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# How to solve the puzzle of pain, disability, and optimising function

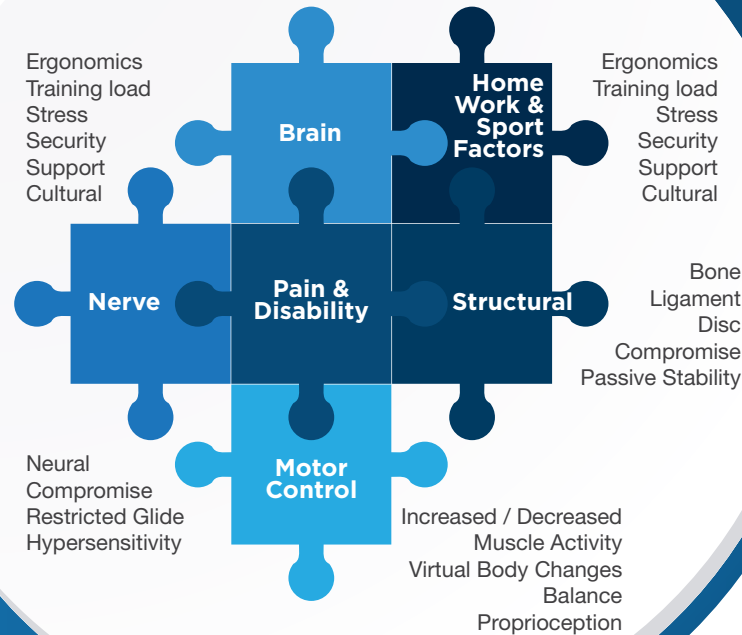
## **Trish Wisbey-Roth**

*Olympic/Specialist Sports Physiotherapist (FACP; MAPA; FSMA)*

*Masters of Sports Physio (AIS/UC)*

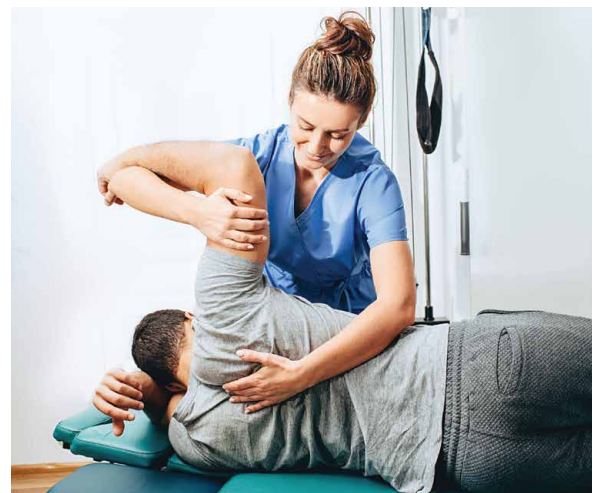
*Clinical educator and Private practice owner*

## Solving the puzzle



Establish in which 1-2 of the below 4 categories the patient falls into at initial assessment:

1. Those subjects who experience nociceptive pain respond to changing structural, postural and muscular dysfunction (Paul Hodges BJSM 2015).
2. Those with over compression strategies & non-resolver strategies focus on changes in maladaptive postures, confidence building & pacing (Peter O'Sullivan BJSM 2015).
3. Pain is not the main issue and they are looking for performance, strength, functional improvement.
4. Those presenting with altered sensory testing, such as allodynia, respond to retraining of the homunculus & neural system and a hands off "Explain Pain" focused strategies (Lorimer Moseley 2015).



**Now what to focus on session by session:**

### Sessions 1-3

- Address Biomechanical issues, acute pain/inflammation and use posture altering exercises and/or exercises to downregulate excessive muscle protective patterns

Relaxation & Breathing tools plus start the goal-setting process

Address fears and belief systems with a flare up strategy and pacing strategy

Targeted manual therapy in the first 4-6 weeks combined with exercise can help pain and/or function in below categories: a)–c) patient subgroups. By 6 weeks manual therapy should be significantly decreasing, replaced by targeted and goal orientated exercise and self-help strategies.

## Session 1 - Make the initial assessment memorable

Ask what made them seek treatment.



What are the patient's goals?



Set out a plan and discuss expectations.

If possible, find a functional movement that reproduces symptoms.

- Find a manual therapy intervention that improves symptoms on reassessment.
- Choose two or three exercises that help modulate pain and/or improve functional movement on reassessment. These exercises will be your “flare up protocol”.
- If you have Physitrack or a similar service, send a program with individual comments/cues.

If you don't have time to complete a long-range plan in the first session, tell the patient: “By your next session I will work on your individualised intervention plan to get the best from your body.”

Everyone presents as a Rubix cube of contributing biopsychosocial factors and spending the time on contributing factors and goals will make them feel special and achieve buy-in.

Remember, you can have the best rehab plan, but the outcome depends on patient compliance!

## Session 2 - Address structural goals



Use hands on treatment if needed for symptom relief. Check how “flare up protocol” from the first treatment went. Then add 2 key exercises that further settle down symptoms to create their individualised “flare up action plan”.

- Explain flare-ups are inevitable as function progresses, but having a flare up strategy takes the fear away and builds confidence they are on the right path.
- Isometric exercises with tendinopathy reduces pain immediately & affects cortical inhibition (E Rio, J Cook BJSM 2014). They also work well for key muscle groups in the spine, shoulder, pelvis, hip and lower limb.

If you want compliance to an exercise strategy, you need to introduce it early in treatment and demonstrate how it alters symptoms.

If you set out the short term, medium and long-term goals early, patients get excited and engage in the plan.

## Example:

- Short-term: get on top of this flare up.
- Medium-term: changes to the environment that flares symptoms and your ability to effectively function in that environment.
- Long-term: improve performance, strength, resilience, confidence in movement, and regain or surpass previous abilities.

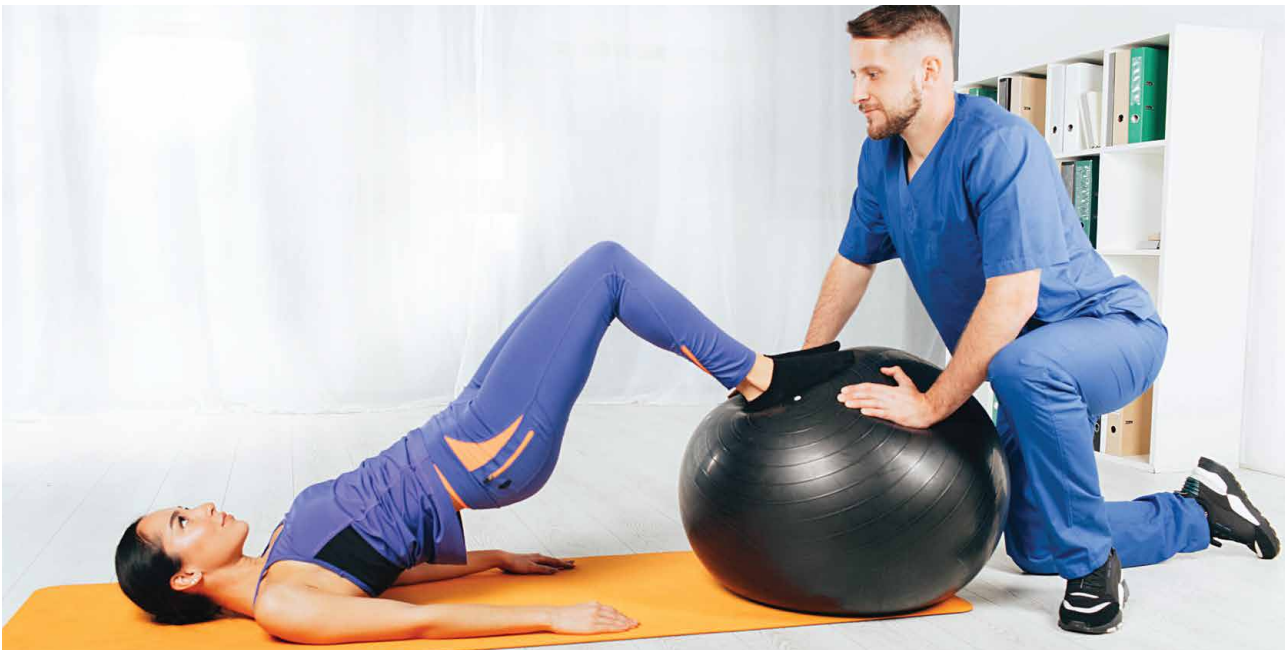
## Session 3-4

- Progress exercises to coordination of muscle groups, build muscle endurance in stable postures, and teach alternative non-painful movement patterns as required.
- Combine CBT strategies to identify situations that flare symptoms and incorporate relaxation & breathing tools in goal setting as required.
- At this stage, ask the question: Do other health professionals need to be involved?

## Example:

- GP for short-term help with anti-inflams or nerve sensitization meds. Particularly with ongoing night pain, as sleep deprivation increases pain sensitisation.
- Sports Physician involvement if concern of red flags, serious pathology or the need for medical intervention is suspected. However, minimise scans in the first 4-6 weeks unless needed as many age appropriate changes on scans and “red herrings” can cause anxiety and flares in symptoms.

You do not have to try and be all professions! Psychologists and dietitians can also be an important part of the team.



## Session 3: Provide a multifaceted treatment

Use of combination manual therapy, postural alteration exercises or strength based and /or CBT to identify structural pain generators and/or behaviours.

- Provocative movement patterns need to be addressed and broken down with alternative pattern exercises



Start with a level of exercise program the patient can achieve to build confidence and provide lots of feedback: visual feedback, motor imagery, video & written instructions (Butler et al. 2012)

Facilitate goal orientated behavioural change by adding in pacing strategies to activities and exercise.

Have a discussion on how they could manage stressors that aggravate pain or disturb sleep.

## Session 4: Build on confidence with a long-term plan

By this stage the patient's confidence is growing and you can progress exercise strategies and discuss long-term goals.

It's at this stage you empower the patient about the possibility of achieving the initial discussed long-term goals.

Check and progress their pacing program - monitor and advise on load management.

## Sessions 5-6:

- Progress exercise strategies to dynamic function in joint angle, speed and contraction specific postures (concentric/eccentric targeted exercises).
- Add in strengthening to achieve muscle hypertrophy in target muscles and tendon loading.
- Introduce fear factor exercises to build confidence in movement while building functional strength and endurance.

## Session 5: Target fearful movement patterns and life situations

Ask: What are the provocative movement patterns and life situations that the patient is fearful of returning?

- This will help you develop exercises that break down and retrain these movement patterns.
- Use function related movement patterns and feeling related outputs to modulate both.
- "Fear factor exercises" work at a biopsychosocial level to build confidence and functional control/strength.

Add in a convenient cardiovascular activity they can cope with as this gives a significant "feel good and I am on the right track mindset".

## Session 6: Address external factors that may be continuing to cause issues

### Example:

- Working environment (can give pause exercises, adjusting sporting equipment e.g. shoes/bike fit, adjusting how ADL tasks are performed). Can suggest alterations in work environment, ADL and training to help the recovery process.

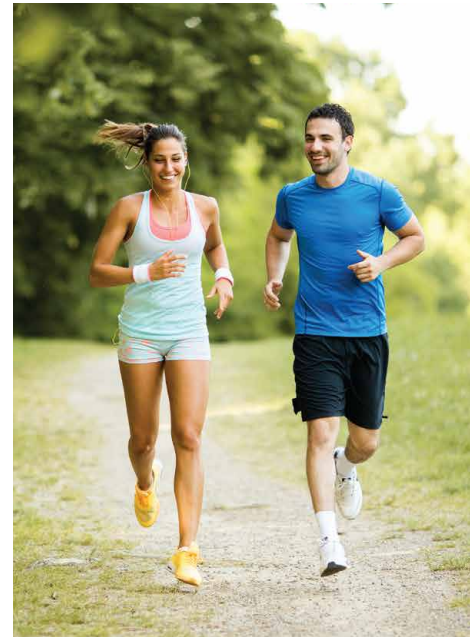
Further progress specificity of exercise progressions.

### Example:

- Exercises on 1 leg, functional movement patterns, rotation movement patterns, balance challenges and added speed.

Secondary neurotags such as vision & somatosensory have a direct impact on pain & motor control (O'Sullivan BJSM podcast 2014).

So it's important to add to rehab a graded exposure of the neural system and brain to movement planning, preparation and execution i.e. make the exercise program progressions both dynamic and meaningful.



## Sessions 7-8:

- Progress proprioception training to unpredictable surfaces or loads for ability to react automatically by altering environment, balance, fatigue challenges.
- Add cognitive loading to a wide variety of adaptable movement patterns

## Session 7: Building motor patterns for ability to react automatically

You can do this by providing warm up exercise and motor sequencing drills:

- Provide plyometric/unpredictable challenges for mind and body with e.g. progressed function & spatial tasks of body parts & external objects.

### Example:

- Hurdle jumping; training on different surfaces; different lighting and plyometrics if needed by the individual.

## Sessions 8: Develop an ongoing maintenance program

- Give a time frame for progression of exercise/strength program or review/maintenance work as needed or requested by the patient.

Add cognitive loading to exercises

### Example:

- Combined upper/lower body motor tasks, when fatigued after training or work, introduce higher speed motor patterning exercises to warm up sport sessions (e.g. FIFA warmups) or work pause exercises.

Provide a maintenance functional concentric/eccentric strength program for tendon loading. Progress proprioception training to unpredictable surfaces or loads needed by the individual for neurotag maintenance within their individualised environment.

## SUMMARY AT A GLANCE

### Progressed functional rehab : aim to retrain confident adaptable movement, not just a muscle

1

- Address Biomechanical issues, acute pain/inflammation and isometric muscular activity to decrease descending inhibition.
- **Address fears and belief systems, pacing strategy.**

2

- functional coordination between muscle groups and stable postures & build endurance.
- **Relaxation & Breathing tools, goal setting and fine tune flare up strategy.**

### Functional training goals (contd.)

3

- Dynamic function in joint angle, speed and contraction specific postures. Muscle hypertrophy.
- **Introduce fear factor exercises.**

4

- Building motor patterns for ability to react automatically by altering environment, balance, fatigue challenges.
- **Add cognitive loading.**

### Cognitive task loading

- Postural cues in workplace or provocative activities. Regular breaks in posture
- Cognitive challenges- combined upper/lower body motor tasks, when fatigued after training or work, introduce motor retraining exercises to warm up sport sessions or work pause exercises.
- Progress independence and decrease hypervigilance by integrating program into lifestyle, balance and reintroducing environment challenges.

### Functional training goals achieved

5

- Progress functional strength & proprioception training to unpredictable surfaces or loads needed by the individual for Neurotag maintenance within movement patterns required ( McGill 2004).



GOAL: Generate quick appropriate strength throughout complex movements patterns, while preserving balance. (McGi11 2004)

### Functional training goals achieved



Specific



Measureable



Attainable



Relevant



Time Based

### Utilising a structured goal oriented program



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