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ICF

Manual Physical Therapy, Cervical Traction and Neuromuscular Re-Education in Patients with Cervical Radiculopathy: A Case Series

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Rehabilitation Services OF CONCORD HOSPITAL

JOSPT

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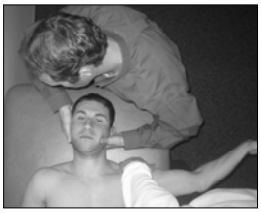
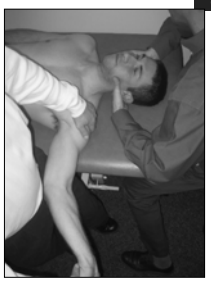
Cervical Lateral Glides





- **Coppieters et al, *JOSPT*, 2003**
- **Allison et al, *Man Ther*, 2003**

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Thoracic Spine Manipulation

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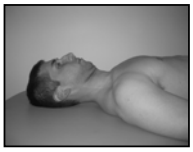
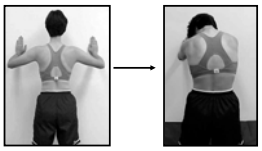
Strengthening Exercises





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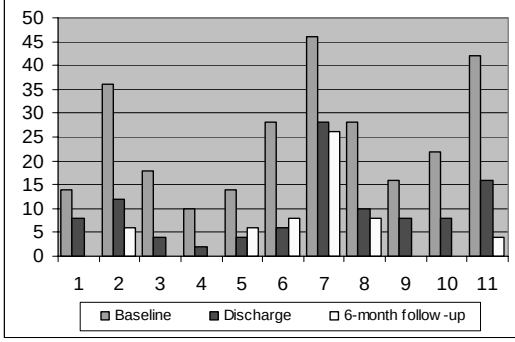
MCID= 7 points
Cleland et al, *Spine*, 2005



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A Clinical Prediction Rule for Classifying Patients With Neck Pain Who Demonstrate Short-Term Improvement With Cervical Traction

Strengthening and Conditioning: Chronic Neck Pain

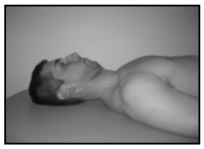
Chronic Neck Pain: Presentation

- Lower pain and disability scores
- Longer symptom duration (> 4 weeks)
- No Peripheralization/Centralization with AROM
- No signs of root compression

Chronic Neck Pain: Treatment

- Strengthening exercises for cervical and upper quarter muscles

Strengthening Exercises




Philadelphia Panel Clinical Practice Guidelines

	Acute	Chronic
Exercise/neuromuscular re-education	nd	✓ A, I
Traction	✓ C, I	✓ C, II
Therapeutic ultrasound	nd	✓ C, I
TENS	✓ C, I	ID
Massage	nd	ID
Thermotherapy	nd	nd
Electrical stimulation	ID	ID
EMG biofeedback	nd	nd
Combined rehabilitation interventions	nd	ID

[a] TENS=transcutaneous electrical nerve stimulation, EMG=electromyographic, nd=no data, ID=insufficient data, A=benefit demonstrated, C=no benefit demonstrated, level I=evidence from randomized controlled trials, level II=evidence from controlled clinical trials.

Two-Year Follow-up of a Randomized Clinical Trial of Spinal Manipulation and Two Types of Exercise for Patients with Chronic Neck Pain

(Evans et al, *Spine*, 2002)

- 191 patients, randomized, no control
  - –Group 1: Manipulation and exercise (n = 63)
  - –Group 2: Exercise only (n = 60)
  - –Group 3: Manipulation only (n = 64)
- •Duration of Symptoms: > 12 wks
- •Treatment: 20 one-hour visits
- • 2-year follow-up of previous study

RCT

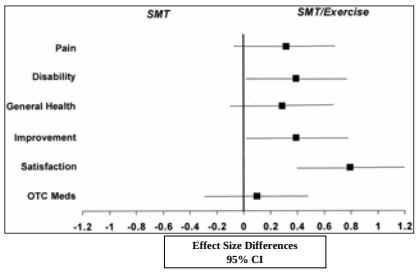
Exercise Description

- "Low tech" exercise:
  - Light stretching & UQ dumbbell exercises
  - Multi-directional isotonic resistance in supine
- "High tech" exercise:
  - MedX system – variable resistance system
    - 20 reps max; work thru pain

Evans et al, 2002

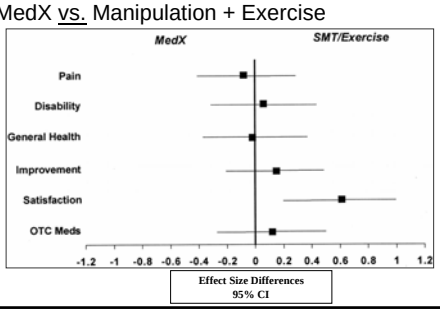
Evans et al, Spine, 2002

- Manipulation vs. Manipulation + Exercise



Evans et al, Spine, 2002

- MedX vs. Manipulation + Exercise



Active Neck Muscle Training in the Treatment of Chronic Neck Pain in Women

A Randomized Controlled Trial

Ylinen et al, *JAMA*, 2003

- 180 women aged 25-53, randomized
  - **Group 1: Strength Training (n = 60)**
  - **Group 2: Endurance Training (n = 60)**
  - **Group 3: Control (n = 60)**
- Duration of Symptoms: > 6 months
- Treatment: TIW exercise at home; multimodal PT
- Outcome Measures: (taken at 2, 6 & 12 months)
  - **VAS & Neck Disability Index (NDI)**
  - **Modified neck & shoulder pain & disability index**
  - **Self-rated improvement (6 point ordinal scale); 12 month only**
  - **Depression inventory**
  - **Isometric neck strength & range of motion**

RCT

Participant Activities

Both training groups had 9 practice sessions

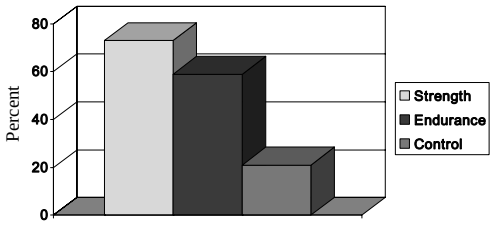
- Strength Training:
  - Theraband resisted neck flexor exercises (1 x 15)
    - Forward, oblique (L & R), backward
    - 80% of max isometric strength
  - Shoulder/UE adjusted dumbbell exercises (1 x 15)
  - Trunk & leg training
  - Stretching x 20 min
  - 30 min aerobic training TIW
- Endurance Training:
  - Supine head lifts (3 x 20)
  - Shoulder/UE dumbbell exercises 2 kg (3 x 20)
  - Trunk leg training
  - Stretching x 20 min
  - 30 min aerobic training TIW
- Control Group
  - Stretching x 20 min
  - 30' aerobic training TIW

Ylinen et al, *JAMA*, 2003

Results

- Drop out rate: 1.7%
- All outcome measures were significantly lower in the 2 training groups vs. controls
- No statistically significant difference b/t the two training groups.

Considerable or complete pain relief



- **Only 3% had an increase in pain**

Three Facilitation Techniques

- Pressure Biofeedback Pillow
  - **Inflated to support, but not enhance cervical lordosis**
- Verbal Instruction
  - **Subject instructed to tuck chin**
  - **Elongate back of the neck**
- Isometrically Resisted Facet Upslide
  - **3 Grade III oscillations**
  - **Instruction to stop motion; held for 4 s; repeated 10x**

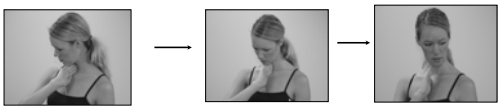
Pain Control: Acute Whiplash

Acute Whiplash: Presentation

- High pain and disability scores
- Recent symptom onset (<2 weeks)
- Traumatic onset

Acute Whiplash: Treatment

- AROM exercise
- Mobilization
- Avoid immobilization



Effective management of acute whiplash injuries

requires a pragmatic approach:

An RCT with stratified treatments

G Jull, M Sterling, J Kenardy, M Cohen*
L Connelly, E Beller

The University of Queensland
*** The University of New South Wales**

Hypothesis

Stratified pragmatic management of acute whiplash injury which is directed by the presenting pain, musculoskeletal and psychological features in a multi-professional context is more effective and cost-effective than usual care in reducing the incidence of transition to chronicity.

Stratification factors for randomisation

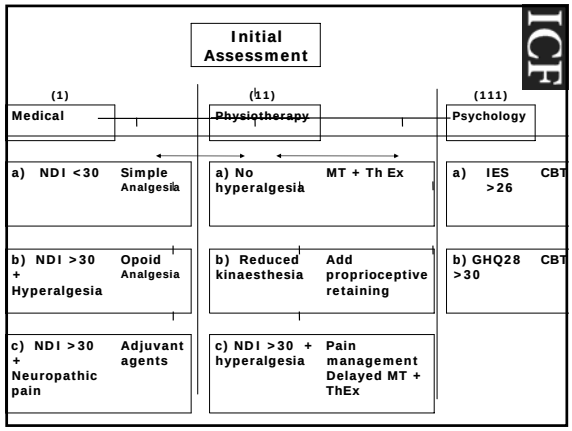
F0 = NDI score **less than 30**

F1 = NDI score **30 and greater**

F2 = IES score **greater than 26**

F3 = Sensory disturbance:

Cervical cold pain thresholds> 15ºC;
PPT TA (Males: <410, Females: < 304 kpa)
Sympathetic Nervous System,
QI (quotient of integrals)> 70



The costs

Cost-effectiveness will be measured

Cost of medical care, opportunity cost of lost labour and other activities over the 12 month period

The rate of transition to chronicity can be reduced by 50% through recognition and early management of the presenting pathophysiological and psychological features of the acute whiplash injury

purpose of guidelines

behavior change

Two reasons why people change

- Something very good will happen if they do something
- Something very bad will happen if they fail to do something

solutions

utilization review

meaningful patient outcome

treatment choices

matching

surveillance

real-time reporting

compare performance

so that

in the words of Steve Rose

practice looks more like research

research looks more like practice

Minimum Data Set

Cervical Form

Demographics (Initial Only)
Status: ☐ Licensed PT ☐ Student PT
Patient ID:
Duration of symptoms:
Gender: ☐ Male ☐ Female
Date (Initial):
Age:

HISTORY (Initial Only)
Location (check one):
☐ Neck
☐ Neck and Thorax
☐ Neck and Arm
☐ Head
☐ Head and Neck

Location of other symptoms (check all that apply):
☐ N/A
☐ Upper Extremity(ies)
☐ Knee(s)
☐ Back Pain
☐ Headache
☐ Thoracic Spine
☐ Hip(s)
☐ Foot/Feet
☐ Shoulder Pain
☐ Light Headedness

Duration (days):_____

Chief Complaint: ☐ Neck ☐ Head ☐ Thorax ☐ Arm

FABQ
PA _____
WK_____

Post surgical? ☐ Yes ☐ No

Sought medical care for this same episode in the past? ☐ Yes ☐ No

Previous episodes of neck pain: ☐ 0 ☐ 1-2 ☐ 3-5 ☐ >5
Frequency increasing?
☐ Yes ☐ No

Minimum Data Set

PHYSICAL EXAM: ☐ Initial
NDI:_____
Pain (worst):_____

Upper limb tension: ☐ + ☐ –
Spurling's: ☐ + ☐ -
Distraction: ☐ + ☐ -
Cervical rot<60°: ☐ + ☐ -

Deep neck flexor endurance (secs): _____

Cervical rotation lateral flexion:
☐ + ☐ -

☐ Follow-up

Thoracic Spring:
☐ Hypo
☐ Normal
☐ Hyper

Posture:
☐ Flat upper t-spine
☐ Increased curve upper t-spine

☐ Date:

Cervical Mobility:
☐ Hypo
☐ Normal
☐ Hyper

Dermatomes:
☐ Yes ☐ No

Myotmomes:
☐ Yes ☐ No

Cervical ROM (degrees):
Flex:____ Ext:____
SBR:____ SBL:____
RR:____ LR:____

Centralization:

Reflexes: ☐ Yes ☐ No

Minimum Data Set

Treatment Classification (Initial & Weekly)
Note: You must check 1 of the following categories:

☐ Mobility ☐ Exercise and endurance ☐ Centralization ☐ Pain control ☐ Headache

☐ Patient Education/Instruction
☐ Extension Exercises
☐ Flexibility Exercises
☐ Stabilization Exercises
☐ General Conditioning Exercises
☐ Thrust Manipulation (Grade I-IV)
☐ Exercises Post Manipulation
☐ Aerobic Exercise
☐ Functional Training
☐ Cold Modalities
☐ Traction—Mechanical
☐ Traction—Manual
☐ Behavioral Exercise Approach
☐ NMES (Strengthening)
☐ NMES (Pain Control)
☐ Soft Tissue Massage
☐ Myofascial Release
☐ Craniosacral Therapy
☐ Other_____

Key elements

- On protocol versus off protocol
- Constant surveillance with immediate feedback to the therapist
  - Including benchmarks based on expectations and performance overall
- Combine outcomes and rehab process with costs from health plan

Web-based Data Entry

LOW BACK PAIN FORM

INITIAL ONLY Therapist Name: _____

Patient Name: _____

Patient ID: _____ Gender: ☐ Male ☐ Female

Date (Initial): _____

HISTORY (Initial Only)

Location:
- ☐ LBP
- ☐ LBP and buttock/thigh symptoms (not distal to knee)
- ☐ LBP and leg symptoms distal to knee

FABQ
PA _____
WK _____

Post Surgical
- ☐ Yes
- ☐ No

Duration
- ☐ ≤ 15 Days
- ☐ > 15 Days

PHYSICAL EXAM (Initial & Weekly)

Avg SLR
- ☐ ≥ 91
- ☐ < 91

Prone Instability Test
- ☐ Positive
- ☐ Negative

Mobility Testing
- ☐ Hypo
- ☐ Normal
- ☐ Hyper

Directional Preference
- ☐ Extension
- ☐ Flexion
- ☐ No Directional Preference

Aberrant Movements
- ☐ Yes
- ☐ No

Pain (worst): _____ Flexion ROM: _____ Oswestry: _____

TREATMENT CLASSIFICATION (Initial & Weekly)

Stage I (check one)
- ☐ Mobilization (non thrust)
- ☐ Mobilization Grade V (thrust)
- ☐ Stabilization
- ☐ Flexion Directional Preference
- ☐ Extension Directional Preference
- ☐ Traction

Stage II (Check all that apply)
- ☐ FABQ approach
- ☐ Aerobic
- ☐ General conditioning

FABQ Status (check one)
- ☐ Negative (<29)
- ☐ "At Risk" (29-32)
- ☐ Positive (>32)

NOTE: You must check
1. One Stage 1 category ***or*** one or more stage II categories ***and***
2. One FABQ status (initial only; weekly optional)

INTERVENTIONS (Initial & Weekly)

- ☐ Patient education/instruction
- ☐ Flexion exercises
- ☐ Extension exercises
- ☐ Flexibility exercises
- ☐ Stabilization exercises
- ☐ General conditioning exercises
- ☐ Aerobic exercise
- ☐ Functional training
- ☐ Mobilization Grade I-IV
- ☐ Myofacial release
- ☐ Mobilization Grade V
- ☐ Soft tissue massage
- ☐ NMES (Pain Control)
- ☐ Heat modalities
- ☐ Cold modalities
- ☐ Traction—mechanical
- ☐ Traction—autotraction
- ☐ De-weighting
- ☐ Craniosacral therapy
- ☐ Graded Exercise Approach (FABQ +)
- ☐ NMES (Strengthening)
- ☐ Other

Status
Patient ID 101-001
Age
Date (Initial) Calendar
Gender

HISTORY (Initial Only)

Location of Symptoms

Location of Other Symptoms
N/A, Head/Neck, Thoracic Spine, Upper Extremity(ies), Hip(s), Knee(s), Foot/Feet, Ankle(s)

Sought medical care for this same episode in the past?

FABQ
PA
WK
Post Surgical
Duration

Previous episodes of LBP
Frequency Increasing

Evidence In Motion

TREATMENT CLASSIFICATION (Initial & Weekly)

Stage I (check one) | FABQW Status (check one) | FABQPA Status (check one)

Stage II (Check all that apply)
- Aerobic
- General conditioning

NOTE: You must check
1. One Stage 1 category or one or more stage II categories and
2. One FABQ status (initial only; weekly optional)

PHYSICAL EXAM (Initial & Weekly) Exam | Date Calendar | Visit #

- Avg SLR
- Prone Instability Test
- Mobility Testing
- Directional Preference
- Aberrant Movements
- Hip IR ROM
- Pain (worst)
- Flexion ROM
- Oswestry

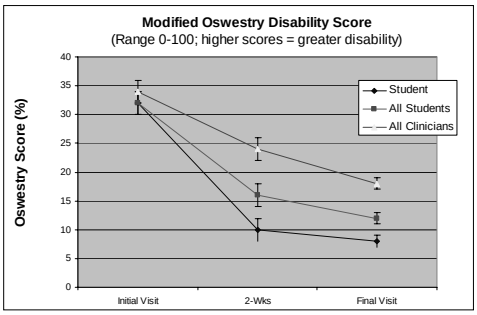
Evidence In Motion

INTERVENTIONS (Initial & Weekly)

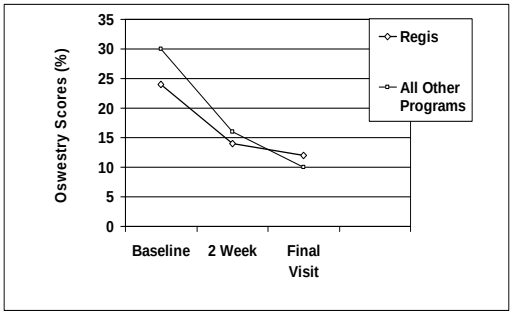
- Patient education/instruction
- Flexion exercises
- Extension exercises
- Flexibility/General Mobility exercises
- Stabilization exercises
- General conditioning exercises
- Thrust Manipulation (Grade V)
- Non Thrust Manip. (Grade I-IV)
- Aerobic exercise
- Functional training
- Heat modalities
- Cold modalities
- Traction—mechanical
- Traction—autotraction
- De-weighting/Unloading
- Behavioral Exercise Approach
- NMES (Strengthening)
- NMES (Pain Control)
- Soft tissue massage
- Myofacial release
- Craniosacral therapy
- Neural Mobilization
- Other

Evidence In Motion

Automatically Generated Reports



Program Comparisons



Questions???