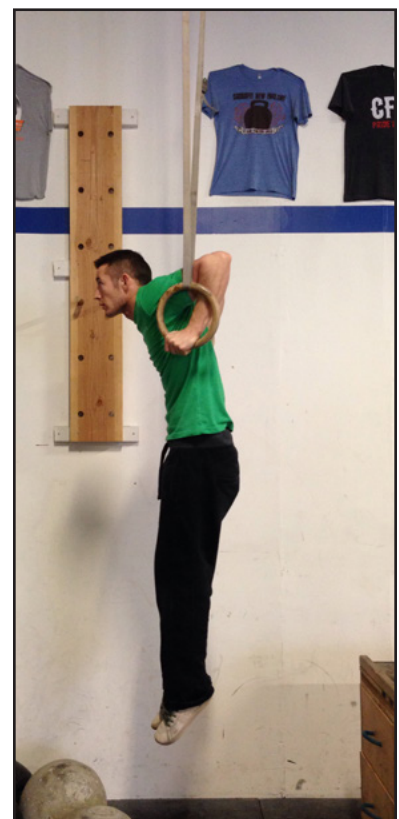
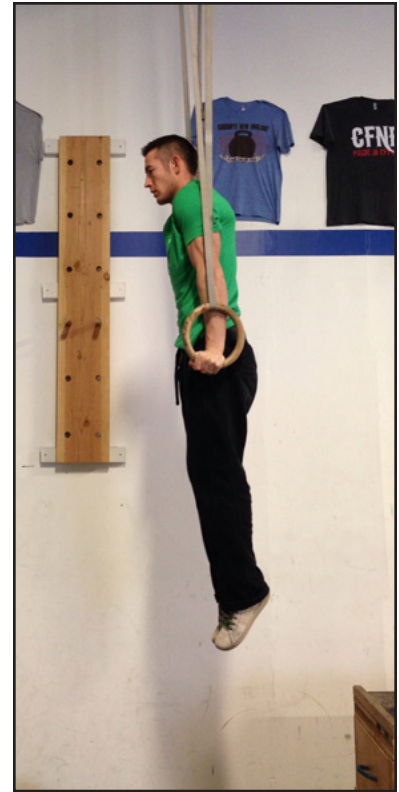
SPOT

All variations can be spotted at the waist.

The ring dip has long been utilized to as an essential strength-and-conditioning exercise in gymnastics. Because of the instability of the rings (dynamic apparatus), ring dips are more difficult than parallel-bar dips. This instability helps build greater strength and control, and improvements in your stabilizing muscles greatly reduce injury risks. In the ring dip, it is important that the body line stays straight and the hips lower at the same rate as the shoulders. A common fault is a pivoting motion forward in which the body line breaks and the hips barely lower or do not move at all.

It is not recommended to teach a kipping movement for the dip until an athlete can demonstrate adequate strength in the push-up, parallel-bar dip, and ring dip itself. Intensity is good, but the gymnastics view is that it should not be prioritized over mechanics, consistency, strength, and form. If an athlete decides to apply a kip to this movement, the idea is the same as with the pull-ups: we are moving from a lower plane to a higher plane by adding momentum. As in other dynamic movements, the kipping ring dip follows the core-to-extremity rule. The kip gives us a brief state of weightlessness: the lower body initiates the movement and imparts momentum, and the arms then finish the movement.

Bands can be used as a scaling option, but we use them with hesitancy because you do not want them to become a crutch for your athletes. There is no need for a band wider than three-quarters of an inch. If an athlete is using a thicker band, he or she is most likely not proficient in push-ups and bar dips and should readdress these movements before attempting ring dips. For all scaling options, follow this basic rule: If an athlete is not making progress using a scaling option, try something different.



MUSCLE-UP

Primary mover: will power!

Although the muscle-up is not worth any points in gymnastics, it is a really cool movement that only small percentage of people can do. When it is accomplished, it should be celebrated!

SCALING FROM THE FLOOR

(Toenail spot and false grip)

- From the knees, toes on the floor, pinkies facing each other (boxer)
- High pull to sternum
- Transition to low dip
- Press to support
- Transition back to low dip
- Transition and freeze at high pull to sternum
- Lower back to ground (boxer)

FALSE GRIP

Bend/flex the wrist to a 90-degree angle and position the ring diagonally across the palm from between the thumb and index finger to the pisiform (the small wrist bone by your ulna).

Pistol-point technique: Set the crook of your wrist on the rings then grab the rings and make little pistols with your index fingers. Ask, "Who like muscle-ups?" Then point to yourself and say, "I do!" Voila: false grip!

Low-dip squeeze - As you lower back down and get ready to transition from low dip to high pull, squeeze the rings and do not let them slide as you transition below the rings. This technique effectively helps you maintain your false grip.

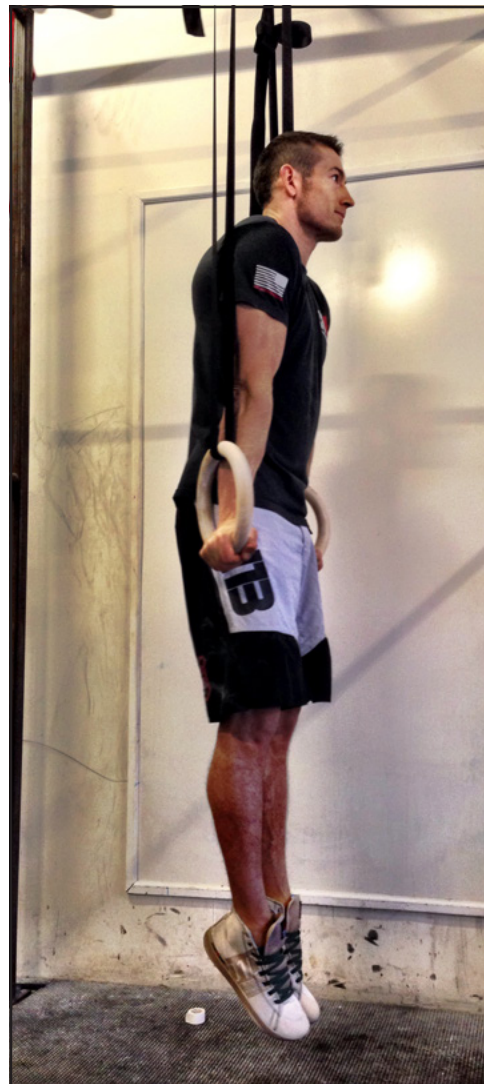


MUSCLE-UP

In gymnastics, a muscle-up is a display of raw strength and is done strict in as straight a



line as possible as opposed to just starting from a hang and getting to support by any means necessary. Our mission is to develop exceptional movement in everything we do, and it is no different with the muscle-up. It begins from a dead hang with a false grip. From there, pull and engage the shoulders and lats, squeeze the glutes, and maintain a hollow. The pull continues through the transition, with the head in a neutral position looking forward. Once the transition is made, a press to support completes the movement. Proficiency in strict movement will make the movement easier and safer when momentum is added.



BENT-ARM UPRISE**Swing (Kip Swing)**

- Close/open (hollow/arch)
- With control (able to stop on a dime)
- Keep tension on the ring straps
- While swinging, you have to be long, connected, and tight

PULL TO THE HIPS/PULL AND TRANSITION

Spotted from the side at the low back and hips.

Swing 1, Swing 2, Swing 3, pull to the hips. Maintain a straight body throughout and work to get the shoulders hips and hands level with the rings.

Swing 1, Swing 2, Swing 3, pull to the hips and transition to support.

There is more than one way to skin a cat. The correct progression or scaling option is the one that helps the athlete progress to the final movement safely. What helps one athlete understand the movement might not work for another. Other techniques include sitting on the band, placing the band on the lats, kipping off the floor, moving through negatives, among other options. Overall, never overlook the importance of strength. Progressions are great for feeling and learning positions, but in most cases the athlete who cannot get a muscle-up usually needs more strength development.

PISTOLS

Primary movers: Gluteus maximus, rectus femoris, vastus medialis, vastus intermedius, and vastus lateralis.

The pistol requires strength, balance, and flexibility/mobility. If any element is lacking, it will be difficult to complete a pistol, and understanding these three components can give great insight as to how to help a client achieve the movement.

The pistol begins from a standing position with one foot off the ground. The planted leg flexes into a squat, while the other leg is extended forward but held off the ground. In the bottom position, the hip crease is below the patella. Key points of performance include keeping weight in the heel and ensuring the knee tracks over the toe. The forward counterbalance will almost always force the loss of the lumbar curve unless the athlete has extremely flexible hamstrings.



SCALING OPTIONS

A handful of options can help athletes get a feel for the movement.

The easiest and most basic way to start to develop a pistol is to squat with your feet and heels together.

From there, the next progression is to plant one leg and cross one leg behind the other leg. This is a good option for someone with tight hamstrings or who cannot yet stand up using one leg only.

If the athlete tends to end up on the ball of the foot in the bottom of the pistol, try to elevate the heel by having the athlete stand on a plate, for example. This works well for athletes with tight hamstrings or poor range of motion in dorsiflexion.

If the athlete can almost complete the movement but always seems to fall backward, use

a weight to counterbalance such as a kettlebell or dumbbell. This scaling option closely resembles the actual movement and works well for athletes who are close to achieving the pistol.

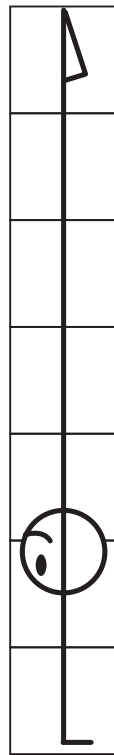
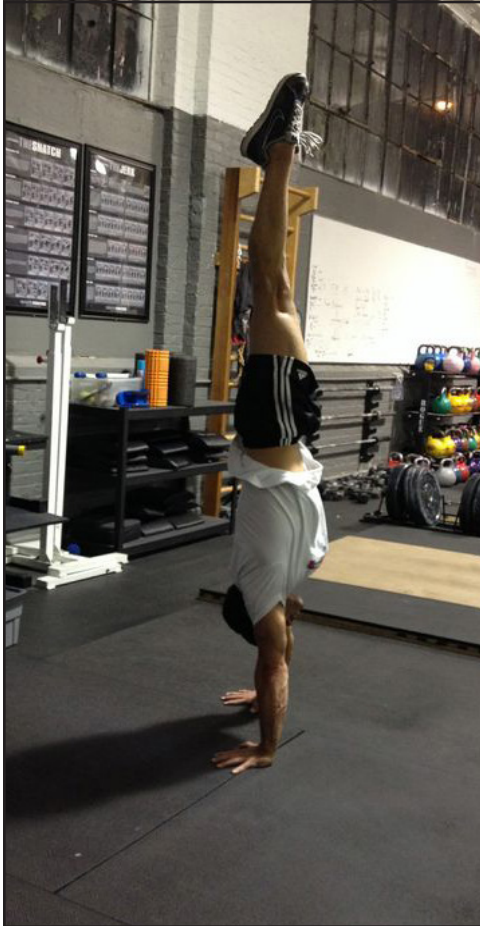
Other options include squatting to a bench or a box and squatting down while the free leg hangs off the side. Both work well for anyone with poor balance or limited leg strength.

Strength, Balance, and Flexibility!

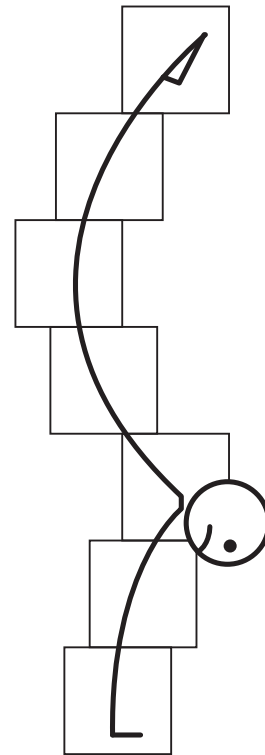


HANDSTANDS

We are looking for virtuosity in everything we do. We are always striving for exceptional positioning and trying to make everything look effortless. In the handstand, we do not just want to balance on the hands; we want to find great form and alignment, which, in turn, will make handstands much easier. The correct position is achieved by pressing through the shoulders, finding your hollow, squeezing your glutes, squeezing the heels together, pointing the toes, and looking ahead with the eyes while the head stays neutral. In this position, the anatomy is stacked and a straight line is created from the wrists to the pointed toes. Everything is aligned: wrist, shoulder, hip, knee, ankle, and toes.



Work toward stacking and aligning everything.



Being out of alignment is not efficient and quickly leads to fatigue.

A handstand is performed without the aid of a wall and on various apparatus (e.g., floor, parallel bars, beam, high bar, uneven bars, rings). In this course, we teach and spot the handstand in open space, and we work to see and correct common form faults.

In groups of three, we will have a lead spotter, assistant spotter, and an athlete performing the handstand. The athlete will start in a lunge position, and when cued to place the hands on the ground, the athlete will lean into a compromised lunge position. In the compromised lunge position, one leg will be extended in the air. The lead spotter will be the coach on the side of the extended leg. Spotters will step up and center the athlete's hand between their feet. Without moving the feet, the lead spotter reaches back and engages

the athlete with a firm grip around the quad and hamstring. The assistant spotter is waiting at the ready. We will rotate through this progression until everyone understands foot and hand placement.

The next step is to get the athlete inverted. When the athlete is cued to kick up, the lead coach will assist the athlete into an inverted position. The assistant coach grabs hold of the other leg as the athlete comes into the handstand.

When making corrections, one coach (usually the lead coach) should do the correcting to avoid overwhelming the inverted athlete. When cueing, remember the triage technique and correct the most important issues first (arms locked and pressing tall, hollow position engaged, straight hip, then pointed toes). Also be mindful to give an actionable cue. Do not just say what they are doing wrong. Instead of saying, "You're arching your back," or "You're bending your knees," instead say, "Squeeze your abs," "Find your hollow," "Look for your toes," or "Straighten your knees." Sometimes a variety of cues are needed before the athlete understands what needs to be done. You can also give physical cues. For example, lift up on the leg to get the athlete to press tall, tap the feet to get the athlete to point the toes, etc.



HANDSTAND PUSH-UP

Primary movers: Deltoids, triceps brachii.

The handstand push-up (HSPU), sometimes considered a headstand push-up, begins in a handstand. The athlete then lowers to a headstand, creating a triangle with the hands and the top of the head before pressing back up to a handstand. The triangle creates a slightly disadvantageous lever system because the hands are further away from the frontal plane. As explained earlier in the course, disadvantageous levers build a great deal of strength.

In a barbell press, the hands and bar are kept close to the frontal plane to make the lift efficient. The press is an open-chain movement in which balance is more easily maintained by keeping the bar in this plane. However, in HSPU without the aid of a wall, keeping the hands and head aligned creates more instability.

A wall is often utilized when performing handstand push-ups, which usually results in a loss of position. Gymnastics progresses from basic skills to more advanced skills, and maintaining the hollow position and creating the triangle will allow an athlete to progress to higher skills and develop dominating strength in the movement.

In the purest gymnastics version of the movement, HSPU would be done on parallettes (EROM) without the use of a wall. The athlete would lower until the shoulders contact the bars and are level with the hands before pressing back to a handstand. Achieving this level of balance and strength takes a lot of practice and effort, but when it is reached, a headstand push-up against a wall becomes incredibly simple.

BOX DRILL

The box drill is a great scaling option because it effectively decreases the load of the movement while maintaining full range of motion. The athlete places the toes on the center of a box and pikes the hips to create an inverted position. The same rules of the HSPU apply: the athlete lowers to create a triangle and then presses back up, making sure to open the shoulder completely at the top of the movement.

HANDSTAND WALK

The best way to learn how to walk on your hands is to learn how to hold a handstand without any movement. Though it sounds strange, finding balance without moving will allow you to walk wherever you want.

Once you have balance, start in a handstand, then take a couple of steps and reestablish motionless balance. Two steps soon become four, then eight and so on. As you begin to move, think of holding a pose with the body and allowing a slight lean to be your guide.

BOX DRILLS

On a box, create an inverted position as explained above. Shift your weight from side to side by lifting your palms slightly off the ground. If that feels OK, try alternately lifting each hand to tap the shoulder. The next step is to travel around the box in a circle, a movement sometimes referred to as "Conans." Each time you travel around, you become stronger and stronger, as the titular character did in the 1982 movie "Conan the Barbarian."

HEADSTAND

PROGRESSIONS

- Knees on elbows
- Knees off elbows and tucked to chest
- Extend one leg up, bring it back, then do the same with the other leg
- Both legs up together (full headstand)

The headstand is a very basic skill that allows athletes to work on balance while inverted. If it is spotted, the spotter's primary job is to make sure the athlete does not topple over into a roll. This is achieved by spotting/blocking the low back and making sure that the leg extension upward is slow, controlled, and performed without losing the hollow. This is especially important for beginners who might not have a basic understanding of how to perform a forward roll. The hands and head form a tripod to create a base of support.



HAND BALANCE

Other hand-balancing drills that will help athletes work toward more advanced gymnastics skills such as the planche are:

- Bent-arm frog stand
- Straight-arm frog stand
- Tuck planche

The bent-arm frog stand is a hand-balance drill in which the knees are placed on the elbows, with the head off the floor.

The straight-arm frog stand is basically the same as the previous drill except the arms are straight (elbows locked out). It is slightly more difficult.

The tuck planche is similar to the previous drill, except the knees are tucked into the chest and not resting on anything. The goal in the tuck planche is to hold the shoulders and hips parallel to the floor. This movement requires much more strength than the frog-stand variations.

All three of these variations are spotted by blocking the shoulder. It is imperative that you do not let anyone fall on his or her face. With one hand on the shoulder, the other hand can spot at the hamstring or shin.



PARALLETTES

The parallettes are great tool for developing shoulder, triceps, and core strength. The drills and skills we will cover are tuck support, tuck planche, L-sit, push-up, dip, and shoot-through.

The tuck support is a basic support position in which the athlete actively presses into the parallettes with the knees tucked close to the chest. The toes are pointed, and the hands are in line with the hips. A spotter would assist at the low back and shin. It should be noted that spotters must be careful to avoid getting an arm stuck between the athlete and the apparatus.

The points of performance for the tuck planche on the floor apply to the tuck planche on the parallettes. The parallettes alleviate some pressure on the wrist and allow for more control of the movement. The athlete begins in a tuck support position, and the athlete presses into the tuck planche. As the athlete transitions from one movement to the other, the spotter's front hand will be blocking at the shoulder and the rear hand will usually spot at the hamstring. This is beneficial for two reasons: the arm will not get trapped and the athlete can step down freely when needed.

For the L-sit, we progress by starting from a tuck support and then allow the athlete to extend one leg at a time. The leg should be moved to extension with control. The quad is flexed, the knee is locked, and the toe point is slightly above the top of the hip (iliac crest). The spotter will transfer hand placement from the shin to under the calf.

The next step is to extend both legs in the same manner detailed above. Active tissue is engaged, and a line parallel to the floor can be drawn from toe point to hip crest. The feet might look slightly elevated, but this is the form and control we are striving for.

DOWN, UP, SHOOT IT!

A shoot-through begins with the athlete in the top of a push-up with an active hollow body. The feet leave the ground and pass between the hands, and the heels meet the ground on the other side of the parallettes. A straight body line is re-established by elevating the hips. Shoulder extension is increased in this position. The athlete then moves back to the starting position.

When working drills, skills, and warm-ups or just doing a fun conditioning activity, you can easily add a push-up and a dip. Do it as a fun and entertaining cash out. Crank the music up and cue your athletes, "Down, up, shoot it! Down, up, shoot it!" Get creative and use any variety of movement you want.



RING AUXILIARY DRILLS

RING PUSH-UP

With the rings set a few inches off the ground, establish a strong hollow-body push-up position. Starting with hands parallel to each other, lower to the bottom of the push-up and press back to the top.

Variations: Turn the hands out at the top, move them parallel at the bottom, and then turn them out again at the top. A more advanced variation would be to keep the hands turned out throughout the entire movement.

SINGLE-ARM EXTENSIONS

Single-arm extensions begin from the top of the push-up position. The athlete lowers to the bottom of the push-up position, deliberately extends the right arm straight out to the side under control until the elbow is locked, and then brings the arm back in. The movement is repeated on the opposite side. Another variation is to extend the arm forward, placing the biceps by the ear. If an athlete is having trouble with balance or tipping sideways, the feet can be spaced slightly apart to help with stability. When performing these drills, it is important to avoid excessively tucking the ring under the body to create false support.

T'S AND Y'S

T-outs and Y-outs also begin from the top of a push-up position, except the knees are on the ground. In these drills, the arms will stay locked out the entire time. In a T-out, the arms will go straight out to the sides, and the rings will get further from each other as the chest lowers toward the ground. The athlete should take the movement as far as he or she is able without allowing the arms to bend. If the arms bend, the athlete needs to correct it, limit range of motion to a point where the arms can stay straight, or scale the movement. In a Y-out, the arms go forward and all the above points of performance apply. Taking the knees off the ground and performing a Y-out to bring the body parallel to the ground is an incredible display of core strength.

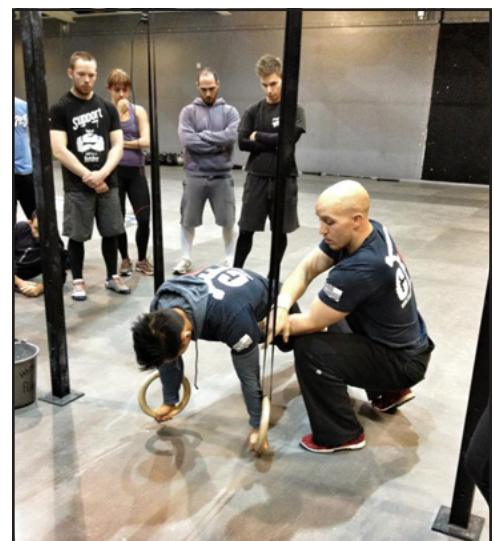
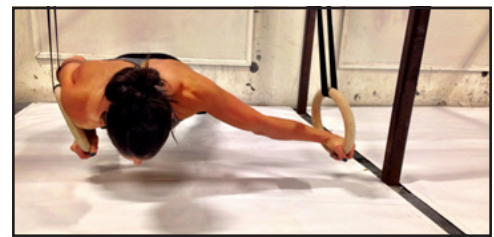
SCALING

All these drills can easily be scaled either by placing the knees on the ground or by walking the feet or knees forward to limit the inclination of the body in relation to the floor. Walking forward effectively decreases the load, much like a push-up against a wall vs. the ground.

These drills and skills are great substitutions for ring support holds and ring dips as they allow the athlete to work on a dynamic apparatus under modified conditions.

SPOTTING

These movements can be spotted from the side with one hand on the abdominal wall. Make sure to keep your face away from the straps.



PLANNING AND IMPLEMENTATION

There are a variety of ways to implement gymnastics into your programming. For yourself, an individual, or for the box, gymnastics movement can be incorporated as a warm-up activity, as extra conditioning, or as the workout of the day.

The challenge is that sometimes clients/athletes willingly surrender quality and form because they put too much emphasis on the clock, competition, and intensity. As a coach, you must educate and explain why it is beneficial to shift focus toward form and quality and away from simply finishing a workout fast or as prescribed. Relate it back to the technique vs. intensity example of target shooting often used at the Level 1 Certificate Course: emptying the clip as fast as you can is useless if you also do not hit the target.

Convincing athletes strict movement should be mastered before kipping might be a challenge, but consider the risk vs. reward. How long have they been doing CrossFit? How long do they plan on doing CrossFit? We hope they plan on training for the rest of their lives, which is why we want their muscles, joints, tendons, and ligaments to be strong and healthy.

Based on the 10 components of fitness, we know speed and power are the essence, but in order to achieve or enhance these qualities, we have to improve the neurological components and the physical components. Too often athletes try to develop speed and power in gymnastics via the neurological components alone. They say, “Well, if I learned the kip then I could do pull-ups, muscle-ups, or handstand push-ups.” If they instead developed strength and stamina first, learning the kip becomes much simpler, and the quality and quantity of the reps increases dramatically.

ASPECTS OF PROGRAMMING

There are three main variations of programming for CrossFit Gymnastics: intensity as a percentage of your max, volume as number of repetitions or time under tension, and frequency. When incorporating more gymnastics into your programming the basic outline would be:

Monday High volume, moderate intensity.

Wednesday Low volume, low intensity.

Friday Low volume, high intensity.

You could follow this outline for a single skill or multiple skills. Some sample weeks are shown below:

WEEK 1

- Monday—5 x 5 strict pull-ups
- Wednesday—15 minutes working on handstands
- Friday—1 x 5 strict muscle-ups

WEEK 2

- Monday—5 x 5 strict ring dips
- Wednesday—15 minutes of hollow and arch drills
- Friday—1 x 5 deficit HSPU

WEEK 3

- Monday—5 x 6 pistols
- Wednesday—5 minutes of parallette drills and skills
- Friday—1 x 5 weighted pull-ups

When implementing this programming, remember it should be supplemental to your existing programming. It does not have to be time consuming and can easily be incorporated into the beginning of class before you hit the workout of the day.

Here are a couple of other ways to dial in specific skills you think need to be improved. Using the same format as above, select three skills and rotate them weekly. This is sometimes referred to as the “cube method.”

This example is for pull-ups, handstands, and ring dips.

WEEK 1

- Monday—High volume, moderate intensity
 - 5 x 5 pull-ups
- Wednesday—Low volume, low intensity
 - 10 min. to practice handstands and positional work
- Friday—Low volume, high intensity
 - 1 x 5 weighted ring dips

WEEK 2

- Monday—High volume, moderate intensity
 - 5 x 5 ring dips
- Wednesday—Low volume, low intensity
 - 10 min. to practice pull-ups, hollow/arch and close/open drills
- Friday—Low volume, high intensity
 - 1 x 5 max handstand hold

WEEK 3

- Monday—High volume, moderate intensity
 - 5 x :20 handstands
- Wednesday—Low volume, low intensity
 - 10 min. to practice ring dips and support holds with different hand positioning
- Friday—Low volume, high intensity
 - 1 x 5 weighted pull-ups

Another great template that works well for gymnastics movements is the progressive model. It can be done a variety of ways, but it is commonly done as 1-5 reps x 3 sets or 1-5 reps x 5 sets.



Here is how it is laid out. Select a specific skill - we will go with the strict pull-up in our example - and use the 1-5 x 3 format.

Day 1—1, 1, 1

The athlete stays on this format until he or she can complete all the required reps. When the athlete is able to complete the required reps, he or she will then add more reps to the front end.

Day 2—2, 1, 1

Day 3—2, 2, 1

Day 4—2, 2, 2

Day 5—3, 2, 2

The athlete continues on until the or she works up to 5, 5, 5.

MODIFYING WORKOUTS

When modifying workouts, do not hesitate to break certain movement down into components for your clients. If a client is lacking in pull-up strength and a met-con with pull-ups is programmed, feel free to have him or her work strict pull-ups and beat swings. This allows the athletes to develop the physical and neurological components. Other common movements that can be broken down are HSPU (handstand holds, box HSPUs) and ring dips (push-ups, ring support holds).

Let’s see how this looks for some popular benchmark workouts:

<p>FRAN 21-15-9</p> <ul style="list-style-type: none"> □ Thrusters □ Pull-ups 	<p>21-15-9</p> <ul style="list-style-type: none"> □ Thrusters □ Ring rows □ Beat swings
<p>DIANE 21-15-9</p> <ul style="list-style-type: none"> □ Deadlifts □ HSPU 	<p>21-15-9</p> <ul style="list-style-type: none"> □ Deadlifts □ Box HSPUs □ Handstand (hold in seconds)
<p>ELIZABETH 21-15-9</p> <ul style="list-style-type: none"> □ Cleans □ Ring dips 	<p>21-15-9</p> <ul style="list-style-type: none"> □ Cleans □ Push-ups □ Ring support (hold in seconds)

SINGLE-ELEMENT DAYS

In CrossFit we often see a weightlifting-only day or a running-only day, but rarely do we see a gymnastics-only day. In reality, days with a focus on gymnastics should be as common and frequent as days with a focus only on running or lifting. If a single-element day is implemented, make sure recovery is not a limiting factor. For a gymnastics day, rest should be long and deliberate, and the focus should be kept clearly on improvement of the element and not on the total metabolic effect.

Before incorporating more advanced skills into programming, it is helpful to have a day to teach and work through the progressions. A gymnastics-only day can be used to accomplish this.

WARM-UPS AND CONDITIONING

Outside the previous examples, gymnastics can also easily be incorporated into warm-ups and/or used as supplemental conditioning. The fundamentals and foundational movements can always be improved. Improvement in the hollow and arch body positions will be beneficial to everything you do. Do hand-stands, support holds, static holds, arabesques, inchworms, etc. More exposure to these movements often goes a long way. Have fun and get creative!

Reminders

- Strive for virtuosity/be impressive.
- Always evaluate risk vs. reward.
- Both quality and quantity can be achieved.
- You can never be too strong or too skilled.

Gymnastics & Tumbling

by Greg Glassman

(originally printed in the [CrossFit Journal](#) in February 2005)

This month we review a small yet dense out-of-print book titled *Gymnastics and Tumbling* First published by the U.S. Navy in 1944, *Gymnastics and Tumbling* is today an obscure reference in danger of extinction. We believe it is an indispensable resource for CrossFitters and intend to keep it alive.

Shortly after the United States' entrance into World War II, the United States Navy implemented a physical training program for future pilots based on training and practicing various sports: "Successful coaches were commissioned so that the Navy might have the best instruction available" The successes, methods, and refinements of these coaches-turned-officers culminated in the issuance of the *Naval Aviation Physical Training Manuals* by the US Navy in 1944.

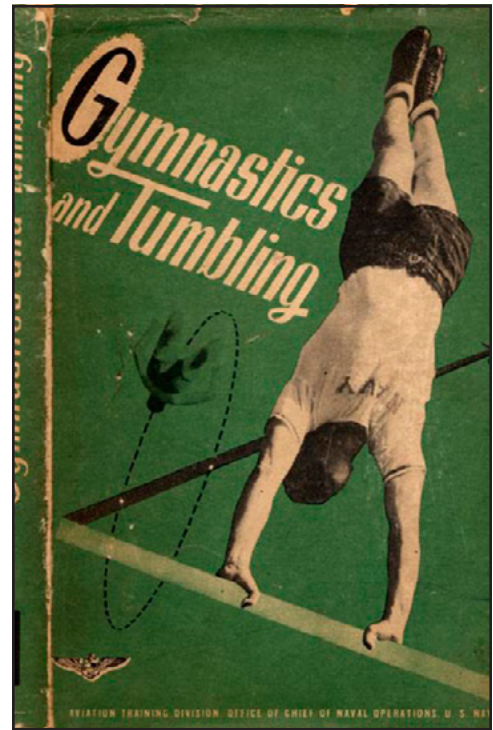
The manuals were prepared by and for the newly commissioned officers from their experiences in teaching thousands of aviation cadets. Their titles include: *Hand- to-Hand Combat*; *Boxing*; *Wrestling*; *Football*; *Gymnastics and Tumbling*; *Soccer*; *Basketball*; *Swimming*; *Mass Exercise, Games, Tests*; *The Sports Program*; *Labor Engineering*; and *Military Track*.

While our focus this month is on the *Gymnastics and Tumbling* manual in particular, much of its virtue may lie in the fact that the U.S. Naval Aviator's physical training program in total was inspired by war; modeled from successful sport practice, not science; designed and implemented by coaches, not professors; considers sport in the military training sense of physical and mental development and not for the sake of sport or recreation alone; and, finally, was successfully taught to young men of ordinary physical capacity.

The unique and essential contribution of gymnastics to fitness, and by extension to war fighting, is brilliantly articulated in *Gymnastics and Tumbling* (G&T). At the end of the chapter titled "Brief History of Gymnastics," we find the powerful statement that "gymnastics and tumbling contribute in large measure to the demands of a democracy at war."

British author D.W. Brogan said of America's entry into WWII, "For Americans war is almost all of the time a nuisance, and military skill is a luxury like Mah-jongg. But when the issue is brought home to them, war becomes as important, for the necessary period, as business or sport. And it is harder to decide which is likely to be the more ominous for the Axis – an American decision that this is sport, or that it is business." That we turned to sport and not science to forge defenders was a wise move at a critical moment. It is also pure CrossFit to let successful practice trump more academic approaches. The link between the values and physical benefits developed through sport training and the demands of war are demonstrated pointedly throughout G&T. The doubleedged benefit of mind and body development through fitness and sport are also well noted:

"It is our duty to train the cadets to be superior to that enemy, mentally and physically. Rigorous,



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tough, competitive sports offer an excellent medium to fulfill this mission. Records have proven that mental improvement of the cadets goes hand in hand with better physical condition” (v).

“Basedow...regarded physical activities as a means to a complete education embracing both the body and mind” (4).

“Pestalozzi...believed that methodical exercising trained the pupil intellectually, morally and aesthetically” (5).

“Jahn, the father of German gymnastics... wanted to create “liberty loving, social and independent thinking... by strengthening the degenerated muscle groups of the body, thus liberating man from the shackles of an environment that made him feeble, that allowed his muscles, and consequently his mental vigor, to decay” (5).

“It is of interest to note throughout history, the rise and fall of nations has seemed to coincide with the rise and fall of the physical stamina of their people” (7).

“Athletic professionalism for the few and a lack of strenuous participation among the many brought about a decline in the national physical stamina and a consequent decline in the power of Greece” (7).

Inspired by the demands of a world at war, these historically conscious authors denounce the then-current (1944) level of gymnastics instruction in the U.S. and blame the declining use of gymnastics apparatus in American public schools and colleges on the trend toward “mild recreational activities for the majority while strenuous competition was encouraged for the small minority.” Ironically this complaint came at a time when there were 100,000 American members in one gymnastics organization alone; today there may be fewer than 1,000 American male gymnasts over ten years old.

The Navy utilized gymnastics for the discipline’s training effects, not to make competitive gymnasts. This, in

SPORTS PROGRAM STUNTS AND RECORD PERFORMANCE

For complete descriptions and diagrams, refer to pages: 322-334 of the [book](#).

ON FLOOR

1. Balance on toes record: 49 sec.
2. Forearm balance record: 1 min. 47 sec.
3. Hand balance record: 1 min. 50 sec.
4. Hand walk (floor) record: 186 ft.
5. Hand walk (low parallels) record: 6 trips
6. Kneeling back-bend. record: 64
7. Leg lifts and sit-ups record: 500/500
8. Left side support. record: 130
9. Right side support record: 130
10. Extension press-up. record: 4 min. 15 sec
Number of times. 25
 - a. One-arm extension
press-up record: 2 mins.
11. Push-ups on hands. record: 325
12. Push-ups on fingers. record: 84
13. Push-ups slapping chest. record: 75
14. Push-up with 9 lb. medicine ball . record: 305
15. One-arm push-ups. record: 84
16. One-half lever record: 80 sec.
17. Sit-ups (feet not anchored). record: 2326
18. Sit-ups – back arched. record: 75
19. Skip forward and backward
over leg. record: 21
20. Squat (right leg forward). record: 47
21. Squat (left leg forward) record: 41
22. Jump over stick record: 30
23. Wrestler’s bridge. record: 33
24. Eight-foot jump agility test. record: 2.5 sec.
25. Elbow lever on deck. record: 3 min. 46 sec
26. Forearm balance walk
for distance record: 43 ft. 9 in
27. Hand walk fifty feet for time. record: 8.3 sec.

the words of Captain F.T. Ward, the Director of Aviation Training in 1943, "is the reason that the books are unlike other sports publications." This distinction drives the program's practical approach and explains why the authors of G&T might have stated the value of gymnastics to physical development and general physical preparedness better than most modern authors.

In the introduction to G&T the authors explain that "Gymnastics and Tumbling is included in the Naval Aviation Physical Training Program because of the strength and skills that are developed through participation in this sport. These include improvement of upper body strength, and training in quick and correct decision and action. Since there is no other activity to develop full upper body strength, agility and balance this sport occupies a prominent place in the Naval Aviation Training Program."

The brief and powerful chapter titled "Values of Gymnastics and Tumbling" provides a list of further benefits derived from gymnastic training:

1. Gymnastics contributes to the development of upper body strength. Over fifty percent of the cadets admitted to the pre-flight schools have been found to be deficient in the upper body strength, especially in the muscles of the shoulder girdle, the triceps, the abdomen, and the back.
2. Gymnastics provides opportunity for the development of power. Rope climbing, throwing the medicine ball for distance, and gymnastic routines require maximum effort and hence develop power.
3. Gymnastics provides for the development of muscular coordination or neuromuscular control. The fundamental activities of running, climbing, and jumping are combined in a unique way in gymnastic routines. Twisting or turning, bending, circling, and swinging movements occur in rapid succession during the routines in the upright or standing position, in the hang, the support, and in various other positions. Perhaps no athletic activity other than gymnastics and tumbling provides the opportunity for the development of maximum muscular coordination and neuromuscular control and perhaps no war activity demands the acme of muscular coordination and neuromuscular control as much as aviation.

Sports Program Stunts and Record Performance cont'd

28. Hand walk with 9-lb. medicine ball record: 132 ft.
29. Head balance to hand-balance . . . record: 8
30. Head balance, straight leg lifts . . . record: 45
31. Push-ups, crab position record: 9
32. Squat balance touch knees record: 45
33. Squat jumps record: 156
34. Wrestler's turnover on medicine ball record: 33
35. Wrist twist record: 9 1/2
36. Diving roll record: 14 ft.4 in.
37. Number of sit-ups in 5 min.; feet unanchored record: 132
38. Number of sit-ups in 5 min.; feet anchored record: 157
39. "V" position record: 20 min. 25 sec.
40. Forearm balance to hand balance record: 2
41. V-Roll record: 32
42. Burpees record: 40 in 30 sec.

ON HIGH BAR

1. Back lever record: 53 sec.
2. Front lever record: 19.5 sec.
3. Belly grinds record: 26
4. Chins:
 - a. Ordinary grasp, no kip record: 46
 - b. Reverse grasp, no kip record: 46
 - c. Reverse grasp, weighted with 50 lbs record: 11
 - d. Reverse grasp, weighted with 9-lb. medicine ball record: 21
 - e. Ordinary grasp, wide grasp and touch back of neck record: 20
 - f. Forearm grasp record: 21
 - g. Bicep grasp record: 6
 - h. Ordinary grasp; raise legs to half lever record: 21
 - i. One finger record: 14

4. Gymnastics contributes to the development of suppleness, elasticity, litheness, and flexibility, permitting full range of body movement and control.
5. Gymnastics develops a sense of relocation. A series of fast forward rolls on the mats, or hip circles on the horizontal bar, or a workout on the aerowheel or trampoline, leaves the cadet extremely dizzy at first. Two weeks of practice, however, conditions him effectively so that he makes satisfactory adjustment in a short time. Both the poise and equilibrium are outcomes of the sense of re-location, which affords an awareness on the part of the aviator that he is inverted when he is flying upside down.- 21 -
6. Gymnastics develops agility – quick, easy, dexterous movements. Vaulting in a variety of positions teaches the fundamental principles of body control. The naval aviator or paratrooper may be called upon to overcome unforeseen hazards and obstacles during landing operations; hence he must be adept in vaulting and in jumping. He must have overlearned the art of vaulting to the side, in a squat position, in a straddle, end-over-end, or in a dive, easily and with minimum effort. Gymnastics, then, dovetails with training on the obstacle course since the most effective runner is the one who can skillfully, safely, and quickly adapt his gymnastics vaulting experience to the difficulties of the course.
7. Tumbling teaches falling safely. Practically every phase of his life as a cadet, or aviator, (or as a civilian, for that matter) may be materially aided by a knowledge of tumbling. When he first takes “boot” training, when he takes conditioning hikes when he participates in football, basketball, or any other sports activity, the cadet who can tumble is that much better equipped to save himself from injury caused by falling than one who cannot tumble.
8. The cadet who is temporarily incapacitated by minor injuries may participate in specially selected gymnastics, thus keeping in condition despite his handicap.
9. Gymnastics and tumbling develop body balance which is useful to the individual throughout life. Together with climbing, vaulting and

Sports Program Stunts and Record Performance cont'd

- j. One arm record: 2
- k. Chin dips record: 15
5. Pull-up both hands leading record: 12
6. Fence vault. record: 6 ft. 3 in.
7. Monkey hang. record: 20
8. Skin the cat record: 25
9. Drop kips record: 25
10. Free hip circles. record: 19
11. Forward hip circles. record: 42
12. Giant swings record: 20

ON SIDE HORSE

1. Giant hip circles. record: 28
2. Scissors, ordinary record: 58

ON LOW BAR

1. Short underswinging dismount
for distance record: 10 ft. 3 in.

PARALLELS

1. Dips
 - a. Ordinary record: 34
 - b. Reverse grasp record: 20
 - c. Ordinary, weighted
with 50 lbs record: 15
 - d. swinging dips backward record: 30
 - e. Swinging dips forward record: 43
 - f. Swinging dips forward and
backward record: 31
2. Grasshopper walk forward
and dips record: 29
 - a. Grasshopper walk backward
and dips record: 31
3. Grasshopper jump and dips record: 29
4. Grasshopper walk forward and
backward dips. record: 22
5. Lion's crawl and dips record: 16
6. Pirouettes. record: 8

falling, these skills are directly useful in various emergency situations.

10. Gymnastics teaches the cadet how to ascend, descend, and rest on a rope, - skills which are of paramount importance from a practical standpoint.
11. Gymnastics develops a sense of daring and courage, yet discourages foolhardiness.
12. Gymnastics develops attitudes vital to the successful naval aviator: fearlessness, initiative, decisiveness, courage, perseverance, presence of mind, selfconfidence, as well as an analytical outlook and the ability to size up a situation quickly.

The intended audience for Gymnastics and Tumbling, aviator cadets, were more physically ordinary than might be presumed. Pre-Flight School standards included 20 push-ups, 6 pull-ups, and a 16-inch vertical leap. The endurance and agility tests were similarly lax. Most CrossFitters would easily qualify. The G&T curriculum is designed so that "even the inexperienced officer may do a commendable job in gymnastics if he studies and follows the manual and the lesson program thoroughly."

If the pretest qualifications are too tough, Chapter XII, "Supplementary Programs," offers "Sub-Squad" programs designed to bring the cadet up to snuff. A program is offered so that "an inferior cadet may be brought up to the standards of the base within a five-week period." The sub-squad activities listed by apparatus on pages 271- 277 provide hundreds of spectacular drills on the horizontal bar, side horse, stall bars, rings, parallel bars, and medicine balls. Remember, these drills are used to ramp you up to 20 push-ups and 6 pull-ups. Most of the exercises here could be done by anyone. How long have we searched for interesting regimens preparatory to basic calisthenics?

In 450 pages, nearly one thousand exercises, and hundreds of photographs there isn't one exercise of advanced or even intermediate difficulty. The progressions are gentle, sweet, and easy. They were designed for full-grown men of moderate fitness and ability, largely inexperienced and quite possibly terrified, and, as likely as not, disinclined to falling or being upended or inverted. We say the progressions are "gentle" or "universal."

The aviation cadets' training attention was split among

Sports Program Stunts and Record Performance cont'd

LOW PARALLELS

1. Hand balance record: 2 min. 16 sec.
2. Hand balance on one bar record: 60 sec.
3. Push-ups record: 202
4. Parrot hand balance on parallel bars record: 24 sec.
5. Shoulder balance to hand balance record: 6
6. Push-up (back) record: 89
7. Tune-table (legs in half lever) ... record: 31
8. Elbow lever record: 3min. 30.5sec.
 - a. One-hand elbow lever
9. Pirouettes record: 9
10. Straight-leg, bent-arm press to hand balance

ROPES

1. Rope climb 19 feet record: 4.9 sec.
2. Double rope climb record: 7.3 sec
3. Rope climb with 27.5-lb. pack ... record: 8.2 sec.
4. Inverted rope climb record: 7 sec.

RINGS

1. Hand balance record: 45 sec.
2. Pull-ups both hands leading ... record: 9
 - a. Inverted hang record: 36
 - b. Chins with legs in half-lever .. record: 2

STALL BARS

1. Flags record: 23 sec.
2. Leg lifts record: 81 times
3. Half lever with 9-lb. medicine ball. record: 41 sec.

MEDICINE BALL

1. Throw for distance - 9-lb. ball. ... record: 50 ft.
2. Throw for distance - 6-lb. ball. ... record: 63 ft. 6 in.



eleven "conditioning departments" of which gymnastics and tumbling was but one. Gymnastics was "one period" each day. Not every facility had adequate equipment, so a section titled "When Regulation Equipment Cannot Be Secured" describes homemade substitutions for mats, horizontal bars, parallel bars, vaulting box, springboard, and beat boards. The spirit of G&T is one of inclusiveness and "can-do" resourcefulness.

Mining gymnastics for even fractions of the adaptations of the gymnast and not for artistic expression; employing doable progressions; coupling and compromising gymnastic training with other fitness goals and efforts; and emphasizing the mental and character demands of training are all fundamental to the aims of Gymnastics and Tumbling and a near perfect match to the CrossFit charter.

Essential to the CrossFit concept is balanced competency in the ten general physical skills: cardiovascular/ respiratory endurance, stamina, strength, flexibility, power, speed, coordination, agility, balance, and accuracy. Gymnastics has

no peer among training modalities for developing the four neurological components of the ten skills—coordination, agility, balance, and accuracy.

In our Santa Cruz, CA, facility, our better athletes play with and practice basic gymnastics movements regularly if not daily. We have parallel bars, rings, mats, and a pommel horse set up at all times. Unfortunately, this aspect of our local athletes' training hasn't carried over strongly to our Internet friends following the WOD (Workout of the Day). A lack of equipment and general unfamiliarity with the fundamental exercises of gymnastics within our larger community has resulted in the neurological skills development of the CrossFit community not keeping pace with the other components of fitness.

To remedy this, i.e., to increase our community's coordination, agility, accuracy, and balance, we commit to the following:

- Familiarizing the CrossFit community with the U.S. Navy's Gymnastics and Tumbling book (G&T).
- Encouraging those following the WOD to practice



and train one of the basic movements from G&T before each workout as part of an extended warm-up.

- Encouraging CrossFitters everywhere to acquire access to parallel bars, rings, mats, etc.
- Posting pictures of athletes' efforts and successes with the basic movements.
- Generally fostering stronger gymnastics awareness, participation, and instruction through the CrossFit website We want you to use Gymnastics and Tumbling for inspiration, as a checklist for movements learned, as a means to discover new low-challenge bodyweight exercises, and as a contextual reference for greater gymnastics involvement and communication.

There is so much right about G&T. It exists solely to quickly and efficiently extract the gymnastic advantage, was tested and proven with full-grown adults, contains nearly 1,000 exercises, many of which anyone can do (check-out the Squad D and C stunts), and is well illustrated and cleverly diagrammed. The stick figures are wonderful, the aviator records for various stunts are motivating, and the spirit and tone is pure CrossFit—serious yet fun, pragmatic, and challenging.

Sadly, our raving about G&T over the past few months has quickly removed enough copies from the market that the few that remain available have risen nearly 400% in price to over \$40. We don't relish Gymnastics and Tumbling reaching \$500, but there will always be more CrossFitters than copies—unless we are able to persuade the US Naval Institute to commission another printing. Until that time, we have resolved to share our copy with everyone.

We scanned our copy of Gymnastics and Tumbling, sacrificing one book for the cause, and we're making it available chapter by chapter for everyone to download free of charge.

Get to work! Post your frustrations, wounds, and successes to comments.

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(From the book, "Gymnastics and Tumbling")

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Service is the highest calling we have to offer one another; there is no higher calling. I encourage you all to offer service to your fellow man no matter what level of service you are called to give.

I hope we have been of service to you in this weekend's events. I appreciate your efforts and your attention.

Respectfully, Tucker

For more information about Tucker's background and experience, see [this interview](#) by Again Faster.



