FRAME RUNNING
CLUB GUIDE

CONTACT

Address

RAD-Innovations LLC
2170 Route 125, Cornwall
VT 05753
United States

Phone

Phone: +1 (802) 382-0093

Online

Info@rad-innovations.com
sales1@rad-innovations.com

www.rad-innovations.com

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ABOUT THIS GUIDEBOOK

OVERVIEW

This guidebook is a one-stop shop for getting started with Running Frames regardless of your background, whether that be a first-time Running Frames user, a recreational center staff member, or a professional race coach. It is our intent to make this guidebook as comprehensive and as easy-to-read as possible. With these goals in mind, the guidebook will be divided into four sections, where each section focuses on a Frame Running topic. For example, if you are a coach and are already familiar with the set-up of Running Frames, you can skip directly to the section that covers just the competition element of Frame Running.

The four elements of the guidebook and their respective use groups are as follows:

1. The Basics	2. Therapeutic Element	3. Recreation & Sports Element	4. Competition Element
A detailed guide on setting up Running Frames	Fine-tuning Running Frames to fit users with different types of disabilities	A guide to starting a local Frame Running club for sports and recreational purposes	For training Frame Running atheletes for racing competition
• For all users • Especially first-time users	• For first-time ambulatory users • Family members of first-time users	• For more advanced or frequent users • Physiotherapists who use Running Frames to teach people how to use their legs for rehabilitation and physiotherapy. • Staff members at a recreational center (Running Frames clubs or chapters	• For Frame Running atheletes at track and field events, etc. • Professional Frame Running coaches

If you are a fan of Frame Running or are involved in Frame Running advocacy group and hope to jumpstart a new Frame Running club in your community, this guidebook also serves as a handy reference to keep – it is a culmination of the knowledge gathered by experienced Frame Running coaches and athletes who have been active in the adaptive sports world for over 25 years. Our hope is that with proper knowledge and guidance on Frame Running, communities of people with disabilities can enjoy Frame Running for both recreational and competitive purposes.

DISCLAIMER

The content stated in this guidebook is for **reference only**. Frame Running USA is not responsible for any kind of loss, injuries and/or damages of any party as a result of the use of the content contained in this guidebook. For any statement or instructions regarding the fitting, adjustments, and use of the Running Frame, as well as training, Frame Running USA does not guarantee the outcome of suggested advice and steps related to those elements (i.e. fitting, adjustments, and use of the Running Frame), nor does Frame Running USA guarantee the health outcome and benefits stated in this guidebook. All statements in the guidebook are generalized statements. For individual use (whether that be an individual user of a Running Frame or an entity such as a Frame Running club or program), please consult professionals for detailed advice and guidance.

ELEMENT I:

THE BASICS

ABOUT THIS ELEMENT

OVERVIEW

This element is written for all users of Running Frames, especially beginners to Frame Running (formerly Frame Running). The goal of this element is to help you get the most performance, comfort, enjoyment and safety when riding your new Running Frames. By reading this element before you go out on your first ride, you'll know how to get the most from your new Running Frame. It is also important that the first ride on your new Running Frame is taken in a safe and controlled environment, away from cars, obstacles, and other users using Running Frames.

GENERAL WARNING

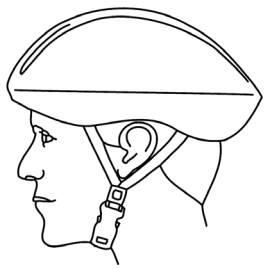
Running or walking on Running Frames can be a hazardous activity even under the best of circumstances. Proper maintenance of your Running Frames is your responsibility as it helps reduce the risk of injury. This manual contains many WARNINGS and CAUTIONS concerning the consequences of failure to maintain or inspect your Running Frame. Many of the warnings and cautions say, "you may lose control and fall." Because any fall can result in serious injury or even death, we do not repeat the warning of possible injury or death whenever the risk of falling is mentioned. RAD-Innovations does not encourage using Running Frames for stunting, trick riding, ramp riding, jumping, aggressive riding, riding on severe terrain, riding in severe climates, riding with heavy loads, riding double, commercial activities; such use is inherently dangerous, can cause serious injury to the rider, and if done it is with the rider's express and implied assumption of the risk of such use and RAD-Innovations or the Running Frame's respective manufacturer and seller shall not have any responsibility for any breakdown of the Running Frame, its components or rider injuries that occur during such use.

A NOTE ON HELMETS

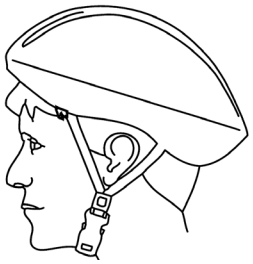
Always wear an approved helmet when riding your Running Frames, and follow the helmet manufacturer's instructions for fit, use and care.

CAUTION

As with all Running Frames and trikes, wearing a helmet is important for safety. Please comply with all local regulations and laws regarding helmet usage.



CORRECT FITTING



INCORRECT FITTING

WARNING

THIS MANUAL CONTAINS IMPORTANT SAFETY, PERFORMANCE AND SERVICE INFORMATION Read it before you take the first ride on your new Running Frame, and keep it for reference.

WARNING

As with all mechanical components, your Running Frame is subject to wear and high stresses. Different materials and components may react to wear or fatigue in different ways. If the design life of a component has been exceeded, it may suddenly fail possibly causing injuries to the rider. Any form of crack, scratch or change of colouring in highly stressed areas indicate that the life of the component has been reached and it should be replaced. Do not ride in

SECTION 1
PRODUCT OVERVIEW

WHAT IS A RUNNING FRAME?

The Running Frames™ is a three-wheeled adaptive mobility device with chest support. It is designed for children and adults with balance and mobility issues to achieve their exercising goals - be it recreation, competition, or rehabilitation.

Sitting on the seat and leaning forward, a rider can engage their lower body to propel forward and experience the freedom to move. The Running Frames is designed for a range of users with diverse abilities. Specifically, it is tailored towards users with cerebral palsy, Parkinson's disease, spina bifida, muscular dystrophy, multiple sclerosis, general muscle weakness, or balance issues.

WHAT IS FRAME RUNNING?

Invented 30 years ago as an alternative to wheelchair racing for people with cerebral palsy (CP), Frame Running consists of runners competing in traditional track events using a Running Frame. Today, Frame Running has evolved into more than just a competitive sport. Most runners are ordinary people looking to get exercise, walk to the store, or run with their friends and families.

OUR RUNNING FRAME DESIGN

Optional Tire Set
Switch easily between racing tires for speed and optional all-purpose tires for stability.

Light, Slim, Stable
At under 29 lbs, it's easy to carry. Angled for stability, the wheels fit standard tracks and sidewalks.

Adjustable Everywhere
It's all about fit! 7 adjustable joints for tailoring the ride.

Comfortable Seat
Optional droplink allows for easy wheelchair access.

Customizable Chestplate
Different sizes, styles and straps available.

Self-Centering Handlebar
Counteracts lateral movement for steering with one or both hands.

CUSTOMIZATION

Chestplate | Three types of Chestplates allow for variable support and security.

Seat | Unicycle seats and traditional seats fit different gaits.

Seat Post and Link | Droplinks and alternate seat posts allow for more adjustability over time as a user grows.

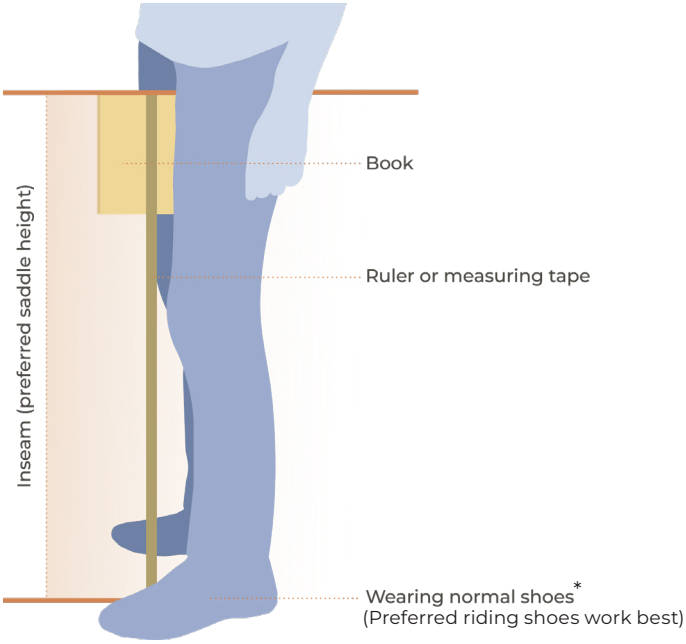
Tires | Three types of tires - track, regular and offroad - allow for riding in all conditions with excellent traction.

SECTION 2
SIZING AND FITTING

SIZING CHART

Running Frame Size	Seat Height*	Max User Height	Max User Weight (lbs)
Small	22'' - 25''	4'7''	110
Medium	25'' - 28''	5'3''	140
Large	29'' - 33''	6'1''	180
Extra Large	33'' - 37''	6'4'	220

**The height is based on touring tires and a straight droplink. In the case of optional racing tires the seat height sits 1" lower than listed. Please adjust sizing accordingly based on Running Frame build options.*



CAUTION

Ignoring manufacturer suggested height and weight limits can drastically impact a riders experience and safety on a Running Frame. When in doubt, please reach out to the RAD team at for guidance and support.

CAUTION

IF YOUR Running Frame DOES NOT FIT PROPERLY, YOU MAY LOSE CONTROL.
If your believe your new running frame doesn't fit properly or if you feel like are not equipped to properly gauge fit and adjust the frame, please reach out the RAD team to schedule a free consultation and fitting.

MEASURING YOUR INSEAM

To find the appropriate seat height for the Running Frames, measure the length of your inseam with shoes on. Hold a book (or something similar) between your legs, as high as you can keep it. Measure from the top of the book to the floor. You can also measure lying down.

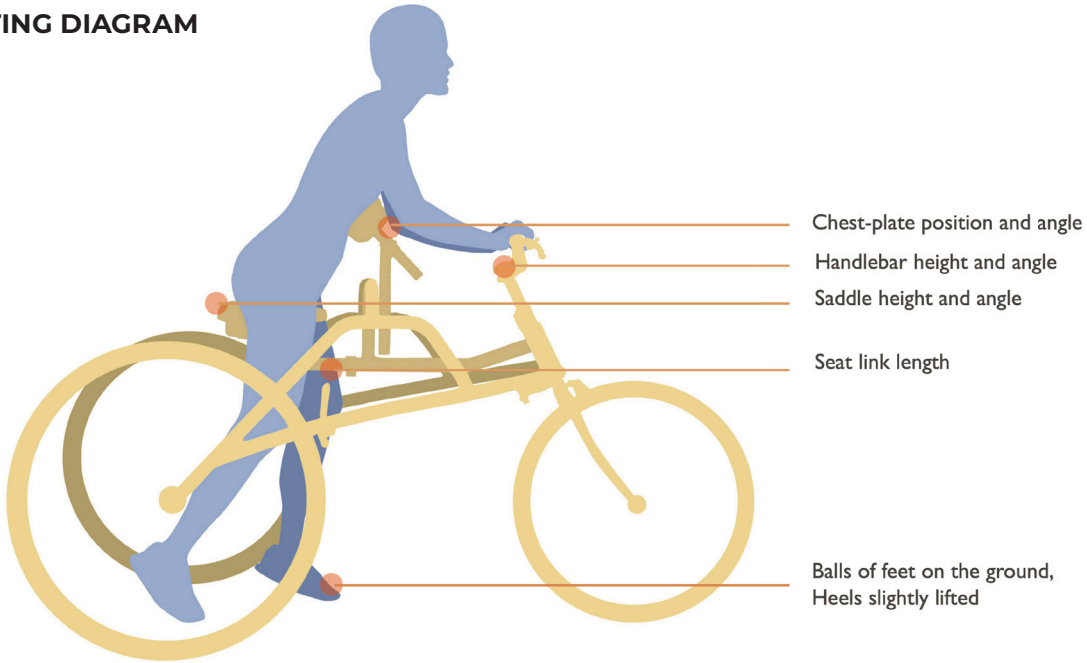
GUIDING PRINCIPLES

1. Every runner is different. As runners grow and their abilities change, adjust the fitting accordingly.

2. Comfort versus performance. The diagram above shows the most common fitting. Some runners prefer a more upright position as it reduces pressure on neck muscles, diaphragm and breasts. But a more forward leaning position may allow a rider to run faster, alleviate discomfort on the groin, and increase stability. Balancing comfort and performance is a matter of preference, and the bottom line is safety.

3. Experiment with the settings. It may take several tries to find the sweet spot. Try out different positions and angles of the different pieces. Consider extra support such as body straps, heavier-cushioned chest-plates, or a droplink for easier transfers. The goal is to find a fit that enables the runner to run independently. Remember, put the parking brake on before fitting!

FITTING DIAGRAM



ADJUSTMENTS

1. **Seat position:** Adjust the seat height, angle and seat post length so that you can stand on the balls of your feet with your heels up. You should be able to propel yourself and glide forward by kicking your legs back without losing control or balance. If you are new to Frame Running, or are not able to tiptoe, you can lower the seat until you feel comfortable.

2. **Chest-plate:** The chest-plate can move in two ways: up and down or in and out towards you. You can also change the angle. It should rest between your abdomen and breasts. When you put your body weight on the plate and hands on the handlebar, your airway should not feel heavily compressed. If you have difficulty breathing, stop running and adjust the position or angle again.

3. **Handlebars:** Your shoulder and upper body should feel relaxed when your hands are on the handlebar. Adjusting the handlebars down and away can help put you in a performance stance. Up and towards you will bring you more upright. If the runner has limited grip, they can push/pull the self-centering handlebars to steer. You can also reverse the handlebar and bring it closer to you by rotating it 180 degrees.

ADDITIONAL ADJUSTMENTS BY CASE

1. **In the case of high spasticity:** Normally, Running Frames for people with spastic conditions are sized so that their feet barely touch the ground. However, as users get better at using the Running Frame, their feet can be brought closer to the ground. To better fit Running Frames for individuals with high spasticity, try adding leg or ankle weights so that the running frame remains steady.

2. **In the case of handlebar adjustment:** Do you know that you can also adjust the distance between your chest and the handlebar? To do so, you can reverse the handlebar by rotating it 180 degrees.

3. **In the case of droplink use:** Since the sizing chart is based on the height of standard straight links, droplink users might feel that the height of the Running Frame is lower than specified in the sizing chart (droplinks offer a lower height than standard straight links).

SECTION 3
ASSEMBLY

BEFORE YOU BEGIN

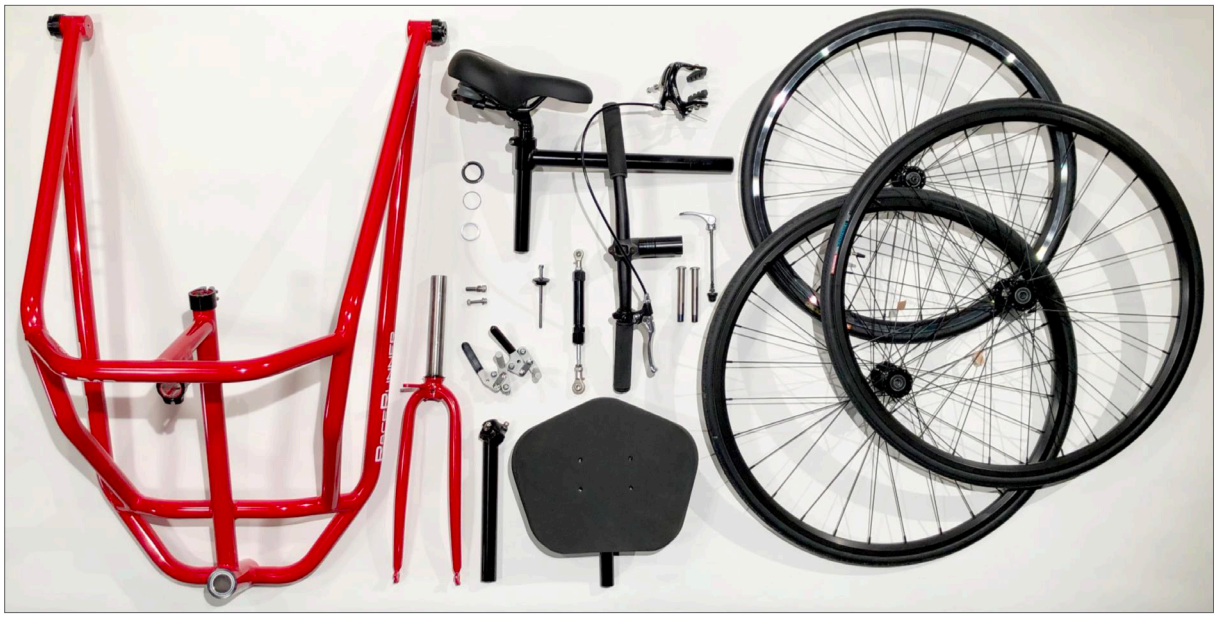
While we aim to make assembly as simple and straightforward as possible, building a Running Frame does require some proficiency with tools and hardware. If you have any questions or concerns about your assembly, please reach out to RAD-Innovations or a local Running Frame shop for guidance.

If you would like to follow along with an interactive guide, check out our Running Frame Assembly Instruction video on YouTube or scan the QR code at the top of this section.

⚠ WARNING

NEVER ATTEMPT TO RIDE A Running Frame THAT IS NOT PROPERLY ASSEMBLED. Make sure you properly assemble all elements of the frame. Correct tightening force on fasteners - nuts, bolts, and screws - on your Running Frame is important. Incorrect tightening force can result in component failure, which can cause you to loose control while riding.

3.1 UNPACK YOUR BOX



Unpack your box and lay out your parts. Pictured above are all the pieces of a Running Frame. For assembly purposes, we recommend keeping the parts in their respective bags until you reach that section.

3.2 TOOL CHECKLIST

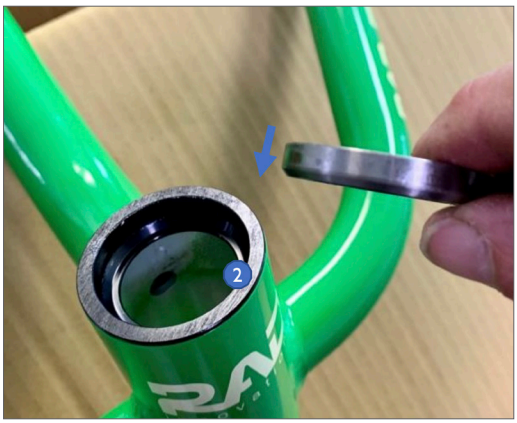
1. Hand tool with 4, 5, 6mm Allen wrenches
2. 10mm open wrench (not included)
3. Running Frame pump with Presta valve (not included)

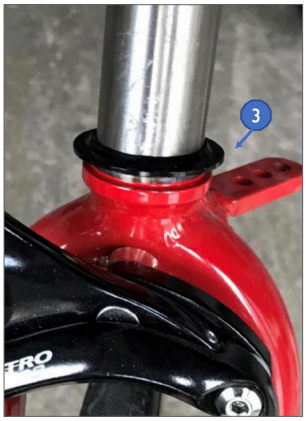
1


2

ⓘ *Please note that you may need a longer 6mm Allen wrench (not included) for the Large frame in order to tighten the handlebar on the stem riser.*

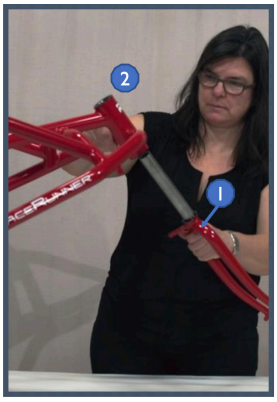
3.3 FORK ASSEMBLY

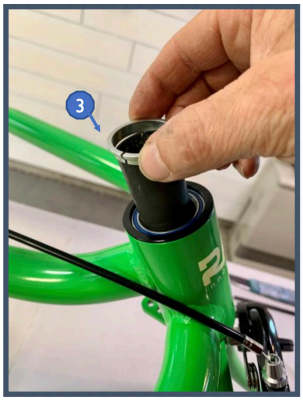


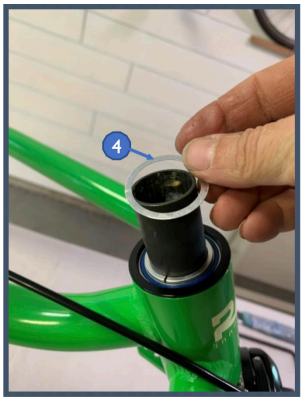


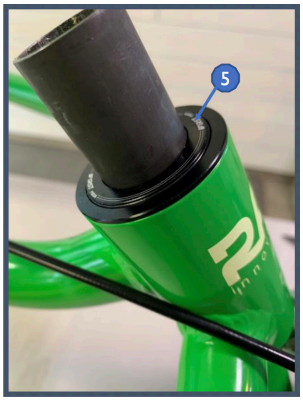
1. Begin by placing one bearing (1) into the top of the fork-insert (2) and another bearing at the bottom.
2. Before inserting the fork into the fork insert, place the black ring (3) onto the bottom of the fork, with the tapered small side facing up.

ⓘ *Ensure that the tapered side of the bearing is facing inwards towards the tube as shown in the photo. This means that on the bottom bearing, the tapered side should be pointing up.*





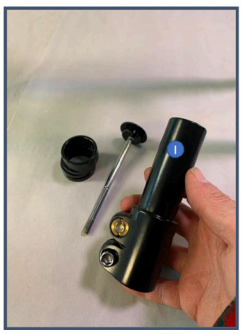


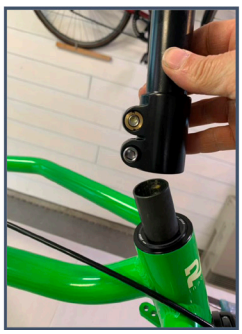


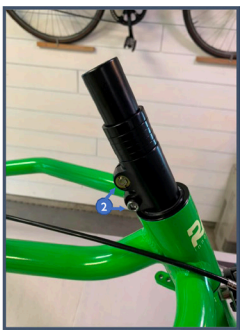
3. Insert the fork (1) into the frame (2)
4. Slip on the compression ring (3). It is a silver, tapered ring with a slit. Ensure that you insert the ring with the tapered side facing down.
5. Insert the washer (4) after the compression ring.
6. Insert the end cap (5) after the washer with the letters facing up

ⓘ *All the pieces should sit flush against the fork as seen in the fourth picture. If that's not the case, check that you had inserted the compression ring correctly and that you had pressed down firmly on the end cap.*

3.4 HANDLEBAR ASSEMBLY





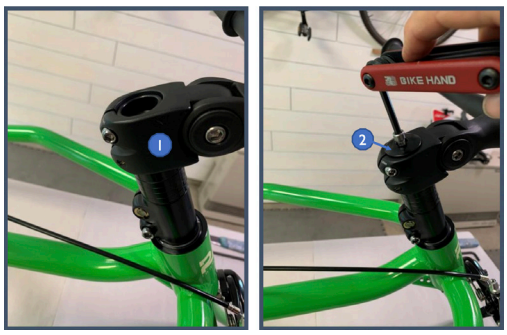


1. Place the stem riser (1) onto the top of the fork.
2. Take the stem riser cap off (along with the long bolt) and set it aside for the next step.
3. Tighten the two bolts (2) using a 6mm Allen wrench.

Please note that the small frame does not include a stem riser.

4. Place the handlebar and stem (1) over the stem riser that you have just installed.
5. Place the stem cap (2) on the stem.
6. Place the bolt through the cap and tighten.

ⓘ *On the large frame, there may be a bolt inside the stem riser that you will need to tighten using a long 5mm Allen wrench.*



To adjust the handlebar angle, loosen the 5mm bolt (3), change the angle, and re-tighten. This can be adjusted once the Running Frame is fully assembled and the rider is able to be fitted to the frame.

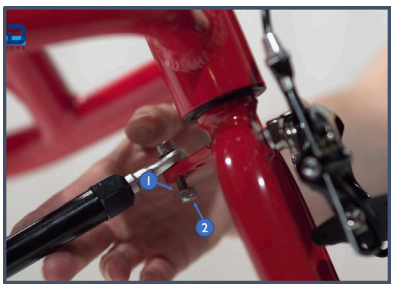
3.5 DAMPER

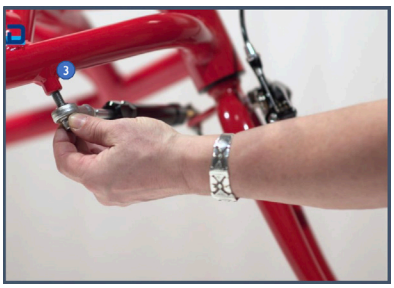
The completed damper (1) is shown on the right, with the compression side on the left (2) and the fork/ stationary side on the right (3). Before starting, ensure that the frame is on a flat surface so that the prongs of the fork are level.

1. Begin by attaching the fork side of the damper to the fork.
2. Place a washer (4) on the bolt and place the bolt (5) into the stationary end of the damper. Each end has a different size bolt, so if the bolt is not going in, try the other one.
3. Insert the bolt into the farthest of the three holes (6) from the fork. The other holes are used for different damper settings.
4. Add another washer (1) and a 10mm nut (2) on the other side. Tighten gently.

ⓘ *Some models may not include washers. Check the bag your damper came in to see whether you need to place washers or not.*

5. Insert the 8mm bolt into the compression side of the steering damper. Thread into the damper mount (3) on the frame





ⓘ *You should be able to screw the bolt into the frame using just your fingers, tightening with the 6mm Allen wrench only at the end. If the bolt is not entering smoothly, try moving the fork from side to side to find the thread.*

3.6 DAMPER ADJUSTMENT

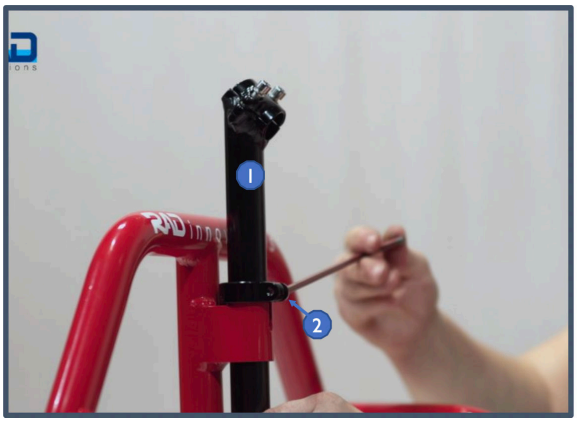
The damper regulates the alignment of the front wheel. A shorter damper will tilt the wheel right. A longer damper will tilt the wheel left.

There are 3 holes on the fork side of the damper (1). You can insert the bolt in the different holes to make large adjustments.

You can also make fine adjustments by loosening or tightening the damper itself.

1. Begin by loosening the nut (2).
2. Tighten the damper end to shorten (3).
3. Loosen the damper end to lengthen.

3.7 CHEST POST AND CHESTPLATE

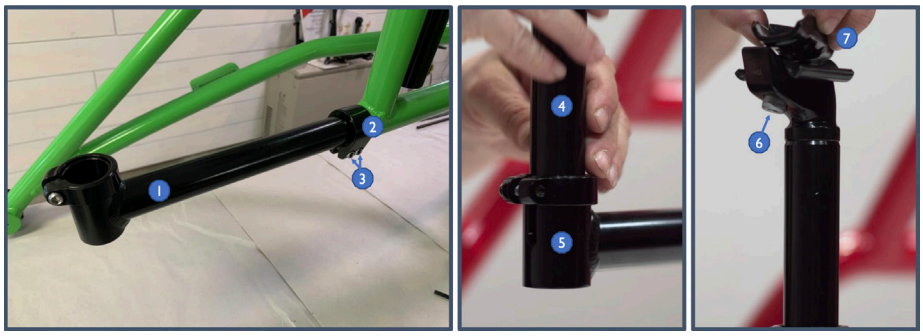


1. Insert the chestplate stem (1) into the upright bracket (2) in the center of the frame Tighten with a 5mm Allen wrench.

ⓘ *In some cases, the stem (1) may be too long for the user. If that is the case for you, you can take it to a Running Frame store to have it cut.*

2. Insert the chestplate (3) into the chestplate stem (4) and tighten with 6mm Allen wrench (5).
3. Adjust the chestplate height by loosening the bolts at (2) and (5), shifting the post, and tightening again.

3.8 SEAT LINK AND SEAT POST



ⓘ *If, after fitting the runner, the seat link is too long, you can cut the link yourself or at a local Running Frame*

1. Insert the seat link (1) into the frame (2) to the desired length.
2. Tighten the two bolts (3) with a 5mm Allen wrench.
3. Insert the seat post (4) into the seat link (5) to the desired length.
4. Tighten with a 5mm Allen wrench.
5. Using a 6mm Allen wrench, loosen the seat post clamp (6) and open it by turning it (7) to run parallel to the bottom clamp.

3.9 SEAT POST AND SEAT

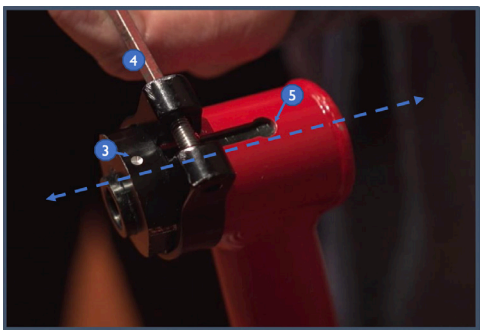
1. To attach the seat to the seat post, begin by loosening the bolt with a 6mm Allen wrench(1).
2. Twist the top seat post clamp (2) to open the clamp.
3. Attach the seat and twist the top seat post clamp 90˚ to lock the seat in place (3).
4. Tighten the bolt (4).

ⓘ *The seat should point slightly downwards for an ideal running stance.*

3.10 WHEEL PREPARATION

Make sure you have the required pieces for your wheel assembly. All parts, as shown at left:

1. 2 rear axles (1) and a quick release (2)
2. Three wheels – the smallest wheel goes in the front, the two larger wheels to the rear (labeled left and right)

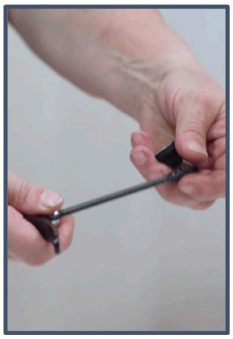


Before assembling the wheels, turn your Running Frame upside down and check the alignment of the axles.

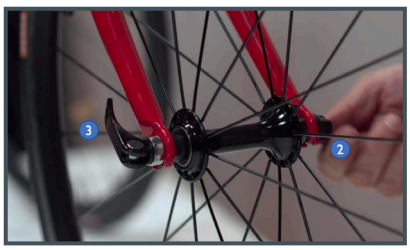
The dot on the axle insert (3) needs to align with the axle shell (4). If not, loosen the bracket with a 5mm Allen wrench (5) and align the axle insert with the axle shell by turning the axle insert. It may feel a little tight at first.

3.11 FRONT WHEEL

1. Unscrew the black nut from the quick release.
2. Remove the nut and one spring.
3. Insert the quick release into the wheel's hub (4).
4. Place the spring back on the quick release, skinny end towards the wheel and thick end towards the nut.
5. Lightly screw the nut back on.



Quick release shown at left with nut (1), spring (2), and lever (3). When lever is up the release is open, wand when down it is closed.



ⓘ *Treads on the tires are angled like an arrow. Ensure that the "arrows" are pointing forward, toward the front of the Running Frame.*

5. Insert the wheel into the dropouts of the fork (1), ensuring that the wheel sits squarely in the fork.

ⓘ *Before tightening, pull lever open so that it is in line with the axle.*

6. Tighten (2) until you start to feel tension in the lever.
7. Push the lever up towards the wheel (3). Press it tightly, enough that it leaves an imprint on your palm.

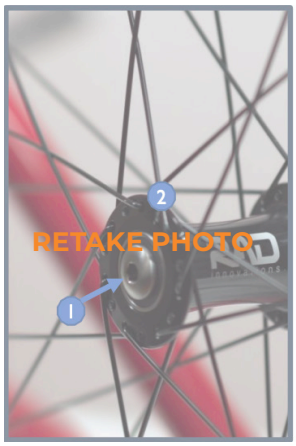
3.12 ALL-TERRAIN WHEELSET

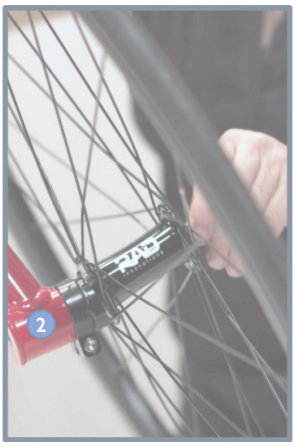
ⓘ *You can skip the steps below if you are using the standard wheelset.*

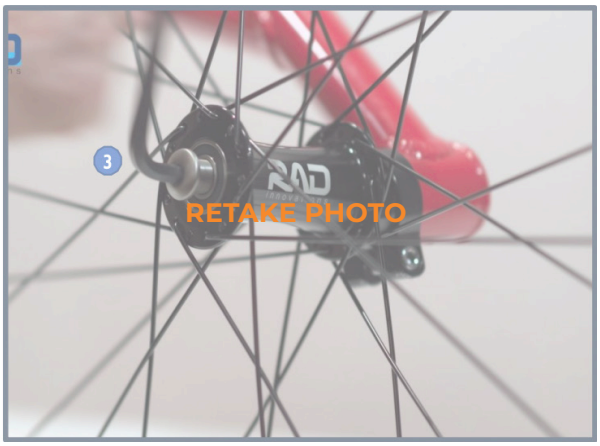
Front Wheel:

1. You may need to loosen the brake pads to insert the front wheel. To do so, see page 21.

3.13 REAR WHEEL







ⓘ *The wheels are labelled left or right. Labels are from the perspective of the runner facing forward.*

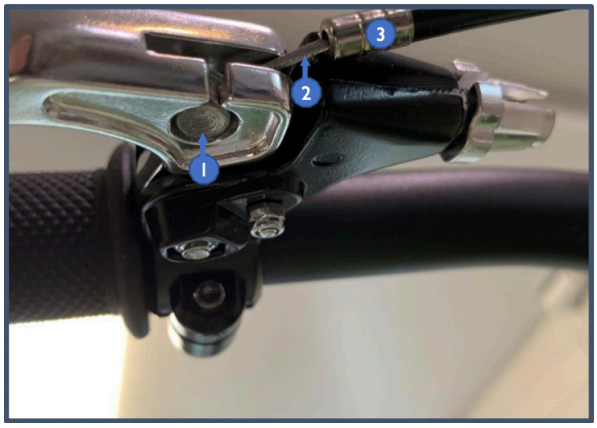
1. Insert the rear axle (1) into the hub of the wheel.
2. Line up the axle with rear axle insert (2) and thread in. Make sure there is grease on the axle threads.
3. Tighten with a 6mm Allen wrench (3). Repeat the process on the other side.

The axles should be easily inserted. Do not force the axle into the frame, but gently wiggle the wheel and guide the axle in if it feels tight.

3.14 FRONT BRAKE

The front brake is already assembled to the fork when you receive your Running Frames.

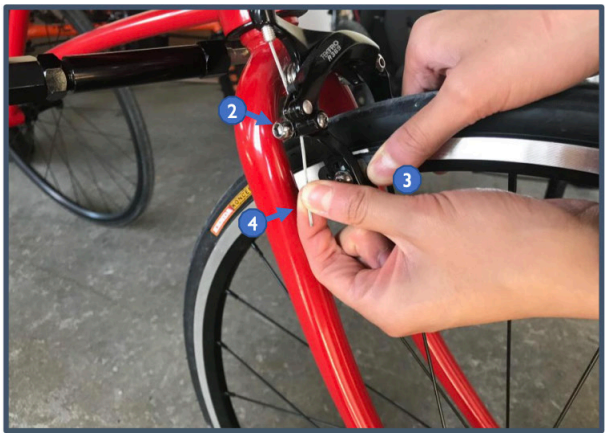
The silver brake lever (1), the black brake lever body (2), the lock nut (3) and the adjustment screw (4) should all have slit openings. Ensure that the slits are aligned.



1. Turn to the bottom of the silver brake lever. Insert the end of the cable (1) into the silver brake lever.
2. Carefully place the cable (2) into the slits, pulling away the cable housing (3) gently as needed to expose the cable inside.

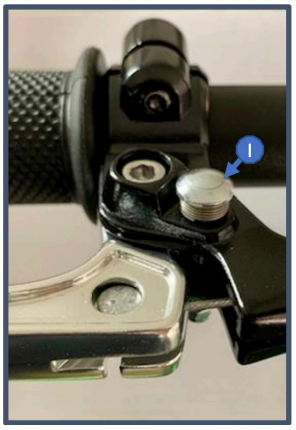
3. Push the metal end of the cable housing (3) into the adjustment screw. Tighten the adjustment screw (4) and the lock nut (5).
4. The completed brake lever assembly should look like the picture above.

ⓘ *YouTube tutorials can be helpful with this step, since the Running Frames uses off-the-shelf brake levers.*



Ensure that the brake pads are only hitting the metal rim and not the rubber.

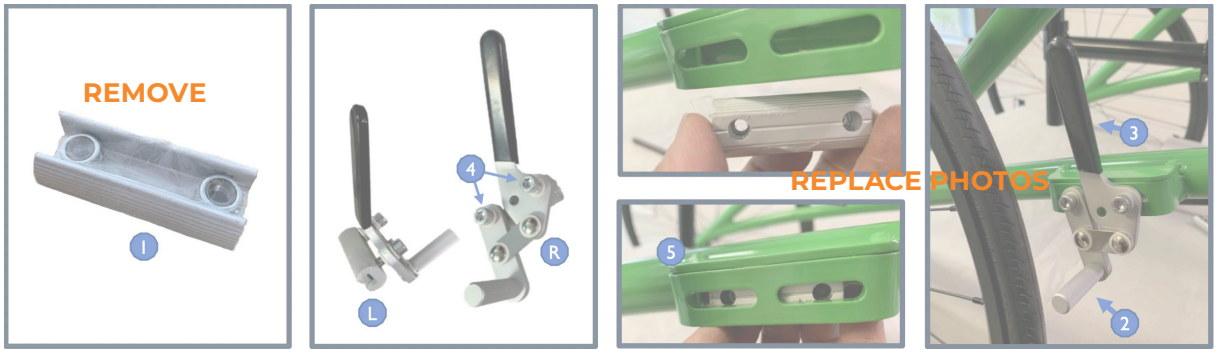
5. To adjust the brake pads, loosen the nut (1) and shift the pads.
6. Loosen the nut (2).
7. Push the brake pads onto the rim (3).
8. Pull brake cable (4) and tighten the nut.



To engage:
While squeezing the brake lever, hold down the parking brake button (1). Let go of the rake lever, and then release the button.

To disengage:
Squeeze the brake lever and let go. The button should be released (2).

3.15 REAR PARKING BRAKES



ⓘ *The parking brake bracket and 2 nuts are taped together (1). Do not remove the tape!*

REWORD THIS SECTION There are two parking brakes, left and right. To ensure that you are using the correct brake, check that the brake rod (2) is facing the back of the Running Frame, towards the wheel, and the lever (3) facing the front.

1. Unscrew the bolts (4) connected to the brake rod and lever.
2. Remove the bracket (1). *Be careful! The white washers can get lost easily.
3. Place the bracket inside the brake mount (5) on the frame. Thread the brakes into the bracket.
4. To engage parking brake, push the black brake handle forward.

Check that the brake rod (2) pushes firmly against the tire (fully inflated). If it does not, loosen the bolt and slide the brake assembly back.

HAPPY RUNNING!

Congratulations! You have finished assembling the Running Frames. Before you take it for a spin, check the position of the front wheel and steering damper. You want the Running Frame to roll straight with the wheels aligned. If not, check your wheel alignment, or refer to section 3.6 for detailed directions to adjust the damper.

If you have any questions, don't hesitate to contact us at **802-382-0093** or at www.rad-innovations.com

SECTION 4
SAFETY AND MAINTENANCE

GENERAL SAFETY

Walking or running on Running Frames is fun, healthy, and a great way to be independent. But it is important to remember that a Running Frame is not a toy, so make sure you follow some basic safety tips when you ride.

Before using your Running Frame, make sure it is ready to ride. You should always inspect your Running Frame to make sure all parts are secure and working properly. Remember to:

1. Wear a properly fitted Running Frame helmet. Protect your brain, save your life.
2. Adjust your Running Frame to fit.
3. Check your equipment. Before walking or running, inflate tires properly and check that your brakes work.
4. See and be seen. Whether daytime, dawn, dusk, foul weather, or at night, you need to be clearly visible. Always wear neon, fluorescent, or other bright colors when riding during the day or night. Also wear something that reflects light, such as reflective tape or markings, or flashing lights.
5. Control your Running Frame. Always ride with both hands on the handlebars.
6. Watch for and avoid road hazards. Be on the lookout for hazards such as potholes, broken glass, gravel, puddles, leaves, and dogs. All these hazards can cause a crash. If you are riding with friends and you are in the lead, yell out and point to the hazard to alert the riders behind you.
7. Avoid riding at night. It is far more dangerous to ride at night than during the day because you are harder for others to see. If you have to ride at night, wear something that makes you more easily seen by others. Make sure you have reflectors on the front and rear of your Running Frame (white lights on the front and red rear reflectors are required by law in many States), in addition to reflectors on your tires, so others can see you.
8. Follow the local road rules.
9. Be careful of the terrain in which you ride your Running Frame, as well as weather conditions. For example, rainy or muddy weather might not be a good fit for using your Running Frame outdoors.

BEFORE YOU RIDE

First Ride

When you buckle on your helmet and go for your first familiarization ride on your new Running Frames, be sure to pick a controlled and safe environment, away from cars, other cyclists, obstacles or other hazards. Make sure the rider becomes familiar with the controls, features and performance of your new Running Frame. Familiarize yourself with its braking action. Sudden or excessive application of the front brake could pitch you over the handlebars. Applying brakes too hard can lock up a wheel, which could cause you to lose control and fall. Skidding is an example of what can happen when a wheel locks up. If you have any questions, or if you feel anything about the Running Frames is not as it should be, consult RAD-Innovations at **802-382-0093** or reach out to us at
www.rad-innovations.com.

Regular Safety Check

Before heading out on a walk or run, there are a few things you should do to make sure that your Running Frames is safe.

1. **Check your tire pressure**
   First, press down on the top of the wheel, and observe the feel of the tire. This doesn't give you an accurate measure of your tire pressure, but it helps give you a general idea of what your tires should feel like. It is a good idea to do this immediately after inflating your tire to become familiar.

   The recommended pressure for your tires is usually printed on the side. It will be measured in PSI (pounds per square inch), and usually will be listed as a range (e.g. 40 - 65psi). In most conditions, such as riding on streets or paved trails, you'll want to use the maximum pressure of the range.

2. **Check wheel quick-releases**
   If your wheels are held in place with quick-release levers, check to make sure that the levers are closed with the proper tension. If you're not familiar with the proper use of wheel quick-release levers, ask for help from a qualified Running Frame mechanic.

3. **Check your brakes**
   Grasp the brake lever firmly, and rock the Running Frame forward and backward. The brakes should hold firmly without slipping or squealing. If the brake does not hold firmly, do not ride the Running Frame, and have the brakes checked by a qualified Running Frame mechanic.

4. **Check your wheels**
   With the Running Frame resting on the ground, hold the handlebars with one hand, and grab the top of the front wheel with the other hand. Try to rock the wheel side-to-side; there should NOT be any "play" or movement in this direction. Also, make sure the wheels of the Running Frames spins properly.

5. **Check stem, headset and damper**
   The stem is the component that holds the handlebar in place. Stand over the Running Frame with the front wheel between your legs. Grasp the handlebar firmly and try to turn the handlebar without turning the wheel. If the handlebar turns, DO NOT ride the Running Frame and have it checked by a qualified Running Frame mechanic.

   Similarly, check that the damper is bringing the wheel back to center properly. Test the damper action while the Running Frame is stationary. Ensure that the damper, when in its natural

WHEEL CHECK CAUTION

Wheels must be true for the brakes to work effectively. Wheel truing is a skill which requires special tools and experience. Do not attempt to true a wheel unless you have the knowledge, experience and tools needed to do the job correctly.

GENERAL SAFETY WARNING

Many states require specific safety devices. It is your responsibility to familiarize yourself with the laws of the state where you ride and to comply with all applicable laws, including properly equipping yourself and your Running Frames as the law requires.

Observe all local Running Frame laws and regulations. Observe regulations about Running Frame lighting, licensing of Running Frames, riding on sidewalks, laws regulating Running Frame path and trail use, helmet laws, child carrier laws, special Running Frame traffic laws. It's your responsibility to know and

TIGHTEN SCREWS!

You might need to adjust your seat height to fit your inseam measure. MAKE SURE you tighten up the screws with an allen wrench after each adjustment. Failure to do so might result in the seat getting loose or fall off.

MAINTENANCE SCHEDULE

We have created this easy-to-follow schedule for you to keep your Running Frames at tip-top condition.

Product safety checks	Each Run	Weekly	Monthly	Ongoing
10-Point Pre-flight Check	x			x
Check / replace worn tyres as necessary				x
Check that size is still appropriate for the user, adjust seat height if necessary				x
Check frame structure, welds etc. Important for clubs!			x	
Grease horizontal seat tube (RAD), Grease handlebar stem if necessary			x	
Spin wheels for trueness. Check and tighten spokes with spoke key if loose.			x	
Check product for ANY damage and report any causes for concern.		x		x

10 Point Pre-flight Check

1. Rear wheels screwed in fully /or Q/R's properly engaged (tug check).
2. Front wheels fully engaged in dropouts and secured with Q/R skewer.
3. Tyre pressures correct on all wheels
4. Handlebars and handlebar stem free from play
5. Check/Adjust brake lever function and spin/stop test on front wheel rim
6. Chest support and all posts secure
7. Check safety straps and belts for wear
8. Seat unable to rotate or tilt
9. Droplink bolts present
10. Check spring return is functioning correctly, ensure that bolts are secure

RUNNING FRAME CARE TIPS

- Keep your Running Frames inside; avoid storing it outside. Rain, moisture, and dirt cause your parts to wear quicker and cost you more in repairs and service
- Running Frames ridden in rain and/or off-road typically require more frequent and extensive service. If you are a frequent rider, you may find that your Running Frames needs service more often. (Probably because you're having more fun. Nice work!)
- If your Running Frames has been crashed, we recommend bringing it in for a thorough check-up to ensure that it is functioning properly and safely.

⚠ SERVICE AND MAINTENANCE WARNING

MANY FRAME RUNNING SERVICE AND REPAIR TASKS REQUIRE SPECIAL KNOWLEDGE AND TOOLS.

Do not begin any adjustments or service on your Running Frame until you have learned from your dealer how to properly complete them. Improper adjustment or service may result in damage to the Running Frame or in an accident which can cause serious injury or death.

WATCHING OUT FOR SIGNS OF GROWTH

How can I tell if my child's Running Frame is too big?
While this rarely happens if you get a customized Running Frame from RAD-Innovations, it is still important to know if a Running Frame's fit for your child is too big. One important piece of advice is to avoid using Running Frames that are oversized for your child. Make sure that when your child sits on the Running Frame, both feet can firmly touch the ground. Also make sure that your child can comfortably grab the handlebars and use the breaks. If any of these conditions are not met, then the safe advice is to downsize the Running Frame to avoid possible injuries.

How can I tell if my child grew out of the Running Frames?
This can be easier to tell when your child has already been riding the Running Frame for a long time - you'll be aware of how it used to fit them, and suddenly they will seem too tall for the Running Frame. It'll probably coincide with them outgrowing all their clothes too! When you're buying a brand new Running Frame however, it can be a bit more difficult to tell, especially if it's their first Running Frame. One of the main factors in determining when a Running Frame is getting too small is the seat height and seat post length. If a Running Frame is too small you will no longer be able to set the seat height high enough. Every seat post should have a minimum insertion line marked onto the metal. This is the point beyond which you mustn't raise the seat (or you risk snapping the seat post!)

When your child has outgrown the Running Frame, you won't be able to raise the seat high enough for them to have the correct leg extension whilst walking or running. Their knees will bend too much, they may well complain of sore thighs and they won't be able to go as fast as they want to. You may also find that the difference in seat height to handlebar height looks very extreme with the front end of the Running Frame looking very low in comparison to the seat height. Most notably, the Running Frame will look too short and your child's centre of gravity will be too far forward.

SECTION 5
GETTING ONTO AND OFF THE RUNNING FRAME

PUT REAR BRAKES ON

A basic rule is that the rear brakes should always be on when leaving the Running Frame. In this way the brakes will also be on when the Running Frame is being taken into use again. Due to its low weight the Running Frame might easily start rolling – even if the brakes are on. With heavy or motoric-challenged users, it might be a good idea to place the front wheel against a wall.

Some users might be able to get onto the Running Frame without lowering the seat. Other users will require some assistance keeping the balance or by tilting the seat section down. It is too difficult for most users to tilt the seat section down and up again themselves when placed in a running or walking position.

Wheelchair users often need to have the wheelchair placed between the rear wheels of the Running Frame. Have an assistant on each side but let the user give their attempt on getting into the Running Frame. It is rarely necessary to carry the user from the wheelchair and onto the Running Frame – try using the different settings of an electric wheelchair. Note that users with high spasticity in the thighs might need help spreading the legs to get on to the Running Frame.

When getting onto the Running Frame, hold on to the frame or the handlebars to keep it from moving. **Always make sure that the seat section is properly tightened so it does not suddenly unlock during a race.**

ELEMENT II:

THERAPEUTICS

ABOUT THIS ELEMENT

OVERVIEW

This element is built on top of the first element, which covers the assembly of the Running Frame and some basic instructions on a Running Frame's fitting and maintanence. Starting from this element, we will dive deeper into the subject of fitting, which is an integral part of the user experience whenever someone runs or walks on Running Frames. Each user is different, some are ambulant and others may use wheelchairs some or most of the time. This means when they get onto the Running Frame, their bodies may perform in different ways. For instance, if a child has cerebral palsy then they may experience contractures, spasms or variable tone. For other conditions the way athlete's bodies have developed may mean they move their limbs in a slightly different way to others. Therefore, it is important to have a baseline understanding of the condition and body behavior of the person that you are trying to help fit the Running Frames to ensure the best running or walking experience.

Without further ado, let's take a look at facets to consider when it comes to fitting your Running Frames. The goal here is to make your Running Frames snuggly fit for you. We want your Running Frame to be your best buddy regardless of your main purpose of use or your type of movement challenges.

BREAKDOWN OF SECTIONS

The sections that this element touches on include:

- Section 1: Motivation
- Section 2: Building Confidence
- Section 3: Fitting for Your Main Purpose of Use
- Section 4: Running Methods, Warming-Up and Warming-Down

For Section 1, we will kickstart on the importance of fine-tuning Running Frames. Section 2 discusses the role confidence plays in therapeutic use of Running Frames and how to ensure long-lasting user confidence. Section 3 covers various main purpose of use of Running Frames and the types of fitting most optimal for each type of use. Lastly, Section 4 details three running methods, as well as a few steps that help you warm-up and warm-down before and after your walking/running session.

WARNING

For first-time users or person of assistance to first-time users, we highly recommend familiarizing yourself with the first element ("The Basics") before you jumpstart this section on the more specifics regarding fitting.

SECTION 1
MOTIVATION

WHY IS THIS IMPORTANT?

After you read through the first element (“The Basics”), you might think that, “hmm, it’s not so hard to put together and ‘fit’ Running Frames after all.” This is where our caution comes in. Although it is common for individuals to assemble and fit Running Frames themselves, users (especially children and teenagers) with movement challenges tend to rely on adults (their parents or therapist, usually) to assemble and fit the Running Frame for them. Although in the first case, you might have an easier time telling whether the Running Frame you are sitting on is a good fit for you, both cases likely require additional attentiveness to the fit of the Running Frame, for the following reasons:

1. Studies* have shown that early success on using the Running Frame increases user confidence and encourages continued future use. Good fitting directly increases the probability of early success. Therefore, finding yourself or your child the optimal fit on Running Frames is critical starting from Day 1.
2. Good fitting comes with understanding your main purpose of using Running Frames. For example, using a Running Frame mainly for walking versus running will require different positioning of the Chestplate, varying degrees of surface of contact, etc.
3. Different types of movement challenges require slightly different fit. We will address several common cases and discuss the different adjustments that one can make to enhance user experience.

Fitting is Key:
In the cycling world, the correct fitting of a Running Frame to a rider has become more and more central to the process of buying a Running Frame, not just for the professional athlete but for any level of cyclist. If this is true for a road bike, then it is an exceedingly vital process with a Running Frame as by design it has more points of human contact.

***Studies include the follows (feel free to check them out online):**

- ParaVida Sport on “4 Race Running Amazing Advantages That we should know!” (Link: https://www.paravidasport.com/2021/01/06/race-running-amazing-advantages/)
- Laurie Watanabe, editor of Mobility Management, on “Study Will Examine the Benefits of RaceRunning for Kids with CP” (Link: https://mobilitymgmt.com/articles/2021/11/23/racerunning-study-kids-cp.aspx?m=2)
- van der Linden et. al on “Athlete-Perceived Impact of Frame Running on Physical Fitness, Functional Mobility and Psychosocial Outcomes” (Link: https://medicaljournalssweden.se/jrm/article/view/1393)

SECTION 2
BUILDING CONFIDENCE

TAKING A STEP BACK

Children and adolescents with movement challenges have lower instances of physical activity and longer time spent in sedentary behaviors compared to children with typical development. Running Frames presents itself as an excellent theraputic solution that increases the physical activeness of those with movement challenges.

Studies* (see citation on the previous page) show that continued and consistent physical activeness can help improve children and adolescents' mental and physical health, as well as development. Running Frames is a promising solution to getting children and teenagers with mobility challenges the activeness they need.

To ensure Running Frames's consistent use, we need to check athat users feel confident when they step onto a Running Frame. The question is then, how do we build up and maintain user confidence?

PEP TALK IS IMPORTANT

While some children and adolescents are excited to step onto Running Frames upon first seeing it, others might feel a sense of discomfort or even fear when transitioning from one mobility device to another. In the latter case, try the following tips (for those who are trying to help someone transition to Running Frames):

1. Demonstrate standing onto Running Frames, roll around to show that the Running Frame is generally safe and provides you an enjoyable ride
2. Show some encouragement and excitement. Any phrases that convey these two things should work!
3. Ask for your child's therapist assistance: sometimes a therapist might know your child better under certain circumstances and might be able to help with the situation

It shouldn't be too hard to get your child or someone that you are trying to help on a Running Frame – it always looks so fun to ride on them! However, the challenging part comes the moment your child steps and sits onto the Running Frame. You need to be very observant of the way they interact with the Running Frame, including their facial emotions, body movements, level of engagement, and more, in order to best assess the fine-tuning of the Running Frame so that your child's physical need is satisfied and that his/her/their confidence lasts.

WHAT FACTORS AFFECT THE SET UP OF THE RUNNING FRAME?

There are many other variables which need to be considered to fine-tune a Running Frame.

The Running Frame needs to first and foremost be comfortable for the user. The key is that the seat supports the bottom and the legs are easily able to touch the floor without the user rocking on the seat.

The questions to ask to assess comfort include:

- Am I or is the user comfortable moving?

Rarely will feedback at this stage prompt any major Running Frame adjustment, however, it may be that the seat or drop-link needs some fine tuning or perhaps better clothing is the answer.

These same questions can be repeated at any stage of the Running Frame's use.

SECTION 3
FITTING FOR YOUR MAIN PURPOSE OF USE

ACCESS YOUR MAIN PURPOSE OF USE

Although both for therapeutic purposes, using a Running Frame for mainly walking is different than using that for mainly running. Based on the user's needs and capabilities, it is important to ask the question:

- How often do I use the Running Frame to run versus to walk?

If the percentage of time you use the Running Frame to walk is higher than to run, then your default set-up of the Running Frame should be geared towards walking, and vice versa.

Next, we will show you some factors to consider as you think through your main purpose of use.

MAIN USE: RUNNING

If your main purpose of using the Running Frame is to run, then you should position your body slightly more forward, and try the following guidelines:

1. Try to position yourself in a upright but forward position by positioning the seat closer to the Chestplate and maybe raising the plate a little. Aim for a 95-105 degree angle between plate and seat.
2. If resting on Chestplate in a very forward position the seat may be pulled up and angled to allow a longer stride and less pressure in the pubic areas.
3. Do not sit too hard on the seat: pull the body up on the Chestplate and stand on your legs a bit more.

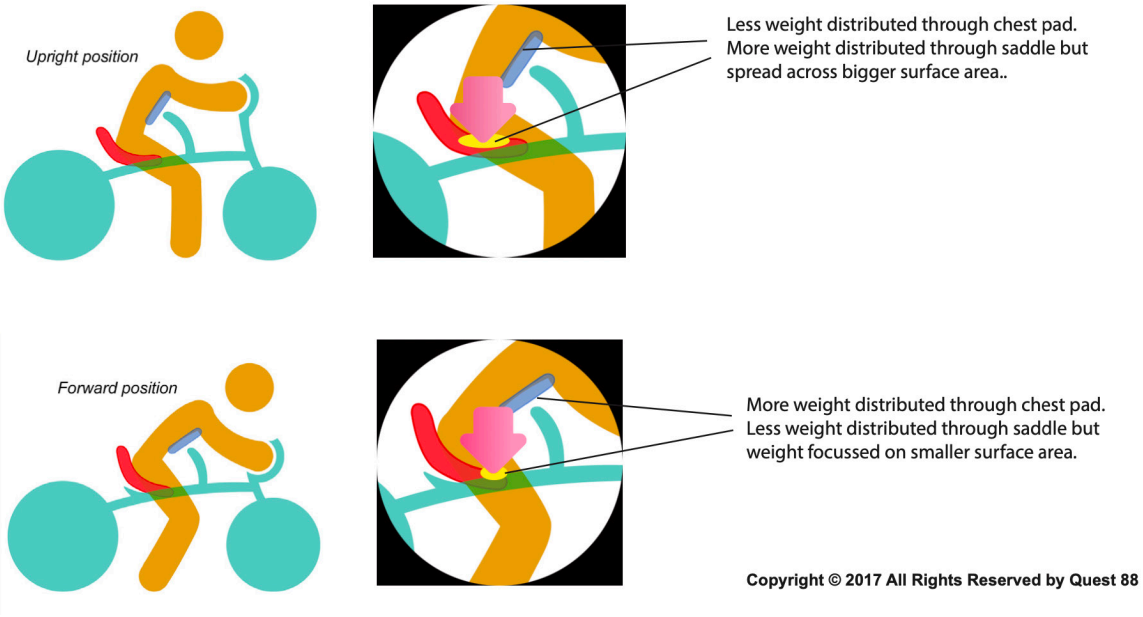
It is always encouraged that before you go for a run on a Running Frame, that you spend a few mintues warming up. However, warming up can sometimes change the set-up of the Running Frame. This means it is important to check the set up before actually running, including checking on the seat height and/or angle as well as checking the chest pad and handlebars. Remember, even the slightest adjustment to the seat, the chest support or the handlebars, can quickly upset the overall equilibrium of the athlete, sometimes resulting in discomfort as the overall weight distribution shifts.

A Good Fit is Always Worthwhile:
Fitting and adjusting a Running Frame can be difficult but worth it! When it all clicks into place, the weight is distributed well and you then see the user move with greater ease and freedom - then the rewards are amazing.

Quick Note on Age as a Factor:
When you factor in the potential physical growth of a young user, especially if they have had a growing spurt, then the setup or fit of the Running Frame will need constant monitoring and adjustment.

Seat Sores and Friction as a Factor:
With the constant movement whilst on the Running Frame, then it is easy to get seat sores due to friction. As the user takes each stride it is accompanied by rotation of the hips creating a lateral rocking motion. It is important for coaches, family members and assistants not to under estimate the pain and distress that can be caused if the set up is not right for the individual athlete. To avoid seat sores, pay special attention to clothing, use of creams and the importance of the right seat.

Saddle weight distribution according to running style.



CAUTION

A Running Frame is not a seat! It is important that the user rests and recovers during a prolonged period of using the Running Frame. Especially early on in the user's Frame Running journey; they will use muscles and body parts that are unused in daily life.

Being static in the seat is not good, especially if the user has got hot and sweaty and then cools down quickly. Users should be encouraged get off the Running Frame between sessions, and if they need to stay on the Running Frame they should be encouraged to be constantly moving for the purpose of pressure relief or to simply keep warm and flexible.

MAIN USE: WALKING

We strongly recommend that you read through "Main Use: Running" section because both walking and running share lots of similarities. What applies to running generally applies to walking as well, albeit with some slight variations.

When you walk on a Running Frame, your body is more upright – picture two able bodied people, one walking and one running, the one walking typically has a more upright body posture than the one running. The same logic applies to the use of Running Frames. Therefore, you want to reduce the angle between the Chestplate and the seat to slightly less than a 95-105 degree angle. You might also want your seat to be higher or lower depending on how different your walking posture is from your running posture. Typically, you would want the seat height (the height between the seat and the ground) to be greater than when you run.

PREVENTION OF INJURY WHEN USING A RUNNING FRAME

As with any new sport the user will want to avoid injury. Research shows that there is no higher risk of injury for those with disabilities when compared to able bodied people. These injuries typically apply to users who use Running Frames mostly for running, however, those who plan on using the Running Frame for mainly walking should also carefully review the section below.

Injury can take various forms in Frame Running including:

Injury Risk	Prevention
Physical over exertion: Strains, sprains and aches	• Warm up and cool down every session. • Take it easy, just because the user now has a Running Frame does not mean their body is yet ready to move for long periods. Start with little and often. • Have regular rests including getting off the Running Frame. • If something 'hurts' STOP and seek help, either to readjust the equipment or to seek medical input. • Always shower or bathe after Frame Running to help the body relax.
Physical damage: Awkward repetitive movements, uncontrolled movements, incorrect positioning Repetitive strain injury, damaged ligaments/ muscles, blisters, seat sores, bruising	• Many new Frame Running users will have never done any physical exercise before and may have awkward or uncontrolled movements. • Users with CP and other neurological conditions may find their joints do not work in the same way as other people, and their muscle strength may have been compromised through lack of exercise previously. • There is a risk of repetitive strain injury or damaging ligaments if the equipment set up is not right. You may also choose to ask a Physio to review the user to see if other actions may help such as taping or splinting. • For instance if it is the first time with new footwear or weight bearing then feet might blister. Stop and take appropriate action immediately. • Uncontrolled movements may mean the user kicks themselves; make sure you examine legs and deal with cuts and bruises. Beware if wearing spikes for the first time as the weight and structure of these may create new challenges.
Heat exhaustion Dehydration, headaches, muscle stiffness, fainting	• Keep well hydrated, drink frequently especially before and after strenuous exercise which creates heavy breathing or panting. • Take hat, sunglasses and sun cream plus your own sun shade. Sun screen should only be used on exposed skin as the body still needs to perspire. • Invest in a breathable helmet rather than a solid one.
Hypothermia Shivering, muscle tautness and rigidity, loss of consciousness	• It is easy to get warm Frame Running and then to get chilled as soon as exercise is over. Always have layers to put on/take off. The base layer should have a moisture transport system. • In winter wear layers topped with a lightweight breathable wind-proof jacket, scarf and gloves. Consider a snood or thin hat to wear under the helmet to keep head and ears warm.

SECTION 4
RUNNING METHODS, WARMING-UP & WARMING-DOWN

Note
This section is for users who go on frequent runs using the Running Frame.

RUNNING METHODS*

The running methods of Running Frames depends on both the leg and upper body functions, including arms, trunk, and hip sections. The specific running methods or style used by a runner does not necessarily put runners within a particular running category.

The running methods in Frame Running can be divided into three main styles, and each technique requires a slightly different set up of the Running Frame. The three methods are:

1. Butterfly,
2. Gallop,
3. Classic Run.

BUTTERFLY

In a butterfly, the body is leaned forward by approximately 40 degrees. One-third of the bodyweight leans on the body support plate. The hips are lifted by pulling the body forward towards the handlebars.

Both the legs are swung forward at the same time and parallel without much bending of the knees. The stride is short and often rather fast. Hip and leg muscles seem to be tight and stiff. Usually, this results in rapid and superficial breathing.

This technique is mostly used by diplegic spastic runners with none or little active mobility in the lower body and legs.

GALLOP

For this style, all of the weight is placed on the body support plate. The body leans forward by 70 – 90 degrees. The upper body is pulled forward and down towards the steering handle using the chestplate as a lever to lift the legs.

The hips are lifted much higher than in the butterfly technique. The one foot always touches the ground in front of the other, allowing a much longer and powerful stride. A lot of the power in the stride comes from the legs' weight as they slammed into the ground.

To run fast and long in this technique requires good arms and a strong back, stomach, and gluteus muscles There may be a reduced tone in the legs. The breathing rhythm is slower than in butterfly.

Typically there are two double strides per breath and 45- 50 breaths per minute.

This technique is used by spastic diplegic runners having an excellent upper body function and functional back/pelvis mobility but little active mobility in the legs. They may be dominantly hypotonic in the upper body and spastic in the lower body.

HEMIPLEGIC GALLOP

Runners with a hypotonic/weak or spastic side – being hemiplegics – naturally work more with the better side of the body. They may be able to use both legs in the start with a standard running style, but as soon as they go fast, the weak side can't follow the better side's rhythm. Then the leg on the hemiplegic side is "hanging" only doing a weak and short stride – if any at all.

Because there is no real contra mechanic momentum of the one leg, the good leg tends to have a slower rhythm but a good follow-through movement. Also, one-legged amputee runners use this pattern. Spastic hemiplegic runners mostly use this technique with one near-normal side and one inferior side.

CLASSIC RUNNING

In the classic running style, the two legs follow a normal running rhythm. 50 – 70 % of the weight is placed on the body support plate. The body leans forward by about 40 – 50 degrees, and the arms provide trunk stability. Usually, the upper body only has minimal problems. Some may run with a right bend and lift of the knee, while others may not be able to do so.

The breathing rhythm should be approximately 48 – 52 breaths per minute.

This technique is used by the less disabled athletes, where their cerebral palsy does not hinder fast movements and an almost regular running movement pattern.

ATHETOID CLASSIC RUN

Some runners look like they run with a good and long stride, but at a closer look, they are not making a full stride! Nor is it well coordinated! When running fast or attempting powerful strides, spastic reflexes are activated, and an athetoid pattern interferes so that the running pattern is disrupted and inefficient. Runners mostly use this technique with athetoid cerebral palsy that affects all of the body and spasticity in (parts of) the legs, having little control of coordination, especially when doing fast movements. The breathing may be tense and superficial. Other runners may lack strength or be ataxic, causing weak or short strides.

TWO WAYS OF WARMING-UP

1. The passive method is to take a hot shower or going to a sauna. Since it is only the outer layers of the muscles that are warmed up doing so this method is not efficient.
2. The active method is to use the muscles for physical activity. This method is way more efficient and in this way all the muscle layers are being warmed up.

***Special thanks to ParaVida Sport for the above content in this section. Link to the article: https://www.paravidasport.com/2020/08/10/running-methods-in-racerunning/**

PUT REAR BRAKES ON

Warming-up is a gradual physical and mental process that prepares the user for the upcoming physical activity.

THE PURPOSE OF WARMING-UP

- To improve the performance
- To minimize the risk of getting injuries

VARIOUS PHYSIOLOGICAL EFFECTS GAINED FROM WARMING-UP

- Increased body and muscle temperature
- Increased speed of the chemical processes in the body
- An improved transport of oxygen from the blood to the muscles
- An improved nerve conduction velocity
- Improvement of the synovial fluids
- A quicker adaptation of the respiration and the circulatory system for the upcoming physical activity.

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In resting condition the muscle tissue and the connective tissue around the muscles are in a shortened condition. After thorough warming-up the length of muscle tissue and connective tissue are increased by up to 10%. During warming-up the temperature in the muscles are increased as well and this implies an increased speed of the chemical processes in the body.

Another important effect of warming-up is that it minimizes the risk of getting injuries. In resting condition only 20% of our blood is in the muscles. During warming-up the percentage is increases to approximately 75%. The overall physical performance will thereforee also be improved.

Warming-up begins with running at a slow pace for about 10 min. Gradually the velocity should be increased and in the end the user can do a couple of increase runs (70-80 meters).

All together warming-up should last for 20 to 25 minutes.

CONSIDER WARMING-DOWN

It is always a good practice to warm-down, but you should especially consider warming-down if you've had an intense session of using the Running Frames. Warming-down begins with running at a slow pace for about 5 to 10 minutes. The warming-down process ends with a couple of increase runs (60-70 meters) at a medium pace. Remember to do some stretching exercises after this.

ELEMENT III:

RECREATION & SPORT

ABOUT THIS ELEMENT

OVERVIEW

Now you've read through the first two elements, it is time to start thinking about building a Frame Running community for sport and recreational purposes – what brings more joy than running and having fun together with friends in the outdoors?

To help build a Frame Running community, we are here to walk you through some important know-hows so that you have a good sense of the next steps and potential challenges. The goal of this element, then, is to equip you with a framework for starting and maintaining a Frame Running club or program. Before we embark on this journey, let's remember that all Frame Running clubs should be an inclusive and welcoming environment focused on encouraging members to enjoy the sport, whether that be members who are wheelchair bound, children developing their leg muscles, or adults with arthritis who wish to maintain a level of movement and physical fitness.

BREAKDOWN OF SECTIONS

The sections that this element touches on include:

- Section 1: Building a Club
- Section 2: Coaching
- Section 3: Activities
- Section 4: Integrating Frame Running into an Existing Club or Event

Section 1 walks you through a few basic steps toward setting up a Frame Running club. Section 2 focuses on coaching, which ensures the safe functioning of the club. Note that coaching requires extensive training beyond the scope of what's discussed here. That said, you might consider investing some time and money in training yourself or one of your trustees/members to improve your club or program's coaching capabilities. Section 3 covers the safety and gear aspects to Frame Running as an activity in a group (as opposed to individual) context. Lastly, Section 4 details the steps you need to take to integrate Frame Running into an existing club or event and keep your club active in the long-run.

*** Special thanks to Quest 88 for the content of this element.**

SECTION 1
BUILDING A CLUB

FINDING PEOPLE & ESTABLISHING INTEREST

People and interst are the foundations of your club, so look for like-minded people to start a club! You may be able to visit other local clubs to see Running Frames in action and get some ideas (check out **https://www.racerunningusa.org** for existing clubs and programs). Running Frames can benefit a huge range of people so don't be afraid to talk to others in your local community that might be interested. Athletics coaches and physiotherapists are great assets to your club, and it may be worth speaking to your local Disability Sport Development Officer to find coaches and professionals that might like to get involved.

Also consider club membership, where they might come from and how you're going to reach them. Think about the different people that Frame Running might benefit and how you can contact them. Local newspapers, existing disability groups and disability sport organisations are a great place to start.

LOGISTICS

This is the who, what, where and when? Who will coordinate your club, when are you planning on meeting, are you going to use your local athletics track or another outdoor area?

Athletics tracks are most ideal, but Running Frames can be used in other flat areas such as parks and cycle centers. Consider your local weather and how this might impact training, cycle paths may be ideal for the summer months and you may want to retreat to an indoor sports hall for winter.

You'll need to store the Running Frames somewhere close by as they are not easy to transport. Storage containers are often a relatively cheap option and can be very suitable. However, it is important to consider the quality of your storage as Running Frames do not store well in damp conditions and ideally should be left fully assembled for ease of use. Your storage must be securely locked and substantial enough to prevent potential theft.

CREATE A MISSION STATEMENT/CONSTITUTION

Why are you setting up a Frame Running club? What would you like your members to feel and achieve? For example, it may be that you want Frame Running to enhance the physical and mental health of disabled individuals in your community. Perhaps you want to enable more people to have access to physical exercise? This part is personal to you and your club.

Your constitution is a short statement describing the nature of your club and how your club is run. A constitution is not essential but may be required when applying for club bank accounts and helps to show others that your club is democratic and accountable. Templates can be found online.

ESTABLISH CLUB ROLES

Usually clubs require a chair, treasurer and secretary in order to start. Going forward, you'll want to find a group of trustees that can take on other minor roles such as membership coordinator and fundraising manager. Ideally these individuals will have a good understanding of the Mission Statement and can partake in Annual Meetings (AGMs) for the group. Consider if anyone needs training for their role, basic training for things such as safeguarding can often be found online or through your local voluntary action group.

SET THE RULES

Establish your governing documents, these may include safety guidelines for using the frames and induction forms for new members. Remember that Frame Running is a sport and injuries can occur, **make sure that all the relevant documentation is in place to protect yourself and your members**. There are lots of templates online that you can use to build on and adapt for your own purposes.

BUILD A BUDGET

Once you have decided what your club is going to look like you then need to consider costs. There may be upfront costs, for example, the frames themselves, if you are providing them.

There may also be ongoing costs such as track hire, insurances, frame maintenance and storage. You then need to consider your sources of income, are you applying for a charitable grant, for example from your local authority? Do you need to hold a fundraiser to get you started? Will you need to hold regular fundraisers?

Many clubs ask their members for a small contribution towards training, either on a pay-as-you-go basis or in the form of membership fees. You could even combine and set different prices for members and non-members to be as flexible as possible. Remember to set aside money for smaller items such as branded clothing and snacks for any events you may hold.

If you need support during the process of building a club, feel free to contact Frame Running USA (Link: **https://www.racerunningusa.org**).

Here is a list of equipment you'll need to include in your budget:

- **Running Frames** – we recommend you purchase a minimum of 6 frames to get you started. The sizing and type of frame may depend on your club's needs, but we can help you with this. It's unlikely you'll need to purchase more as your membership grows as often people move onto their own frame or move up sizes, meaning that frames get passed between users frequently.
- **Helmets** – lightweight cycling helmets in a range of sizes.
- **Track Pump** – Frame tyres should always be pumped up to optimum pressure as this contributes to their low rolling resistance.
- **Toolkit** – Quest 88 supply a toolkit to enable easy adjustment of the frames for different users.
- **Inner Tubes/Tyres**– Replacements in the event of a puncture or wear.
- **Brake Pads/Cables** – These wear down over time and need to be replaced to ensure the safety of your members.
- **Flags, Cones and Markers** – These can help with engaging your members, set starting point/finish lines and make training more fun for everyone.

Also, keep a bank account, which makes keeping track of income and payments easy and allows the club to apply for funding. A club account can be opened with the permission of the trustees and should have multiple signatories to revoke personal responsibility for club finances. This is important as it protects the club and its trustees.

PROMOTE THE CLUB

You club is only going to be successful if people know about it! Have a social media account and post regularly to promote your club. If your club has been active, you may also request to be listed on **Frame Running USA** (Link: **https://www.racerunningusa.org**) for additional publicity. Also, contact local disability support groups and voluntary action groups. Perhaps take the Running Frames to local events to show people how awesome they are. Advertise in your local newspaper or newsletter and contact other disability sports and activity groups.

Have-a-go days are a fantastic way of introducing potential members to the sport. Promotion and marketing must be ongoing. You will find that your membership will change overtime as people lose interest, move away and circumstances change. Whilst some members may stay with you for a long time it is important that you continue to advertise and engage with your local community, making yourself known to all who need you.

LAUNCH DAY

Launch day (after you've built your club) gives you an amazing opportunity to engage your community and showcase your new club. Before you welcome your members, it's a good idea to run a promotional day in which stakeholders, trustees and other interested parties can see what you have to offer. **Frame Running USA** can offer you remote (or on-site, if logistics works out) assistance and help provide equipment and expertise in order to ensure that the frames are exhibited in the best way possible.

SECTION 2
COACHING

THE IMPORTANCE OF COACHING & RESOURCES

It is the coach's (or someone who knows Frame Running well) responsibility to plan sessions and make sure that all members are enjoying themselves and getting the most out of their time with the club. In order to prevent injury, most sessions will begin with warmups and stretches and end with a cool down **(See Element II, Section 4)**. Should you focus on 'racing' with your group, you may wish to fill your sessions with races of varying distance, although there are lots of other activities that your members can enjoy. It is also important that coaches look out for signs of discomfort and difficulty. Due to their varying conditions, a runner's ability may differ day to day, these discrepancies must be taken into account. Even something such as the weather can have a significant effect on an athlete's challenges. In addition, it is essential to factor in rest breaks and time to adjust the Running Frames, it is often necessary to designate time off the seat, either in a wheelchair, standing or sitting in another seat to prevent pressure sores. Assess your members as you go and extend rest periods when appropriate. **(Read Element IV for more details on coaching and Frame Running as a competitive activity.)**

Quick Tip:
In order for your Frame Running club (if for competition purposes) to function safely, effectively and to the benefit of its members you must have a qualified coach (or a coach-like individual in charge). This may mean spending some time and money investing in training yourself or one of your trustees/members.

Parents/guardians also play a crucial role in athlete communication and safety, it is advised that every athlete attend with at least one companion that can support them. A qualified coach or personnel on Frame Running should be present at all of your meets, even if their role is largely supervisory – this is to protect yourself and your members against injury and the consequences of such. Many places (like Move United, CPRISRA, etc.) run regular coaching seminars online, sometimes disability specific, which may be valuable in developing your knowledge and advancing club activities. Every summer, CPISRA holds a Frame Running Camp and Cup in Copenhagen. This event is a great way of connecting with other clubs, training your coaches and sharing ideas. The Frame Running community is growing in the US, so we should expect more Frame Running races to appear in the next couple of years. Follow Frame Running USA or subcribe to its newsletter for the latest updates on Frame Running, see **https://www.racerunningusa.org**.

SECTION 3
ACTIVITIES

TO START...

As mentioned earlier there is a whole range of activities that your club can enjoy, and the form of your sessions will somewhat depend on the needs of its members. Your membership may be diverse and, as a result, it may be necessary to run multiple sessions.

For ideas on activites, we HIGHLY recommend you check out CRISPA's course on Frame Runing (Link: **https://cpisra.thinkific.com/courses/frame-running-awareness-and-coaching**). This website provides coaching materials as well as fun activities that clubs can do.

Quick Tip:
The emphasis should be on teamwork, fun and the celebration of individual achievement.

Furthermore, winter training may be different to summer training, it may be that winter activities go indoors where there is less space, and you'll need to think of suitable activities for your members.

Remember that it is not all about racing, you could have sessions dedicated to Runnning Frame control, for example, using cones as slalom. If you have enough members you can arrange relay races, backward races, one leg races, etc. Each athlete should have their own personal goals and the emphasis should be on personal achievement. Avoid running full races with athletes of different abilities – this may cause discouragement.

SAFETY

As with any sport, Frame Running comes with its own risks but these can be easily minimalised with the correct training, protocols and considerations in place. Risk assessments should be carried out on the area that you intend to use for training. You should consider the safety of other path/road/track users and any hazards that may impact your runners. Consider whether there are elements beyond your control, this particularly important if you are using cycle paths. Extra gear such as high visibility bibs and flags are required to keep everyone safe.

Your members may vary in their ability to control the Running Frame, they may find it difficult to steer or apply the brake. This should be taken into consideration and activities should be adapted accordingly. Some runners may require 1-1 support or find it easier to train in straight lines. If braking is challenging then 'foot braking' (using the toe or heel against the ground to slow down) may be possible, although it is important to advise that this may damage shoes if they have not been reinforced.

GEAR

In a group setting, the correct gear is even more important. You must ensure that your club members have access to the following:

- **Helmets** – essential for safety, whilst frames are designed with optimal safety in mind, they can become unbalanced and sometimes accidents do happen. Lightweight cycling helmets are ideal and not too costly. Ideally athletes will come with their own helmet, but it may be a good idea to have spares available to avoid disappointment.
- **Clothing** – use cycle shorts to protect the pubic area. They should be fitted properly and be appropriate to the athlete's gender and body type. Avoid clothing with seams to avoid rubbing and pressure sores. For riders with limited sensation and/or oversensitivity, other sports padding can be used such as hockey pads or cycling body pads. Padding can also be added to the running frame where necessary.
- **Footwear** – Appropriate footwear should always be worn, which depends on individual preference. Some runners require adaptive footwear. The footwear should be supportive and have a grippy toe. Standard trainers are ideal while short booties offer more ankle protection and support.

SECTION 4
INTEGRATING FRAME RUNNING INTO AN EXISTING CLUB/EVENT

Running Frames bridge the gap for disabled participants and encouraging equality through sport. Frame Running USA is passionate about this and wants to encourage the embracing of Frame Running across a range of events.

In this part of the guide we cover some of the potential concerns about integrating Running Frames and how we can overcome these challenges and break down barriers for many people.

DISTANCES

Running Frames can be used over all distances; however, some users suffer from reduced muscle function and can be easily exhausted. Therefore, it may be appropriate to have shorter runs alongside your usual 5k and 10k options. 1k and 2.5k would be great options for people who have limitations or are just starting out with Frame Running.

LOCATION AND TERRAIN

Running Frames are designed to be used on predominantly flat areas, that being said they can be adapted for use on cycle trails of reasonable width with small inclines and declines. Steep inclines are very difficult in a Running Frame but can be achieved with some help. Ideally the route that you would designate for Running Frames would be as flat as possible and stick to relatively smooth surfaces. Paved, Tarmac and shingle surfaced paths are most ideal but dry forest trails (fire tracks) are also possible.

COLLISIONS

Accidents can happen in any race and, although they are designed for safety, Running Frames can tip up and over in the right circumstances. This is why it is important that other runners are made aware of the Running Frames presence and that Running Frames are clearly visible. It may be appropriate, in cases where large numbers of participants are present, to set the Running Frames off at a different start time or have them run a parallel route. Alternatively, high visibility bibs or flags can be used to identify Running Frames.

COMPANIONS

Frame users may require one or more companions in order to run comfortably and safely. This should be allowed for within your entry system and results. Companions are often familiar with the frame and are able to prevent accidents by assisting the athlete.

LOGISTICS

It's important to consider your start and finish points, many Running Frame users require support at the start and finish in the form of an assistant or even a wheelchair. You should make this clear to entrants so that they can plan ahead for what they need. Accessible toilets should be available if possible as many individuals are unable to use standard cubicles or portaloo facilities. Parking should be taken into considerations as those bringing their own frames will need to easily unload them from a car.

DISABLED ATHLETES

Each runner is going to be different and there is a huge range of people that enjoy running with a frame. Each individual will have and know their own abilities and this may vary greatly. This is why is it very important that each runner is treated as an individual and accountable for their entry choices. In some cases, users will require full supervision as their ability and understanding to control a frame is limited, in these cases a familiar companion is essential. However, some users are very adept using their frame and will want to take part and challenge themselves as much as anyone else.

KEEPING THINGS FRESH

Over time, attendance will fluctuate with people moving away or changes in priority. Statistically, children around the age of 14 are more likely to drop sport and activity. Whilst this may be disappointing, it is important to try and maintain membership levels and remember that there are always people out there that may not have heard of Frame Running but would benefit massively from it.

The initial buzz created around the launch of a new club isn't a one-off deal. It is important to keep the energy going and maintain interest through promotional events and marketing. Similarly, there may be times where membership levels dwindle, do not see this as a reason to give up but rather a reason to take things further. Talk to your members about their goals and aspirations and continue to make yourself known within your community.

One way this can be achieved is to celebrate and share milestones and achievements within the club membership but also through local and national press. Awards evenings can help attract attention and give your members a chance to celebrate their accomplishments, it does not need to be a huge event, but it can mean a lot to your members. Furthermore, make sure that you engage with your community through social media, newsletters and press releases.

Have a think about other events for your members, for example social meetings such as meals out, or activities such as days out at the park or beach. Much of what you decide to do will depend on your membership, location and size. Anything you do to promote the social elements of your club will only serve to further enrich the lives of your members and make them more likely to stick with you.

Remember to keep communicating and networking, short posts on a Facebook Page about the day's training achievements can go a long way to keep member engagement and raise the profile of your club.

This will also be very important when the time comes to fundraise, your profile in the community and among your members will have an important bearing on the success of your fundraising efforts.

RESOURCES

Below is a list of key resources, organisations and contacts to help you get started.

CP Sport - www.cpsport.org.uk
CPISRA - www.cpisra.org
By-Connie-Hansen www.by-conniehansen.com
RAD-Innovations - www.rad-innovations.com

ELEMENT IV:

COMPETITION

ABOUT THIS ELEMENT

OVERVIEW

"It is almost only the imagination that sets limitations to who might use a Running Frame."

Indeed, the first and foremost goal of Frame Running is to enable people with impaired balance (regardless of the kind of disability, that is, big or small, hidden or not, physical or mental, or a mixture of it all), e.g. amputees or people with CP, to remain active. This opens up the possibility of Frame Running for competition, where disabled individuals can participate.

In tandem to the third element, which focuses on building a Frame Running community, the fourth and final element takes a Frame Running club or program a notch further and provides a guide for coaches to train Frame Running athletes. **Since almost anyone who is ambulant can use a Running Frame, it is important that coaches put norms and rules aside and solve the challenges as they arise.**

BREAKDOWN OF SECTIONS

The sections that this element touches on include:

- Section 1: Running Frame Maintenance from a Racing Point-of-View
- Section 2: Fitting a Running Frame for Athletes
- Section 3: Practical Issues: Clothing, Food & Drinks, and Weather
- Section 4: Planning the Training

Section 1 covers the maintenance of Running Frames when they are used for racing and competition. Section 2 details the fitting of a Running Frame for athletes when they train and compete. Section 3 addresses some practical issues, such as clothing, food & drinks, and weather. Lastly, Section 4 offers coach guidance on training, including various training types and suggested training content.

SECTION 1
RUNNING FRAME MAINTENANCE FROM A RACING POINT-OF-VIEW

IMPORTANCE OF RUNNING FRAME MAINTENANCE

It is important to maintain the Running Frame during the whole season, which is not complicated. Typically, it is enough to check and make everything ready at the beginning of the season (refer to Element I, Section 4). During the season, try to keep the bike relatively clean, tighten the bolts and pump the tires. It is good idea to dry the bike with a cloth after running in rainy weather and to store the bike in a dry place. Doing so prolongs the life of the Running Frame. As a coach or volunteer, you will typically be the one taking care of at least some of these practical things and the most basic tools for maintaining the Running Frames should always be available at the sports club.

BRAKES

Running Frames come with rim brakes with brake blocks. **The brake blocks are gradually worn down and must be replaced when needed**, especially if the Running Frame is also used during winter time. Brake blocks are available at regular bike shops and they are relatively easy to replace. Be careful to adjust them correctly so they are worn down harmoniously and do not shriek. **The brake cables must be adjusted once in a while and turning the screw at the handbrake normally does this.** Do this together with the athlete taking into account his/her strength in the fingers/hands.

TIRES AND RIMS

The tires of the Running Frame are gradually being worn down. Replace the tires when the tread is worn down or if cracks start to appear at the sides of the tire. The tires should be pumped once in a while (refer to Element I, Section 4 for a detailed maintenance schedule). A slightly decreased air pressure might compromise the comfort and speed of the athlete. The correct air pressure for the specific tire is written on the side.

If the Running Frame is often used outdoors, in the forest or similar places, the need to keep rims and spokes clean is bigger. This can be done with a regular cloth, water, a regular cleaner and a dry cloth. Rims and spokes must always remain intact.

BOLTS AND SCREWS

Most bolts and screws on a Running Frame may be adjusted using hex keys or a spanner. **The bolt and screws at the wheel, seat, body plate, stem and brakes should always be re-tightened.**

WARNING

A more experienced athlete who is building core strength and stamina will also be constantly changing posture and so they should especially have their Running Frame set up checked regularly.

SECTION 2
FITTING A RUNNING FRAME FOR ATHLETES

IMPORTANCE OF FIT FOR COMPETITION PURPOSES

All athletes are different in their abilities and needs and the Running Frame should be adjusted accordingly. It is important to take into account the anatomy and the running technique of the athlete. The coach has to be very patient in the process of adjusting the bike correctly.

The ideal setting is not easy to find and is typically necessary to compromise between comfort and running speed. This compromise should be found together with the athlete and maybe also his/her parents or assistant(s). Adjusting and fitting the bike should take place both before AND after the training session.

A WORD OF CAUTION

New and inexperienced athletes might need some time and re-adjustments in order to find the ideal setting of the Running Frame. Take your time to experiment and try out the various settings, e.g. adjusting the position of the seat, tilting it up or down.

Note that, even small changes might have a big impact and a lot of experimenting and re-adjusting might be necessary.

There are also different types of seats, body supports and handlebars for the Running Frame. Remember to check out the range of possibilities and consult an experienced Frame Running coaches for the best alternatives. Sometimes, custom built is necessary.

SEAT AND BODY SUPPORT

The Running Frame should be adjusted in order for the athlete to run as freely and independently as possible. Some runners prefer an upright running position. This position will improve the athlete's respiration, as the diaphragm is not pushed as hard against the body support plate. Girls with bosom often prefer a rather upright position. This position is also better for the neck that keeps its normal position. If the position is lowered the neck muscles must work harder. On the other hand a lowered position is more aerodynamic and the weight pressure on the crotch is reduced. This position also minimizes the risk of tilting the bike from one side to another, which is often seen in an upright position.

In general, an athlete with strong legs and buttock muscles needs less support from the seat and the body support plate. Heavy athletes and athletes with weak muscles need more sup- port. Also, athletes with heavy thighs might get bruises from frictions with the bike but placing small pieces of some soft material on the relevant parts of the bike might solve this.

WARNING

Pros and cons must be considered for the benefit of the individual athlete.

HANDLEBARS

The handlebars come in many different sizes and shapes. The height of the handlebars and the distance to the body support plate should be set in order for the athlete to be fairly relaxed in upper body and shoulders.

CP athletes might experience difficulties stretching the arms enough in order to reach the handlebars and they might also have problems turning the handlebars themselves. The handlebars therefore need to be adjusted according to these issues. The power needed to turn the handlebars must be fitted to CP athletes with a poor arm muscle power. This might cause the athlete to turn the bike inadvertently and the right compromise might take some time to find.

MOVEMENT AND CONTACT WITH THE RUNNING FRAME

Movement makes all the difference when fitting a Running Frame. When the athlete is in motion, the loading and weight distribution shifts. The inter-relationship between the different contact points alters. The seat loading reduces as the athletes' weight is redistributed and the legs and feet provide more support time.

To only judge the athletes comfort level whilst static is missing the point, it is important to seek and receive feedback from the athlete and the coach.

EXTRA SUPPORT

Some athletes, especially CP athletes, need extra support. Some athletes might need more body support, e.g. a belt or strapping around the back, elbow supports or similar. No matter what kind of extra equipment used the overall aim is always to improve the conditions of the athlete.

The athlete should to be able to focus primarily on running and training instead of focusing on the Running Frame as a piece of equipment.

GETTING USED TO THE BIKE

New and inexperienced athletes only running in the summertime have to be patient and spend some time getting used to the Running Frame as well as being physically activity in general. The athlete also has to get used to sitting on the Running Frame and this might cause some pains in the neck (keeping the head in an upright posi- tion), the arms and wrist (controlling the hand- lebar), the trunk or chest (resting on the body support plate), and also the crotch (pushed with great weight against the seat). Especially the strain on the crotch will bother many athletes in the beginning (see clothes and some practical issues).

Perseverance is essential to ensure novice athletes feel the benefit of movement and the freedom of independent walking/running.

COMMUNICATION BETWEEN ATHLETE AND SUPPORT TEAM

Communication and feedback from the athlete about discomfort, any pressure points or sore areas is vital. This sometimes requires some clever detective work from the coach, parent or assistant, especially if the athletes' communication is limited in some way. This can be exacerbated if the coach is unfamiliar with the athlete.

Quick Tip:
Refer to **Element II, Section 4** for helping athletes getting on and off a Running Frame.

SECTION 3
PRACTICAL ISSUES: CLOTHING, FOOD & DRINKS, AND WEATHER

CLOTHES

Thermoregulation is most individual and the clothes should always fit the specific athlete and the weather conditions. A general rule is that the upper body needs more clothing than the lower body.

The upper body (especially hands and fingers) may get cold when running. On the other hand, athletes might get too warm at the torso section resting on the chestplate. Use moisture wicking as well as wind- and water breaking clothes in this case. **CP athletes might experience more spasms in cold weather and can benefit from warmer clothes. Bike shorts with padding is recommended.*

Be aware that these shorts are gender specific in their design. Bike shorts must fit tightly and give the right support to the crotch. It is often necessary to try on several different types to find the right kind of bike shorts. Do not use underwear or sanitary towel under bike shorts. No matter the precautions taken many athletes will experience some discomfort due to the weight pressure placed on the crotch. The skin and tissue need slowly to get used to this pressure. Have some breaks during the training session and tilt the saddle section down to release the body from the pressure.

Be aware of bruises on the skin that may gradually become worse. Coaches should communicate with the athlete and his/her assistants about this. Athletes with verbal communication problems as well as wheelchair users need extra tending on bruises and potential injury.

SHOES

Many athletes have different leg lengths and some may have a wrong positioning of their legs due to their disability. It is important to take this into account and if the athlete is using custom-built shoes in the everyday life he/she probably needs custom-built shoes when training as well. The tear and wear of these shoes (especially the tip) may suggest that a pair of shoes specifically for Frame Running training is needed. Unfortunately custom-built shoes are often heavier than regular running shoes, which may cause a foot drag. **To avoid this raise the saddle a bit.*

During competitions, the athlete might use a pair of spike shoes that are lighter in order to increase speed and grip. Be aware that spike shoes are often tight-fitted and the toes might not be able to move. Athletes with malposition and decreased proprioception need to be especially aware of this to avoid overstrain.

HELMET

Athletes should always be wearing a helmet as the Running Frame might tilt over.

COMPETITIONS

There are often some specific competition rules that need to be obliged. Normally the athlete needs to wear team jersey and bibs. **Helmets are compulsory at all competitions.**

WARNING

CP athletes might experience more spasms in cold weather and will often benefit from warmer clothes.

FOOD AND DRINKS

The athlete should always bring along a water bottle for the training session. Water is fine, but for longer distances, energy drinks are a good idea. The athletes should be advised to drink plenty of water before training and competitions to avoid dehydration. If the athlete has a long way home after the training session, the coach should remind them to bring a sandwich or a banana for energy supply.

TRAINING IN COLD AND HOT WEATHER

It is possible to train in all kinds of weather as long as the right precautions are taken. There are only two exceptions to this rule: in thunderstorms and freezing rain all training should be ceased immediately.

Training in Cold Weather:

- Have layers in clothing and for the innermost layer, have a sport undershirt with a moisture transport system; for the outer layer, use a breathable windbreaker.
- Have a reflective jersey so that other road users see you.
- Use one or two pairs of running socks on the feet and one or two pair of gloves for the hands. Mittens are warmer than gloves. A warm cap for the head is a must.
- Remind athletes to bring water for the run.
- Always be aware that the athletes stay warm
- It might be necessary to change the training session due to low temperature, e.g. to do long intervals (5-10 min) or continuous run (e.g. 30 min without breaks) instead of short intervals.

Training in Hot Weather:

- Have the right sport dress for hot weather.
- Upper body: a running T-shirt or singlet.
- Head: a breathable helmet and sunglasses.
- Use sunscreen for the most exposed areas but do not use it on the rest of the body as the sunscreen prevents the body from perspiring properly.
- Remind athletes to drink a lot of water during training.

Remember:

- Beginning in contrary wind – and return in following wind
- No training sessions in thunderstorms or freezing rain
- Dress according to the weather conditions
- Remember to drink water – also in cold weather

SECTION 4
PLANNING THE TRAINING

ENGAGING WITH ATHLETES ON A PERSONAL LEVEL

The following points are important to keep in mind while you work with a group of athletes:

- As a coach, you will very easily become an important part of an athlete's everyday life.
- Remember that each athlete's ability, disabilities, needs, and range of movement will vary.
- Each athlete's level, ambitions, and talent will vary.
- Atheletes become a member of your sports club and a fellow – most people love to get some kind of responsibility assigned (e.g. collecting the cones after a training session, baking a cake, keeping spirits high during the training session, or whatever responsibility the individual athlete is able to carry out).

VARIOUS TRAINING TYPES

There are four most important training elements for a Frame Running athlete, and they are:

1. Condition training (physical fitness)
2. Strength training
3. Coordination training
4. Stretching out

WARNING

Coaches should always be aware of the fact that some athletes might have issues that could worsen due to a hard and repetitive physical training, e.g. muscular pains, wrong positioning of joints or rheumatism in feet, knees, hips or back or problems arising after surgery.

As you read on, **remember to tailor the various types of training to each athlete**. For example, some elements of training might be optional for a beginner athlete, while most elements should be compulsory for an athlete with elite ambitions.

CONDITION TRAINING

Condition training invovles the athlete running various distances at various pace. The objective is to build up a good physical fitness, which means that the athlete can carry out more everyday activities at ease while the risk of circulatory diseases diminishes.

A beginner typically runs continuously for 15-30 minutes. Compared to an experienced athlete, they can run for the same period of time but with the 3 intervals for break after each 5-min run.

Keep in Mind:
All training for beginners should be based upon the principle of intervals. Intervals is basically a question of shifting between different paces, e.g. from very slow to medium speed, or from fast to very fast. The pace should always correspond with the athlete's abilities.

- **Calculating the intensity (important assessment to meet your training goals)**

When the athlete does condition (aerobic) or anaerobic training, **it is important that the pace is right**. There are several methods for determining the right pace for the athlete.

- One way to determine the right pace is the **"TALKING METHOD"** where the athlete is asked to speak a certain number of words coherently.

- Another and more accurate method is performance timed, measured with a **TEST** at a given distance.
- The third method is training according to the **PULSE**. The athlete needs to know his/her resting heart rate and maximum heart rate. This method is not accurate for Frame Running athletes since most athletes have a rather high resting heart rate level due to their spasms. So follow the follow the maximum heart rate for training purposes.

For a sprinter the time that the training will be aiming at will be calculated from the athletes' maximum heart rate on either the 100, 200 or 400-meter distances. For a middle distance runner the results used are the results either from the 400, 800 or 1.500-meter distances.

There are two ways of determining the maximum heart rate. The theoretical and the less accurate:

- Women: 226 minus the athlete's age, e.g. a 19 year old athlete = 226 – 19 = 207 beats per minute.
- Men: 220 minus athlete's age, e.g. a 19 year old athlete = 220 – 19 = 201 beats per minute.

**The reason for subtracting ones age is that the maximum heart rate decreases by one beat for every single lived year.*

A more accurate method for determining the maximum heart rate is to find a hill to practice on. The hill needs to be about 150 meters long. The athlete warms up, followed by maximum sprinting uphill, then stops and counts the pulse for 15 seconds and multiply the pulse by 4. The result is the athlete's maximum heart rate for one minute.

Ten minutes later this process is repeated and if the results are varying the numbers are added and divided by two.

- **Aerobic Training**

Aerobic training is defined as an activity where oxygen is used in order to release energy in the muscles. In this way carbohydrates (glycogen) and lipids are burned off.

The aerobic training is divided into 3 groups: low-, moderate- and high intensity training.

The overall objectives of aerobic training are:

- Improving (or maintaining) the circulatory systems' ability to transport oxygen in order for an increasing part of the overall energy release at high intensity to be due to aerobic processes.
- Improving (or maintaining) the ability of the muscles to use oxygen to burn off lipids and in this way to improve the muscles ability to work for a longer period.
- Improving (or maintaining) the body's ability for restitution after high intensity performances and in this way to get ready faster for a of new high intensity performance.

- **Low Intensity Training**

The purpose of low intensity aerobic training is a faster restitution process and in this way, a regaining of the normal physical level after high intensity competition or training. **Low intensity training lasts from 10 minutes up to 3 or 4 hours.** The intensity should be rather low – about 65 % intensity (see example to the right).

For a beginner this will typically mean jogging/running for about 30 minutes without any breaks. The 30 minutes may be divided into intervals of 3 x 10 min with a short break of one or two minutes between the intervals.

Intensity Measure: (use the "Talking Method"): The athlete must be able to speak a sentence with the length of 7 to 10 words with the athlete being understandable and not out of breath.

Example of Intensity Measure of a RR2 Athlete:

Time:
- Sprints: 200 m. on 55,00 sec.
- 65-70%: In between 74 and 72 sec.
- Middle-distance: 800 m. on 5.00.00 min.
- 65-70%: In between 6.45.00 and 6.30.00 min.

Pulse:
- 180 beats per min.
- 65-70%: 117-126 beats/min.

- **Moderate Intensity Training**

The purpose of moderate intensity aerobic training is:

- Improving (or maintaining) the ability of the muscles to endure working for longer periods, i.e. to improve the aerobic capacity.
- Improving (or maintaining) the body's ability for restitution after high intensity performances.

During moderate intensity aerobic training, the intensity should be at about 80% intensity (see "Example of Intensity Measure of a RR2 Athlete" on the same page below), shifting between 70%, 80% and 90%. The moderate intensity aerobic training can be conducted 1) continuously or 2) in intervals. For training with intervals, the exercise should last for about 3 minutes or longer and the break should last for 1-2 minutes. Moderate intensity aerobic training may last for up till 2.5 hours.

Example of Moderate intensity aerobic training: "Speed Games":

The intervals may last from 3-10 minutes with a relatively short break in between (of 1-2 minutes) and with a lot of repetitions (12-20 reps). To create variation, the sequence can be built up like a pyramid, e.g. 3 min, 4 min, 5 min, 4 min, 3 min, with the whole pyramid carried out 2-3 times. The breaks should be only two minutes but in between the series (e.g. pyramids) the breaks can be one or two minutes longer. The intensity should be about 80-85% of the maximum heart rate per minute.

If the athlete chooses to practice without any breaks the maximum practice time amounts to 15 minutes. These 15 minutes can be subdivided into 5 x 3 min (with short breaks of 2-21⁄2 min).

Intensity Measure: (use the "Talking Method"): The athlete must be able to speak a sentence with the length of 4 to 7 words with the athlete being understandable and not out of breath.

Example of Intensity Measure of a RR2 Athlete:

Time:
- Sprints: 200 m. on 55,00 sec.
- 70-90%: In between 72 and 61 sec.
- Middle-distance: 800 m. on 5.00.00 min.
- 70-90%: In between 6.30.00 and 5.30.00 min.

Pulse:
- 180 beats per min.
- 70-90%: 126-162 beats per min.

- **High Intensity Training**

The third aerobic form of training is aerobic high intensity training. The purpose of this form of training is:

- Improving (or maintaining) the ability of the body to work at high intensity for a long time, i.e. to improve (or maintain) the maximum aerobic effect (the condition).
- Improving (or maintaining) the body's ability for restitution after high intensity performances.

With this third aerobic form of training the intensity lies in between 90% and 100% intensity (see "Example of Intensity Measure of a RR2 Athlete" on the next page). High intensity training may also be conducted in two different ways, 1) continuously and 2) in intervals.

For continuous training, the intensity must be at least 90% of the maximum heart rate per minute, and the training should last from 10 to 30 minutes.

Two options for training high intensity using intervals

- **Short intervals:** Exercise lasts for 10-120 seconds; the break/slow pace phase lasts for 5-60 seconds

The exercise can be composed in various ways; work/break: 20/10 seconds; 45/20 seconds; 70/30 seconds; or 90/45 seconds

- **Long intervals:** Exercise lasts for: 2-10 minutes; The break/slow pace phase lasts for 1-6 minute(s)

More ways to conduct the training:

1. **Intervals,** either short, long, or mixed.
2. **Pace race with staggered starts:** The slowest runner begins first, the fastest runner last. The athletes then reach the finishing line at approximately the same time.
3. **'There and back again':** All athletes start at the time running e.g. 3 minutes and then everybody turns around at the same time. The athletes should then reach the finishing line at the same time.
4. **Pyramid race:** Pyramid training for a sprinter could be: 75 sec. – 60 sec. – 45 sec. – 30 sec. – 15 sec. – 30 sec. – 45 sec. – 60 sec. – 75 sec. Pyramid training for a middle-distance runner: 2.00 min. – 1.45 min. – 1.30 min. – 1.00 min. – 1.30 min. – 1.45 min. – 2 min.
5. **'Speed games':** Speed games is about playing with and changing the pace. Speed games are a kind of jogging or sprint, uphill or downhill, using the terrain in different ways. E.g. a small journey: different elements of the training can be done or practised during the trip, e.g. sprint between to marks (the shorter the distance, the faster the pace).
6. **Hill running**, sprint uphill (focuses on strength), sprint downhill (focuses on speed and footwork).

Intensity Measure: (use the "Talking Method"): The athlete must be able to speak a sentence with the length of 2 to 4 words with the athlete being understandable.

Example of Intensity Measure of a RR2 Athlete:

Time:
- Sprints: 200 m. on 55,00 sec.
- 90-95%: In between 61 and 58 sec.
- Middle-distance: 800 m. on 5.00.00 min.
- 90-95%: In between 5.30.00 and 5.15.00 min.

Pulse:
- 180 beats per min.
- 70-90%: 162-171 beats per min.

- **Anaerobic Training**

Anaerobic training is defined as an activity without enough energy released from oxygen only. Most of the energy then comes from decomposition processes without using any oxygen. Carbohydrates are still the energy source but the decomposition takes place without the use of oxygen.

The overall objectives of anaerobic training are:

- Improving (or maintaining) the ability of the body to react fast and to quickly produce energy for the most strenuous exercise level.
- Improving (or maintaining) the ability of the muscles to quickly and continuously obtain the energy for the most strenuous exercise level.
- Improving (or maintaining) the ability of the body's ability for restitution after strenuous exercise.

Examples of Training Exercises with Various Intensity Levels: Sprint

There has to be full physical and mental restitution in between the sets.

10 sets of 20 meter at 4 sec. Intensity: 100%. The breaks last for 80 sec. 20: 1

6 sets of 50 meter at 10 sec. Intensity: 100%. The breaks last for 300 sec. 30: 1

OR

8 sets of 60 m at 13 sec. Intensity: 90%. The breaks last for 200 sec. 15:1

6 sets of 150 m at 34 sec. Intensity: 70%. The breaks last for 340 sec. 10:1

The anaerobic work capacity has three main areas:

1. Speed
2. Anaerobic effect: to maintain a very high pace for up to 40 seconds maximum.
3. Anaerobic capacity: to maintain a very high pace for up two minutes.

All three areas can be improved with practices in intervals.

STRENGTH TRAINING

Strength training is an organized and planned activity with the primary objective of improving one or more strength abilities:

- Maximum strength
- RFD (Rate of Force Development)
- Endurance

Tools or machines may be used for strength training and many sport clubs have a gym with machines or weights. The athletes' own weight can also be used.

Weight cuffs attached to the athletes' legs, running uphill or tying a tire to the Running Frame are other possibilities.

The objective of strength training is:

1. To improve the peak performance
2. To improve the training
3. To prevent injuries

When using machinery or weights for the strength training these basic rules must be followed for the specific areas of strength training.

Planning the strength training can be done in two ways: the linear method and the non-linear method.

- **The Linear Method**

Begin the season with a lot of repetitions with a light load. As the competitions come closer the training will consist of fewer repetitions with heavier load.

Example:

From November until March: 1-3 series of 20 to 30 repetitions. In April: more series, 1-3 with 3-7 repetitions. May until the competition phase: 3-4 series with 1-6 repetitions.

- **The Non-Linear Method**

The non-linear method is to mix up different ways of training during the season.

Example: If an athlete does strength training five times a month a schedule could look like this:

1. Week 1, endurance*, 2 series with 30 repetitions.
2. Week 2, endurance, 3 series with 20 repetitions.
3. Week 3, maximum strength**, 4 series with 3 repetitions.
4. Week 4, endurance, 2 series with 30 repetitions.
5. Week 5, maximum strength, 2 series with 1-3 repetitions.

1 RM = THE WEIGHT LOAD THAT THE ATHLETE C AN DO MAXIMUM ONCE.

*Endurance:

1-3 set of each 20 RM; i.e. a very easy load, 60-75% of RM.

1 exercise for each group of muscles.

Breaks: long breaks in between different muscle groups,
but short breaks in between the sets. Shorter breaks means better endurance.

Quick lowering in order to do many repetitions per time frame.

WARNING

For an inexperienced Frame Running athlete the training of regular endurance is the most important and also the training of the main muscles: thighs, arms, trunk and the muscles in the back.

**Maximum Strength:

3-4 sets of 1-6 RM, i.e. weight load of 90-98% of 1 RM.

Do 2-3 exercises per muscle group (big and small exercises).

Breaks of middle length (physical restitution).

Maximum 8-10 exercises per training session.

Exercises during the breaks for other muscle groups, e.g. when doing maximum strength training for thighs exercises with less weight load can be done for trunk or back.

Controlled lowering, i.e. the athlete should be in control of the lowering.

Maximum pull upward.

TECHNIQUE TRAINING

The objective of technique training is for the athlete to find a style of running as good and correct as possible. During technique training the pace is not at the maximum in order for the athlete to focus on technique and not speed. The pace should be in between 85% and 90% to get the greatest effect from technique training. The distance when training technique should not exceed 120 meters.

Some of the most important aspects to be practiced are:

- The athletes' position on the Running Frame.
- The position of the athletes' head; is the athlete looking up/down/left/right?
- The athletes' push-off and footwork at the starting line as well as during the race.
- The position of the athletes' toes during the race; are they pointing forward, going inwards or going outwards?
- Adjustment of the athletes' starting block.

Finding the Right Frame Running Technique

In general there are no wrong movements. Some movements are more fitting than others for the individual athlete. Together the coach and the athlete should find the running technique that suits the athlete. It is worth noticing that the running technique an athlete has acquired one year may look different the year after due to a normal development and maturation of the body and because the body is strengthened by the training as well.

A few things to note:

1. Pay attention to the potential movements that may be 'hidden' behind spasms and in an untrained body in general
2. Experiment & be creative: try a variety of exercises with an athelete and think of new solutions and possibilities
3. Repetition: Repeat, repeat, repeat once the right running technique has been found. The golden rule says that it takes 10,000 hours of training in order to acquire the ideal movement pattern

The experimental process

- Finding a position on the Running Frame that secures stability and unrestrained strides
- In general, a running technique becomes efficient with long strides
- Finding a position on the Running Frame that enables good respiration
- The right positioning of body and legs at the starting line
- Running technique when sprinting and increasing speed

Cool Techniques to Try

1. Butterfly technique – jumping with both legs at the same time and with the same rhythm.
2. Gallop technique – running like a horse.
3. One-legged gallop technique – one of the legs is used only for counter-movement.
4. Classical running technique – the hips are pushed forwards, and knees and ankles are bended.
5. Classical Spastic technique – less coordination in the bending movements.

There are several reasons why it is important to find the running technique/movement pattern that suites the athlete:

1. The right running technique *minimizes* the risk of injuries
2. The athlete uses less energy to get from A to B and the joy of running grows
3. The right running technique/movement pattern uses less energy and gives better results at competitions
4. Film the athlete running to find the right running technique/movement pattern

Training of Coordination

Good coordination is fundamental for acquiring a good technique.
As the athlete gets better at combining different exercises, he/she also improves his/her running technique. Another important aspect of good coordination is that the risk of injuries is minimized.

The training of coordination should be placed **in the beginning of a training session** just after warming up and stretching exercisesso that the athletes have lots of energy left. (This may last 10 – 15 min.) Find 3-4 suitable exercises and repeat them several times.

Examples of coordination exercises: Do the exercises on a distance of 30m:

- Running: 5 setoff with the left leg, then 5 setoff with the right leg
- Running: 3 setoff with the left leg, then 3 setoff with the right leg
- Running: 2 setoff with the left leg, then 3 setoff with the right leg
- Running: 2 setoff with the right leg, then 3 setoff with the left leg
- Running slalom in between cones, both forward and backwards

Use your imagination!

WARNING

Not all athletes will be able to perform all exercises. For athletes without spasms or only few spasms the arms can also be activated, e.g. with knee lifts and swinging arms at the same time.

Breathing

Breathing correctly is important in Frame Running because many athletes are placing a heavy pressure on the diaphragm.

For this reason, many athletes only breathe shallowly. The coach needs to be aware of this, especially for competitions from 100 to 400 meters where the athlete needs to have the body straightened out to regain a deep and steady breathing.

On longer distances it is important to find a certain rhythm, e.g. one breath for every second stride, in order for the breathing process not to affect the performance of the athlete.

Remember
1. To spend time adjusting the Running Frame
2. To spend time doing coordination exercise

TACTICAL TRAINING

Tactical training is the planning of an upcoming competition. This planning already begins with the planning of the different competitions in the annual training plan.

When the competition is coming up it is important to decide on the specific tactics for the race.

1. The athlete needs to determine if the focus is on the finishing position or the finishing time
2. Review the strength and weaknesses of the athlete

- If the athlete is aiming at a good finishing position you also have to take a look at the competitors: who they are, how they are running (if they have a strong finish or usually begin at a high pace), and how your own athlete should position himself/herself in the peloton
- If the athlete is looking for a good finishing time he/she might need to talk to the competitors. Maybe they are also looking for a good finishing time and it can be arranged who should take the lead for the first 200m and who will then take over from there

No matter if the focus is on finishing position or time, it is important to plan one's race and find out where to position oneself in the beginning, the middle and in the end of the race.

Some General Tactical Advice

1. Position yourself second to fourth in the peloton. In this position it is easy to join if the front-runners suddenly accelerate but you are still saving some energy because of the slipstream. To spend time doing coordination exercise
2. If possible, position yourself in lane 1 (in the second lane you are running 7.5 meters longer every single round). Be careful not to be in a 'locked up' position if the front-runners suddenly accelerate.

REFERENCES

ABOUT RAD-INNOVATIONS

At RAD-Innovations LLC™, we work with individuals of all abilities to build and adapt custom inclusive cycling and mobility products. We believe there's more to riding a Running Frame than just getting around. From recreational adaptive inclusive cycling to competitive Frame Running, we want to help create the ride that makes you feel happy and empowered.

As North America's leading adaptive sports and inclusive cycling mobility specialist since 1999, we work with you from the initial idea to the final experience to make sure your ride is as unique as you are, tailored to your needs and abilities.

As a manufacturer, we also design products like the Running Frames and Uni-Roller in-house. Our deep knowledge of the manufacturing process allows us to serve our customers better. And we take the customer experience back to the factory into better design.

CONTACT US

For the quickest response, please use the contact form on our website at www.rad-innovations.com. We try to respond within one business day. Otherwise, reach out via the methods below. Our hours are 9 AM - 5PM EST, Monday through Friday.

Phone +1 (802) 382-0093
Address 2170 Route 125, Cornwall, VT 05753

REFERENCES

Element I

Element II
- Section 1
- Section 4:
  - Para Vida Sport – "Running methods and techniques in Amazing RaceRunning / Frame Running" (Link: https://www.paravidasport.com/2020/08/10/running-methods-in-racerunning/)
  - Bent Gaarsted et al. – Parasport Denmark: "Coaches' Manual Frame Running."

Element III
- Section 1 - 4:
  - Rob Henshaw – Quest 88: "A Guide to setting up a Frame Running Club."

Element IV
- Section 1:
  - Bent Gaarsted et al. – Parasport Denmark: "Coaches' Manual Frame Running."
- Section 2:
  - Liz Moulam & Rob Henshaw – Quest 88: "Guidance for setting up a Running Frame"
  - Bent Gaarsted et al. – Parasport Denmark: "Coaches' Manual Frame Running."
- Section 3:
  - Bent Gaarsted et al. – Parasport Denmark: "Coaches' Manual Frame Running."
- Section 4:
  - Bent Gaarsted et al. – Parasport Denmark: "Coaches' Manual Frame Running."

RAD-Innovations LLC

2170 Route 125, Cornwall VT 05753, United States

www.RAD-Innovations.com