

# EXERCISE AS MEDICINE FOR LOW BACK PAIN

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# Disclosures

- No Disclosures

# Objectives

- Understand clinical exercise physiology and its role in Exercise as Medicine
- Identify the utility of exercise as a tool to prevent and manage low back pain
- Explore common myths associated with exercise and low back pain and develop safe and effective strategies to integrate into practice.

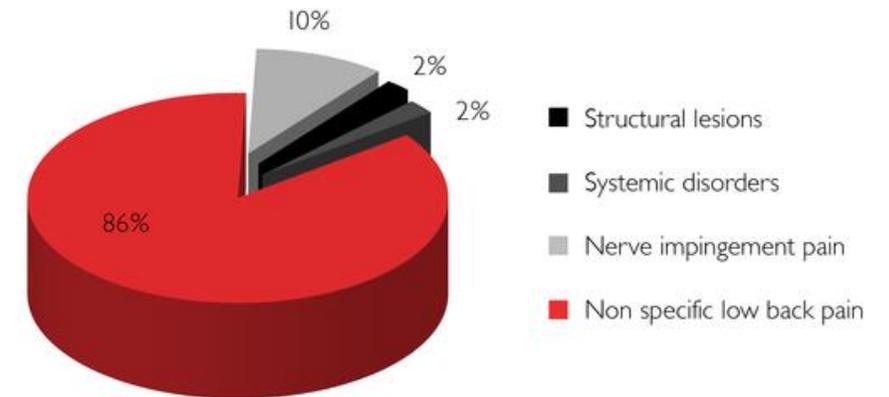
# Clinical Exercise Physiology

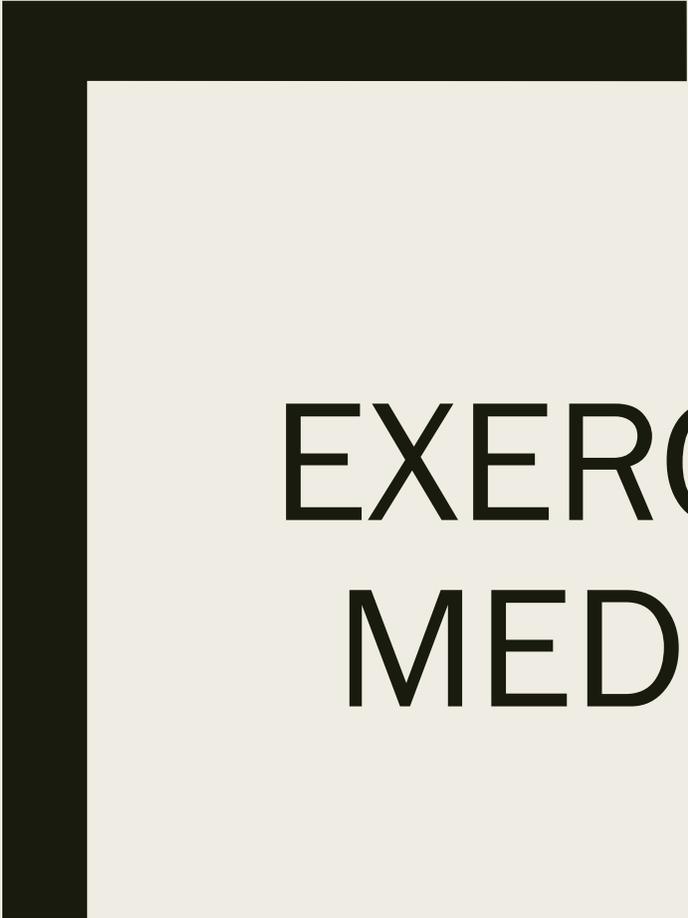
1. Chronic disease management;
2. Reducing risks for early development or recurrence of chronic diseases;
3. Creating lifestyle habits that promote enhancement of health;
4. Facilitating the elimination of barriers to habitual lifestyle changes through goal-setting and prioritizing;
5. Improving the ease of daily living activities;
6. And increasing the likelihood of long-term physical, social and economic independence.

-Clinical Exercise Physiology Association

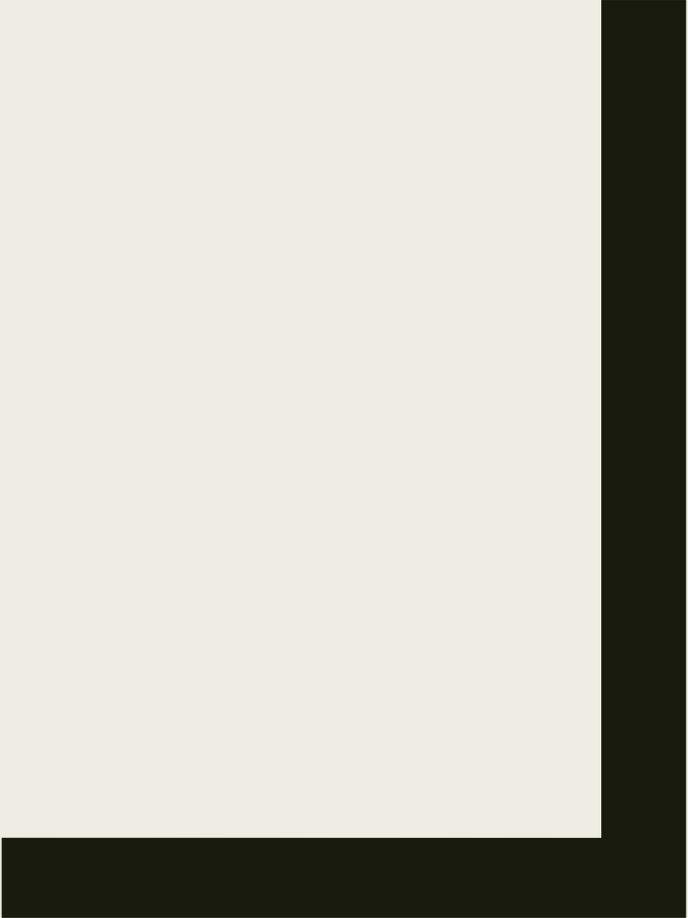
# Non-Specific Low Back Pain 1,3,4

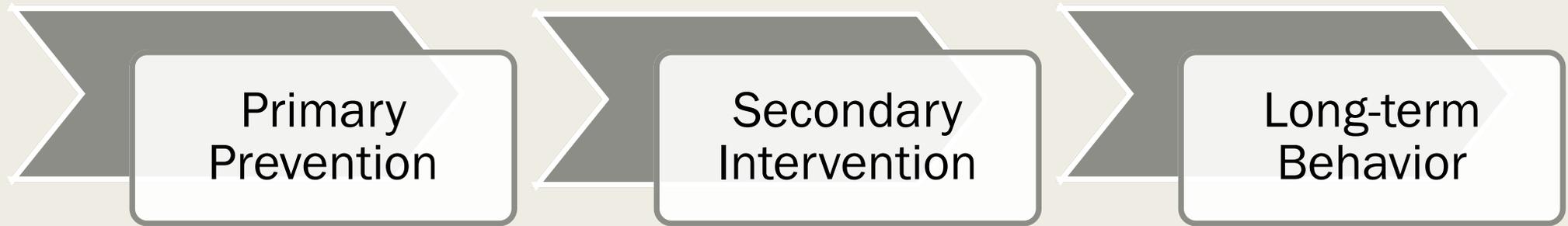
- Mechanical in nature
  - *Imbalances-> dysfunctional movement->pain*
    - Forward flexion
      - *Forward flexion eliminates lumbar lordosis, relax and overstretch supportive structures*
      - *ADL's (gardening, vacuuming, etc . . .)*
      - *Sitting/Inactivity*
    - Spinal extensor atrophy
    - Imbalance between core stabilizers (QL, TA, OB, Mu)
- Acute pain: 84% lifetime prevalence.
  - *Subsides within 6-12 weeks*
    - 24-80% risk of recurrence within 12-months<sup>4</sup>
- Chronic pain: 23% lifetime prevalence.





EXERCISE AS  
MEDICINE?





# Opportunity For Intervention<sup>2,3</sup>

## Primary Prevention

- *10-15% reduction in chronic LBP (leisure time)*
- *Prevented LBP by 35-45%*
- *Focus on preventing progression to chronic LBP and delaying recurrence*

## Secondary Intervention

- *20% relative reduction in disability*
- *25-40% reduction in subsequent events*
- *Reduction in LBP severity*

# Long-Term Behavior Change<sup>5</sup>

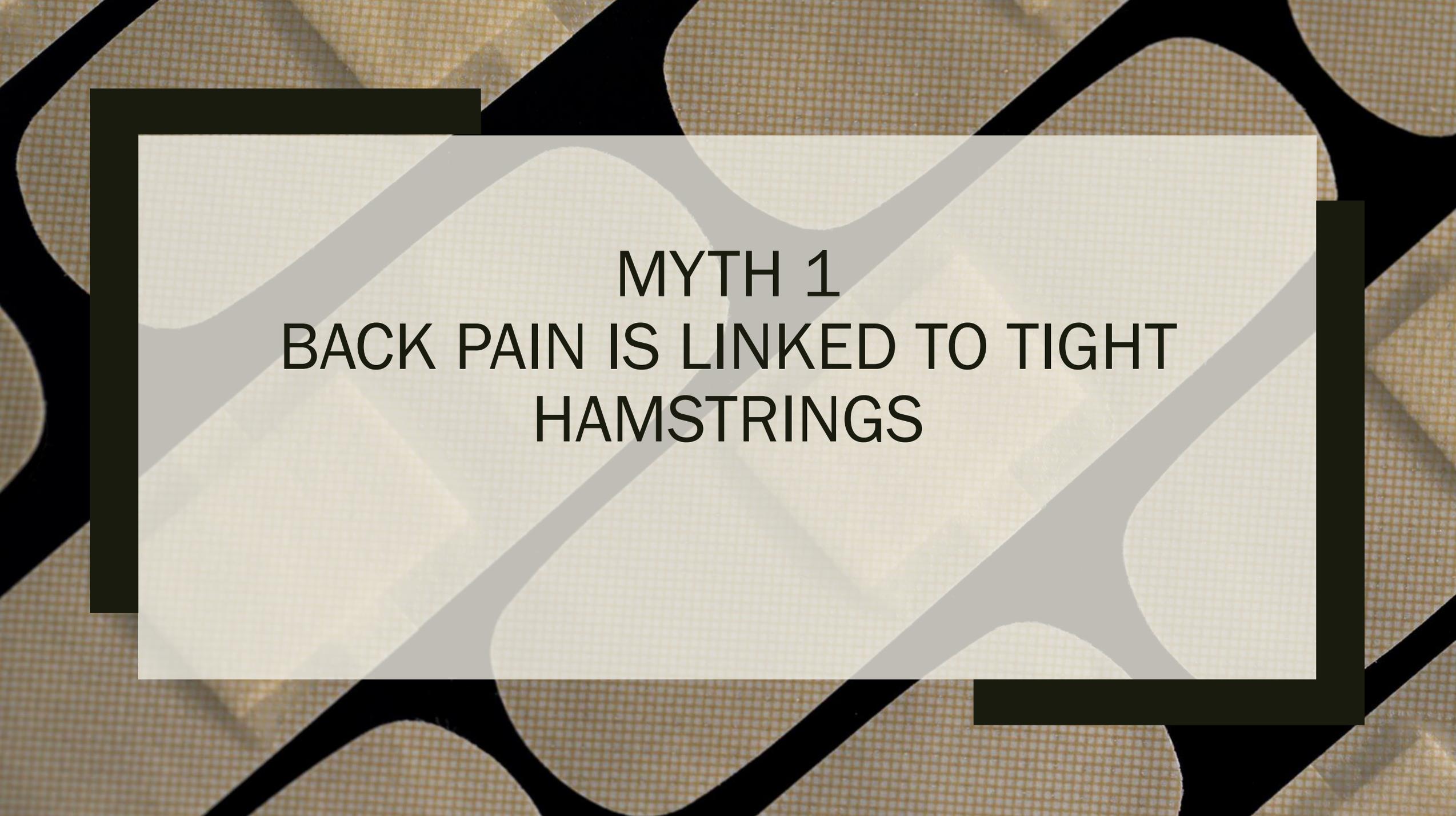
- Promote activity, and share data on fitness and low back incidence
- Inactivity is a leading cause of disability and early mortality.
- Physical activity acts as a mild analgesic
- Inactivity leads to more pain. More movement=less pain

## Goals

- Quality of life
- Fear avoidance
- Disability
- Maintain Functional Capacity
- Pain



EXERCISE  
PRESCRIPTION:  
CHANGE IN  
PERSPECTIVE?



**MYTH 1**  
**BACK PAIN IS LINKED TO TIGHT**  
**HAMSTRINGS**

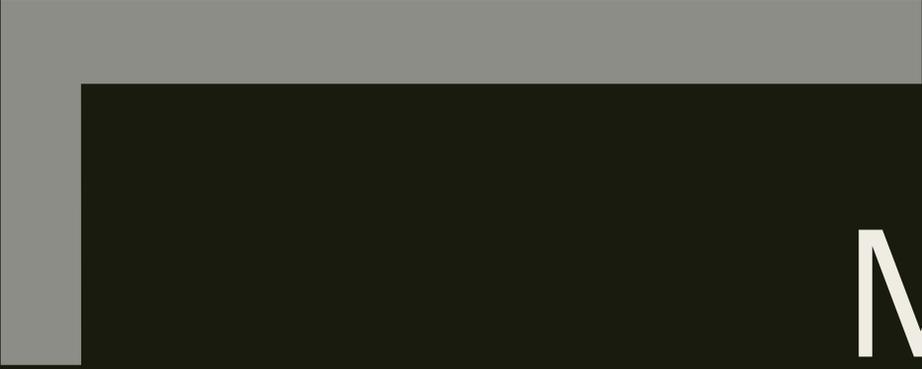
## Myth

- Tight hamstrings are a related symptom not a cause
  - *Stretching hamstrings do not confer meaningful reductions in back pain*
- Oversimplification:
  - *Asymmetry has a greater link but understudied.*

## Truth

- Tight hamstrings more likely lead to reliance on forward flexion.





MYTH 2:  
STRETCHING REDUCES  
BACK PAIN



Typical prescribed stretches include knees to chest stretch

- *Reduces lordosis*
- *Increases spinal compression*
- *Increases subsequent back pain risk of herniation.*

Completed out of context

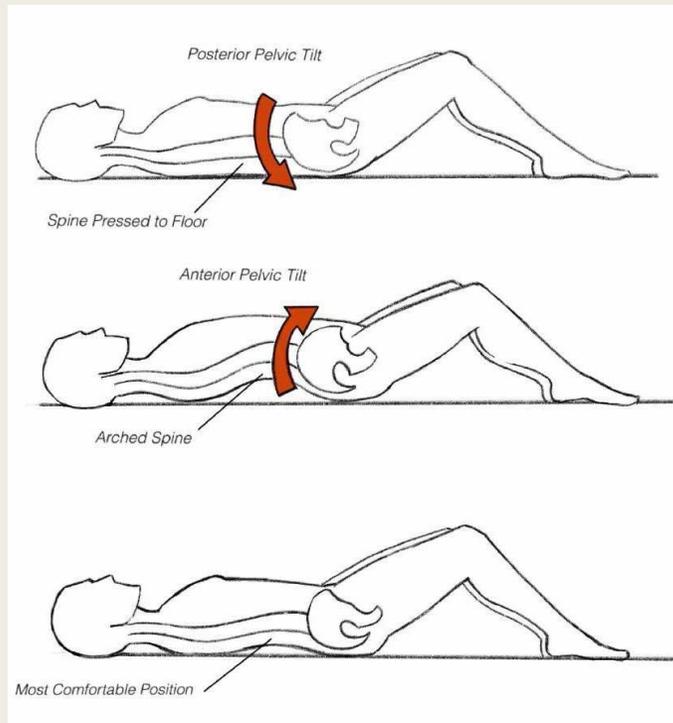
- *Back extension should immediately follow but typically doesn't.*



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**MYTH 3:  
YOGA AND PILATES ALLEVIATE  
BACK PAIN**

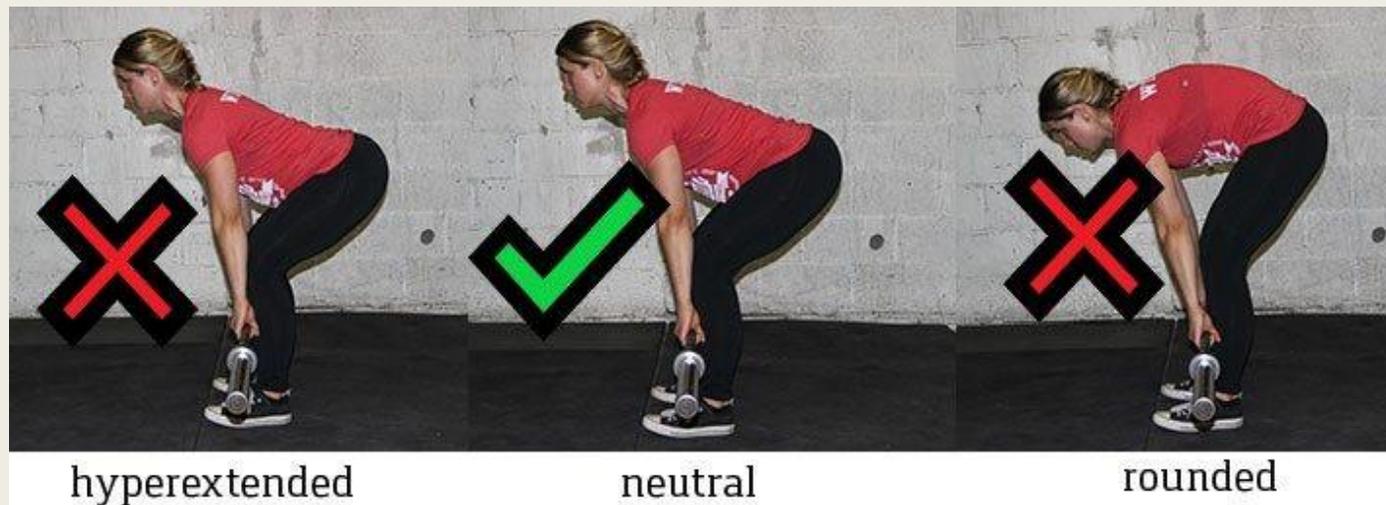


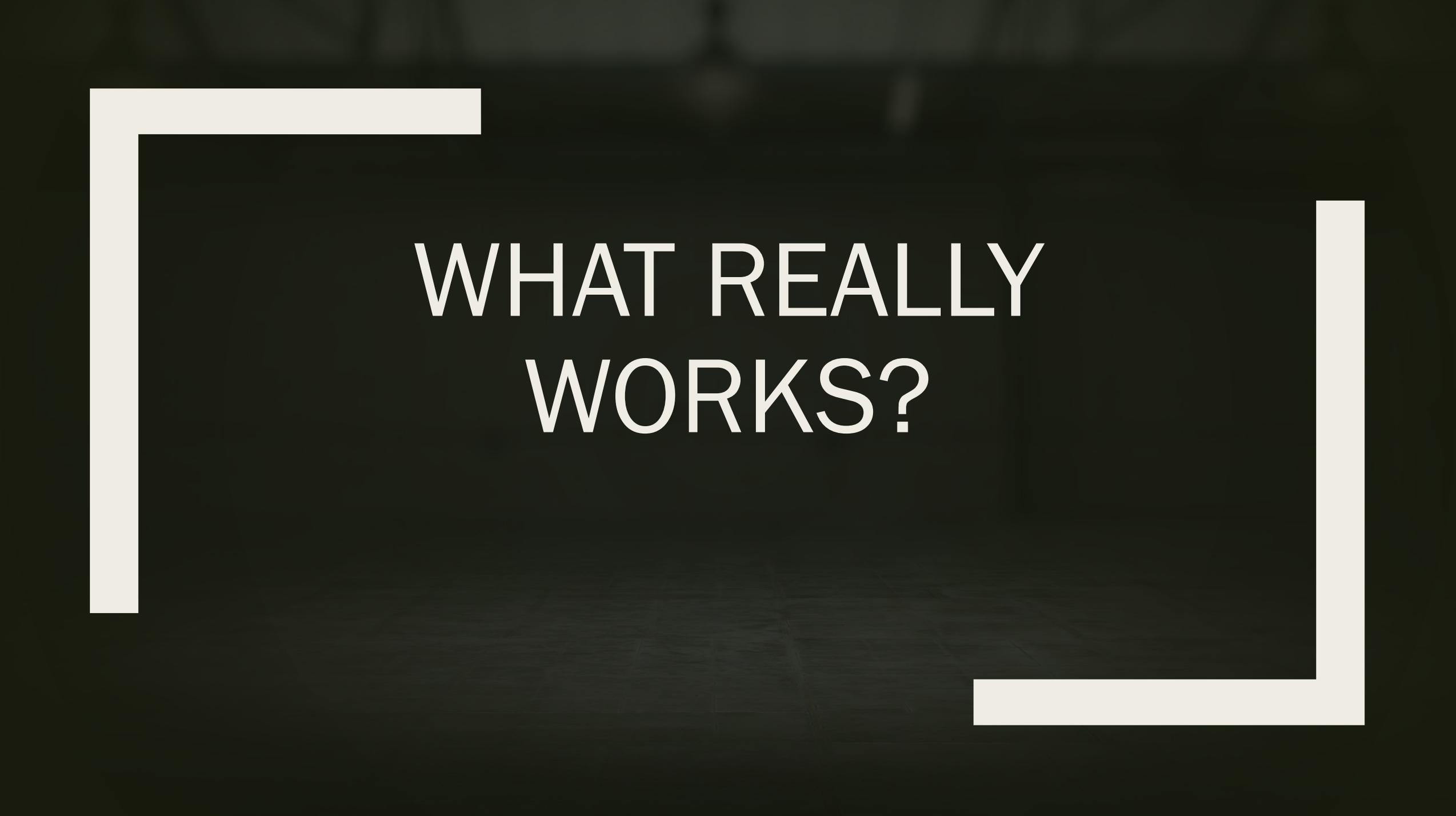
1. Prescribed broadly without individualization
2. Some movements may help but equal chance of harming or worsening back pain
3. Stimulates stretch receptors experiencing false sense of relief
4. Pilates:
  - *Imprinting and curl up based programming. Reduces natural curvature and can trigger pain*

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MYTH 4:  
BACK STRENGTH MEANS  
LESS BACK PAIN

- Cannon on a rowboat analogy.
  - *Weak base cannot support strength or ability to produce power*
  - *Must have a **stable** base before adding power*
- Endurance over strength
  - *Does form last when fatigued?*
- Form is easily broken under intense loads

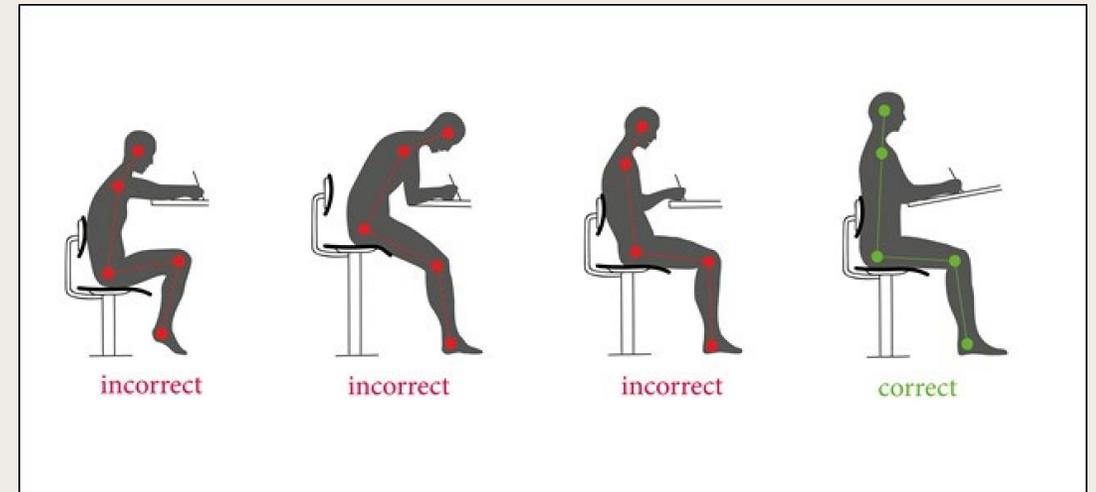


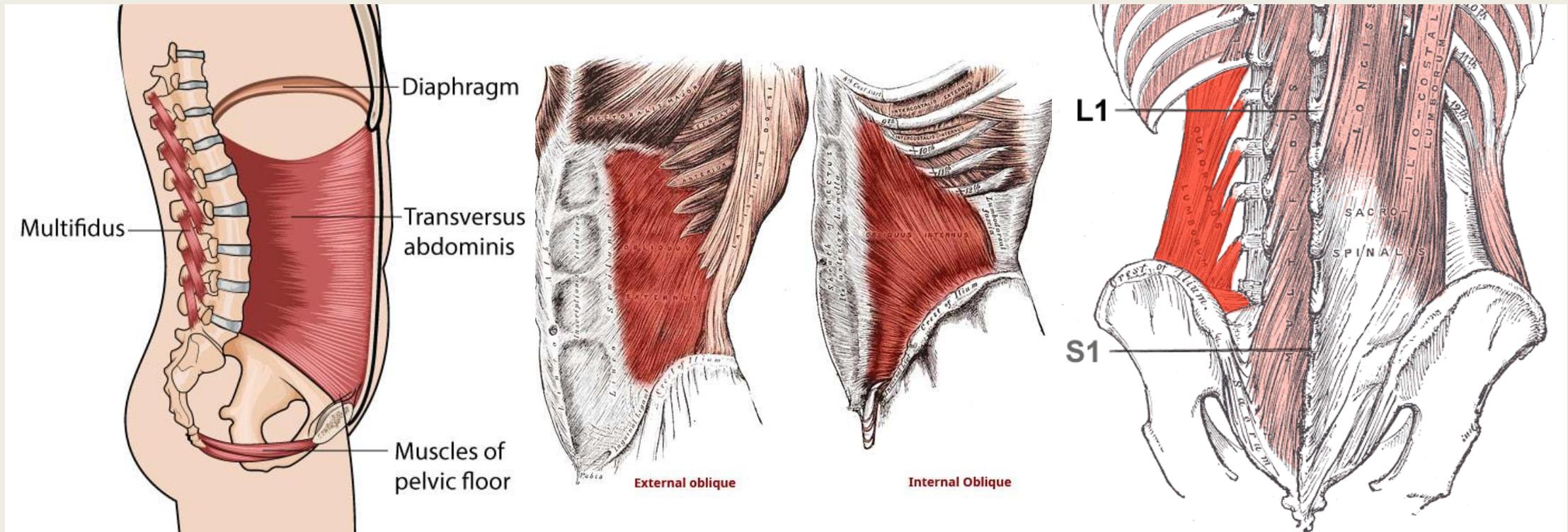


WHAT REALLY  
WORKS?

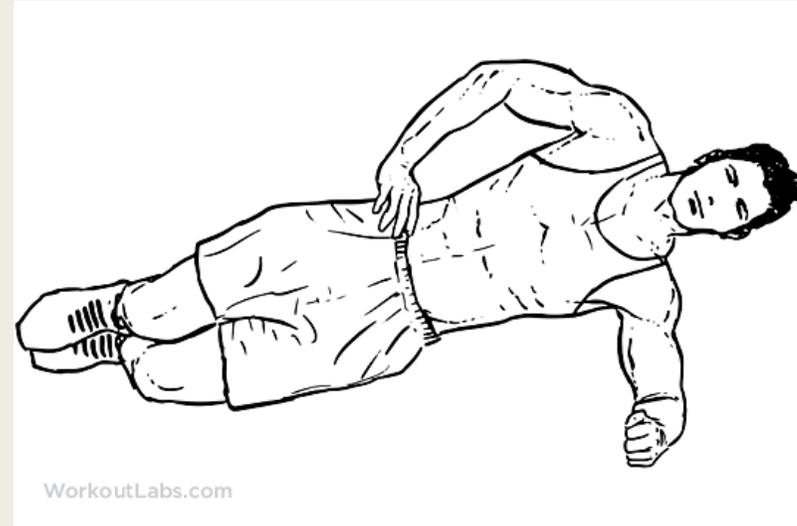
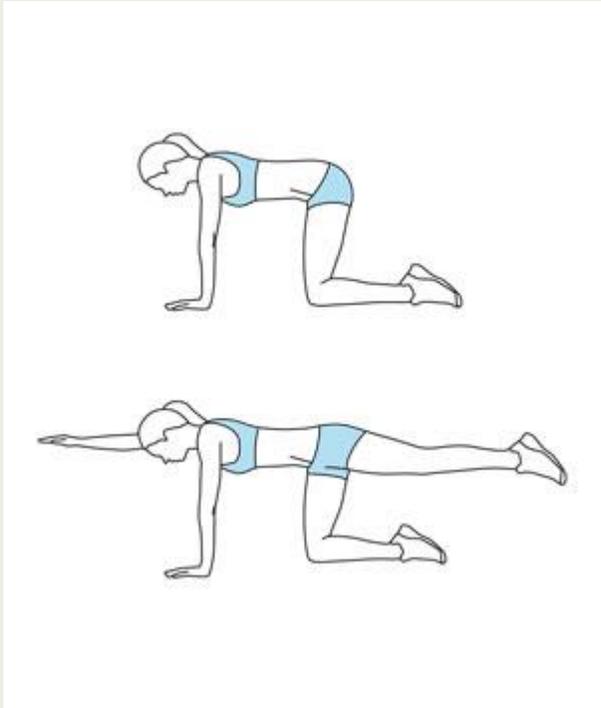
# Prevention

- Physical activity
  - >30 mins 5 days a week of aerobic activity
  - 2-3 days/week general strengthening
- Core stability
  - Core endurance and coordination
  - Awareness of body positioning
- Postural awareness
  - Avoid excessive trunk flexion and rounded shoulders
  - Adopt a neutral spine approach





# Spine Stability





# Intervention<sup>6</sup>

- Remain physically active
  - *Some movement is better than no movement*
- Disengage in behaviors that are sensitive to pain response
- Consult a specialist
  - *Individualized exercise prescription*

## **BOX 3: MOVEMENTS THAT MAY CAUSE OR WORSEN FLEXION INTOLERANT LOW BACK PAIN**

- Seated upper and lower body ergometry
- Inclined treadmill walking (secondary to compensatory forward leaning)
- Seated/recumbent cycle or step ergometry
- Rowing ergometry
- Strength training exercises from a sitting or a bent position (rows, leg presses, deadlifts, knee extensions, hamstring curls)
- Strength training or trunk/core conditioning exercises from the supine position (curl-ups, crunches, full sit-ups)
- Flexibility and range of motion exercises requiring bending and twisting (seated hamstring stretches, toe touches, windmills)

## **BOX 4: MOVEMENTS IN WHICH PAIN MAY OCCUR OR WORSEN IN EXTENSION INTOLERANT LOW BACK PAIN**

- Treadmill walking
- Stair climbing
- Elliptical step ergometry
- Standing strength training exercises and overhead lifting (shoulder press, squats, rows, biceps curls, triceps extensions, dumbbell shoulder raises)
- Strength training or trunk/core conditioning exercises in the prone position (superman, swimmers, back hyperextensions)
- Flexibility and range of motion exercises requiring spinal extension/hyperextension (cobra, back bends, overhead reaches) (5,6,22–25,75,76).

# Recommendations

- Recommend a consistent walking program (walk with purpose)
- Eliminate movements that causes pain (desensitize) and promote non-pain behaviors.
- Consistency!!
- Refer to a local Physical Therapist and/or Clinical Exercise Physiologist
  - *Break the pain cycle. Cannot completely stop LBP but will help*
- Present available evidence on LBP reduction strategies
- Prescribe neutral core stability exercises.

# Question 1

- Patient A is a 45-year-old male with no known history of cardiac, pulmonary, or metabolic disease presents to clinic today for annual check up. He is sedentary and mentions he has a high-pressure desk job and has felt slight low back tightness but no pain. What recommendations would you give for this patient?
  - a) Stretch the hamstrings and low back.
  - b) Strengthen core.
  - c) Recommend a yoga or Pilates class.
  - d) Encourage proper sitting form, walking program, and core stability exercise.

# Rationale

- Patient A falls into the prevention category of Exercise is Medicine Continuum
  - *Presents with no signs or symptoms of disease or back pain but is at a moderate risk for future low back pain due to tightness and sedentarism.*
- Recommendation
  - *Evaluate sitting posture (ensure form is neutral with no rounding or slouching)*
  - *Prescribe a walking program (easiest) or other aerobic and resistance training*
  - *Specifically prescribe neutral core stability exercise to prevent further imbalances*

# Question 2

- Patient X is a 57-year-old female with a history of hypertension, type II diabetes, obesity, and is sedentary. She presents in clinic today for a routine check up but mentions she has had low back pain on and off for 6-months. What recommendations would you give her?
  - a) Walk it off, you will be okay.
  - b) Refer to a specialist.
  - c) Tell her to lose weight to reduce back pain.
  - d) Give her an injection.

# Rationale

- Patient X falls into the secondary intervention category of the Exercise is Medicine continuum
  - *Presents with comorbid conditions and contributors to LBP (obesity) as well as recurrent pain over a 6 month period*
  - *Is high risk for future LBP with increasing duration, severity, and frequency*
- Recommendation
  - *Refer immediately to a Physical Therapist or Clinical Exercise Physiologist for examination of movement directional preference and individualized prescription as well as treatment for underlying chronic disease*

# Contact Information

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