

# PIER

*Integrating Research into Practice: Approach to Evidence-Based Practice*

## PROBLEM: Effective Exercise Instruction

Patients are **less accurate and less compliant** in the performance of their exercises when a brochure or handout and minimal instruction is given, as compared to instruction and live instruction and modeling by a physical therapist.<sup>1-3</sup> This is regardless of whether the handout or brochure is given alone or in combination with General Practitioner advice, medication, or activity limitation.<sup>4,5</sup>

Simply providing a handout resulted in **double the error rate** when compared to live instruction and modeling by a physical therapist or video-tape instruction.<sup>1</sup> Use of a brochure alone may result in 1/2 of all patients performing their exercises incorrectly, contributing to delayed improvements in physical function.

## INTERVENTION:

- **Physical Therapist-Instructed Therapeutic Exercise**
- **Physical Therapist-Modeled Therapeutic Exercise**
- **Manual Physical Therapy & Therapeutic Exercise**

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## **EVIDENCE:**

**Oxford Evidence Grade= A, B (level 1a, 1b and 2b studies)**

A combination of manual physical therapy and physical therapist instructed therapeutic exercise has been repeatedly demonstrated to be **more effective** than a variety of other commonly used interventions for reducing pain and disability associated with musculoskeletal conditions, including osteoarthritis (knee and hip),<sup>11</sup> acute and chronic LBP,<sup>12, 13</sup> mechanical neck pain,<sup>14</sup> and shoulder impingement.<sup>5, 15</sup>

**Exercise Modeling** is important and most effective when demonstrated by a professional at periodic moments during the skill acquisition process.<sup>6</sup>

**Feedback** is critical for patients seeking to acquire and develop new motor skills like therapeutic exercise.<sup>7, 8</sup>

**Quality Performance** is dependent upon the physical therapist's instructions, as demonstrated in several randomized controlled trials,<sup>1, 9, 10</sup> and there is a strong association between exercise performance and pain reduction.<sup>9, 10</sup>

The beneficial effects of manual therapy and exercise continue to be observed up to **one year later**.<sup>14, 16, 17</sup>

## **REFER:**

Any patient for whom exercise is deemed an important part of their treatment program to maximize pain relief and improve function. Physical therapy exercise instruction and modeling is *especially* important for patients in whom long-term compliance is necessary to minimize disability associated with more chronic musculoskeletal disorders such as osteoarthritis, low back pain, and neck pain.

Based on evidence from high quality clinical trials, our manual physical therapy and exercise approach will benefit many of your patients with neck pain. However, if you are unsure, please give us the privilege of your referral or feel free to give us a call. We look forward to the opportunity to partner with you in an effort to improve the health of your patients and enable their return to optimal function during work and leisure activities.

The best way is to send a consult with the "Evaluate and Treat" option checked. You will receive a copy of your patient's initial note as well as a copy of the discharge note summarizing their outcome.

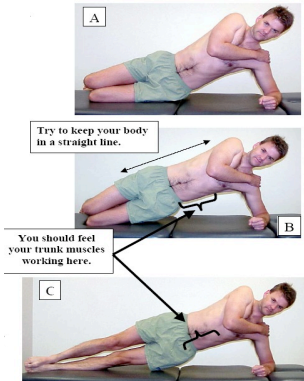
# INTERVENTION

Exercise prescription is based on the results of a physical therapist evaluation, therapist modeled instruction in 2-3 selected, key exercises along with monitored feedback, and high-quality exercise handouts in support of a home exercise program. Patient demonstration of proper exercise technique is required and determines exercise progression.

## Content:

1. Evidence-based upper or lower quarter examination and affected joint complex<sup>18, 19</sup>
2. Exercise instruction modeled and explained using visual aides, tactile, and verbal cueing.

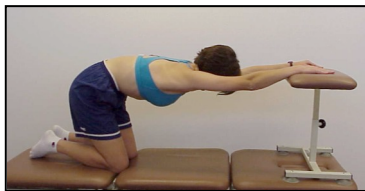
### **A. Strengthening**



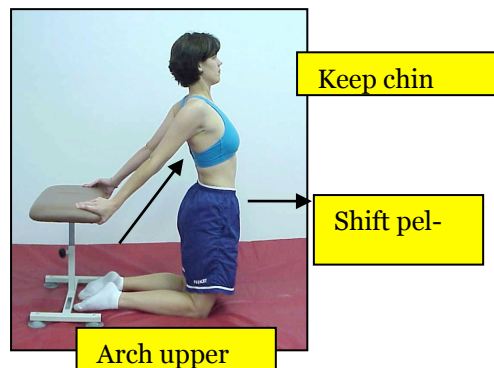
### **B. Endurance Exercise**



### **D. Neuromuscular Re-education**



### **C. Stretching Exercises**



3. Education and instruction based on current motor learning and skill acquisition theories<sup>7, 8</sup>
4. Home exercises reinforced with handouts comprised of high-quality graphics, simple instructions, and force vector diagrams

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