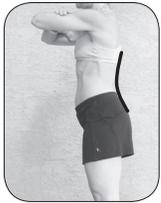


PREPARE FOR THE SEASON

BEFORE THE SEASON STARTS, do these exercises 3x/day, 3x/week, for at least 6 weeks *before you get to camp!*

1 FIND NEUTRAL POSTURE

Find neutral posture and practice as frequently as you can (at least 10x/day). A neutral spine positions your pelvis, which affects how your knees move. *Keep the neutral position for all of the exercises that follow.*



Hip bones in front of pubis.



Hip bones behind pubis.



Neutral posture, reduces stress on muscles of the back and hips, knees and ankles

2 CONTROL YOUR KNEES all exercises 15-20 reps, 3x

CHAIR SQUAT WITH BAND



- Stand in front of a chair in neutral spine.
- Place elastic band around knees and gently press against it.
- Squat down as if to sit on the chair, keep a gentle pressure on the elastic band.
- Return to standing.

CRAB WALK



- Loop elastic band around both legs at calf or knee height.
- Engage core, bend knees and lean forward slightly.
- Walking sideways, reach one leg out to the side and repeat in one direction for 20 steps.
- Walk back to your start location using the other leg to lead.

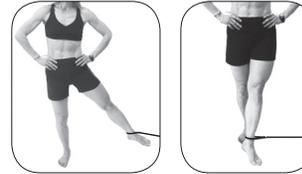
LUNGE WALKS



- Step it out and make sure that your *knee doesn't move in front of your foot or wobble from side to side.*

ADDUCTION

- Attach elastic band to a solid object at ankle height.
- Stand sideways to the band and loop the free end around the ankle closest to the solid object.
- Keep neutral spine and move tethered foot closer to the anchor keeping the majority of weight on the free leg.
- Control return to start position –the return is the harder part of the exercise.



STEP-UPS

 Find a staircase or solid box - mid shin height.

- Place one foot on top of the stair, engage core and step straight up onto the object.
- Do not touch your foot down once you have stepped- up. Balance for 2-3 seconds, then slowly lower back down, leaving your other foot on top of the stair.
- Repeat 15-20 per side.

VMO

- Pretend you are skating in stocking feet on a slippery floor.
- Push down into the floor and out to the side.
- Keep your core activated.

3 BALANCE TRAINING

Stand on one foot for 1 min each side. To make it harder, close your eyes, or stand on a cushion to teach your muscles to respond quickly when there is a sudden load change.

4 AGILITY + REFLEX TRAINING

This exercise is **CRITICAL TO IMPROVE REFLEXES** that support your knee joints. *Concentrate on spine, pelvis and knee positioning control while you are moving.*

- Run 3 steps forward or on the diagonal and stop suddenly (10 stops on each side). The focus is on good spine and knee position during the stop.
- Soccer or haki sac dribbling drill. Play time!

5 STRENGTHENING

Thigh muscles, glutes, and hip flexors control pelvic position and stabilize the knee. Build strength with hill sprints, uphill cycling and jumping exercises. Step-ups, squats, lunges and hill climbers are also great choices. Check out [facebook.com/fittoplant](https://www.facebook.com/fittoplant) for some planting specific workouts.

MAINTAIN

1 WARM-UP: *Good form will 'wake up' control of knee movement if done properly before planting.*

- Sit with a neutral spine and activated core while travelling to the block.
- On the block, step one foot out into a forward lunge while concentrating on posture and knee position. Imagine that you are stepping out to make a new hole. Drive the back knee forward and up into a standing position, with the knee raised towards your chest. Hold for 2 seconds and then step out on the other side. Do 10 of these.

2 FOOT WEAR:

- Collapsing arches load the inside of your knee damaging ligament and cartilage. Keep the arches supported with a well fitting boot and/or insole, a must for gumboots and caulks.
- In the evening stretch and exercise your arches:
 - + Roll a hard object like a golf ball under your foot.
 - + Pull a towel across the floor by gathering it with your toes.

3 TECHNIQUE:

- Do NOT screef side to side, you WILL strain your ligaments. The slightest turn out of your foot can damage your knee, shovel screef instead.

4 PLANT AMBIDEXTROUS:

- Alternating feet the same way you switch up your hands shares the load between your knees and is good for your whole body. Use a shovel with 2 kickers, it has a bit more weight, but less knee stress.

5 REBALANCE:

- Your body is your responsibility! **Ice sore knees!**
- **Massage** the outside of your thigh (IT band) from hip to knee direction with a tennis ball to decrease the lateral pull on your kneecap. Also, massage your butt, by rolling on the ball. These muscles tighten and will 'derail' your kneecap so keep them limber to allow the kneecap to glide smoothly. **Do not massage bone.**
- Restore flexibility with gentle, PAIN FREE range of motion. Don't compress the knee joint (fully bent) or lock in the fully straightened position - this includes Yoga poses! Gently stretch out the big muscle groups that control the knee, spending most of your time on the tightest spots.
- Sit on the edge of a tailgate so that your legs hang free. Get a friend to lift your foot until your leg is nearly straight and gently pull out on your foot 10 times on each leg. Then return the favour.

Thanks to C. Akehurst, J. Tesluck, T. Macleod, S. Wilson, and R. McCullough for their assistance in compiling this pamphlet.

MAINTAIN

6 FOOD + HYDRATION:

- When blood sugar falls your nervous system doesn't work as well and the reflexes that protect your joints don't kick in as fast. Making sure you eat frequent small snacks will keep your muscles and your nervous system fuelled up for peak performance. For more information on the Power Planting Diet see www.selkirk.ca/treeplanting.
- Dehydration can cause many of the same problems as hypoglycemia. Make sure you take extra water with you every day, even when the weather is cold, and especially when it warms up. Plan on at least 500 ml/hour and when the temperatures rise use a rehydration fluid or add a pinch of salt and baking soda to your fluids.

7 SLEEP POSITIONING:

- Back-sleepers put a pillow or rolled sweater under your knees, side-sleepers tuck it between your knees to decrease strain on your back and knee joints.

IF YOUR KNEE HURTS

+ WARNING SIGNS

These are danger signals, if you pay attention to them when they first appear and are still mild you can often stop a full-blown knee injury!!!

- + Swelling
- + Tenderness
- + Locking, catching and crunching
- + Creaking AND painful knee caps
- + Instability in the knee joint
- + Bruising, redness and swelling around knee joint

At the very *first sign* of any of these symptoms report to your First Aid Attendant!

- Immediately start using ice to treat the sore or swollen area (15 mins on, 20 mins off).
- Under the supervision of your First Aid Attendant, you can use an **anti-inflammatory**. Once inflammation starts it's hard to treat, but if caught early you can control it.
- Bag light to take the load off of your sore knee.
- Take it easy for a few days, plant a little slower than usual. **Rest your knee** as much as possible. Do NOT foot screef! Use your shovel instead.
- If this doesn't relieve your symptoms ask for a day or two of alternate duty.
- If your knee is unstable, locks on you or gives out – stop planting! You need your knees to last your whole life.

+ MANAGING YOUR SORE KNEE

1. BRACING AND WRAPPING can help control swelling and keep you aware of your knee's limitations. See your First Aid Attendant for advice. A non-custom brace can help support the medial (inside) of your knee, and help 'track' the kneecap. A brace can be worn on the block or anytime you're not focused on perfect knee movement (day off, recreational time, set-up/take down). A wrap or tensor can also be worn to control inflammation at the end of the day, or at night if loosely wrapped, as the body naturally swells at night.

2. TAPING THE KNEE can resolve specific issues if they are only minor. Check first with a First Aid Attendant, and determine the severity of swelling. If your knee looks like a balloon, taping is not going to keep you planting. If you have mild swelling AND your knee feels stable, taping can relieve some of the muscles being affected. Tape can also enhance the effectiveness of your brace.

PATELLAR GLIDE TAPE METHOD: For grinding, sticky, sore kneecaps, place a rolled towel under your knee so the kneecap is mobile.



Start a piece of tape on outer edge of kneecap.



With **gentle** pressure, pull tape towards inside of knee.



Stick down. Tape should reach to inside of knee.

3. The recommendations in the Maintenance section become critical when your knees are sore. **DO THEM!**

+ INJURED? Is your knee joint stable or unstable?

INSTABILITY in the knee joint:

- **Stop planting:** instability, locking, and catching can indicate a very serious knee injury.
- **Report Injury:** tell your Crew Boss, see your First Aid Attendant for documentation and referral to a physician
- **Stabilize the joint:** use a brace or tensor to limit movement and protect the joint until properly assessed. Excess movement can cause further damage.
- **Ice:** decrease the inflammation.

ACUTE KNEE INJURY with STABILITY:

- **Stop** planting and report the injury, ice as soon as possible.
- **Restrict** your knee from full extension and full flexion by wearing a brace, wrapping it with a tensor or taping.
- **Light Duties:** keep active range of motion with light duty activities around camp until swelling decreases.
- 1 week post injury, or a decrease in swelling: **reestablish balance!** See 'Prepare' section.

THE DESPERATE PLANTER'S LAST CHANCE:

KNEE MAINTENANCE

A knee injury is a serious problem; it can cost you a season of wages, and plague you for the rest of your life. But most knee injuries are preventable, so check out this pamphlet in the Desperate Planter's Last Chance series and save your knees!

BEFORE YOU DEMAND PERFORMANCE, UNDERSTAND HOW YOUR KNEE WORKS.

The knee is a shallow joint, bone stacked on bone with a small cushion between, held together with ligaments and supported by muscle.

The knee is designed to bend only in the forward-aft direction. The knee can fail:

1. When you twist it without moving your foot
2. With side to side pressure (like screefing)
3. If you load it with the knee positioned in front of your toe

Good knee position



Best, knee is stacked over toe and low back is in neutral

Poor knee position



Poor posture causing knee and back problems

By Delia Roberts PhD, FACSM and Ashlie DeJong BSc, HKin, RK.
Graphic Design by Kelly Simpson © Delia Roberts, 2014.



This project was made possible by grants from the BC Safe Silviculture Project and Weyerhaeuser

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BEFORE YOU START THE SEASON...

REFLEX TRAINING



Take a small piece of bubble wrap or thin foam and put about 200g of lead fishing weights (or other small heavy objects) in the middle, wrap the foam around them and tape it closed. Bounce it off the back of your hand while keeping your wrist in neutral to teach your muscles to respond quickly when there is a sudden load change. Start with 20 bounces and work up to 60.

STRENGTH TRAINING: The stronger your wrist the more work it will withstand. Here are some examples of exercises to use; do 10-15 repetitions of each one 3 times in one session. Ideally do 3 sessions per day.



WRIST FLEXION

Curl the object towards your elbow. Let it return slowly down towards the table, avoid going past neutral.



WRIST EXTENSION

Curl the object towards your elbow, keeping the palm facing the floor.



ULNAR DEVIATION (looks like you are hammering behind you)

- With a very small *wrist movement only*, tilt the object upwards towards your shoulder blade, bringing it more parallel to the floor.
- *Slowly* return to neutral wrist.



RADIAL DEVIATION (Looks like you are hammering but with no elbow movement)

- With a very small wrist movement only, tilt the object so the heavy end is coming closer to your body. It should be more vertical than the start position
- *Slowly* return to neutral wrist.

IN SEASON MAINTENANCE

1. WARM UP: Tendons are fibrous so they need a warm-up in order to avoid the small tears and irritation that lead to the dreaded inflammation.

IN THE TRUCK ON THE WAY TO THE BLOCK:

- *Gently move your wrist through a limited range of motion* in all directions, don't go to the limit of your movement, the idea is just to warm up the tendon and muscle. (Don't stretch, just move gently)
- Squeeze and release a soft foam ball to gently warm up
- Keep your wrist in neutral and contract it against an immovable object in short sharp bursts to activate the reflex and remind it where neutral is



The wrist in neutral.

ON THE PLANTING BLOCK:

- Always start your day with 5 – 10 min of going slow. Even if you have creamy ground starting slow will get your tendons ready for the day's work
 - On cold days make sure that you keep your wrists warm! Use some arm warmers (old wool socks with the toes cut out work great) and gloves to keep your wrists and hands warm and dry. Blood flow to these areas is not very good so they need a little extra help to stay warm and pliable.
- 2. Get your gear set up right to **KEEP YOUR WRIST IN NEUTRAL AND YOUR HAND RELAXED****
- Make sure your shovel handle is right for you – check out the recommendations in A Treeplanter's Guide to Reducing Musculoskeletal Injuries for more information.

3. EAT RIGHT AND STAY HYDRATED

- When blood sugar rises and falls, the reflexes that protect your joints don't kick in as fast. Making sure you eat frequent small snacks that are high in complex carbs and lean protein will keep your muscles and nervous system fuelled up for peak performance. For more information on the Power Planting Diet see www.selkirk.ca/treeplanting
- Dehydration can cause a lot of the same problems as hypoglycemia. Make sure you take extra water with you every day, even when the weather is cold, and especially when it warms up. Plan on at least 500 ml/hour and when the temperatures rise use a rehydration fluid or add a bit of sugar and a pinch of salt and baking soda to your fluids

4. CHECK YOUR POSTURE every time you bag up: Most repetitive strain injuries occur from using your muscles when they are in a poor position. Stay neutral in your spine, knees, ankles, shoulders and wrists. If your hands, back or hamstrings have shortened up, make sure to GENTLY RETURN TO NEUTRAL at each bag up. Forcefully stretching at this stage will probably just add insult to injury, so be gentle! For more on this topic check the www.selkirk.ca/treeplanting.

5. LEARN TO PLANT WITH BOTH HANDS. Try planting just the first and last bundle of each bag with your non-dominant hand. It will only cost a few seconds per day, and will help develop your weaker side. Ambidextrous planting can also help prevent fatigue and muscle imbalances in other parts of the body by distributing the strains of planting more evenly.

AFTER PLANTING:

- 6.** Just like drying out your gear, there are a few important bits of maintenance required to keep your wrists in top shape:
- **STRETCH: GENTLY RESTORE THE FULL RANGE OF MOTION WITHOUT LOADING** the wrist at end range. Be sure to focus on opening your hand after spending a day gripping your shovel
 - **ICE:** After a tough day (fast ground, lots of screefing, frozen or rocky ground, cold weather, hung over) the wear and tear on your wrist is unavoidable. **KEEP INFLAMMATION AT BAY BY ICING.** Even if there isn't any pain or swelling, ice can help keep any inflammation from accelerating into tendonitis. Most drug stores carry inexpensive reusable blue gel ice packs. The veteran's tip is to pick up a couple at the start of the season and keep them in the freezer so they are ready for when you need them. They don't leak water all over you, and don't give you ice burns either.
- 7. SLEEP POSITION CAN MAKE A BIG DIFFERENCE** in minimizing the stress on your hands and wrists. Make sure you keep your wrists in neutral and if you are one of those people that clutch your teddy bear while asleep, think about using a brace to keep your wrist in neutral while you get your ZZZZZZ

Thanks to Chris Akehurst; Ed Collen, Lisa Houle and Jordan Tesluk for their assistance in compiling this pamphlet.

BEWARE OF TENDONITIS

Tendonitis is always lurking for a planter but it also can be prevented. Be vigilant in watching for the early warning signs! Get on top of it right away to prevent the inflammation from accelerating into full-blown tendonitis. Manage your symptoms with the tips on this page BUT if they continue to get worse - **YOU HAVE TENDONITIS**, see COPING WITH TENDONITIS section of this pamphlet.

THINGS TO WATCH OUT FOR:

- Aching
- Redness
- Creaking
- Point tenderness
- Numbness

The *first step* is to **start using ice** on the inflamed area. Reusable gel packs work great and won't give you freezer burn! Apply for 10 min on/10 min off, starting right after work. You can also use an anti-inflammatory for a few days to help suppress the inflammation if it doesn't bother your stomach.

More importantly take it easy for a few days, planting a little slower than usual and **resting your wrist** as much as possible. If this doesn't relieve your symptoms ask for a day or two of alternate duty. Often *taking a day off early on can prevent a small injury from turning into full-blown tendonitis*.

Sometimes **changing the type of shovel** handle can help. Switching between a D-handle, slanted and staff handles changes the load on your wrist.

Deep friction massage can also help. Work across the grain of the tendon beginning gently and gradually pushing harder to break up adhesions between the tendon fibers. Ice afterwards.



Use a brace on your wrist during the day to prevent as much loading of the joint as possible, and also at night to make sure your wrist stays in neutral while you are sleeping.

Gently stretch your wrist to maintain the range of motion, but don't be overly aggressive. You don't want to cause more damage.

IF YOUR SYMPTOMS ACCELERATE:

If your pain accelerates and you can feel the tendon creaking you need to stop using your wrist.

REST: Stop planting, even if it's early in the day. Your options are to try planting with the other hand, sleep in the truck, or offer to shuttle trees.

COPING WITH TENDONITIS

ACUTE

- **REST:** Use your wrist as little as possible.
- **ICE:** Get ice on your wrist to decrease inflammation.
- **IMMOBILIZE:** Use a wrist brace
- **LIGHT DUTIES: Keep active, but avoid any movement that reproduces the symptoms.**

ABOUT 1 WEEK POST or when swelling decreases:

- **RANGE OF MOTION:** *Gently* encourage your wrist to move by rotating it in all directions (up, down, side to side, and flip palm up and down).
- **DEXTERITY EXERCISES:** Start with gentle exercises to get muscles moving.
 - + Pick up small objects like coins or pebbles
 - + Tying and untying a shoelace
- **STRENGTHENING EXERCISES:** These exercises will rebuild the tendon, but they are also meant to reproduce the symptoms. Don't go too hard too soon or all you will do is bring back the inflammation!! Treat the damaged tendon gently. Keep up with the exercises until your strength and function are fully restored (about a month).
 - + *Each exercise session should consist of 15 – 20 repetitions of each exercise 3 times/day.*



OPEN/CLOSE FINGERS with ELASTIC BAND
Place 4 elastic bands from finger to finger as shown (thumb to pointer; pointer to middle; middle to ring; ring to pinky)

- Start with fingers straight and touching.
- Open your fingers, putting tension on the elastics, and slowly return so fingers are touching.



THUMB ABDUCTION

Place sore hand on a table with pinky touching the table, palm facing the side. Place elastic around the thumb, holding the other end with the opposite hand flat on the table.

- + Keeping wrist and fingers stable, move sore thumb very slowly towards the table. The elastic will be getting looser.
- + Now pull thumb back up to stack over the rest of the fingers.



TOWEL TWIST

Hold a towel in both hands.

- + Twist the towel in the same motion used to wring out a wet towel. Use a loose grip, and gradually grip firmer as pain decreases.

THE DESPERATE PLANTER'S LAST CHANCE:

WRIST MAINTENANCE

THINK IT CAN'T HAPPEN TO YOU?



After 12 years without an injury, highballer Jordan is stopped in his tracks when his wrist turns red, swollen, and painful.

To make a lot of money treeplanting you have to have a strong body. It might seem that you will survive without looking after your wrist, but if you don't care for it, **tendonitis WILL get you eventually.** Veteran and novice alike, tendonitis can ruin your season. This pamphlet is designed to give you the quick and dirty on how to prepare your wrist for planting, look after it once you are at work, and what to do if tendonitis strikes.

For more information on any of these points, visit www.selkirk.ca/treeplanting and have a great and pain free season!

By Delia Roberts PhD, FACSM and Ashlie DeJong BSc, HKin, RK.
Graphic Design by Kelly Simpson © Delia Roberts, 2013.



This project was made possible by grants from WCSA and Weyerhaeuser Princeton Timberlands