

Changing Belief Systems via Therapeutic Movement Treatments

"The clinical message must go beyond the idea that the patient's weak, deconditioned, or frail shoulder is the basis of his or her pain, and all the patient needs to do is to get strong." Powell J and Lewis J. *J Orthop Sports Phys Ther* 2021;51(4):156–158. doi:10.2519/jospt.2021.10199

The concept of treating pain with therapeutic movement is familiar both in the general public and the physical therapy (PT) profession. Historically, our patients and their therapists have considered therapeutic exercise interventions from a biomedical tissue-based perspective. As evidence-based medicine has demonstrated mounting support for the biopsychosocial (BPS) framework, PTs play an integral role in the process of shifting society's understanding away from the biomedical model to one that spotlights the dynamic interplay between biological, psychological, and social factors.¹ A focus on the BPS model creates the best opportunities for optimizing movement across the lifespan.²

Current biomedical models clinically practiced include a focus on the restoration of movement and alignment "ideals" that result in dichotomies of strong/weak, tight/loose, in/out, firing/not firing, aligned/out of alignment, and this focus ultimately reflects on pain explanations given to patients. These models over-represent the biomedical concept that pain has a linear relationship with local tissue harm. Consequently, treatment success becomes solely dependent on the clinician's ability to restore "ideal" movement or "normalize" tissues.

A downside of focusing on the restoration of ideal movement or tissue is the potential that patients may not in fact have the capacity for complete restoration. In these cases, the focus on restoring the "ideal" creates an environment rooted in the failure and may inadvertently set the stage for more sedentary behaviours in the long term.³ For example, if treatment focuses on educating a patient about their "twisted pelvis" "shortened right hamstring" or "weak core," the patient learns the linkage between their symptoms and their structure (alignment, flexibility or weakness.) Fear, anxiety, or issues with body image may follow. Giving more concern and attention to the part of the musculoskeletal system that is "abnormal" or "faulty" can make it less likely that this aspect can be reintegrated as a positive part of their movement machinery. Shifting the focus of therapeutic movement treatments to optimizing function as opposed to correcting dysfunction may keep our patient populations trusting in their movement abilities across the lifespan.² "Mounting evidence indicates that psychological factors are more effective predictors of pain and disability levels than are pathoanatomical factors."⁴

" Hence the importance of PT's using the BPS framework, not only with our persistent pain patients, but with every patient.^{2,3,5}

We know that education is an essential component of rehabilitation. The words and language we use with our patients set the stage for learning and recovery.⁴ The art of effecting clinical change comes with balancing verbal pain neuroscience education (PNE) with movement-based therapeutic interventions. Current evidence points to the therapeutic movement interventions taking center stage.⁶

The missing link may be to use therapeutic movement treatments to act directly as an educational tool to shift belief systems.

Here is an example: Suppose a patient comes to you explaining that his right hamstring is tight and causing pain. In this case, the biomedical approach has educated the patient that the tissue range of motion issue directly relates to the pain sensation. In reality, the sense of tightness may result from tissue injury but may also be unrelated to damaged tissue and may result from learned behavior patterns. A focus on the biomedical factors reinforces the aberrant learned pattern, and therefore, the patient associates tightness with pain, regardless of whether tissue is injured. In a BPS approach, the sensation of tightness and pain is noted, but the linear relationship of the assessed hamstring length having clinical relevance may not be assumed.

Therapeutic movement design in and of itself can incorporate a shift away from the **clinical message that the patient's tight or weak hamstring is the basis of his or her pain, and all the patient needs to do is to have a longer or stronger hamstring.** Instead, the clinical message becomes that of the a pain sensation perhaps having a more complex nature than the tissue harm model may suggest. Positive treatment changes in tightness sensations redirects the patient to understanding that such movement treatments can affect pain or tightness sensations without actually physically changing tissue length, joint position or muscular strength. Verbal explanation using BPS concepts act as an educational reinforcement to the positive active treatment experience.

Top 5 Clinical Pearls

1. Be aware of triggering language
 - a. *If a patient associates tightness with pain and tissue pathology*
 - i. Biomedical language - "Let's stretch out your hamstring muscle."
 - ii. BPS language - "Let's play around with some reaching movements."

- iii. Biomedical language - "My leg is feeling better today because you loosened my hamstring."
 - iv. BPS language - "My leg is feeling better today because I am more active, doing all my exercises."
 - b. As much as possible, explain and cue the therapeutic exercise using language reflective of the BPS approach. Avoid using the language that encourages the association.
 - c. Reassess symptoms via a specific patient centered movement and use explanations for patient-noted changes within the BPS framework.
- 2. The novelty factor.
 - a. Initially, choose therapeutic movements that are somewhat novel to the patient, so there is no opportunity to compare to imaginary norms or ideals. Invent sequences that purposely create a small level of confusion yet ensure parameters for movement success. Encourage movement variability³ - present the task as a fun exploratory challenge.
 - b. For example: Use imagery when cueing. Use imagery and metaphors to elicit different qualities within the exercises. Initial therapeutic treatments may in fact be only imagery. Using descriptive explanations of tasks to perform encourages attention away from structure to function. *"Bring your hands behind your head and imagine your elbows have pencils pointing outwards. Draw ovals with the pencils on either side of yourself. Sometimes make the pencils press more softly, other times press more strongly like the lead may break"*
 - c. Change up the rhythm. Changing tempo and rhythm forces the brain and attention to reset the task.
 - d. Do not focus on numbers. Unless there is a clear intention for strength and conditioning gains or using isometrics for pain relief, sets and reps should NOT be assumed to be necessary.
 - e. Question the clinical appropriateness of using isolated stretches in the treatment program. "Flexibility can be maintained or improved by exercise modalities that cause more robust health benefits than stretching."⁶
- 3. Change the therapeutic exercise focus from the "parts" to the "whole." The therapeutic movement choices may reflect a regional interdependence approach.⁷ This approach promotes the use of the "whole" self in relationship to the environment and gravity. For example:
 - a. Create exercises based on manipulating open and closed kinetic links in the hip/pelvis complex or scapula/shoulder/thorax complex - The novelty of the approach may allow the system to be less protective. For example,

the pelvis rotates around the hip (foot or knee or whole leg stabilized via the environment). Then visa-versa: rotate the hip on the pelvis (pelvis stabilized via the environment.)

- b. Teach the same motion in different planes. That is, grade the load using gravity. For example - torso flexion in side-lying, sitting, hook lying, until ultimately hanging off a table supine and flexing the trunk against gravity.
 - c. Graduated exposure to motions beginning with the area the patient does not associate with the “tissue damage” but via kinetic linkage, will be affected. For example, teach trunk exercises beginning with areas above or below the more "sensitive" areas. Gradually allow larger motions that call upon more movement from those levels. Once again, the novelty of the exercise approach may allow the system to be less protective.
4. Integrate therapeutic exercises for the whole “self” (integration of body, mind and spirit) Avoid labeling exercises for the “body” or the “mind.”
- a. Introduce treatments such as graded motor imagery, laterality, or mirror therapy within the physical therapy therapeutic movement umbrella as part of the continuum of therapeutic exercise choices.
 - b. Use of “the breath”: Integrate the breathing apparatus into therapeutic exercises or as a stand-alone intervention. In current popular culture, the “breath” is having its moment, so the “buy-in” to integrate into physical therapy is becoming easier. In patient care, breathing exercises can be used to modulate the CNS, and/or to facilitate trunk musculature.
5. Make the therapeutic exercises patient-specific requiring full attention.
- a. Video your patient. Use specific patient-relevant cues. Call this their “movement script.” Except in circumstances in which distraction is a helpful tool, encourage full attention to the movement and to the patient-specific cues. Attention in and of itself can be inherently therapeutic (mindfulness.)
 - b. Limit the use of videos of other people performing the exercises you would like your patients to perform. This approach is to discourage patients from comparing their progress against movement “ideals.”

In summary, the physical therapy profession is evolving towards fully embracing the BPS model as the framework for clinical practice.⁹ Within this framework, therapeutic exercise prescriptions continue to be central to treatment success.⁶ During the teaching or cueing of such exercises, clinicians should take care not to overemphasize the role of specific musculoskeletal “parts” and diagnostic frameworks that use the language of “tight, weak, stiff, unstable” as these may create unintended consequences

for movement health throughout the lifespan. Instead, physical therapists should focus on changing cognitions via therapeutic movement experiences. We are very early on in research regarding appropriate dosage and types of exercise rationales⁶, so we have many creative licenses in exercise selection. So long as the patient has no red flags and the physical therapist clearly understands necessary treatment progressions in grading exposure and loading¹⁰, training and perspective are our only limits to creativity.

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