

Low Tech Spinal Rehab  
Abby Irwin, D.C., DACBSP

1. Overview and Current Trends
2. In Office Rehab Center
  - a. Why
  - b. How
3. Low Tech vs. High Tech Rehab
  - a. Low Tech
    - i. Minimal space requirements (8x10)
    - ii. Inexpensive
    - iii. Safe and Efficient
    - iv. Staff with CA or ATC or Student
  - b. High Tech
    - i. More space required
    - ii. Expensive
    - iii. More supervision
    - iv. Liabilities
    - v. Staff with Athletic Trainer or PT
    - vi. More Variety and Progression of rehab
4. Low Tech Rehab Requirements
  - a. 8x10 room (minimal)
  - b. Floor Mats
  - c. Gym Balls
  - d. Exercise Bands
  - e. Wobble Board
  - f. Hand Weights
  - g. Styrofoam Roller
  - h. Medicine Balls
  - i. CV Equipment
  - j. Rehab wall Units
5. High Tech Machines
6. Insurance Coding
  - a. Therapeutic Exercises 97110
  - b. Neuromuscular Reeducation 97112
  - c. Therapeutic Activities 97530
  - d. Activities of Daily Living 97535
  - e. Therapeutic Procedures 97150
  - f. Manual Therapy Techniques 97140
7. Documentation
  - a. Treatment notes should reflect reasons for active care. Including:
  - b. Activity intolerance
  - c. Functional deficits (via functional assessment tests).
  - d. Exercise goals
  - e. Patient's progression (re-eval every 8-12 visits)
  - f. Changes in ADL
  - g. Specifics on each session: rehab exercises, time spent, response to session. Initialed by therapist or provider.

8. Rehab Exercise Protocols
  - a. Craig Liebenson
  - b. “Rehabilitation of the Spine” 2006 Lippincott Williams & Wilkins
  - c. Janda: Upper/Lower Cross Syndromes
  - d. Breakthrough Coaching
  - e. Rehabilitative Exercise Procedures for the clinical practice. Dr. Mark Sanna 2004
  - f. BodyZone.com 2004
  - g. Wall and Ball Posture Exercis Protocol
  
9. Tissue Stabilizing Exercises
  - a. Cat camel
  - b. Bracing (neutral spine posture)
  - c. Quadruped—bird dog
  - d. Side bridge
  - e. Dead bug
  - f. Curl-up
  - g. Bridge
  - h. Hamstring curls
  - i. Back extensions
  - j. Sphinx with chin tuck
  - k. Wall Angel
  - l. Push-up

(Liebenson, “Rehabilitation of the Spine”, pg. 620)
  
10. Functional Training Exercises
  - a. Sensory motor training
  - b. Squat
  - c. Lunge
  - d. Functional (balance) reach
  - e. Pulley
  - f. Core resistance (Liebenson, “Rehabilitation of the spine”, pg. 641)
  
11. Exercises
  - a. Core Stabilization
  - b. Scapular Stabilization
  
12. Trends in Care
  
13. Active vs. Passive Care
  
14. Justifying Your Treatment Program
  
15. Goal-Oriented Care
  - a. Pain Control
  - b. Functional Abilities Restoration
  - c. Establish Rehab Baseline via Functional Assessment Tests
  - d. Identify patient’s Activity Intolerances (AI)
  - e. Identify pts capabilities or functional deficits
  - f. Establish pts Functional Range (FR) (the ROM which is both painless and appropriate for the task at hand)
  - g. Quantify functional capacity or deficits with reliable functional assessment tests.
  - h. Prescribe exercises and supportive treatments
  - i. Regularly recheck the pts AI’s and FR to determine if exercises are achieving goals of reducing AI’s and enhancing capabilities
  
16. Outcome assessment

- a. Low back pain
    - i. Oswestry Low Back Disability
    - ii. The Pain Drawing
    - iii. Quadruple Visual Analog Scale
    - iv. Bournemouth Back
  - b. Neck Pain
    - i. Neck Disability Index
    - ii. The Pain Drawing
    - iii. Quadruple VAS
    - iv. Bournemouth Neck
17. Functional Screening Exam
- a. Posture and gait
  - b. Respiration
  - c. Stereotypical movement patterns
  - d. Quantifiable physical capacity tests
  - e. Balance and stability tests
18. Posture and Gait
- a. Anterior head carriage
  - b. Chin protraction
  - c. Scapular winging
  - d. Scapular abduction
  - e. Shrugged shoulders
  - f. Internally rotated arms
  - g. T/L hypertrophy
  - h. Anterior pelvic tilt
  - i. Lumbar lordosis
  - j. Sway back
  - k. Flat back
  - l. Horizontal grooves in lumbar region
  - m. Genu varum/valgus/recurvatum
  - n. Pronation/supination
  - o. Oblique (unlevel) pelvis
19. Upper Crossed Syndrome
20. Lower Crossed Syndrome
21. Muscle Patterns
- a. Prone to tightness
    - i. Iliopsoas
    - ii. Rectus femoris
    - iii. Thigh adductors
    - iv. Erector spinae
    - v. Quad lumborum
    - vi. Gastroc/soleus
    - vii. Hamstrings
    - viii. TFL
    - ix. Piriformis
    - x. Pectoralis maj/min
    - xi. Upper trap
    - xii. Levator scapulae
    - xiii. SCM
    - xiv. Suboccipitals

- b. Prone to weakness
  - i. Gluteals (esp max)
  - ii. Abdominals
  - iii. Tibialis anterior
  - iv. Vastus muscles
  - v. Middle and lower trap
  - vi. Serratus anterior
  - vii. Rhomboids
  - viii. Deep neck flexors

22. Sherrington's Law

23. Reciprocal Inhibition

24. Post Isometric Relaxation

25. Respiration

26. Stereotypical Movement Patterns

- a. Simple screening tests of specific jt. Movements can often reveal patterns of jt. overstrain and muscle imbalance (overactive and inhibited muscles).
- b. Hip extension
- c. Hip abduction
- d. Trunk curl –up
- e. Arm elevation in the sagittal plane (standing arm raise)
- f. Arm elevation in the frontal plane (scapulo-humeral rhythm)
- g. Neck curl-up
- h. Trunk lowering from the push up
- i. These movement patterns are incredibly valuable in practice, since they take only a few seconds per test, and nearly all the major joints are assessed.

27. Muscle Imbalance

28. Hip Extension Dysfunctional Pattern

- a. When a prone patient extends hip, normal sequence of firing is:
- b. Glut max, HS, contralateral LS erectors, ipsilateral LS erectors
- c. Common deviation: erector spinae before glut max
- d. Treatment possibilities
- e. Facilitate/strengthen glut max
- f. Stretch/relax flexors, erector spinae, HS
- g. Mobilize/manipulate hip, LS joint, thoracolumbar spine

29. Quantifiable Physical Capacity Tests

- a. For documentation purposes, and to identify strength or endurance deficits as baselines from which to gauge future progress, it is valuable to use a battery of quantifiable tests. These tests should be safe; have normative data; be simple to perform; not take much time; not require expensive equipment; and be valid. Normative data has been established for test of :
  - i. Squatting
  - ii. Trunk extensor endurance (Sorensen's test)
  - iii. Side Bridge endurance (QL and Oblique Abdominals)

30. Balance and Stability Tests

- a. These tests include single-leg-standing and lunge and reflex gripping of the toes (Vele's test). Many of our musculoskeletal ailments have a key perpetuating factor-disturbed function of the feet. One's overall

stability can be compromised by poor function of the feet. Gait or posture on one leg often amplifies pelvic unleveling, T/L hypertrophy, shrugged shoulders or a head –forward posture.

31. Janda Treatment Implications

- a. Relax and/or stretch tight muscles, before beginning exercises for inhibited muscles
- b. Facilitate and/or strengthen inhibited muscles after stretching tight muscles
- c. Articulations: manipulate and/or mobilize joint dysfunction, and before muscle stretching
- d. Differing opinions on ordering of manipulation and stretching.

32. Spinal Stabilization

- a. Reconditioning primary stabilizing muscles
- b. Multifidus, QL, abdominal muscles
- c. Build endurance while preserving NMS control and coordination
- d. Minimizes stress during activity
- e. Not intended for acute patients
- f. Components
- g. Identify correct posture (neutral spine) during increased exercises
- h. Maintain neutral spine in ADL