



**IRONEDGE**  
*Workshops*

# SUSPENSION TRAINING

▶ MANUAL





This comprehensive course will detail the suspension training methodology and instruction of various suspension training implements. Upon completion of the course, individuals will gain a greater understanding and instructional capabilities when using suspension training equipment. Basic programming ideas and an extensive range of exercises will be provided for future reference.

#### **AIMS OF THE WORKSHOP:**

- Teach the fundamental skills and training methodology of suspension training.
- Learn how to progress and modify key movements.
- Learn how to use and apply the same suspension training principles in order to seamlessly transfer from one suspension training system to the next.
- Learn that all suspension training systems are fundamentally the same, and utilise the same principles.
- Instruct how to set up and create a safe training environment.
- Teach the correct cues and coaching methods to safely and effectively instruct a variety of exercises on various forms of suspension training.
- Teach how to identify and correct common training faults and mistakes in suspension training.

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### WHAT YOU WILL GAIN FROM THIS COURSE

Suspension training is a growing feature in the fitness industry. This course will provide you with a definitive guide to suspension training in its major forms, the theory and science behind suspension training and how you can incorporate its methods into your programs. Suspension training can be an incredible resource for personal trainers and knowledge of how to correctly prescribe and perform such training is imperative to reduce injuries and maximise results.

Specific exercises and programming guides contained within the manual aim to supplement the practical knowledge gained within the workshop, to provide you with all you need to start training with suspension systems. Training methodology and specific instruction of Power Rings and Crosscore I 80 will be covered, and differences between the two suspension training systems compared to the TRX will be explored. Regardless of training levels or history, suspension training can be of benefit to all populations.

Work shop participants will learn that the benefits and principles behind suspension training are fundamentally the same, and once an exercise or movement is learnt on one apparatus it can transfer closely to movement on another suspension training system. Likewise, participants will learn the basic coaching cues for each exercise as well as methods and strategies to correct technique faults.



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# **INTRODUCTION TO SUSPENSION TRAINING**

### **HISTORY: WHAT IS SUSPENSION TRAINING?**

Originating from age-old gymnastic protocols, suspension training has significantly risen in popularity in recent years. With minimal equipment required and the ability to train basically anywhere, suspension training appeals to many and provides an introduction to a world of bodyweight training that would regularly be beyond the scope of resistance training. The variety of exercises are endless, and with thoughtful progressions and correct training instruction the suspension training options are virtually unlimited<sup>1,2</sup>.

The idea of suspension training is hardly a new concept, incorporating the relatively simple idea of moving and manipulating one's own bodyweight in a suspended environment. Different movements and exercises can target all of planes of motion, as well as cause adaptation in a number of strength and conditioning objectives.

With the instability and constant shifting of weight distribution, suspension training is considered an advanced form of body-weight training. The nature of suspension training requires active stabilisation throughout dynamic movement, to correctly align the body and reduce injury risk. This is one of the principal benefits of suspension training, as each movement requires an active trunk stabilization component, meaning the core is highly activated throughout all exercises.

### **IMPORTANCE OF BODYWEIGHT EXERCISES**

Standing up, running, jumping and general movement requires the ability to overcome bodyweight resistance and move against the forces of gravity. Training using bodyweight as a resistance will coach quality of movement, which is essential in performance. Bodyweight should provide the base level of intensity, and in most cases can provide sufficient resistance for a challenging workout. The principle of suspension training is derived from bodyweight exercises with scalable intensity, with the need to stabilise the trunk throughout movement. As an individual becomes stronger, exercises can be easily progressed to add resistance and increase the difficulty, therefore allowing for overload and periodisation with bodyweight training.

Using different amounts of bodyweight as a resistance can increase functionality of daily tasks, as primal movement patterns are performed under a meaningful and significant load for each individual. Extra external load should not be prescribed until technique is perfected and the individual is bodyweight competent, where their bodyweight is no longer providing a sufficient resistance for appropriate adaptation.

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# **BENEFITS OF SUSPENSION TRAINING**



### EXERCISE VARIETY

The sheer amount of exercises that can be done on suspension training implements means that entire sessions can be completed using suspension training, targeting all muscles, movements and joint angles required for athletic development<sup>2</sup>.

An upside to training on a dynamically moving apparatus, as occurs in suspension training, means the client is free to train a multitude of joint angles and ranges of motion within the same exercise. For example, if you do a push up on the ground you are generally locked into the fixed body arrangement, with hands in an immovable position. In suspension training, the position is not locked and will actively move as you complete the movement, therefore adding to the difficulty and muscular demand through changing the angle of exercise and range of motion. This feature also promotes joint health, as handles can rotate independently to provide safe joint position.

### TRAIN ALL MOVEMENT PLANES

Rarely in daily movement do we limit ourselves to movement in a single plane of motion. The scope of exercises that can be incorporated into a suspension training session can target various joint angles and functional movement patterns, either to replicate daily movement or athletic activity. Scaling exercises to suit individual needs. Suspension training can be used for teaching basic technique to beginners and proper alignment (e.g. squat), as well as being used to challenge advanced and experienced clients with complex movements. In one piece of equipment, trainers have the ability to train all their clients, including the injured, the elderly and the athlete!

### INCREASED TRUNK STABILITY DEMAND

The instability that comes with suspension training places a large demand on the trunk musculature in order to stabilise the body. Without activation of stabilizing muscles, not only in the trunk but in the shoulders and hips, movement would be compromised as force would be unable to be distributed into the rings to generate movement. A stronger, more stable trunk has benefits in everyday life and in sports scenarios, from reducing the risk of falls in the elderly to increasing the ability to withstand external force from an opponent in a tackle. Therefore suspension training can benefit everyone, and can be used as either the primary training tool or supplement existing strength and conditioning programs.

### THE ABILITY TO TRAIN MULTIPLE FITNESS COMPONENTS

On a single suspension training system, an individual is unlimited in the training component they can target. Movements can be loaded to train strength and power; and modified to target speed or endurance. Flexibility, mobility, balance and coordination are challenged in the majority of movements on a suspension trainer. Regardless of individual training requirements, a suspension training system can be a valuable tool to add to the training program.

### COST-EFFECTIVE

Suspension training only involves one piece of equipment. Whilst the cost for a suspension training system may be high initially, once you have your hands on a suspension training product you are able to effectively train most physical aspects.

### SPACE-SAVER

Suspension trainers are all portable, reasonably compact and useable in many conditions. This allows personal trainers to be able to perform sessions basically anywhere, and sporting teams or athletes who are travelling can use suspension training to continue working out on the road.



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# **FORMS OF SUSPENSION TRAINING**

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# POWER RINGS

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Watching the gymnasts on the rings at the Olympic Games perform gravity-defying routines often intimidates trainers and gym-goers to steer clear of the rings, however they are a great tool for developing dynamic power and strength. Lightweight, portable and easy to set-up, the rings can create a full body workout almost anywhere.

The Power rings (otherwise known as Roman Rings) are the oldest form of suspension training, and consist of two lengths of nylon webbing that can be easily adjusted for height via a cam buckle, with a plastic or wooden ring within the strap loop. The plastic rings (28mm) are suitable for basic movements, whereas the wooden power rings come in either 28mm or 32mm thickness and provide much better grip for more advanced exercises (the use of chalk to further enhance grip is advised for wooden rings). The Olympic standard is 28mm, whereas the 32mm rings allow for a better maintenance of false grip and may make muscle-up exercises a little more accessible for larger athletes.



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# CROSS-CORE 180

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The Crosscore 180, formerly known as the War Machine, is a unique system incorporating the notion of increased instability and rotation into suspension training, for even greater muscular engagement. The rotational aspect allows for even more exercises and movements and inclusion of the transverse plane of motion. The Crosscore 180 is also able to be fixed, therefore can act as a regular suspension trainer if required. A pulley system can also be created by the Crosscore 180, for even more exercises. Lightweight and portable, the CC180 can be set up and taken virtually anywhere. Exercises and various progressions are often limited only by one's imagination.



# TRX

The TRX (Total-body Resistance Exercise) was originally developed by Navy Seals as a method for training the whole body whilst away from the gym on assignment. Extremely portable, the TRX consists of two adjustable nylon straps that are joined to a central strap at the axis point. It can be suspended from doorways, trees or any other overhead anchor capable of holding the users body weight. The length of the straps may limit the range of motion on some exercises, however a wide range of exercises can still be completed. The TRX also has attachments available to add variety and target a number of different training effects.

	PROS	CONS
<b>POWER RINGS</b>	No single strap set-up Comfortable	Can be difficult to set up Plastic handles can become slippery with sweat etc Strap heights are independent
<b>CROSSCORE180</b>	Multiple set-up options Two difficulty levels Can be used with other implements e.g. kettlebells etc Self-centring	Straps and handles can rub against arms/body during movements
<b>TRX</b>	Ultra portable Simple and easy set-up Multiple attachments	Straps can rub Easy to cause friction wear Anchor Point is very narrow

## HOW SUSPENSION TRAINING ACTUALLY WORKS

The various suspension training implements all stem from the same principles. Using the gravitational properties of the body, different movements work to stress the bodies neural, muscular and cardiovascular systems. Dynamic movement patterns that change the centre of gravity force the trunk to stabilise and control itself throughout movement. This transfers accurately to sporting and daily movements, whereby the body is made to react and change position in response to external stimuli. It may involve remaining in a strong position to make a tackle on an opponent, or being able to climb over a fence or out of a pool.



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# **SPECIFIC EXERCISES & PROGRESSIONS FOR SUSPENSION TRAINING**

# BASIC SET UP AND SAFETY

## ATTACHING TO A FIXED POINT

The suspension trainers are able to be attached to a sturdy, fixed point that can hold the users body-weight. Examples of this might include a chin-up bar; a door frame, a tree branch, overhanging poles or an upright vertical structure.

## OVERHEAD SET-UP ON CHIN BAR/OVERHANGING POLES/TREE BRANCH



▲ 1

Grab the cam-buckle with one hand, with the number on the strap facing away from you.



▲ 2

Throw the cam-buckle over the bar/tree/pole. The numbers on the strap should now be facing you on the strap closest to your body.



▲ 3

Pull the strap down in between thumb and forefinger to ensure the strap doesn't twist.



▲ 4

This is an important step that is often overlooked. In order to stabilise the rings and prevent the ring system from shifting when performing lateral movements, loop the cam-buckle over the overhanging pole again, directly on top of the existing strap. This will 'lock' the system in place and prevent the strap from sliding along the pole when performing lateral ring movements.



▲ 5

Once the straps are double looped, your rings are secure. You can now adjust the height of the rings. Pick up the other end of the strap, and again ensuring both ends of the strap have the numbers facing you, feed the loose strap through the cam-buckle.



### DOOR SET-UP FOR RINGS

1. Ensure ring straps are at the same length, using the numbers on the nylon straps as a guideline.
2. Holding the ring straps together; loop an Iron Edge Door Jam around both ring straps at the desired height, and through itself to tighten and secure straps.
3. Position the door jam at the top of a inward closing door; with the shorter side and knobby buckle on the opposite side of the door (opening side) to which the exercises are occurring.

### VERTICAL UPRIGHT ATTACHMENT (Steel Upright, Street Sign, Tree, Telegraph Pole)

1. Wrap the cam-buckle end of the strap tightly around the upright until there is minimal webbing left over.
2. With the other strap, wrap tightly around the upright in the opposite direction as step 1, making sure it wraps underneath the suspension training unit to provide greater support.
3. Ensure no twists or slack is in the straps after wrapping the upright.
4. Feed the excess strap through the cam-buckle and pull tight to test security and stability.



▲ 6

Once fed through, give the strap a forceful tug to make sure it has been fed in the correct direction. The strap should be secure against force. If fed incorrectly, the strap will pull out of the cam-buckle. Align the bottom of the cam-buckle with the particular height setting you require. This will make it simple and easy to ensure that once the other ring is set-up, they will be at the same height for even, balanced movement.



▲ 7

A good tip to make it simple and easy to re-adjust heights of the rings between exercises is to keep the cam-buckle in the same location relative to the body. For example, maintaining the cam-buckle in front of the eyes for every exercise makes it easy to readjust the strap height when interchanging between a horizontal push up to a dip. To keep the excess strapping out of the way when the ring is at a higher height, throw it over the bar.



▲ 8

Your rings are now ready to use.

## SCREENING CLIENTS

Clients should be deemed suitable for physical exercise prior to beginning a resistance training protocol such as suspension training. Basic PARQ should be completed before any physical screening is introduced.

Planks are a great way to screen clients for suspension training, as the position will demonstrate any weaknesses or areas of improvement necessary in terms of shoulder position, trunk stability and breathing techniques.

Likewise, the hollow body position (from the ground) provides trainers with an excellent indication of their clients ability to resist lumbar flexion, which is an important skill in suspension training. Maintaining a straight back position is critical to reduce risk of injury, and once posture has been compromised within a set of any exercise the set should be stopped.

## SAFETY GUIDELINES

Safety is paramount when using suspension training. If the anchor point of the suspension tool is not locked or secured effectively, once bodyweight exercises begin the system is likely to fail and result in the client risking injury from falling. Securing the system effectively involves a quick process, and requires a strong, solid and immovable structure that will provide constant support throughout the movement. When attaching to a piece of gym equipment, ensure that the equipment is bolted to the floor.

Once the suspension system is securely fastened, suspension training systems are actually quite safe. With power rings, it is important that the straps aren't looped over an abrasive surface whereby wear and tear may develop through rough friction. Overall, suspension training tools should be monitored and checked regularly to ensure safety.

Ensure that the environment in which suspension training is taking place is safe for the client. This includes making sure the surface is not slippery, suitable footwear is being worn and the client is appropriately dressed to allow for large range of motion.

After use, the suspension system should be kept out of the elements to protect and lengthen the lifespan of the product.

## CORRECT NEUTRAL SPINE UNDERSTANDING

Bracing allows the body to lift and move in the safest possible manner and can be easily achieved and trained. Bracing (known as a high-tension technique) involves co-contraction of transverse abdominis, erector spinae, internal and external obliques, and rectus abdominis, the muscles that surround the spine. In suspension training, bracing and maintaining a neutral spine is imperative in all movements, as the body is often in a elongated position and is always functioning with gravitational force acting upon it. In movements of pushing, pulling and rotating, if the spine is not stable and the trunk not activated, there is not only increased risk of injury but training effects will be lower as not as much force is able to be transferred.

## SHOULDER STABILITY

Shoulder stability and scapula control is critical for those using suspension training to be aware of. Despite bodyweight being the only resistance in a lot of suspension movements, the forces through the shoulder are significant and present in all upper-body movements. Therefore the shoulder complex must provide a stable environment from which movement occurs. Over 15 muscles attach to the scapula, therefore it plays a critical role in shoulder stability. Incorrect scapula positioning or control may promote increased injury risk.

Retraction of the scapula is vital, as it allows engagement of large, powerful muscles to assist in the movement. Failure to retract increases stress through the shoulder and loads up smaller, less efficient muscles such as the biceps brachii. The ability to retract the scapula effectively will create a fluent, efficient movement.

Programming suspension training to have equivalent pushing and pulling movements may help to limit shoulder malfunction, as the scapula retractors become lengthened whilst the protractors become shorter with an imbalance towards pushing movements. Anatomically 'opening' the shoulder complex, through improved mobility and compliance, allows for greater volume of training through the absence of injury. More stimulation and higher training load enhances shoulder stability through correct training of muscles involved in scapula control, and ultimately leads to improved function of the shoulder and scapula complex.

## GROUND BASED-EXERCISES

Ground-based suspension training exercise involves one or both feet being the point of contact between the suspension training system and the client, with the hands/one foot in contact with the ground. Such exercises may include the plank, push up variations, split squats, hamstring curls and burpees, where your feet are linked into the suspension straps. The principle of ground-based exercises is identical to regular suspension training exercises, in that by removing an aspect of stability the body is forced to actively and dynamically stabilise throughout movement.

## BASE LEVEL STRENGTH

It should be noted that although suspension training is a useful tool for trainers and clients, the basis of all movement is derived from strength. Being 'strong' is critical for all movements, and a reasonable level of strength should be obtained around and within the suspension training program. Basic screening protocols outlined in this manual are

## WHY AND HOW?

### Why include Suspension training into your training program?

Apart from the benefits described in previous sections, the methodology of suspension training just makes sense. The majority of daily and sporting movement requires the body to work against its own resistance effectively, and what better way to train that than by using bodyweight resistance. Looking at Olympic gymnasts, their physique represents extreme strength and power capabilities. By borrowing from their training methods and scaling suspension training movements to an individual's ability, functional strength can be developed to assist in daily life and sporting endeavours. Further, clients always love to try new training methods, and suspension training will allow for fun, unique workouts that train their body in effective manner without them even realising.

### How to include Suspension training into your training program?

Suspension training can be done as an entire session, or as a portion of a larger session. As will be discussed, there are flexibility and mobility benefits to be had from suspension training as well as developing strength through the prime movers and trunk stability. Incorporating a couple of suspension exercises into the warm-up will trigger the neuromuscular system in preparation for the remainder of the session, or can provide the building block for more advanced suspension exercises as the session progresses. Finishing with some static stretching using suspension equipment can conclude the session effectively and return the body to a resting state.

# FLEXIBILITY & RECOVERY STRETCHING

## MOBILISATION TECHNIQUES

While suspension training can be used to increase strength, balance and proprioceptive capabilities, it can also be implemented in flexibility and rehabilitation training programs.

### Flexibility/Stretching

Five minutes on a suspension implement, moving into various body positions to optimise muscle length and increased range of motion, can be a great way to start a training session. As suspension training allows for 3-dimensional movement, experimentation with various body positions outlined in the table below may improve flexibility.

### Rehabilitation

While often not being able to train the specific site of injury immediately, the stabilizer muscles can be stimulated and very light loads can be used to take the injured muscle through passive or active-assisted range of motion in the initial rehabilitation



Back



Adductor



Hamstring



Glute

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# VARIABLE BODY WEIGHT RESISTANCE TRAINING

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## RULES OF PROGRESSION

The advantage of suspension training is that within one piece of equipment, resistance levels can be altered simply and effectively. Compare this to another form of training, e.g. kettlebell or dumbbell or barbell, whereby if resistance progression is prescribed or desired then more weight or an extra piece of equipment is required. In suspension training however, the user can modify resistance levels based on their body position, known as Variable Body Weight Resistance Training (VBWRT). By changing the incline or decline of the body, VBWRT can apply efficient progressive overload or lighter resistance for rehabilitation clients or beginners.

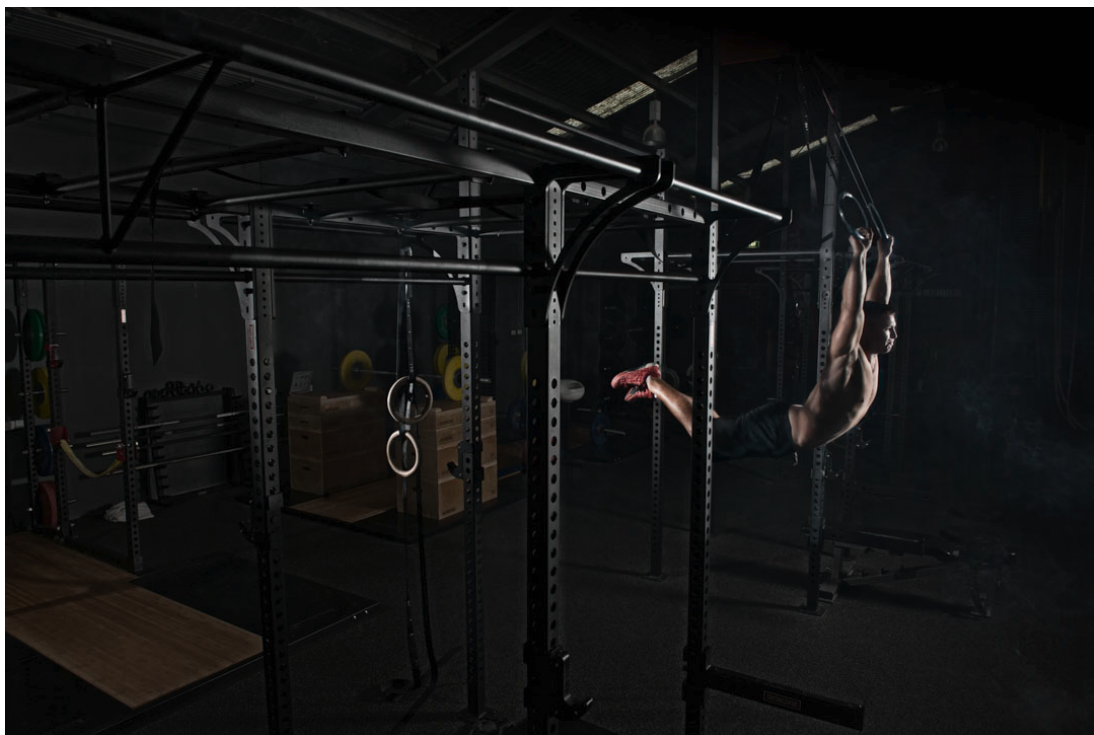
## BASE DISPLACEMENT

The intensity of an exercise can be made easier or harder depending on the position of the rings and body in relation to the anchor point. The direction of the displacement is also critical, and will further contribute to the resultant intensity. As shown by the image below, on the left the client is making the ground based push-up exercise easier and taking away intensity by using the additional forces of gravity to assist in the exercise and therefore reduce resistance. Positioning more of his body under the anchor point means that gravity will swing the rings and assist the movement.

In the image on the right, the relationship between the rings, body and anchor point has now changed, resulting in gravity working against the movement. The rings naturally want to swing back into the dead hang position, but by positioning the body away from under the anchor point, gravity is now working against the movement and therefore greater resistance is created and greater stabilisation is required.

## STABILITY

The balance of exercises can also be altered to increase the challenging nature of suspension training. Performing a push-up on one-leg lessens the base of support, therefore further increasing the demand on the trunk stabilizers to work effectively to control the movement. Progression to this stage should be made only after the client can adequately perform the exercise in a stable position.



# SUSPENSION TRAINING ORIENTATION

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## HANDLES AND GRIPS



Overhead | Push Ups



Underhand | Rows



Neutral | Dips +  
Neutral grip push ups/rows



False | Muscle Ups

## FEET IN

There are a number of suspension training exercises that can require the feet (one or both) being placed within the suspension training system. In these exercises, the hands (or one foot) is in contact with the ground and supports the movement. Below are pictorial examples of how to secure the feet within the suspension training system in an easy and effective manner:



**BOTH FEET IN, FACING GROUND**



**ONE FOOT IN, FACING AWAY FROM  
SUSPENSION SYSTEM**



STANCE PROGRESSIONS

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**1** FACING SUSPENSION SYSTEM



LEVEL 1  
Starting point Slight body angle with offset stance



LEVEL 2  
Both legs straight Feet shoulder width apart



LEVEL 2  
Both legs straight Feet together



LEVEL 4  
Take a step forward towards anchor point to increase angular leverage Offset stance



## 2 FACING AWAY FROM SUSPENSION SYSTEM



**LEVEL 1**  
Starting point Offset stance



**LEVEL 2**  
Both legs straight Feet shoulder width apart



**LEVEL 2**  
Both legs straight Feet together



**LEVEL 4**  
Take a step back towards anchor point to increase angular leverage and raise back leg off ground Offset stance

### SINGLE STRAP SET-UP

Suspension training systems can also be used in single hand style. This will not only train the body unilaterally, but by removing the stabilisation aspect of two handed exercises the stability demands of a simple exercise such as a row or a push-up is greatly increased.

When using Power Rings, single hand style is easily achieved as the straps are independent of one another. Simply grab one of the rings and perform the movement. The difficulty of a row or a push up can be greatly enhanced by performing the movement with only one hand.

For the TRX or Crossscore 180, the process involves simply looping one handle through the other, before repeating the process in the opposite direction. This will secure the un-used handle and allow for single-arm movements to be able to be completed.

### ADJUSTING STRAPS

All exercises will have a starting strap height, in relation to body position. Examples include ankle height, knee height, hip height, shoulder height or overhead. As these positions will not exactly line up with a printed marker on the Power Ring strap, it is advised to position the bottom of the cam buckle in line with the closest marker on the strap relative to the body position desired. This will make it simple and easy to align both straps at the same height, rather than wasting time trying to align the straps exactly based on guessing or estimating.



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# THE FIVE SUSPENSION TRAINING RULES

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## 1. MAIN TENSION

Straps must remain taut throughout all movements on a suspension training system. If tension is lost through the straps, the movement dynamics will shift from the desired outcome

## 2. MAINTAIN BALANCED POSITION

Maintain Braced position In the same manner as the suspension training straps remaining tight throughout the movement, the trunk of the client should remain braced throughout the movement for safety and alignment.

## 3. RUBBING OF STRAPS

Suspension training movements should not create a rubbing force between the system and the client's arms. To prevent this, slightly re-adjusting hand position will cause a change in arm angle and stop any rubbing from occurring.

## 4. LIMIT ROTATION (TRX ONLY)

The TRX system has a fixed anchor point, therefore does not respond well to rotation and sawing motions. Handles should remain at the same height throughout movement. If rotational movements are desired, the CrossCore I80 would be a better option.

## 4. LEVEL OF STRAPS (RINGS)

When using Power Rings, it is critical to ensure that the rings are at the same height. Uneven strap lengths will cause movements such as push-ups, rows, dips and many others to cause unbalanced stress on muscles and joint structures. Achieving balanced ring heights is made easier by the numbering system printed on the nylon straps, however care must still be taken to make sure heights are identical between the straps. Simple errors, such as lining one cam buckle up above the line on one strap and below the line on the other, will lead to an unbalanced exercise. For this reason, it is recommended that in all cases, cam buckles are positioned in a way that the bottom of the buckle hits the top of the printed line on the strap, as shown in the image below.

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# SUSPENSION EXERCISES

## UPPER BODY VERTICAL PUSH - RING DIPS

### Purpose

To build upper-body strength and increase stability of the shoulders and trunk

### Muscle Groups targeted

- Shoulders, Chest, Triceps, Upper Back, Trunk

### Set-Up

- Rings should be positioned about shoulder height (so feet do not touch the ground during dips)
- The wider the rings (attachment points), the greater the difficulty
- Body position directly under the anchor point

### Execution Instructions

- Grip the rings and elevate by extending the elbow joints until fully extended
- Lock out elbows at the top before starting to lower
- Slowly lower the body by flexing the elbows, trying to get through as much range of motion as possible

### Teaching Cues

- Maintain a slightly forward lean to stay balanced
- Keep palms facing medially

### Common mistakes

- Not locking out at the top position
- Not achieving sufficient depth

### Progressions/Variations

- Wider Grip
- Archer Dip
- Wearing a weighted vest



**REGULAR RING DIP**



**ARCHER DIP**

## UPPER BODY VERTICAL PUSH - RING PUSH UPS

### Purpose

To develop upper-body strength, full body tension and increase stability of the shoulders and trunk

### Muscle Groups targeted

Chest, Shoulders, Triceps, Trapezius, Trunk

### Set-Up

- Set the rings at hip height
- Overhand grip
- Leaning forward, position body into a regular push up position, facing away from the anchor point
- Brace through the trunk and glutes
- Head, shoulders, hips and knees are aligned

### Execution Instructions

- Lower chest towards hands slowly and evenly, maintaining stability through the trunk to align body
- Squeeze shoulder blades together and bend elbows to lower body
- Pause at the bottom (when elbows are at 90degrees) and raise the chest by extending through the arms.
- Extend elbows, maintaining alignment, until back at the starting position

### Teaching Cues

- Keep body aligned and braced through the core

### Common mistakes

- Arching the back or sinking at the hips
- Not locking arms at the top position
- Chest rising up before hips - must keep body aligned throughout the movement

### Progressions/Variations

- A greater resistance (more bodyweight) can be applied by gradually increasing the leverage, i.e. starting in a more horizontal position or lower the rings closer to the ground
- Weighted vests can be worn to increase the load (only if 10 reps of suspension push ups can be performed)
- Positioning ring straps in a wider position will increase difficulty of the lift.
- Single-leg push ups
- Place feet inside rings and push up from ground



**REGULAR PUSH UP**



**45 DEGREE PUSH UP**



 **HORIZONTAL PUSH-UP**



 **ONE-ARM PUSH-UP**



 **FEET IN PUSH-UP**

## UPPER BODY VERTICAL PULL - RING PULL-UPS

### Purpose

To develop upper back strength and trunk stabilization. May be more comfortable on rings as they are able to move and rotate at various parts of the movement.

### Muscle Groups targeted

Trapezius, Rhomboids, Lats, Deltoids, Trunk

### Set-Up

- Rings at shoulder height
- Body position underneath anchor point

### Execution Instructions

- From a knee-bend hang position with shoulders touching ears, pull body up until chest is level with hands
- Hands are free to rotate into a comfortable position
- Control movement and maintain bracing through the trunk and glutes
- Lower to starting position and repeat

### Teaching Cues

- Chest to Rings
- Maintain brace throughout whole movement

### Common mistakes

- Not going through full range of motion (either at the top or bottom of the movement)
- Losing hollow body position

### Progressions/Variations

- Feet-assisted pull ups
- Wide grip
- Weighted vest
- Archer pull-ups
- L-sit pull ups
- 1 arm pull ups



**REGULAR PULL UP**



**ARCHER PULL UP**



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## UPPER BODY HORIZONTAL PULL - RING ROWS

### Purpose

To develop strength throughout the upper back, stability through the shoulder complex and scapula control as well as trunk stabilization

### Muscle Groups targeted

Rhomboids, Lats, Trapezius, Posterior deltoid, trunk complex, biceps

### Set-Up

- Rings at approximately hip height
- Neutral grip (palms facing each other)
- Bend legs at the knee, then grip rings from below so trunk is braced and supine
- Straight body, facing towards the anchor point

### Execution Instructions

- From the position of straight arms, retract the scapula
- Pull the body up by contracting through upper back and flexing the elbows
- Maintain straight back and trunk throughout the movement by bracing through the core and glutes
- Raise until chest is level with rings, then control movement down to starting position

### Teaching Cues

- Straight body
- Scapula through full range of motion
- Keep elbows tight to the body

### Common mistakes

- Losing brace, resulting in spine flexion
- Hips sagging
- Limited range of motion
- No scapula retraction, pull with biceps

### Progressions/Variations

- Lower the rings closer to the ground
- 1 leg in contact with the ground (bent knees)
- Straight legs
- 1 leg in contact with the ground (straight legs)
- Feet on a box
- Narrow/Wide Grip
- 1 arm variations



**REGULAR RING ROW**



**45 DEGREE RING ROW**





**HORIZONTAL RING ROW**



**ONE-ARM ROW**



**ARCHER ROW**

## LOWER BODY - RING SQUATS

### Purpose

To develop lower body strength, joint mobility and trunk stabilization.

### Muscle Groups targeted

Quadriceps, Glutes, Hamstrings, Calves, Trunk

### Set-Up

- Rings at navel height
- Grip rings and face anchor point, with straps taut at 45 degrees
- Arms Straight
- Brace the trunk and glutes, keeping body in a straight position perpendicular to the line of the ring straps

### Execution Instructions

- Squat down by hinging at the hips
- Flex at the knees into position as deep as possible, keeping arms straight and straps taut for balance
- Maintain upright posture with chest up
- Push through heels and rise up, extending through the knees and hips

### Teaching Cues

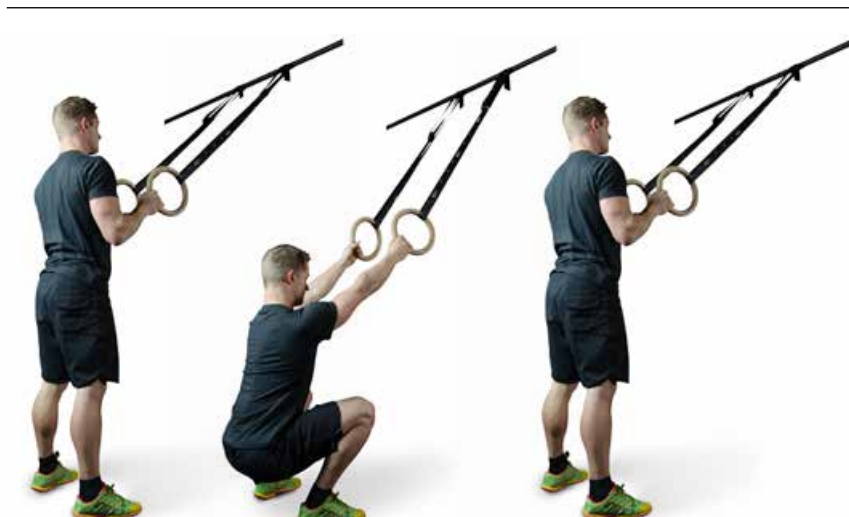
- Use the rings to assist in balance and alignment
- Can lean back to counterbalance
- Achieve most comfortable range of motion
- Maintain knees tracking in line with toes

### Common mistakes

- Spine flexion - maintain upright position and brace through the trunk
- Knee valgus (knees tracking medially)
- Rising up on the toes

### Progressions/Variations

- Pistol Squat (1 leg)
- Overhead Squat
- Bulgarian Split Squat (facing away from rings, with back foot hooked in to strap)



 SQUAT



 OVERHEAD SQUAT



 SPLIT SQUAT

## CORE-RING ROLLOUTS

### Purpose

To develop all-round strength and stability throughout the trunk and the shoulders

### Muscle Groups targeted

Trunk, Shoulders

### Set-Up

- Ring position at ankle height
- Kneel behind the rings, brace through the trunk and bend at the hips to grip the rings

### Execution Instructions

- Grip rings the same as if a ring push up would be performed
- Controlling the movement, move rings away from anchor point and slowly push trunk forward so arms track into a straight line from knees to hands, maintaining braced trunk
- Pause at full range of motion, then retract back to starting position in smooth motion

### Teaching Cues

- Brace through the trunk and glutes
- Extend as far as possible

### Common mistakes

- Failure to brace through the trunk, causing spinal flexion/extension

### Progressions/Variations

- Knees off the ground
- Rings closer to the ground
- Weighted vest rollouts
- 1 arm rollouts



**ROLL-OUT FROM KNEES**



**ROLL OUT FROM FEET**

## LINKAGE-MUSCLE UPS

### Purpose

1. To move body from the ground to above the rings for traditional gymnastic exercises
2. To train coordinated and controlled movement utilising the majority of upper body musculature. The muscle-up is an advanced, technical exercise and should follow competent movement and technique in ring exercises such as dips and pull-ups.

### Muscle Groups targeted

Trapezius, Rhomboids, Lats, Shoulders, Chest, Triceps, Biceps, Trunk

### Set-Up

- Ring set-up overhead

### Execution Instructions

- Grip the bar with a false grip (See Appendix), arms fully locked out overhead and feet off the floor
- Begin by performing a regular pull-up, pulling rings to the chest
- In a controlled movement, roll chest over the top of the rings and shoulder over hands to transition into the bottom of a dip position
- Press strongly to extend elbows and finish in the support position (arms extended, body in hollow position)

### Teaching Cues

- Keep the rings as close to the body as possible
- Transition elbows from in front of body to behind the body

### Common mistakes

- Insufficient strength
- Failure to maintain false grip throughout movement

### Progressions/Variations

- Connect powerband to each ring to create a sling. Sit in the sling to assist in the dip and transition phase of the muscle up.
- Chest to bar chin ups
- Ring dips
- The muscle up can be used with or without a 'kip', to gain horizontal momentum and transfer into the vertical plane to assist with the performance of movement



### MUSCLE UP MOVEMENT



### MUSCLE UP HAND PATH



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# POWER RING EXERCISE LIBRARY

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## BURPEE

Single leg, Facing away from unit, Shin Height



## PLANK

Both feet in, Facing away from unit, Shin height,  
Can be done from hands or elbows



## PIKE

Both feet in, Facing away from unit





### ROTATION PLANK

Both feet in, Facing away from unit, Shin height,  
On Palms of hands, braced body position.



### DYNAMIC PLANK

From starting plank position  
Brace trunk and shift feet backwards  
Maintain elbow position as shoulders shift towards suspension system



### HAND STAND PUSH-UP

From a ground-based push up position, with feet inside rings, brace through the core, bring feet towards hands and raise the hips so they are flexed at 90 degrees in a pike position. From there, bend the arms until the head almost touches the ground, before pushing up away from the ground and straightening arms.



### SIDE PLANK

Rings at shin height, One or two feet.



### JACK KNIFE

A terrific hamstring and core exercise, the jack-knife involves bringing the knees towards the chest from a ground-based push-up position. Arms are fixed and locked out, whilst knees come towards chest in a straight line before extending back to start position. Constant brace through the trunk is critical.





## LEG LIFT

The leg-lift is another great core and trunk exercise. The set-up for the leg-lift is reasonably simple, as outlined in the pictures. Rings at chest height, Directly under suspension system,



1. SET UP



2. EXERCISE



3. PROGRESSIONS / REGRESSIONS



1. STARTING POSITION

2. REVERSE LUNGE

3. LATERAL LUNGE

4. CROSSOVER LUNGE

5. FORWARDS LUNGE



## LUNGE VARIATIONS

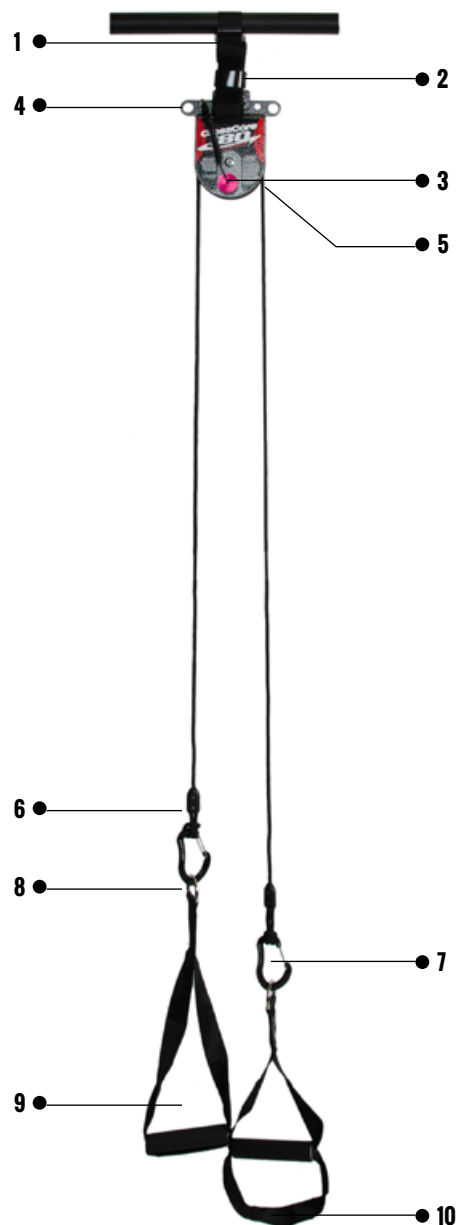
Rings at waist height, Facing suspension training system. Bent arms, Body upright.  
NB: Keep straps tight at all times, pulling

# CROSSCORE 180 SPECIFIC EXERCISES

When the Crosscore 180 is in the locked position, it has the ability to function as a regular suspension trainer. This allows for all of the exercises (or slight modifications) described in the rings section to be performed on the Crosscore 180. When in a locked position, there is still instability properties when using the Crosscore 180 that are greater than the Power rings or TRX systems, although the degree of instability is less than when in an unlocked position.

The real benefit of the Crosscore 180 is in its ability to function 'unpinned', as this allows for rotational movements to be introduced and an even greater instability element for basic suspension training exercises. These exercises will increase the demand for trunk stability and increase range of motion for regular movements, and prove challenging for beginners. Prepare to be humbled.

1. Cam Buckle
2. Door Anchor
3. Magnetic Pin  
(Locked position)
4. 'Unlocked' Pin Hole
5. Pulley
6. Hitch Knot
7. Carabiners
8. D-Ring
9. Handles
10. Foot Cradle





## FULL ROTATION PRESS

### SET UP

- Long Unpinned
- Facing away from anchor point
- Body at 45 degrees
- Bent arms

### INSTRUCTION

- Extend 1 arm towards ground
- Control contralateral arm as it moves towards anchor point
- Rotate trunk
- Eyes on back arm
- Flex back arm to move back to starting position
- Extend opposite arm to the ground



## FULL ROTATION PULL

### SET UP

- Long Unpinned
- Facing towards anchor point
- Body at 45 degrees
- Straight Arms

### INSTRUCTION

- Row 1 arm back towards body
- Control the arm and rotate the torso as you take the rowing arm back towards the ground
- Control contralateral arm as it moves towards the CrossCore I 80 system
- When both arms are straight, row the front arm back towards the body and repeat



## EXTERNAL LOAD PULLEY SYSTEM

### SET UP

- Long Unpinned
- Attach External load (e.g. Kettlebell/weight plate/ power band) to one handle

### INSTRUCTION

- Grab the unloaded, free handle.
- Position body to perform particular exercise
- Exercises include
  - Woodchop, Single arm row/push
- Maintain brace position through the trunk at all times



## SINGLE ARM PUSH



## SINGLE ARM ROW



## WOODCHOP





## SCAPULA MOBILITY

### SET UP

- Short Unpinned
- Body braced at 45 degrees either facing towards or away from unit

### INSTRUCTION

- Start with hands together; holding a braced position at 45 degrees
- Initiate movement by moving one hand up and the other down in a smooth, controlled movement.
- Maintaining the braced body position, extend arms until full range of motion is achieved, before slowly returning to starting position





## THE CLIMBER

### SET UP

- Short Unpinned
- Sit on ground beneath
- Crosscore180 unit and grab both handles above head

### INSTRUCTION

- Bring feet and torso off the ground and brace.
- "Climb" up - moving the pulley up and down by extending one arm whilst the other stays flexed
- Can be done with body upright (shoulder dominant) or in a layback position (back dominant)



## TRX

Total-body Resistance Exercise The TRX is arguably the most popular suspension training tool in the fitness industry, however may be the most limited in its use. All basic suspension training exercises can be performed on the TRX, however its fixed straps do not allow for some exercises and removes the ability to implement rotation in lots of scenarios. However, it is still a functional tool and can provide a challenging workout focused on basic exercises such as push ups, rows, lunges, squats, curls and presses.

# PROGRAMMING SUSPENSION TRAINING

## BALANCING PUSH/PULL EXERCISES

As in any resistance training program, there should be a focus on muscle balance and total-body functional training. Repetitive application of certain exercises over time, without prescription of complimentary movements, is likely to lead to muscle imbalance and weakness in particular areas.<sup>3,4</sup> In weight-training, this is often observed in individuals that focus on chest exercises (such as bench press and push ups) and neglect to supplement this with any movements targeting muscles of the upper back.

It is important in suspension training that similar guidelines are adhered to, in that pushing or pull exercises do not dominate the training program. With the ability to change body position quickly and effectively on suspension equipment, it is simple to program and perform equivalent sets and reps in both a pushing or pulling motion. Further, upper-body push and pull movements should not make up the entire program, with lower body variations and rotation/bending movements imperative to train movement across all three planes (frontal/sagittal/transverse).

## BASIC SETS AND REP GUIDELINES

The basic programming for suspension training does not differ greatly from regular resistance training protocols<sup>5</sup>. Experimentation may be required to determine the optimum resistance levels for each exercise, and may be done in warm-up sets. Sets, repetitions and rest period prescription is dependent on the goal of the athlete (see right):

**STRENGTH**  
**3-5 Sets of 3-6 Reps**

**HYPERTROPHY**  
**3-5 Sets of 8-12 Reps**

**ENDURANCE**  
**+ CONDITIONING**  
**Time based set eg.**  
**continuous reps in**  
**45/60 seconds**

Advanced programming may incorporate fluent routines, where the client transitions from one exercise to the other; with a gymnastics hold such as a lever to break up exercises<sup>2</sup>. Routines will likely place a much larger neuromuscular demand on the body as moving from one exercise to the next without touching the ground will require high levels of muscular strength and endurance.

As the name suggests, many exercises require the client to be 'suspended'. For this reason, training to failure on any suspension training tool may be dangerous as failure of the neuromuscular system to function at the end of a set may result in the client falling and in turn serious injury. If an athlete is struggling to complete correct repetitions, lower the resistance by scaling the exercise back in order to complete the set.

Consistency is the key with all training programs. A program that allows the client to perform all movements in a balanced manner and provides sufficient resistance and overload to elicit a training response is beneficial. It is imperative to tailor workouts to your clients, make them enjoyable and include a sense of achievement. Suspension training provides the ability to cover all bases, and can be incorporated into existing training programs to break plateaus, introduce variety and challenge the ego of clients and athletes.

## GROUP ENVIRONMENT/CREATING CIRCUITS

With enough equipment, groups of any size can be trained using suspension training. Even in a circuit scenario, the rings will provide a challenging station. Being easily adjustable allows clients of varying strength and ability to all perform the same exercise on a suspension training implement, whilst still working to the same rep schedule.

In a group suspension training class, the instructor should be able to provide basic, clear instructions to the group in order to minimise time wasted setting up and adjusting the rings between exercises. The cam buckle should remain at head height regardless of the strap length, as this will make it very easy to adjust and observe the required strap length for each exercise.

Basic instructions should include the following items:

Ring Position (relative to the body)  
Body Position (relative to the anchor point)

Below are a few examples of quick set-up instructions for different exercises:

### Push ups:

- Rings at Ankle height
- Straight body facing away from anchor point

### Ring Rows:

- Rings at Hip height
- Straight body facing towards anchor point

### Squat:

- Rings at Navel Height
- Body facing the anchor point
- Hands in neutral grip

From this starting position, the individual is able to scale the intensity based on their needs, by either altering body position (displacement from anchor point) or by changing the ring position (higher or lower).

Even with limited equipment (1 suspension system between 2 clients), one client could be performing conditioning e.g. suicide runs, skipping, whilst the other performs bodyweight exercises on the suspension trainer.



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# SUSPENSION TRAINING **WORKOUT**



## **20-30MINS DESIGNED TO INTEGRATE ALL KNOWLEDGE TOGETHER**

### CIRCUIT STYLE

Warm-up/Flexibility Drills - Stretch using suspension trainers (chest/back etc) (5 mins)

### CORE EXERCISES

- 8 x Ring Stations 4 x Cross Core fixed
- 4 x Cross core unpinned
- 1 min per station, 30 seconds on, 30 seconds off  
= TOTAL 16mins

### RING STATIONS

- Push ups
- Rows
- Squat
- Pull ups
- Dips
- Lunge progressions
- Rollout
- Pistol

### CROSSCORE 180 STATIONS (UNPINNED)

- Kettlebell pulley woodchop
- Full Rotation Press
- Full Rotation Row
- Climber
- 

### CROSSCORE 180 STATIONS (FIXED)

- Push ups
- Row
- Dynamic Plank
- Single leg burpee

Cool-Down (5mins)  
Stretches using Rings/Crosscore 180

**TOTAL TIME = 26 minutes**

# APPENDIX

## CHANGING THE HEIGHT OF THE CROSSCORE180



1

Using two fingers, create a loop in one of the cables by pinching one hanging cord.



2

With the two fingers, twist the loop around to create a double loop.



3

Join the two loops together by pushing them together and creating a single loop.



4

Feed carabiner through that loop, and pull tight to secure



5

This will create a strong system, with a shorter handle to increase the exercise library on the CC180

6

To undo and return to a longer strap, simply unhook the carabiner and the loop will naturally fall.

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# RELATED PRODUCTS



Power Rings



Wall Mounted Chin-Up Bar



2" Pullup Rope



Multi Grip Pullup Bar



Gymnastic Grips



Salmon Ladder

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