Don't Fear Lumbar Manipulation!

Basic Spinal Manipulation for the Lumbar Spine Using Low Back Pain Treatment Classification System as a Guide to Clinical Practice

Goals for this Lecture

- Review the literature about Lumbar Treatment Based Classification System
- Give evidential support for why Physical Therapist Should do more HVLA lumbar manipulation
- Give you some simple training on how to manipulate the lumbar spine and in doing so reduce the fear that prevents therapist from including this treatment
- Discuss how PT's can utilize manipulation to further grow our market share and compete in a direct access environment

What is the Treatment Based Classification

- *How do we take all the different types of back pain and simplify it to what it responds to… rather than how it looks like on imaging.*
- It has traditionally been attributed to Anthony Dellito who was involved in the first Physical Therapy application of this TBC model in 2003.
- Dr. Brennan was the first to examine the Treatment Based Classification (TBC) Model in 2006
- It has subsequently been revised several times.

Spine (Phila Pa 1976). 2006 Mar 15;31(6):623-31.

Identifying subgroups of patients with acute/subacute "nonspecific" low back pain: results of a randomized clinical trial.

Brennan GP[1], Fritz JM, Hunter SJ, Thackeray A, Delitto A, Erhard RE

- **RESULTS:** A total of 123 patients participated (mean age, 37.7 +/- 10.7 years; 45% female). Patients receiving matched treatments experienced greater short- and long-term reductions in disability than those receiving unmatched treatments. After 4 weeks, the difference favoring the matched treatment group was 6.6 Oswestry points (95% CI, 0.70-12.5), and at long-term follow-up the difference was 8.3 points (95% CI, 2.5-14.1). Compliers-only analysis of long-term outcomes yielded a similar result.
- **CONCLUSIONS:** Nonspecific low back pain should not be viewed as a homogenous condition. Outcomes can be improved when subgrouping is used to guide treatment decision-making.

Clinical Practice Guidelines Linked to the International Classification of Functioning, Disability, and Health from the **Orthopaedic Section of the American Physical Therapy AssociationJ Orthop Sports Phys Ther**. 2012;42(4):A1-A57. doi:10.2519/jospt.2012.0301

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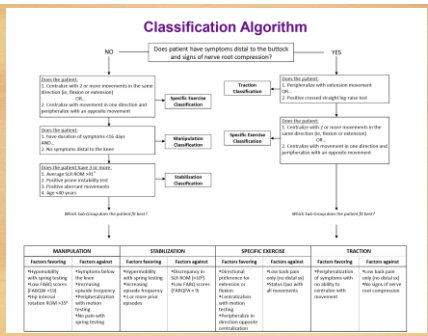
Treatment-Based Classification System for Low Back Pain: Revision and Update

Muhammad Alrwaily, Michael Timko, Michael Schneider, Joel Stevans, Christopher Bise, Karthik Hariharan, Anthony Delitto

Phys Ther. 2016 Jul;96(7):1057-66. doi: 10.2522/ptj.20150345. Epub 2015 Dec 4.
Treatment-Based Classification System for Low Back Pain: Revision and Update.
Alrwaily M[1], Timko M[2], Schneider M[3], Stevans J[4], Bise C[5], Hariharan K[6], Delitto A[7].



What are the percentages of patients within each category ?

When in doubt go with the numbers

Classification Distribution

	Fritz 2008	Brennan 2006	Hunter 2007
Directional Preference	42%	34%	34%
Stabilization	18%	24%	28%
Manipulation	35%	48%	32%
Traction	6%	NA	8%

The use of a classification approach to identify subgroups of patients with acute low back pain. Interrater reliability and short-term treatment outcomes.

Identifying subgroups of patients with acute/subacute "nonspecific" low back pain: results of a randomized clinical trial.

Is There a Subgroup of Patients With Low Back Pain Likely to Benefit From Mechanical Traction?
Results of a Randomized Clinical Trial and Subgrouping Analysis

How many of you currently perform High Velocity Low Amplitude Manipulations on your patients?

First study of note

- *Journal of Orthopaedic & Sports Physical Therapy*, 2006 **Volume:**36 **Issue:**4 **Pages:**209–214 **DOI:**10.2519/jospt.2006.36.4.209
- The Use of a Lumbar Spine Manipulation Technique by Physical Therapists in Patients Who Satisfy a Clinical Prediction Rule: A Case Series
- **Authors:** Joshua A. Cleland, DPT, PhD, OCS, Julie M. Fritz, PT, PhD, ATC, Julie M. Whitman, PT, DSc, OCS, FAAOMPT, John D. Childs, PT, PhD, MBA, OCS, FAAOMPT, Jessica A. Palmer, MPT

Take home message was that if patients met criteria and we are not performing HVLA the patients symptoms will likely continue to deteriorate.

Second study of note

- Cleland et al 2009
- **Comparison of the Effectiveness of Three Manual Physical Therapy Techniques in a Subgroup of Patients With Low Back Pain Who Satisfy a Clinical Prediction Rule: A Randomized Clinical Trial**
- Cleland, Joshua A. PT, PhD*†; Fritz, Julie M. PT, PhD, ATC‡§; Kulig, Kornelia PT, PhD¶‖; Davenport, Todd E. DPT**; Eberhart, Sarah PT†; Magel, Jake PT, DSc††; Childs, John D. PT, PhD‡‡
- Spine: 1 December 2009 - Volume 34 - Issue 25 - pp 2720-2729 doi:10.1097/BRS.0b013e3181b48809

Manipulation performed better than mobilization within this treatment subgroup. While it didn't seem to matter if that patient experienced a cavitation (pop) but the High Velocity maneuver seems to make these patients better than a lower velocity maneuver. Hypothesis of why is unclear but perhaps more mechanical receptor input is being received. Perhaps it is the reboot for our neurological symptoms to cut pain spasm cycle or other such mechanisms.

Man Ther. 2006 Nov;11(4):316-20. Epub 2006 Jul 12.
A perspective for considering the risks and benefits of spinal manipulation in patients with low back pain.
Childs JD[1], Flynn TW, Fritz JM.

- Patients who completed the exercise intervention without manipulation were eight (95% CI: 1.1, 63.5) times more likely to experience a worsening in disability than patients who received manipulation.
- I.E. these were patient's who met the TBC for manipulation but only received exercise

So How Can I Tell Who Needs Manipulation?

Clinical Prediction Rule for Lumbar Manipulation for Acute LBP

Predictor Variables
1. Pain does not travel below the knee
2. Onset ≤ 16 days ago
3. Lumbar hypomobility
4. Either hip has > 35° of internal rotation
5. FABQ - Work subscale score < 19

(Flynn et al., 2002)

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Clinical Bottom Line

- Presence of four or more predictor variables indicates a *large* and *conclusive* shift in probability that acute LBP patient will experience at least 50% improvement in function from SMT and exercise within two sessions (4-8 days).

Success with SMT likely if:

- **Four or more predictor variables present**
- **+LR 24.4 (95% CI 4.6-139.4)**

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Definition of Success

- > 50% improvement on modified ODI (Flynn et al., 2002)

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P-A Spring Testing tells us who is hypomobile

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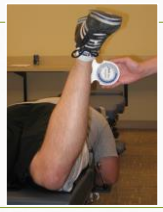
Hip Internal Rotation



Name: _____ Date: _____

Here are some of the statements that other patients have made to us about their pain. For each statement please circle a number from 0 to 6 to describe how much physical activities such as bending, lifting, walking, or driving affect or would affect your back pain.

	Completely disagree			Unsure			Completely agree
1. My pain was caused by physical activity.	0	1	2	3	4	5	6
2. Physical activity makes my pain worse.	0	1	2	3	4	5	6
3. Physical activity might harm my back.	0	1	2	3	4	5	6
4. I should not do physical activities that (might) make my pain worse.	0	1	2	3	4	5	6
5. I cannot do physical activities that (might) make my pain worse.	0	1	2	3	4	5	6

The following statements are about how your normal work affects or would affect your back pain.

6. My pain was caused by my work or by an accident at work.	0	1	2	3	4	5	6
7. My work aggravated my pain.	0	1	2	3	4	5	6
8. I have a claim for compensation for my pain.	0	1	2	3	4	5	6
9. My work is too heavy for me.	0	1	2	3	4	5	6
10. My work makes or would make my pain worse.	0	1	2	3	4	5	6
11. My work might harm my back.	0	1	2	3	4	5	6
12. I should not do my normal work with my present pain.	0	1	2	3	4	5	6
13. I cannot do my normal work with my present pain.	0	1	2	3	4	5	6
14. I cannot do my normal work until my pain is treated.	0	1	2	3	4	5	6
15. I do not think that I will be back to my normal work within 3 months.	0	1	2	3	4	5	6
16. I do not think that I will ever be able to go back to my normal work.	0	1	2	3	4	5	6

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Scoring FABQ

- Questionnaire consists of 16 statements patient rates on a scale from 0 (completely disagree) to 6 (completely agree)
  - FABQ ***work*** subscale calculated with adding items 6, 7, 9, 11, 12, and 15
  - FABQ ***physical activity*** subscale calculated with adding items 2, 3, 4, and 5
- Low scores for work subscale (FABQW <19) associated with improved likelihood to succeed with lumbopelvic spinal manipulation (Flynn et al., 2002)

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FABQ

- Fritz et al. (2001) found patients with higher levels of fear of work (FABQW > 34; sensitivity = 55%; specificity = 84%; +LR = 3.33; negative likelihood ratio [−LR] = 0.54) at initial evaluation were ***less*** likely to return to full work status after 4 weeks of treatment for LBP
  - Higher scores on FABQ suggest indication for active exercise–based approach in which feared activities gradually introduced to patient in controlled environment to assist patient in overcoming fears (Hicks et al., 2005)

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Let try to apply this hands on lumbar interventions

Absolute Contraindications to OMT/Manipulation

- Lack of indications
- Poor integrity of ligamentous or bony structures from recent injury or disease process
- Unstable fracture
- Bone tumors/Unremitting, severe, non-mechanical pain /Unremitting night pain (preventing patient from falling asleep or wakes and cannot find position of relief)
- Infectious disease
- Upper motor neuron lesions
- Osteomyelitis
- Vertebral basilar insufficiency (cervical spine)
- Rheumatoid arthritis (upper cervical spine)
- Use of **anticoagulant medication**
- Multi-level nerve root pathology
- Worsening neurological function
- Relevant recent trauma
- Spinal cord damage

International Framework for Examination of the Cervical Region for potential of Cervical Arterial Dysfunction prior to Orthopaedic Manual Therapy Intervention Authors: Rushton A, Rivett D, Carlesso L, Flynn T, Hing W, Kerry R.

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Precautions to OMT interventions

- Hypermobility syndromes
- Local infection
- Inflammatory disease
- Active cancer
- History of cancer
- Long-term steroid use
- Osteoporosis
- Connective tissue disease
- A first sudden episode before age 18 or after age 55
- Cervical anomalies
- Throat infections in children
- Recent manipulation by another health professional
- Systemically unwell

International Framework for Examination of the Cervical Region for potential of Cervical Arterial Dysfunction prior to Orthopaedic Manual Therapy Intervention
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Generalize Pelvis/Lumbar Rotational Mobilization/Manipulation

Side-posture HVLA Manipulation

Side posture Manipulation version II

■ Figure 10.33 Preposition prior to Manipulative Thrust

■ Figure 10.34 Thrust Procedure