

Cervical Manipulation

Allina Health
Sports Medicine Conference 2018

Agenda

- Physiological/Accessory Motion
- Cervical manipulation
- Indicated conditions
- Evaluation
- Care Plan/Options
- Benefits/Effectiveness/Safety
- Demonstration

Physiological Motion

Accessory Motion

- Result of concentric or eccentric muscle action
 - Bone can move about axis of rotation
 - Also called osteokinematics
 - Voluntary
-
- Manner in which one articulating joint surface moves relative to another
 - Normal accessory movement must occur for full range physiological mvmt. to occur
 - Also called joint arthrokinematics

Physiological Motion

vs.

Accessory Motion

- Physiological motion is the intrinsic motion of the joint
- Accessory motion cannot occur independently but can be produced by external force
- manipulation and traction can be used if accessory motion is limited due to some restriction of the joint capsule or ligament
- manipulation can be used at any point in the range of motion and in any direction in which movement is restricted
- always occurs in same direction as physiological movement

Signs and symptoms



Indicators of restrictive joint motion

Pain
 Hypo-mobility
 Restricted motion in AROM/PROM
 Muscle guarding
 Postural changes
 Proprioceptive changes
 Radicular pain/paresthesias
 Decreased strength
 Decrease reflexes



Cervical Manipulative Therapy (CMT)

- use of a 'load' (force) with therapeutic intent to increase joint function
- this 'load' is traditionally supplied by hand, and can vary in its velocity, amplitude, duration, frequency, and body location
- CMT is always customized to each patient

Maitland's 5 mobilization grades

Maitland's grades

Reduces pain

- Grade I: small amplitude movement at beginning of range of motion
 - Pain and spasm limit mvmt early in ROM
- Grade II: large amplitude mvmt w/in midrange of mvmt
 - Pain and spasm occur toward mid-ROM

Maintain motion

- Grade III: Large amplitude mvmt. From mid-range to physiological limit (PL)
 - Pain, spasm or tissue tension/compression limit mvmt.
 - Near end range

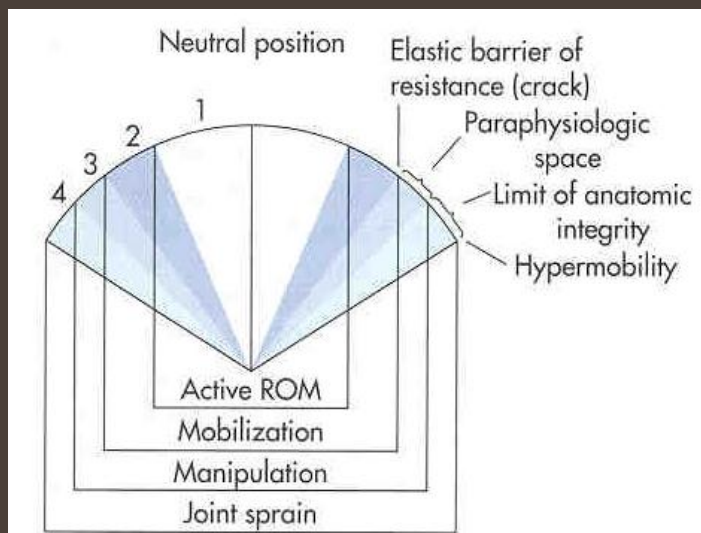
Maitland's 5 mobilization grades

Maitland's grades

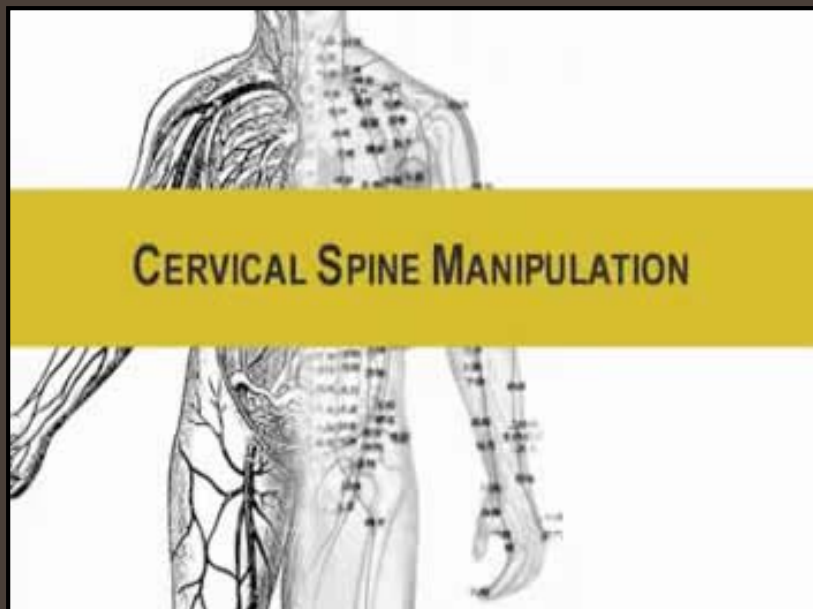
Decreases **pain**, increases **range of motion** (active/passive), increases **proprioceptive effects** in and around the joint region

- Grade IV: small amplitude movement at end of range of motion.
 - PL and perform small-amplitude oscillations
 - Resistance limits movement in absence of pain and spasm
- Grade V: small amplitude mvmt from PL to anatomical limit (AL)
 - Manipulation (chiropractic)
 - Usually accompanied w/ popping sound
 - Velocity of thrust is **more important/effective** than force of thrust (HVLA v. LVHA)
 - Great deal of skill and judgment necessary for safe and effective treatment

Therapeutic boundaries




Manipulation



Popping sound
"cavitation"

- Synovial **fluid** contains the gases oxygen, nitrogen, and carbon dioxide
- Manipulation **stretches** the **joint** capsule
- Gas is rapidly released



Manipulation
Effects

- Regains normal joint physiological and accessory motions
- Reposition or realign a joint
- Regain normal distribution of forces and stresses about a joint
- Reduce pain
- Effective and widely used technique in injury rehabilitation

Key Sports related manipulation effects

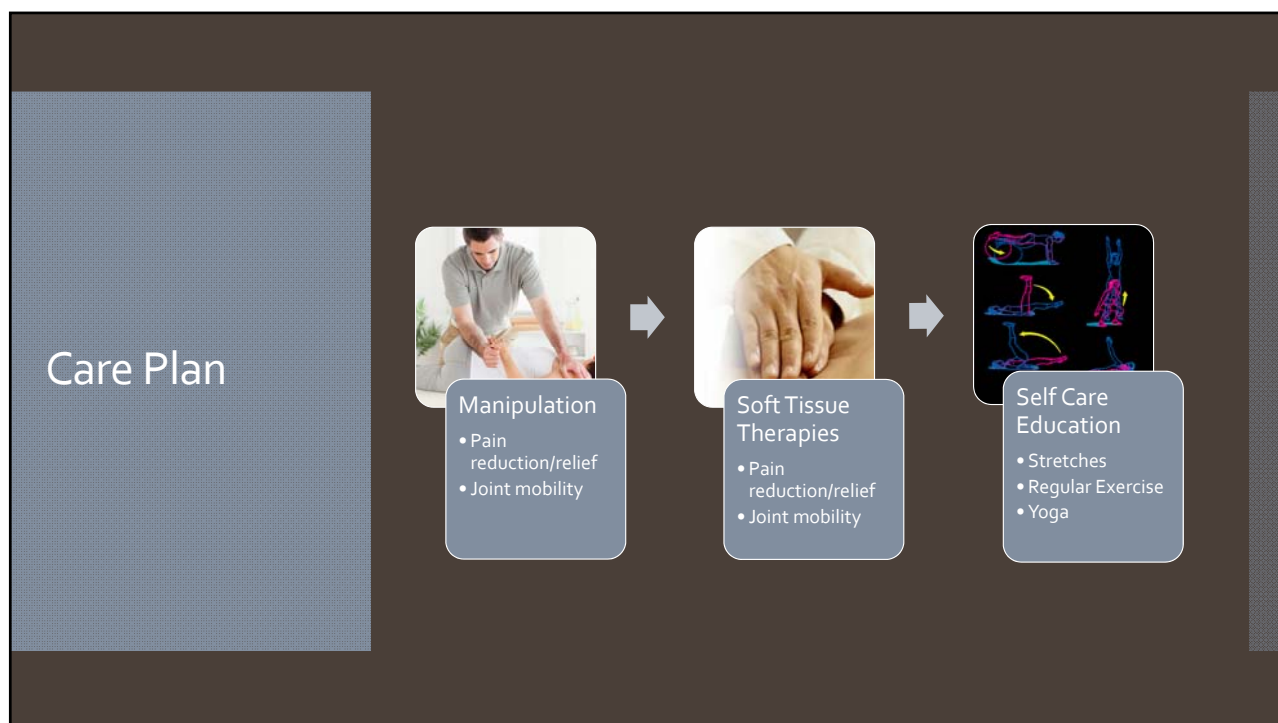
- Reflexogenic effects that inhibit or facilitate muscle tone or stretch reflex (reduce muscle guarding)
- Proprioceptive effects to improve postural and kinesthetic awareness
- Pain reduction/relief

Indicated Conditions

- Cervicogenic Headaches
- "Whiplash"/Cervical Sprain/Strain
- Concussions
- Thoracic Sprain/Strain
- Thoracic Pain
- Shoulder Sprain/Strain
- Rib pain
- Brachial plexus injuries
- Facet pain syndromes



- Contraindications to manipulation**
- Inflammatory arthritis
 - Malignancy
 - Fractures
 - Bone deformities
 - Infection
 - Hypermobility

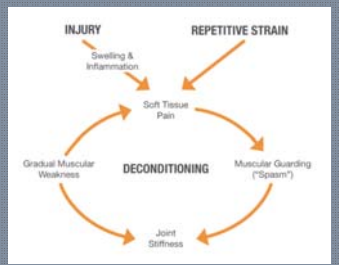


Patient Counseling



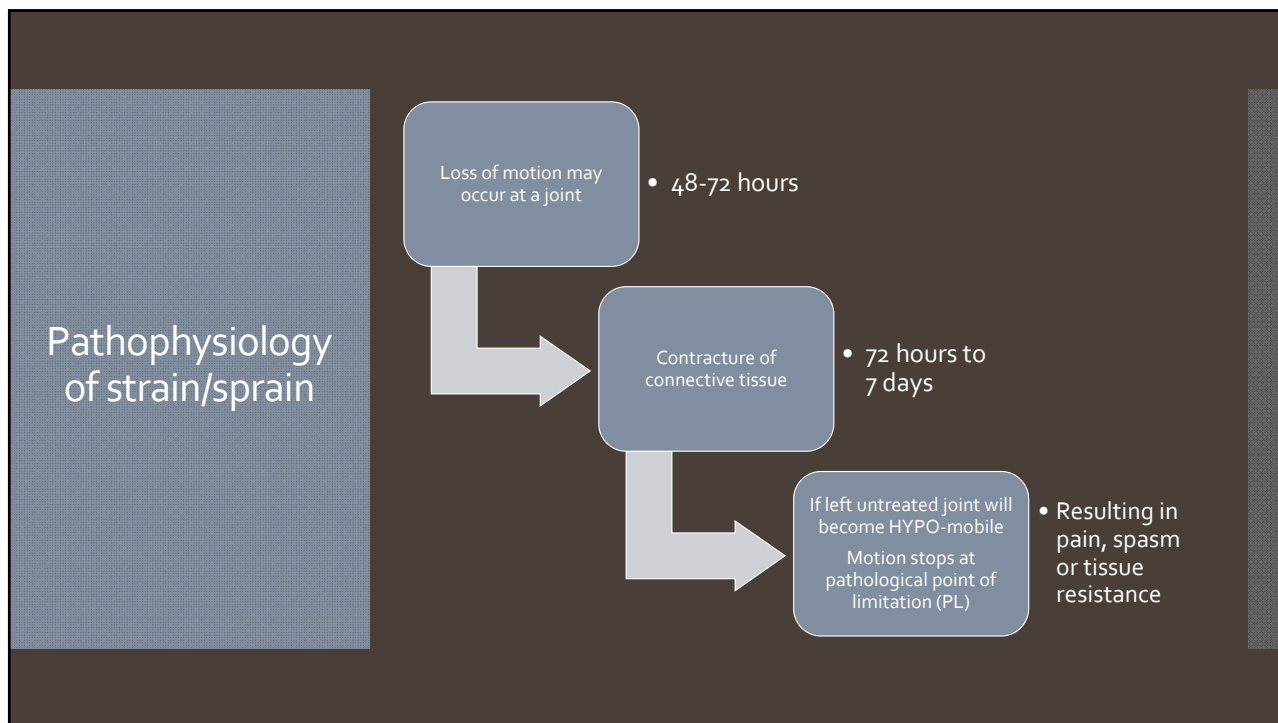
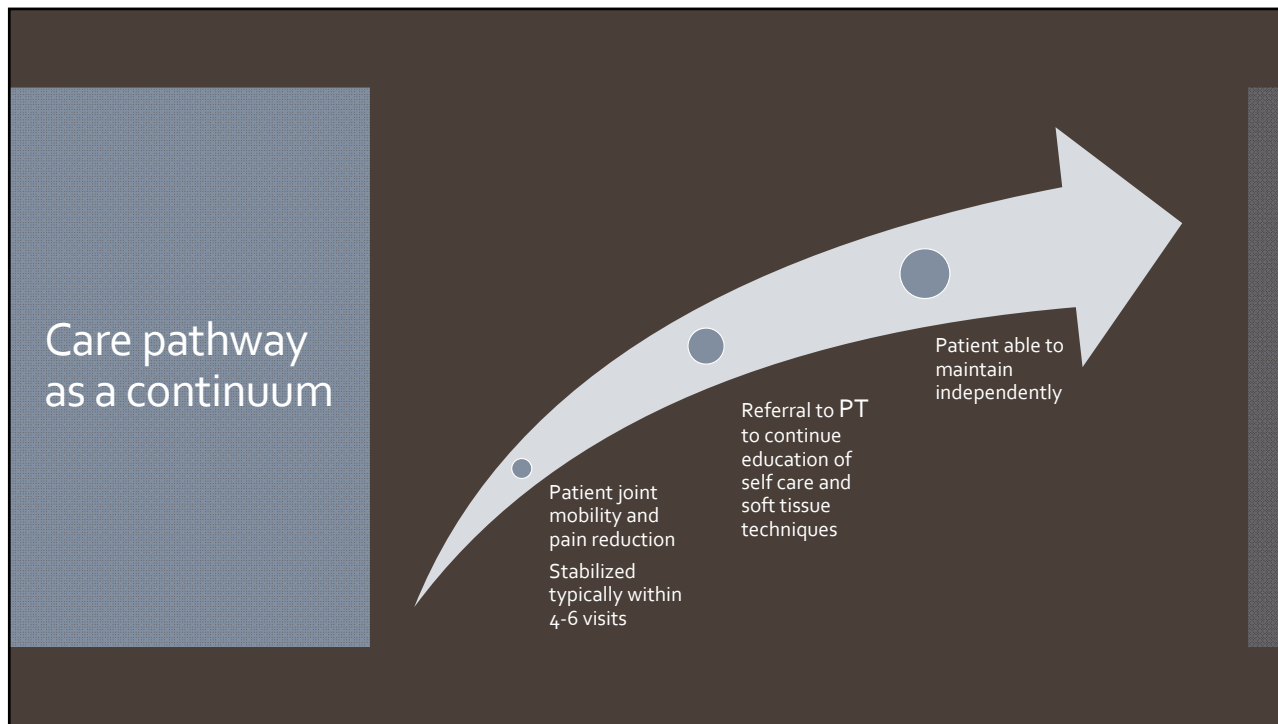
- Dietary Changes/Nutritional
- Stress Management
- Self-Care and Preventative Care
- TENS unit
- Acupressure
- Ergonomics
- HEP

Patient Counseling



Home Exercise Program/Self Care

- Have to use motivational and encouraging dialogue with patient
- Typically with athletes this is not a problem



Safety

AROM applies more stress on the internal carotid/vertebral arteries than manipulation

(Herzog <https://www.ncbi.nlm.nih.gov/pubmed/23140796>)

Rare adverse events - 1 in 5.85 million manipulations.

(CMAJ, 2002 April 2; 166(7): 886)

Malpractice insurance is \$1500-\$2000/year.

Provider Locations



- 2 New Locations – Dr. Jenna Therrien
 - Cambridge
 - Isanti
- 2 Locations – Dr. Derek Doty
 - Coon Rapids – Associated with Courage Kenny
 - Woodbury – Associated with Penny George Institute for Health and Healing
- Edina – Dr. Molly Magnani
Dr. Doug Pernula
Dr. Rochelle Rougier-Maas
- West Health – Dr. Steve Dandrea
- Nicollet Mall – Dr. Dean Bruns