PREHAB and REHAB – preparing for platelet-rich plasma and prolotherapy

Prehab – how to prepare for your regenerative injections
Physiotherapy – book a physio appointment in the second week after PRP if you wish, so that you can learn good exercise techniques

How to get the most out of your PRP/prolo treatment:

1) **Address your lifestyle – these contribute up to 70% of success**:
    - consider an anti-inflammatory **diet** (such as avoiding gluten, grains and dairy, avoid processed foods, while eating lots of deeply colourful vegetables and small portions of fruit especially berries; choose small portions of lean meat or SMASH fish ie. salmon, mackeral, anchovies, sardines or herring; choose olive oil, avocado oil or coconut oil and **avoid** polyunsaturated oils; nuts and avocados are a good source of healthy fat) and control your **glucose** metabolism by avoiding simple sugars or too much fruit and juices
    - consider taking a few key **supplements** (such as vitamin D, magnesium glycinate, long-acting vitamin C, fish oil, multivitamins)
    - **exercise** as much as you are able
    - stop or reduce **smoking**
    - stop or reduce **alcohol**
    - get enough good quality **sleep** – usually 8 hours
    - consider **hormone status** – are your hormones optimal, including estrogen, progesterone, testosterone, thyroid and adrenal hormones; consider bioidentical hormone replacement after menopause
    - make time for relaxation, meditation, prayer, and address **stress**, anxiety and depression; aim for psychosocial wellness and leave time for play or sport
2) **Other treatments:**

There are a variety of treatments that help your body get in shape as best as possible before your procedure. These use **mechanotherapy**, helping body movements to provide mechanical stimuli to remodel body tissue.

- Manual therapies – there are many!
- Electrotreatments such as TENS, acupuncture
- Therapeutic ultrasound
- Dry needling/IMS, taping and bracing
- **Blood flow restriction** is a great treatment: it allows "the injured you" to exercise with light weights, achieving as good a result as you would get with heavier weights. This is particularly good for older people as there is less chance of injury, but is good for everyone. Supervision is advised, at least at first.
- **Whole body vibration** helps balance, proprioception, and walking ability in knee arthritis, and may slow the progression of cartilage loss. These vibration plates can be quite affordable on Amazon.
- **EXERCISE** – to the best of your ability, making adjustments for your injury. Be aware of your posture and body kinetics/tensegrity as you exercise. Staying in good aerobic shape is key to a good recovery. A 2020 study showed a 4-minute **bout of high intensity**

exercise shortly before drawing blood for platelet-rich plasma **increased platelet yields** in the blood. This should be done ideally within ½ hour or less of the blood draw. This means aerobic exercise like a bike or jogging/sprinting, even for a very short time. Please note: only do this if you do not have a heart condition. There is a trail (Interurban rail trail) on the Prospect Lake Rd side of the West Saanich and Prospect Lake Rd intersection. You could jog here, or exercise briefly at Whitehead Park which is very close to our office, on Prospect Lake Rd.

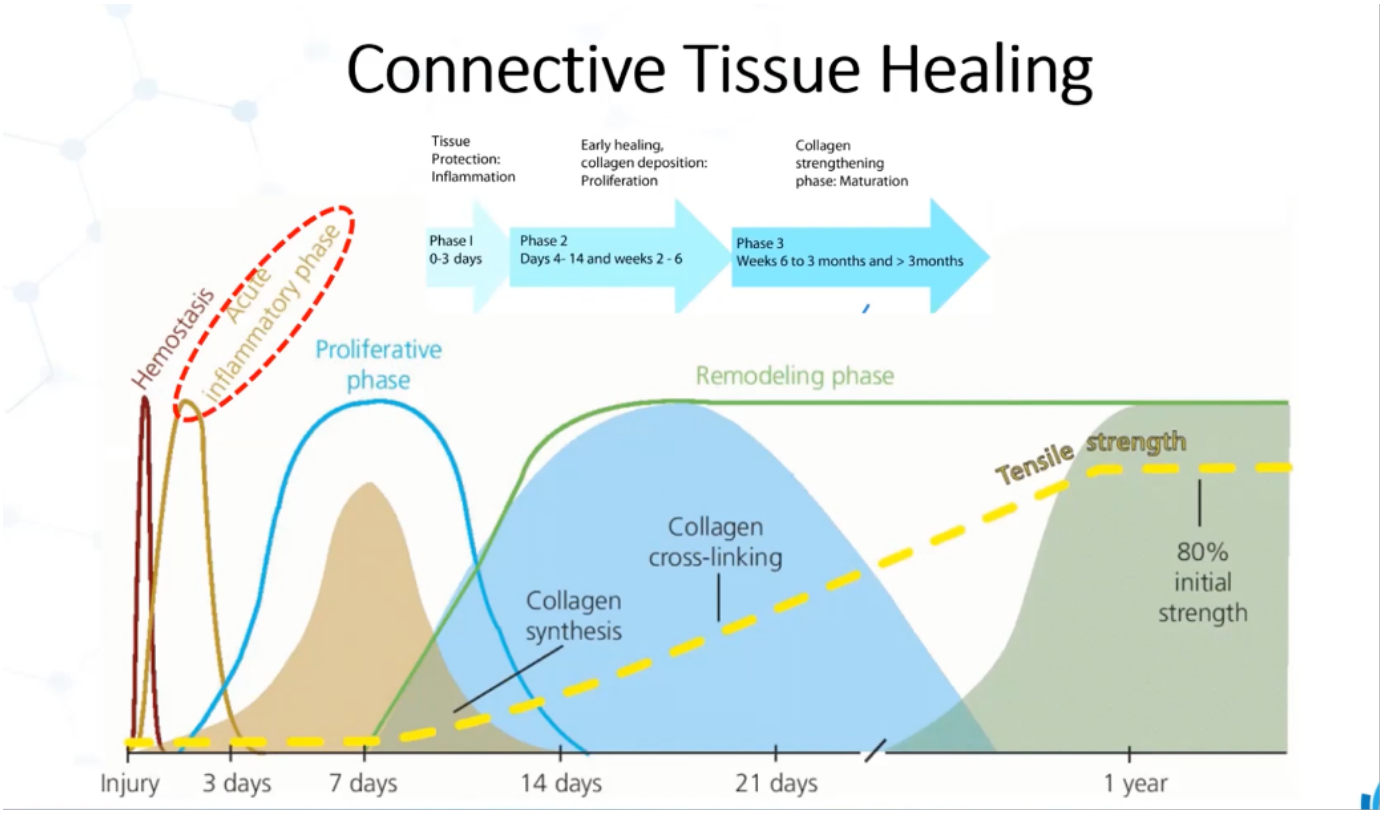
- **Medications:**

STOP NSAIDS ideally a week before and after your procedure – we are trying to stimulate a controlled inflammation, and taking these medications can prevent this from happening. Stop advil/ibuprofen, aleve, celebrex, diclofenac/voltaren, etc, and turmeric capsules and full dose aspirin/ASA. You can take any other pain medication if needed, as long as it is not an NSAID.

STOP STEROIDS at least 2 weeks before and after PRP

DO NOT STOP baby aspirin for your heart.

ASK ABOUT ALL OTHER MEDICATION before stopping anything else. **Proton pump inhibitors** like pantoloc, and some **anti-depressants** can lower magnesium needed for repair. Make sure you are supplementing with magnesium if you are on these medications. **Anti-cholesterol medications** inhibit the effect of PRP. **Do not stop these meds** without first discussing with your doctor. **Anticoagulants** do not usually need to be stopped – never stop these without first discussing with your doctor.



PRP recovery time of injections into the joint occur fairly quickly - only 3-5 days of soreness and possible swelling. However, tendon and ligament injections can be painful for 7-10 days. After this, the improvement is gradual and can take up to 3-4 months.

Post-procedure rehabilitation: acute phase (0-7 days) – acute inflammation

Goal:

- protect the treatment site and control pain

Precautions:

- avoid heavy lifting, forceful movements and NSAIDs
- limit immobilization (such as slings, crutches, taping etc)

Pain control and decrease swelling:

- various treatments like TENS/electrical simulation, acupuncture, ultrasound, manual therapy
- use heat to increase blood flow to the area (only use ice if severe pain)
- stop the activity if the pain is more than a 3 out of 10 (3/10)
- use medications as needed: acetaminophen, tramadol, T3, topical medication like menthol (no NSAIDs though)
- Epsom salts in the bath are a good source of magnesium
- Avoid hot tubs and swimming pools for 48 hours (to allow injection sites to heal)

EXERCISE

- Immobilization: limit to the least restrictive and taper over 3 – 4 days
- Start with PROM, gradually moving to AAROM then AROM for 3 – 5 mins 3 -5 times/day
- Start with gentle isometric exercises above and below the treated area
- Cardio – but choose with no impact on the treated area
- Goal is minimal to no pain with active ROM and decreased swelling

Proliferation phase early (4 – 14 days)

Goal:

- increase tissue tolerance to load
- stop immobilization
- increase strength and endurance to get to full ROM
- avoid de-conditioning

Precautions:

- avoid overstraining the joint or tendon
- avoid shear force in bone remodelling

Pain control and swelling

- see “0 – 7” day section

EXERCISE

- AROM (PROM) for 3 – 5 minutes, 3 – 5 times a day
- Submaximal isometrics for 5 – 10 seconds, 3 – 5 times per day. Discontinue if your pain is more than a 3/10.
- Consider blood flow restriction (BFR) exercises and whole-body vibration (WBV)
- Progressive loading of other regions of the body (not the injured region)

- Cardio: low impact, avoid the injured region, 150 min per week

Progression:

- Aim for less than 3/10 level pain with exercise and activities of daily living, and minimal post-exercise pain
- Decrease swelling (increase blood flow, elevate as needed etc)
- Aim for full range of movement

Proliferation phase late (2 – 6 weeks)

Goals:

- FROM
- Increase your tolerance to load
- Increase strength and endurance
- Increase proprioception/balance/control

Precautions:

- Avoid high velocity or intense exercise like throwing
- Avoid post-activity pain

Pain control:

- Keep your pain 3/10 or less
- Use treatment choices to help do this (already mentioned above)

EXERCISE:

- Progressive loading
- Isometrics (keeping the injured region from moving – such as planks, squats etc), then concentrics (exercises that shorten muscles), then eccentrics (exercises that lengthen muscles – only start these last ones from 6 weeks onwards)
- Weights, Theraband
- Consider BFR and WBV
- Stretching 4 times a day, joint mobilization as needed
- Cardio: no impact to injured region, 150 min/week

Progression:

- Full range of movement aiming for full strength without pain
- Minimal to no pain with exercise or activities of daily living, and no post-exercise pain

Remodelling/Maturation (6 – 8+ weeks)

Goals:

- Gradual return to full activities
- Increase tolerance to load, increase strength, increase balance/proprioception
- Increase sport-specific and functional training
- Return to full activities by 12 weeks

Precautions:

- Minimal post activity pain which resolves in 1 – 2 days

Pain Control:

- Pain no more than 3/10, or no more than 5/10 with eccentric exercises

EXERCISE:

- Increase strength of treated region with concentrics (+BFR), eccentrics (based on symptoms) 3 x per week
- Heavy slow resistive training (HSR) and plyometrics (8+ weeks)
- Sport specific and functional loads (intensity, velocity, positions that are used in the sport)
- Cardio: increase intensity and duration for sport and activities

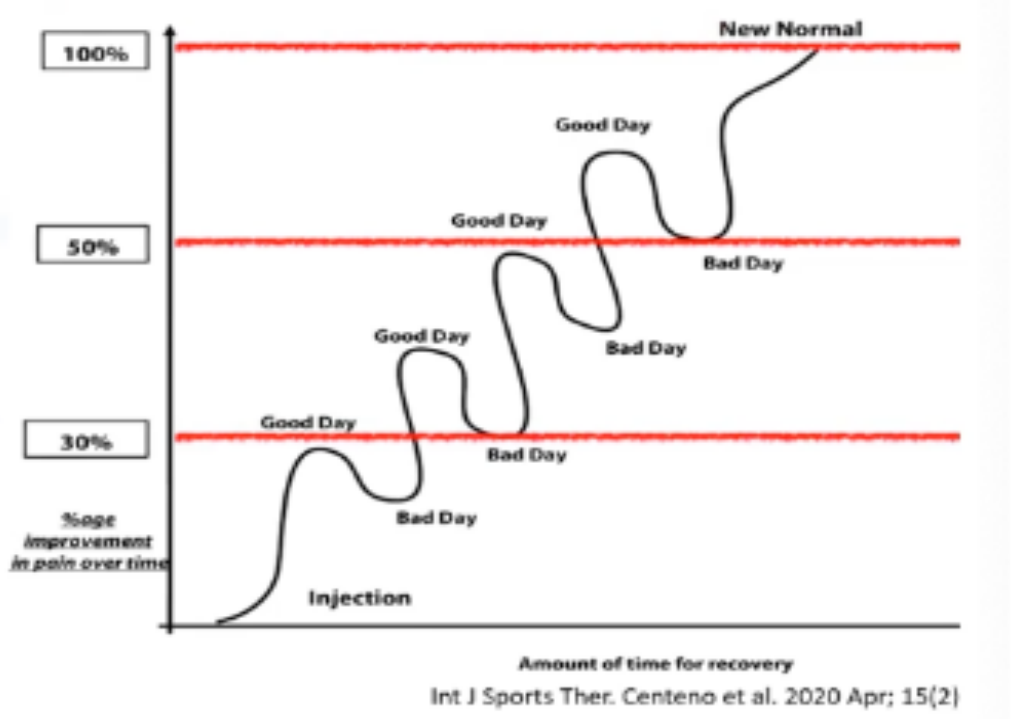
Progression:

- Standard rehab guidelines for return to activities
- Full range of movement, up to 85% strength compared to the unaffected side, work on neuromuscular control, no pain with activities
- Re-evaluate progress
- Transition to home exercise or independent training program

There will be ups and downs – adjustments will need to be made
Remember it takes time for tissue to remodel and repair: up to 2 years.

Abbreviations

NSAIDS – non-steroidal anti-inflammatory drugs such as advil/ibuoprofen, aleve, celebrex, diclofenac, ketoprofen etc etc and also aspirin full dose (do not stop baby aspirin for your heart)
ROM – range of movement
PROM – passive ROM
AAROM – assisted active ROM
AROM – active ROM
FROM – full ROM



Int J Sports Ther. Centeno et al. 2020 Apr; 15(2)