BACK PAIN
what a pain?

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LOW BACK PAIN

- Second most common cause for physician visits
- Most common cause of activity limitation in people less than 45
- 70-85% of people will have back pain at some point in their life
- LBP is a common problem but many different causes, and many times a definite source can not be found

Back Pain Is No Joke!
LOW BACK PAIN

• Less than 50% of patients are pain free in 1 month
• After 3 months 40% still have discomfort
• Lifetime recurrence rate of 85%
• Bed rest is no longer considered best treatment
• Early return to daily activities and exercise leads to less chronic disability
Low Back Pain

- Back pain is the #1 reason for missed work days
- Ranked #6 most costly medical condition
- Over $100 billion spent annually on the management of chronic back and neck pain
- At any given time, >80 million Americans experience some type of back or neck pain
- Back pain is the second leading cause of disability next to arthritis
- 90% of back pain is mechanical in nature
Neck pain

- Approximately 10% of the adult population has neck pain and any one time
- The third leading cause of chronic pain (with back pain being number one and headaches number 2)
- Fewer patients miss work with neck pain
- Less than 1% develop neurologic symptoms
- It can be from poor posture at the computer
- It can radiate to the head, shoulders arms or hands
Causes???
Mechanical Back Pain (90%)

- Back strain
- Herniated disc
- Osteoarthritis
- Spinal stenosis
- Spondylolysis
- Spondylolisthesis
Mechanical neck pain causes

- Myofascial
- Cervical strain
- Cervical spondylosis
- Cervical discogenic pain
- Whiplash
BACK and NECK PAIN

- AXIAL
- RADICULAR
Muscle Spasm

- Occurs when a muscle is overstretched or torn
- Leading to inflammation and muscle spasm
- Symptoms are local paraspinal tenderness provoked by bending and twisting
- There is no radiculopathy
- Usually pain, increase stiffness and limited motion
- You can have trigger points: point tenderness with reproduction of pain
Muscle spasm

Treatment:
• Muscle relaxers
• Modalities/heat and ice
• Relative rest
• Injections
• stretching
Axial back and neck pain
Radicular pain/Sciatica

- On physical might only have mild scoliosis or unilateral hamstring tightness
- Pain that does not radiate below the knee is less likely to be a true radiculopathy
- Imaging should be pursued in patients with persistent symptoms
- Surgery is indicated in cauda equina and with progressive neurologic deficit
WARNING SIGNS

- Bowel or bladder dysfunction
- Saddle anesthesia
- Bilateral paresthesias
- Lower extremity weakness
Neurologic testing

• Focus on L5 and S1 nerve roots since 98% of disc herniations are at L4-5 and L5-S1
• L5: ankle and great toe flexion for motor
• L5 sensory in the first web space
• S1: motor plantar flexion easiest to test by asking patients to tip toe
• S1: sensory lateral foot and ankle reflex
Neurologic testing

Brachial Plexus - Myotomes

- C5 – shoulder abduction
- C6 – elbow flexion or wrist extension
- C7 – elbow extension or wrist flexion
- C8 – grip strength (shake hands)
- T1 – interossei (spread fingers)
Causes of Back Pain

Why does someone injure their back on a given day doing something they have always done?
There are four natural curves in the vertebral column:

- **Cervical curvature**
- **Thoracic curvature**
- **Lumbar curvature**
- **Sacral curvature**
SLOUCH- WHO ME??
ALL OF US!
POOR SITTING POSTURE

- 36 lbs.
- 12 lbs.

- 12 lbs.
Open UP!

Poor sitting position puts your pelvis in a posterior tilt.
POOR STANDING POSTURES

- Poor posture: Forward head, Flat back
- Good posture: Balanced upright posture
- Poor posture: Forward head, Rounded shoulders, Sway back, Weak abdominal muscles

Ochsner Health System
Nachemson

Cell phones and neck pain

The burden of staring at a smartphone
Effective weight on the spine as forward tilt increases

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http://www.missionchiroworks.com/igad gets-and-neck-pain/
Biomechanical causes???

Tight hips

Motion restriction at the hips and pelvis can lead to more back pain

Tight hip flexors: when the psoas is tight more load is placed on the spine
Tight Shoulders

- Tight shoulders can lead to more neck and upper back pain
- It can increase over recruitment of the back muscles in overhead activities
TOBACCO and DJD
AGING

- Aging and its effects
- Effects on muscle - sarcopenia
- Importance of resistance training in the aged
"Old age is like everything else. To make a success of it, you’ve got to start young."

Lao Tzu (Laozi) Tao Te Ching

Theodore Roosevelt - 26th President of United States
Aging

Causes of death

Chronic

Acute

1) Leading Causes of Death, 1900-1998
www.cdc.gov/nchs/data/dvs/lead1900_98.pdf

2) 10 Leading Causes of Death, United States 2006, All Races, Both Sexes
http://webappa.cdc.gov/cgi-bin/broker.exe

www.cdc.gov/nchs/data/dvs/lead1900_98.pdf

Pneumonia, Influenza & diarrhea

Cancer & Heart Disease

0 10 20 30 40 50 60 70 80 90

% 1900 2006
Aging

Point?

People are living much longer!

...and remaining more active
Effects of Aging

Chronic Deconditioning Syndrome

Pain

Guarding movements

Disuse of Muscles

Decrease ability to withstand stress

Pain affects Behavior
Effects of Aging

Emergence of Chronic Disease

- Inflammatory arthritis
- Chronic Back and Neck Pain
- Cardio Pulmonary
- Obesity
- Osteoarthritis
- Diabetes
- Psychological issues
- Osteoporosis
- Parkinson’s disease
Effects of Aging

Comorbidities of Chronic Back Pain

- Cardio Pulmonary
- Inflammatory arthritis
- Stroke
- Osteoporosis
- Diabetes
- Psychological issues
- Osteoarthritis
- Parkinson’s disease

2 to as many as 5
What About Muscle?

Muscle health not linked to specific chronic disease, but muscle mass is key determinant of function in chronic disease.
What About Muscle?

Sarcopenia

Age-related loss of muscle mass, strength and function
Sarcopenia

No particular marker for lean body mass

Begins in fourth decade

Accelerates after 75th year

Mostly ‘fast twitch’ fibers

Inactivity greatest contributor

Somewhat reversible with exercise
Management: Current State

- Often expense is related to determining an exact diagnosis through advanced imaging, testing, etc.
- ~85% of the time a precise diagnosis for chronic low back pain cannot be determined, especially at the initial visit.
- Different treatments and recommendations often lead to confusion, fear, and anxiety along with escalating costs.
Who treats Back pain???

- Over 10 different specialties
- Over 30 different treatment approaches
- Each with a slightly different vocabulary and point of view and diagnosis
Who Treats Back and Neck Pain:

- Neurosurgeons
- Orthopedic spine surgeons
- Physical Medicine and Rehabilitation
- Pain Management
- Physical Therapist
- Neurologist
- Chiropractors/Massage therapist
- Internal Medicine
Management: What We Know

• Fortunately, it is not necessary to know the exact cause to treat back and neck pain effectively.
• Recognizing a distinctive pattern of signs and symptoms can lead to effective treatment.
• Key: Well-informed patients taking an *active* role.
• Focusing on return to *function* in addition to *pain* reduction will allow us to have the greatest impact.
TREATMENT

• Physical therapy/ active program
  – Strengthening
  – ROM/ movement
• Finding the Mechanical Preference
  – Flexion responder
  – Extension Responder
• Ice/Heat
• Injections
• Medicines
• Surgery
• Massage
• Manipulation
Medications

- Acetominophen and NSAIDS
- Opioids should be used judiciously and be time limited
- Muscle relaxants
- TCA
- Gabapentin for radiculopathy

Injections

- Epidural steroid injections
- Prolotherapy
- Trigger point injections
- Botox
- Facet injections
- Radiofrequency ablation
Physical therapy: LET’S GET PEOPLE MOVING

- Advise patients to stay active
- Promote empowerment for individuals to manage their pain
- Restore movement and function
- Restore spinal and core strength
- There is no evidence to support use of lumbar orthosis
Why Exercise?
Exercise

Muscles help support joints

Our bodies want to move

Chronic pain causes inactivity

Inactivity breeds stiffness, stiffness breeds weakness and weakness breeds more pain
Muscles Support the Spine

Erector spinae muscles
Large Spine muscles
The goals of treatment include alleviation of pain and restoration of strength and flexibility.
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