Cex for Baby Boomers

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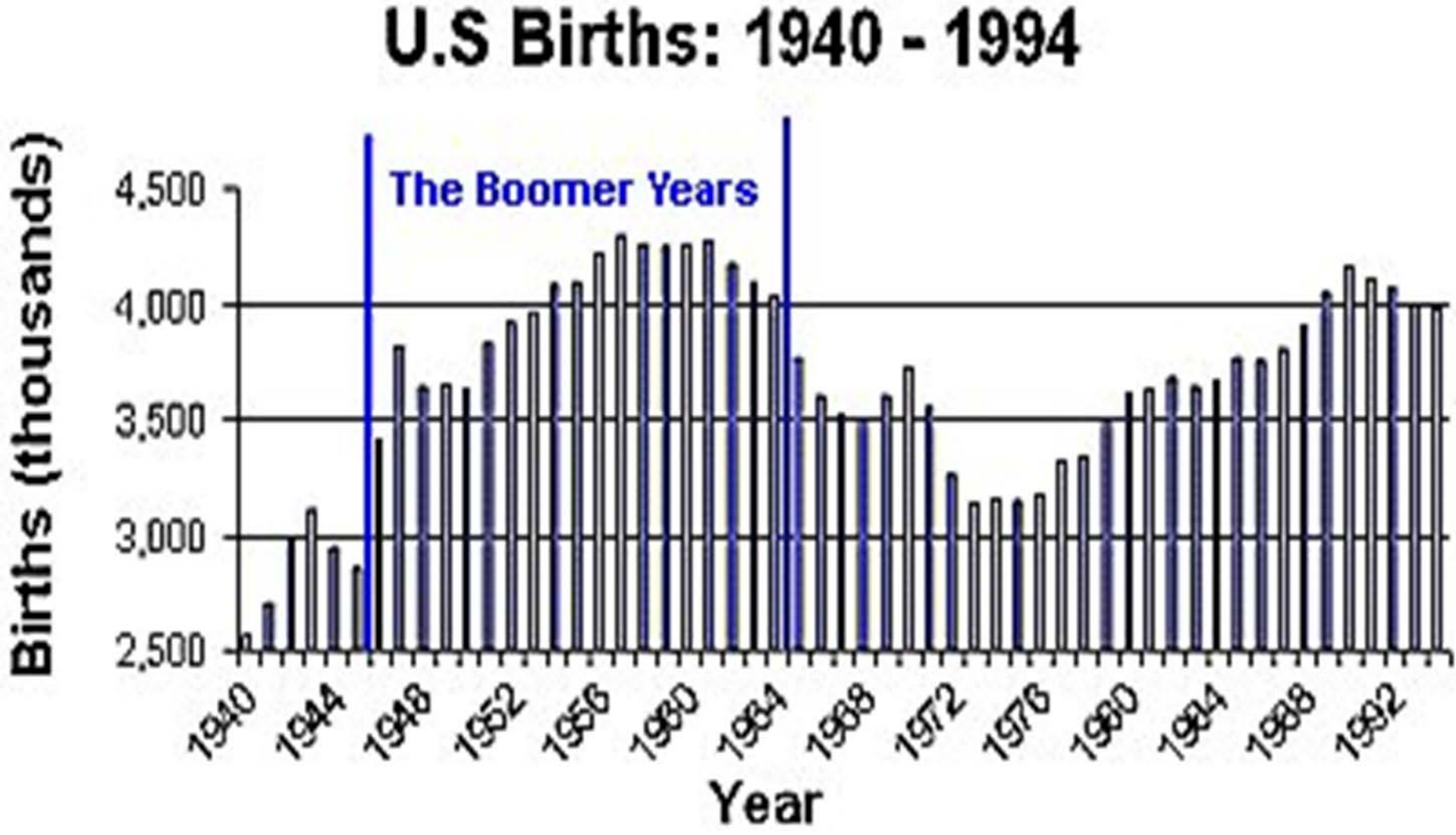
March 9, 2015

The Boomer Years 1946-1964



CEx for Baby Boomers

OBJECTIVES:

- Discuss common pathologies this group MAY be experiencing, or entering.
- Discuss corrective and/or preventative roles that exercise plays for many that are a part of the baby boomer population.

CEx for Baby Boomers

Americans born between the years of 1946-1964, folks between ages 51-69, are experiencing increasing healthcare issues.

Some Booming Percentages

There are approximately 77.6 million baby boomers in the U.S., which account for 28% of the U.S. population. (The U.S. Census)

Some Booming Percentages

Those currently over the age of 65 comprise approximately 15% of the U.S. population.

Some Booming Percentages

In the next 10-20 years more than 70 million baby boomers will enter the senior segment (over age 55) of the U.S. population.

Some Booming Percentages

By 2015, people aged 50 and older (Baby Boomers and Seniors) will make up 45% of the America's population. (AARP)

Some Booming Concerns

- 2.5 million baby boomers turn 65 in 2011.
  - 7,000/DAY
  - 292/HOUR
  - ~5/MIN
- Beginning in January 2011 about four million boomers will be ready to retire ***each year***, and will do so for **almost two decades**!

Some Booming Concerns

A 50-year-old female baby boomer can expect to live 82.5 years; while a male boomer will live on average 78.5 years. (The National Center for Health Statistics).

Imagine the retirement plan needed!

Some Booming Opportunity

- The baby boom phenomenon is responsible for over half of all consumer spending in the United States.
- 80% of all leisure travel is taken by boomers.
- Boomers are more than twice as likely as those aged 59-70 to *prefer* an **Active Adult Community** that is part of a *multi-generationa*l (possible you) neighborhood. (Del Webb Baby Boomer Survey Fast Facts about Housing)

www.babyboomerresource.com

Number’s for Leading Causes of Death

•Heart disease:	611,105
•Cancer:	584,881
•Chronic lower respiratory diseases:	149,205
•Accidents (unintentional injuries):	130,557
•Stroke (cerebrovascular diseases):	128,978
• Alzheimer's disease:	84,767
•Diabetes:	75,578

http://www.cdc.gov/nchs/fastats/deaths.htm

2013 Mortality Multiple Cause Micro-data Files

Activities of Daily Living (ADLs)

The term "**activities of daily living**" refers to a set of common, everyday tasks, performance of which is required for personal self-care and independent living.

The most often used measure of functional ability is the Katz Activities of Daily Living Scale (Katz et al., 1963; Katx, 1983).

Activities of Daily Living (ADLs)

For this fairly active population ADL's can include the ability to do needed or desired activities without fear of pain.

Activities of Daily Living (ADLs)

Musculoskeletal pain such arthritis (OA/RA), injury from bone density issues, and back pain can decrease ADLs, which can lead to greater increase of risk factors.

Managing Pain

"Consumers have often had low expectations for pain treatment, but that is changing as a large portion of our population, ***the baby boom generation***, moves into the years where *chronic pain* from such sources as *arthritis* and *low-back pain* is so very common. Having terrible pain is not good for people. It influences all aspects of life: *mood, concentration, motor performance, sleep, social relations*. New evidence indicates that pain affects the immune system such that cancer cells appear to grow faster when there is pain. Being a stoic and putting up with severe pain is not necessarily good for patients.

James N. Campbel, MD, professor of neurosurgery at the Johns Hopkins University School of Medicine and director of the Blaustein Pain Treatment Center of the Johns Hopkins Hospital, both in Baltimore.

Common Chronic Issues in 55+ Population

- Osteoarthritis
- Rheumatoid Arthritis
- Low Back Pain
- Tendonitis
- Sciatic
- Osteoporosis
- Osteopenia
- Pain from Previous Trauma
- Muscle Imbalances

Chronic Pain can Lead to:

- Depression
- Anxiety
- Stress
- Anger / Irritability
- Fatigue
- Immune Sys Suppression
- Sleeplessness
- Withdraw from Activity
- Disability

CEx for Baby Boomers

Musculoskeletal issues may range from general joint aches and pains to fused vertebrae, hip and knee replacements, along with osteo- and rheumatoid arthritis.

Osteoarthritis - OA

(Osteoarthroses or Degenerative Joint Disease)

OA is caused by a breakdown of cartilage, which is the cushion between joints. This causes the bone to rub against each other causing stiffness and pain.

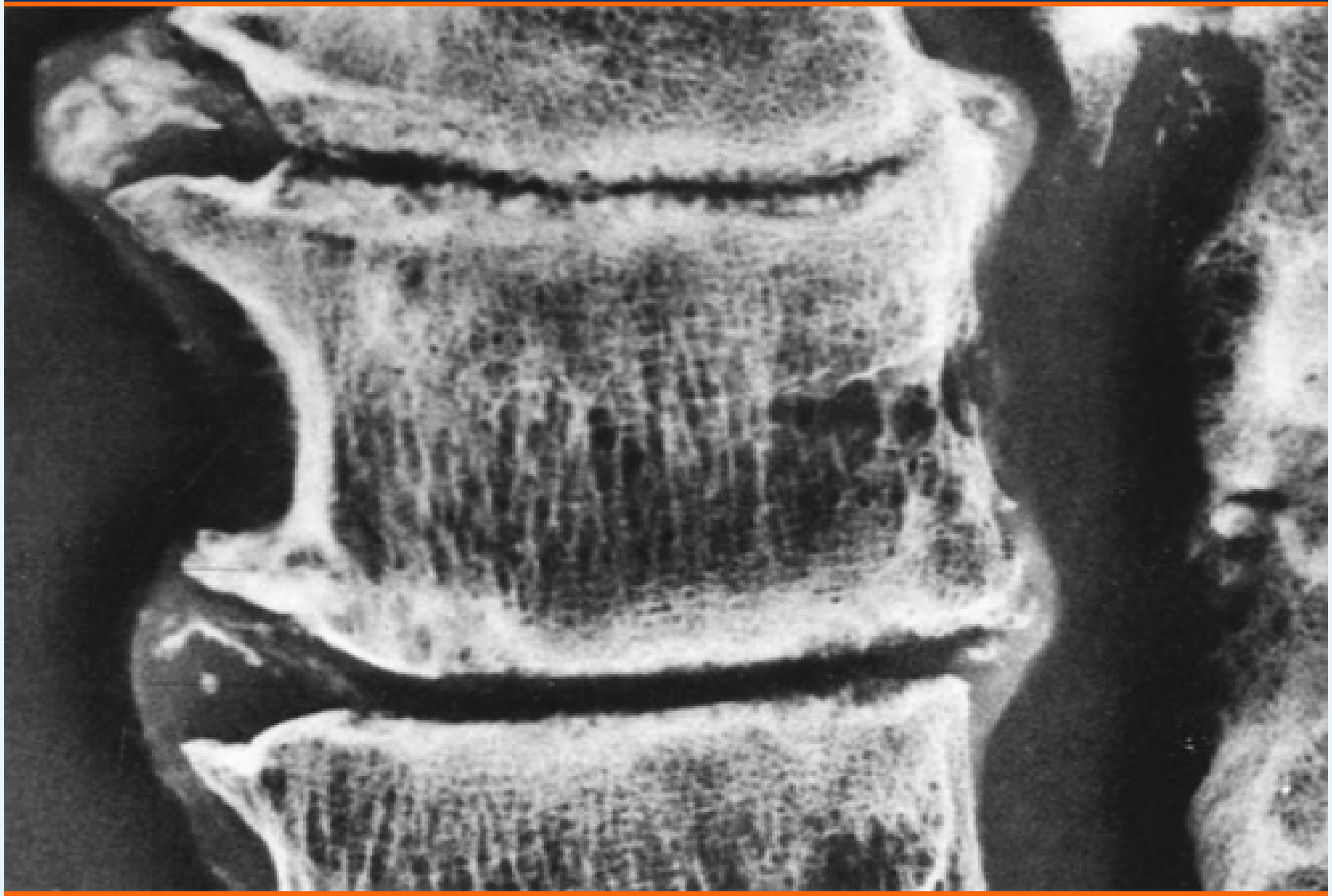
Eburnation: the conversion of bone into a hard, ivory-like mass, occurring at the site of cartilage erosion.

Osteophytes: also known as bone spurs, these are boney projections that grow around the joint margins. Often a result of eburnation, which is a major cause of OA pain.

Spinal Stenosis: narrowing of the space between the opening of the spinal nerves.

OA- Effects 21 Million Americans

Most often exhibited in the hands, knees, and hips (shoulder)



Source: Spine © 2006 Lippincott Williams & Wilkins

Osteoarthritis

(Osteoarthroses or Degenerative Joint Disease)

PRIMARY OA: Primary osteoarthritis is generally associated with aging and the "wear and tear" of life. The older you are, the more likely you are to have some degree of primary osteoarthritis. However, not everyone gets it – not even the very old. That's because OA is a disease, and not part of the normal aging process.

SECONDARY OA: develops relatively early in life, typically 10 or more years after a specific cause, such as an injury or obesity.

Other causes may be heredity and muscle weakness / imbalance.

What Is Rheumatoid Arthritis (RA)?

RA is an idiopathic, inflammatory auto-immune disease where the synovium, the thin membrane that lines the joints, is attacked.

Idiopathic – We just don't know…

Auto-Immune – when our own immune system, designed to protect us from bacteria and viruses, attacks our own tissue.

Rheumatoid Arthritis

ACSM's Exercise Management for Persons with Chronic Disease and Disabilities. 3rd ed.

"Improvement in cardiovascular status, neuromuscular fitness, flexibility, and general health status. Improved aerobic capacity, endurance, strength, and flexibility are associated with improved function, decreased joint swelling and pain, increased social and physical activity in daily life, and reduced depression and anxiety."

Rheumatoid Arthritis

RA is always bi-lateral

Hands : PIP's and MP joints

Ulnar deviation of fingers

Wrists / Elbows / Knees / Ankles / Metatarsophalangeals

Careful when working with RA clients when they are having Flare-Ups.

Highlights to Begin Training

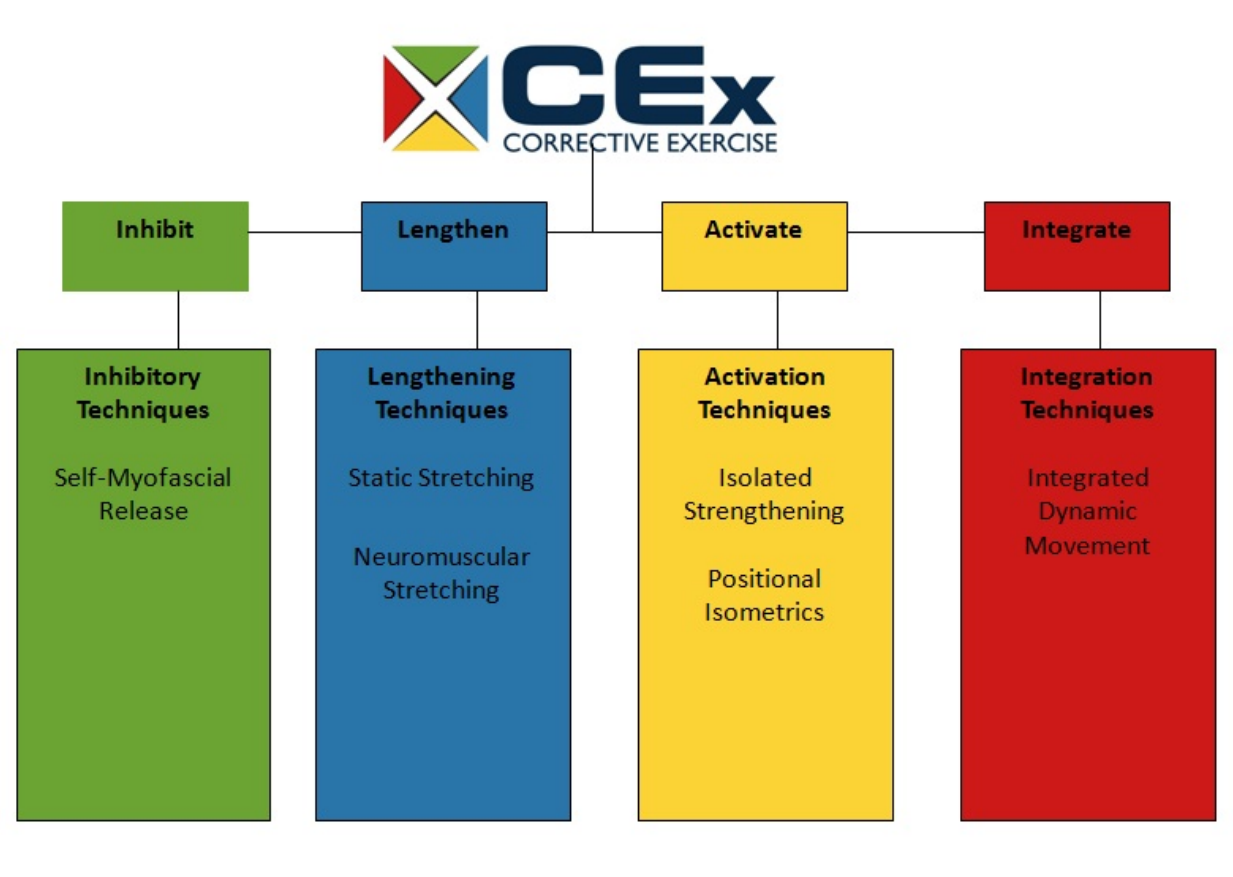
1. Assess

2. Begin and progress slowly.

3. Avoid rapid or repetitive movements and limit impacts of affected joints.

4. The HFP should monitor the progress of the client to assess effects of the exercise program on joint pain.

NASM CES Credential



NASM OPT™ Model

Components of the OPT Model

Flexibility

Cardio

Core

Balance

Plyometric

SAQ

Resistance

Cool Down

Stage I Cardiorespiratory Training

Zone 1	**Recovery**		Heart rate 65-75%
Zone 2	**Anaerobic threshold**		Heart rate 80-85%
Zone 3	**Peak/interval**		Heart rate 86-90%

Recovery/low intensity day

5 minute warm-up

30-60 minute workout

OPT Programming Protocols for OA / RA

MODE: Treadmill walking, stationary cycling, rowers, and low-impact or step aerobics.

FREQUENCY:3-5 days / week

INTENSITY:60-80% MHR – beginning in stage I, but can be progressed to stages II or III (or regressed even).

DURATION:30 minutes

ASSESSMENT: Push, Pull, OHSA, SL Bal and Squat (if tolerated)

OPT Programming Protocols for OA / RA

FLEXIBILITY: SMR (if tolerated), Static, and Active

RESISTANCE: 1-3 Sets of 10-12 reps 2-3 days/week

Phases 1-2 with reduced reps

May use a circuit or PHA systems

SPECIAL CONSIDERATIONS: Avoid heavy lifting, high repetitions, and reactive training. Stay in pain free ROM

Osteoporosis / Osteopenia

Osteopenia : A decrease in the calcification or density of bone as well as reduced bone mass.

Osteoporosis: Condition in which there is a decrease in bone mass and density as well as an increase in the space between bones, resulting in porosity and fragility.

- Most prevalent in postmenopausal women.
- Commonly affects the Femoral Neck and Lumbar Vertebrae.

Osteoporosis Insights

- Risk of hip fractures double every 5 years in postmenopausal women older than age 50.
- Affects more than 25 million people each year, resulting in ~1.5 million hip fractures.
- Of these 1.5 million, only 20% of patients return to a normal functioning status.
- Those that resistance train have higher BMD than other
- Resistance training may only increase BMD by 5%, and is likely ineffective in preventing fractures!
- So, fall prevention, rather than strength alone, is more advantageous, with focus on Flexibility, Core, and Balance training.

OPT Programming Protocols for Osteoporosis

MODE: Treadmill with handrail support

FREQUENCY: 2-5 days / week

INTENSITY: 40-85% VO2 – beginning in stage I, but can be progressed to stage II

DURATION: 30-60 minutes / day or 8-10 minute bouts

ASSESSMENT: Push, Pull, and OHSA or sitting to chair and stand

OPT Programming Protocols for Osteoporosis

FLEXIBILITY: Static and Active

RESISTANCE:

1-3 Sets of 8-20 reps at up to 85% intensity 2-3 days/week.

Phases 1-2 should be mastered before moving on

SPECIAL CONSIDERATIONS:

Progression should be slow, monitored, and based on postural control.

Exercises should be progressed if possible toward free sitting / standing.

Avoid excessive spinal loading on squats/leg press

Ensure normal breathing / Avoid Valsalva maneuver

Diabetes Mellitus

Type 1

A disease where the pancreas does not provide insulin, so blood sugar levels are not controlled /absorbed and lead to *hyperglycemia*.

Commonly found in younger individuals prior to age 15 (formerly juvenile onset diabetes).

Must inject / pump insulin to prevent death (insulin dependent)

Type 2

A disease of CHO metabolism associated with obesity (abdominal particularly) and is characterized by insulin resistance rather than lack of production.

Formerly called adult onset and non-insulin dependent

First prescribed course of action : ***Diet and Exercise***

Type II Bullet Points

- 90% of diabetes cases are type II
- ~ 6% of the US population has diabetes
- ~ 1 million new cases reported each year
- This number is expected to double in the next 15-20 years
- 7th leading cause of death each year in the US.
- Complications include:
  - Nephropathy (kidney)
  - Retinopathy (eyes)
  - Neuropathy,
  - Accelerated Atherosclerosis
- Literal translation is “sweet pee” because of the inability to metabolize sugar.

OPT Programming Protocols for Diabetes

MODE: Low impact activities: cycling, walking, and swimming

FREQUENCY: 4-7 days / week

INTENSITY: 50-90% MHR – beginning in stage I, but can be progressed to stages II and III

DURATION: 20-60 minutes

ASSESSMENT: Push, Pull, OHSA, and SL Bal or SL Squat

OPT Programming Protocols for Diabetes

FLEXIBILITY: Flexibility Continuum

RESISTANCE:1-3 Sets of 10-15 reps 2-3 days/week

Phases 1-2 of the OPT Model (higher reps can be used)

SPECIAL CONSIDERATIONS:

Make sure client has appropriate footwear and have client or physician check feet for blister or abnormal wear patterns.

Advise client (or class participant) to keep a high glycemic snack available during exercise to avoid sudden hypoglycemia

Use SMR carefully with physician's clearance

Avoid excessive reactive training and HIT (for typical client)

Hypertension

- Commonly known as high blood pressure, hypertension is defined by the pressure reading greater than or equal to 140/90 mmHg.
- *Prehypertension* 135/85. *Normal* 120/80.
- Risk Factors include:
  - Smoking
  - High fat diet
  - Excess weight
- Hypertension itself is a risk factor / comorbidities for:
  - Stroke
  - Cardiovascular disease
  - Chronic heart failure
  - Kidney failure
  - Diabetes

Hypertension Bullet Points

- 50 million people are diagnoses each year with Hypertension
- There is ample evidence that exercise can have a significant impact on lowering elevated blood pressure.
- Low-moderate cardiorespiratory exercise has been shown to be just as effective as high-intensity activity in reducing BP.
- Encourage compliance with a overall plan to reduce BP, including exercise, diet, weight loss (if needed) and prescribed medical regimen.
- Compliance with meds is poor because they don't "feel sick".
- Monitor heart rate and body position (no prone/supine positions)
- Resistance training should be in seated or standing positions.

OPT Programming Protocols for Hypertension

MODE: Stationary cycling, walking, rowers

FREQUENCY: 3-7 days / week

INTENSITY: 50-85% MHR – Stage I cardio

DURATION: 30-60 minutes

ASSESSMENT: Push, Pull, OHSA, and SL Bal or SL Squat

OPT Programming Protocols for Hypertension

FLEXIBILITY: Static or Active in standing or seated position

RESISTANCE:

1-3 Sets of 10-20 reps 2-3 days/week.
Phases 1-2 of the OPT Model
Tempos should not exceed 1s for isometric/concentric
(e.g., 4/1/1 instead of 4/2/1 or 3/2/1)
Use circuit or PHA options with appropriate rest

SPECIAL CONSIDERATIONS:

Avoid heavy lifting and Valsalva (breathe normally)
Do not let client over grip weights or clinch fists
Modify tempo to avoid extended isometric / concentric muscle action.
Allow client to stand up slowly to avoid dizziness
Progress client slowly!

Coronary Artery Disease (CAD; Ischemic Heart Disease)

CAD is almost completely due to atherosclerotic build up in the coronary arteries which shunts blood flow and leads to reduced cardiac performance, fatigue, injury, and/or death.

TYPES of CAD:

1. Angina Pectoris
2. Heart Attack (Myocardial Infarction, MI; Coronary Thrombosis
3. Heart Failure (HF; Cardiac Failure; Congestive Heart Failure/Disease)

CAD Bullet Points

- CAD accounts for approximately 40% of all deaths annually.
- 18 Million individuals in US have CAD.
- CAD and stroke have the same risk factors, just different location of attack.
- Sadly, less than 30% of heart patients (and a far lower percentage of women) are referred to and participate in a cardiac rehabilitation program.
- The HFP ***must*** have a clear understanding of the client's disease, medication use, and most importantly the upper safe limit of exercise (and any other restrictions) imposed by their physician.
- Get a heart rate monitor.
- Benefits of exercise include: lower risk of dying, increased exercise tolerance, muscle strength, reduction in angina and hear failure symptoms, improved psychological status and social adjustment.

OPT Programming Protocols for CAD

MODE: Large muscle activities, such as cycling, walking, rowing

FREQUENCY: At least 3 days / week

INTENSITY: 40-85% of HRR / Stage 1 Cardiorespiratory Training

Talk Test may be more appropriate due to medication

DURATION: 5-10 minutes warm up, followed by 20-40 minutes of exercise, followed by 5-10 minute cool-down

ASSESSMENT: Push, pull, OHSA, SL Bal

OPT Programming Protocols for Hypertension

FLEXIBILITY: Static or Active in standing or seated position

RESISTANCE:

1-3 Sets of 10-20 reps 2-3 days/week.
Phases 1-2 of the OPT Model
Tempos should not exceed 1s for isometric/concentric
(e.g., 4/1/1 instead of 4/2/1 or 3/2/1)
Use circuit or PHA options with appropriate rest

SPECIAL CONSIDERATIONS:

Be aware clients may have other diseases to consider
Modify tempo to avoid extended isometric and concentric muscle action
Avoid Valsalva : Do Not over grip weights or clench fists
Perform exercises seated or standing
Progress slowly

Cancer
(Malignant Tumor / Neoplasm)

Cancer is a poorly differentiated mass of cells that can spread to other tissues and sites in the body.

Suffix –oma means tumor, but does not indicate benign or malignant

These two terms always indicate malignancy

sarcoma: a cancer of connective tissue

carcinoma: a cancer of epithelial tissue

Cancer (Malignant Tumor / Neoplasm)

- Cancer is the 2nd leading cause of death in the US with more than one-half million death annually.
- It has been estimated that American men have about a 44% probability, and women have 38% probability, of developing cancer in their lifetime.
- A variety of studies have shown the positive benefits of exercise in the treatment of cancer, including improved aerobic and muscular fitness, retention of lean body mass, less fatigue, improved quality of life, and positive mood and self-concept.
- The HFP must have a knowledge and appreciation for the varied adverse effects of medical treatments.
- Exercise is important during recovery providing reduced cellular risk, and improved exercise tolerance and ADL's

OPT Programming Protocols for Cancer

MODE: Cycling, walking, rowing, low-impact / step

FREQUENCY: 3-5 days / week

INTENSITY: 50-75% of MHR / Stage 1 Cardiorespiratory Training and progressed to Stage 2

DURATION: 30 minutes per session (may only start with 5 mins)

ASSESSMENT: Push, pull, OHSA, SL Bal (if tolerated)

OPT Programming Protocols for Cancer

FLEXIBILITY: Flexibility Continuum

RESISTANCE:

1-3 Sets of 10-15 reps 2-3 days/week.

Phases 1-2 of the OPT Model

Use circuit or PHA options with appropriate rest

SPECIAL CONSIDERATIONS:

Avoid lifting heavy in the initial stages of training

Allow for adequate rest intervals and progress client slowly

Only use SMR if tolerated by the client

There may be a need to start out with only 5 minutes of exercise and progressively increase, depending on the severity of conditions and fatigue.

QUESTIONS?

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DON'T FORGET TO VISIT OUR BOOTH

Corrective Exercise for Perfect Posture

Mike Fantigrassi, MS, NASM-CPT, CES, PES, CSCS

Objectives

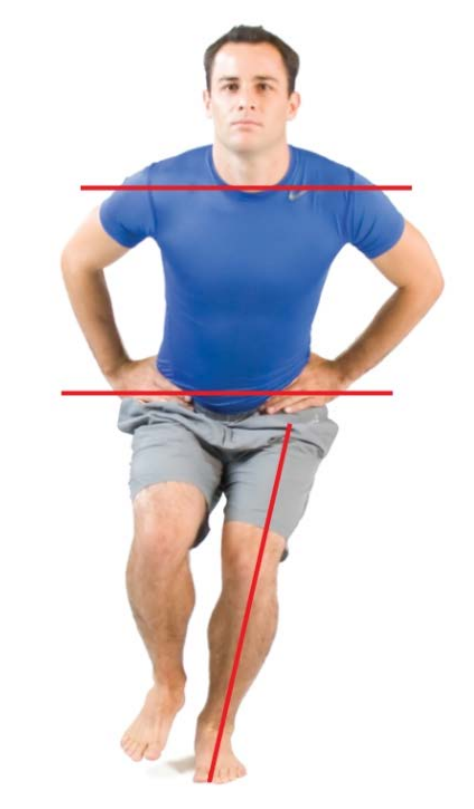
- Discuss benefits of optimal posture
- Review common static postural distortions
- Practice static posture assessments
- Demonstrate NASM's 4-step corrective exercise strategy for common posture issues

NASM Posture Definition

- The independent and interdependent alignment (static posture) and function (transitional and dynamic posture) of all components of the human movement system at any given moment, controlled by the CNS.
- What does that mean?

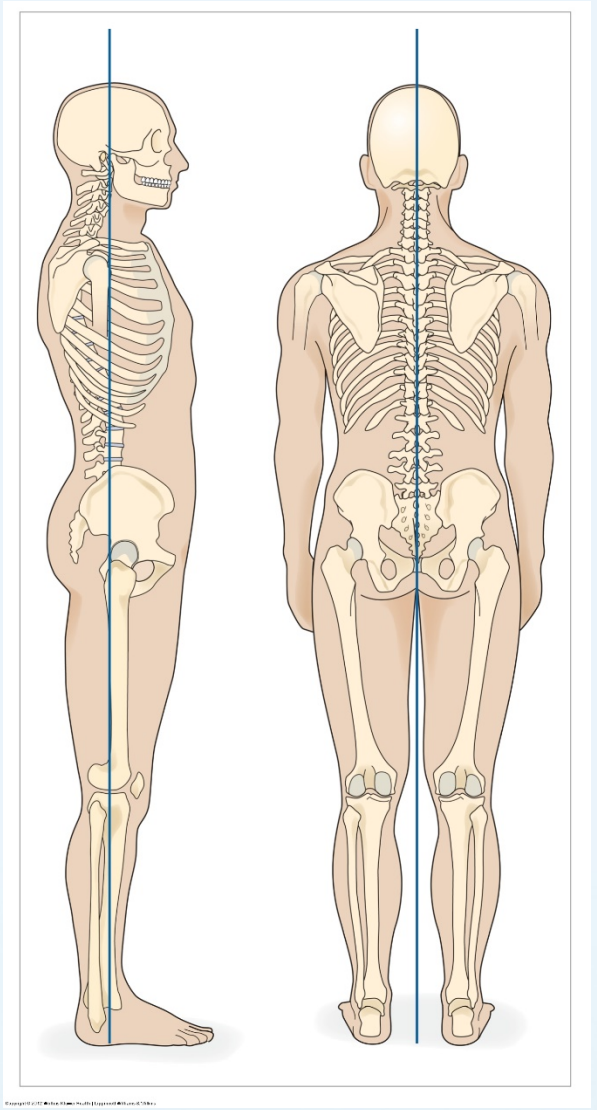
Types of Posture

- Static Posture
  - How someone physically presents themselves in stance
- Dynamic Posture
  - How someone is able to maintain posture while performing functional tasks

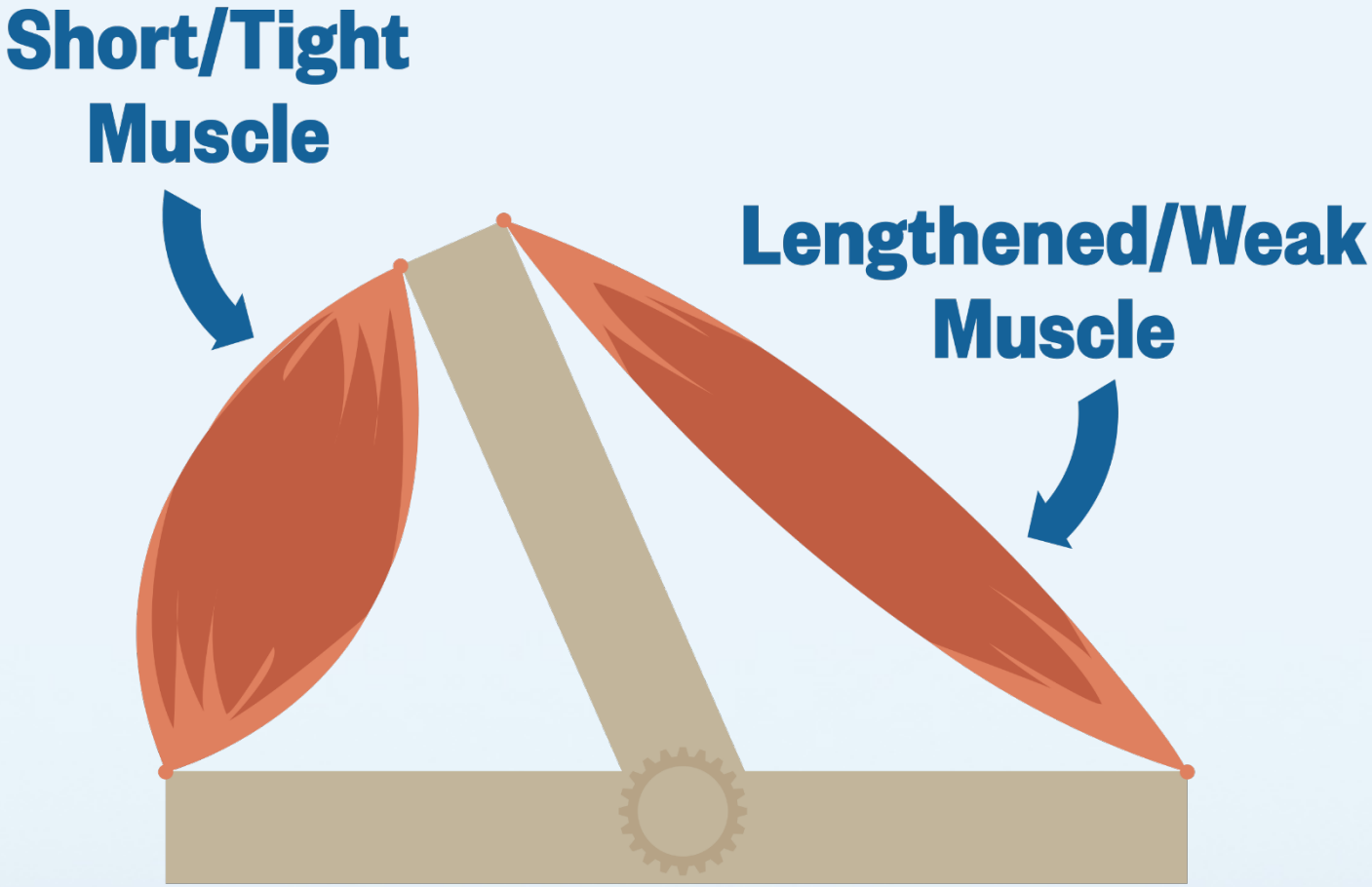


Why Does Posture Matter?

- Optimal alignment (posture) and functioning of all components result in optimum length-tension relationships, force couple relationships, precise arthrokinematics, and neuromuscular control.

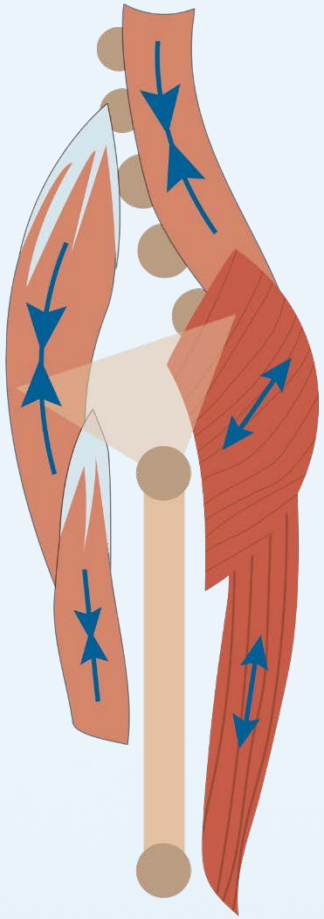


Length-Tension Relationships



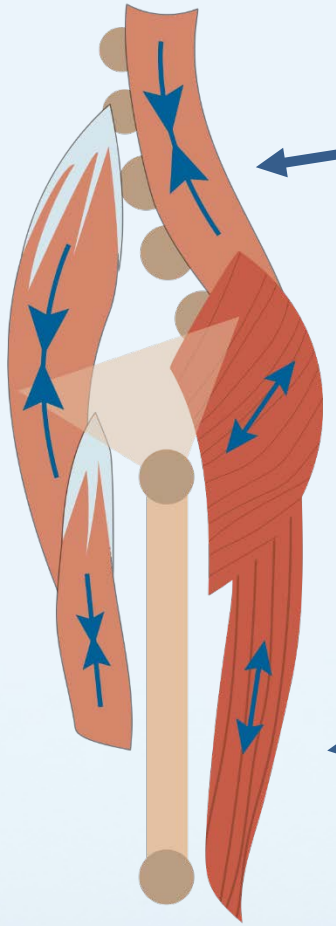
Altered Reciprocal Inhibition

Overactive Hip flexors decrease neural drive to functional antagonist



Glutes inhibited

Synergist Dominance

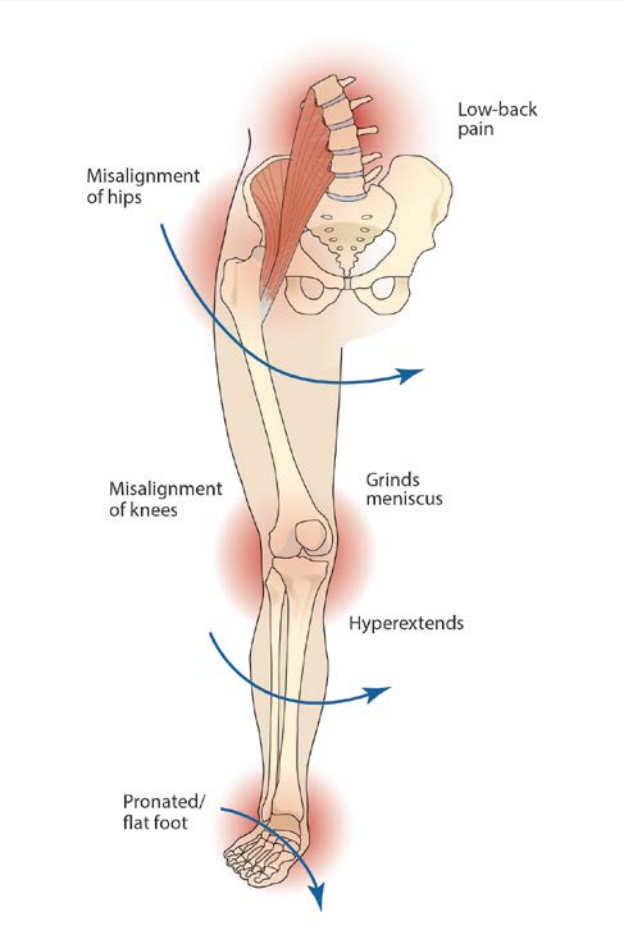


Increased activity of Erector Spinae

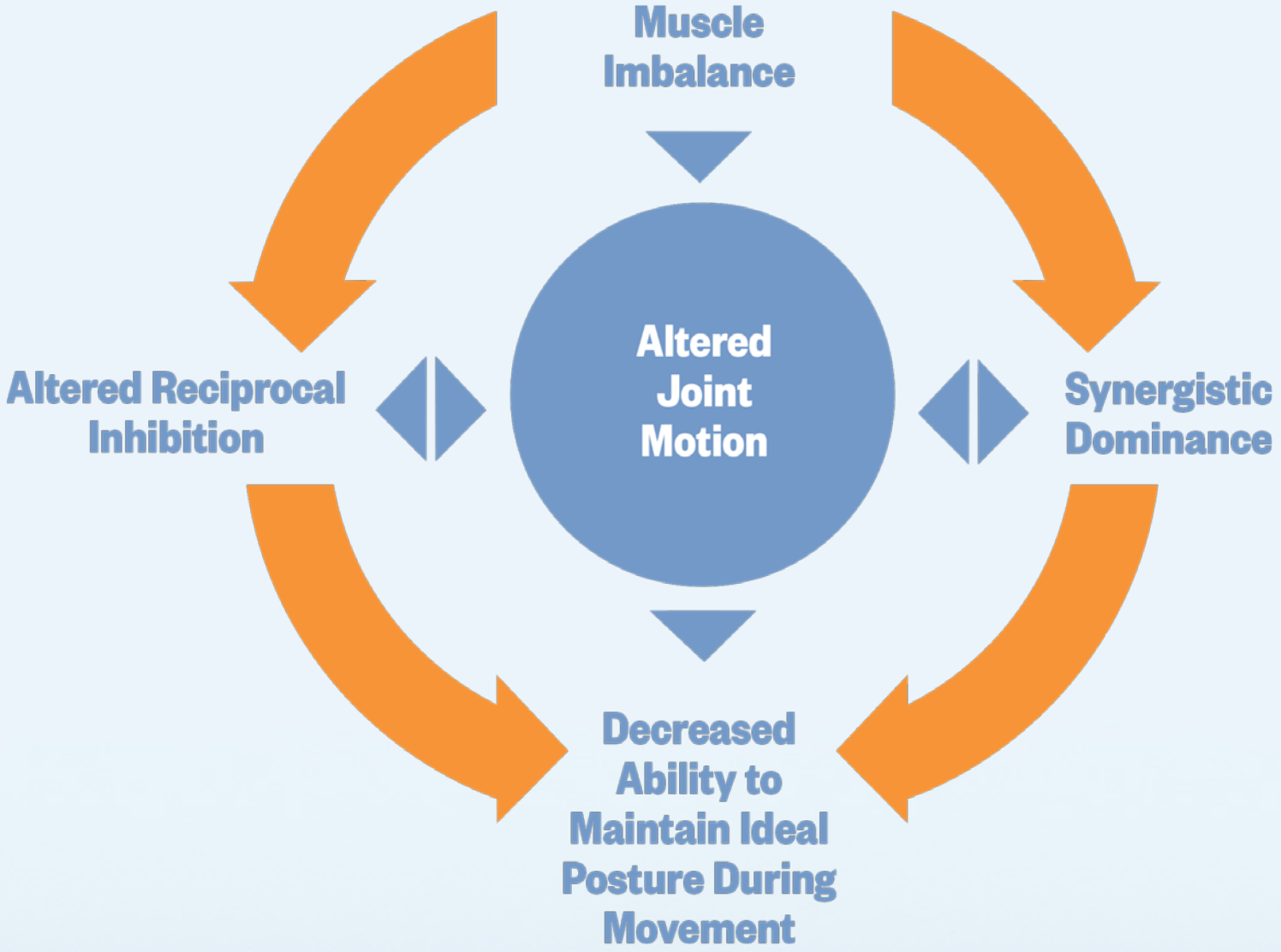
Glutes inhibited

Increased activity of Hamstrings

Altered Joint Motion



Poor Movement

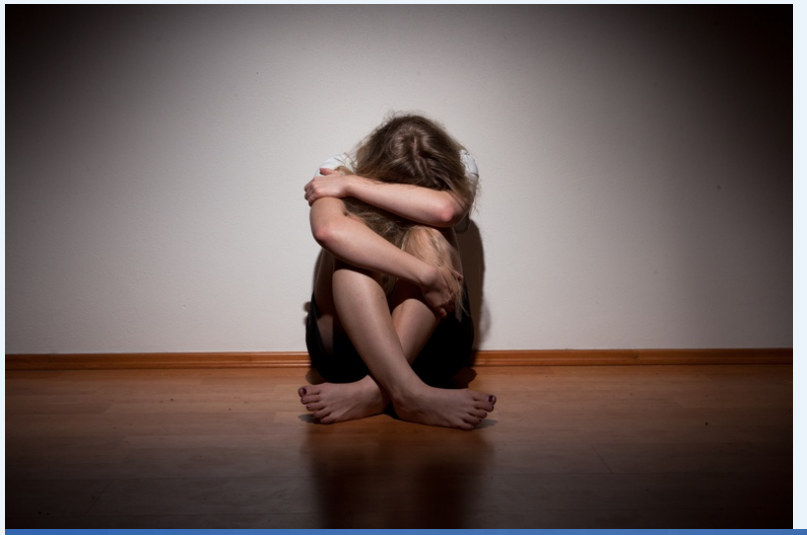

Muscle Imbalance
Altered Reciprocal Inhibition
Altered Joint Motion
Synergistic Dominance
Decreased Ability to Maintain Ideal Posture During Movement

Other Reasons Why Posture Matters

- Mood
- Thoughts
- Hormones
- Breathing
- Hemodynamics

Posture & Mood

- Hunched postures create more depressed feelings.
- Skipping significantly increased subjective energy levels.
- Walking slouched decreased energy levels.

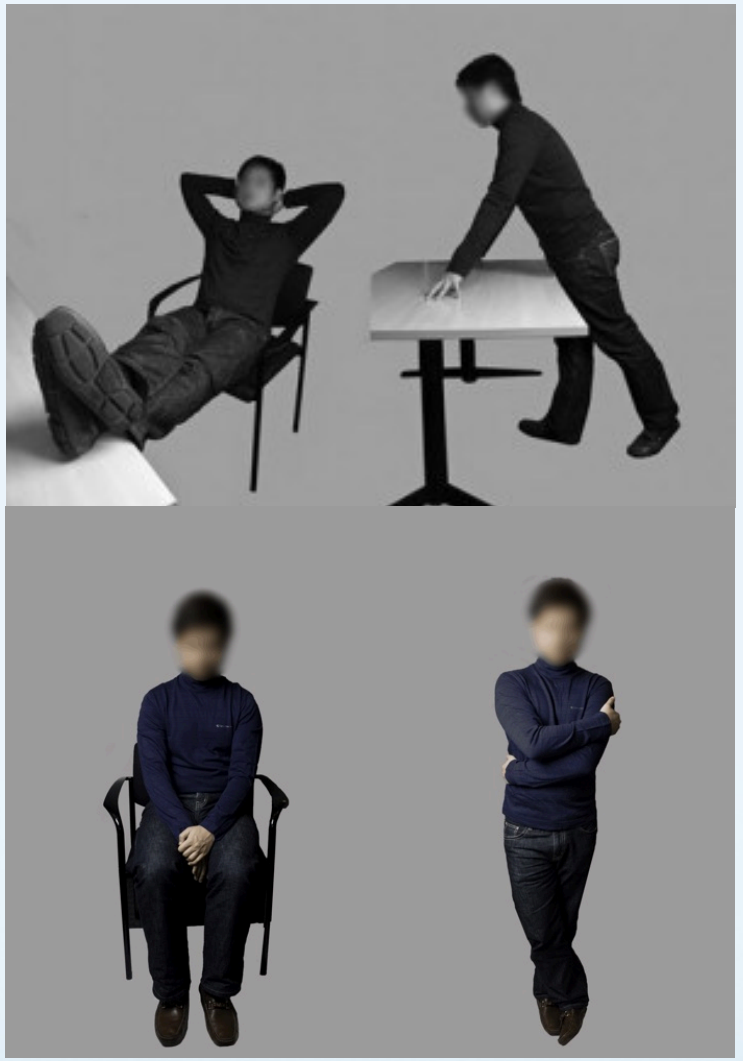


Posture & Thoughts

- Easier to generate positive thoughts in upright posture.
- Poor posture led to subjects being less persistent while solving puzzles.
- Research participants with upright posture indicated that they would be a better:
  - Job candidate
  - Interviewee
  - Job performer
  - More satisfied employee

Posture & Hormones

- Expansive posture displays high power
- Contracted posture project low power
- Holding high power posture for 2 min:
  - Increased testosterone
  - Decreased cortisol
  - Increased feeling of “power” and being “in charge”
- Holding low power posture for 2 min:
  - Decreased testosterone
  - Increased cortisol



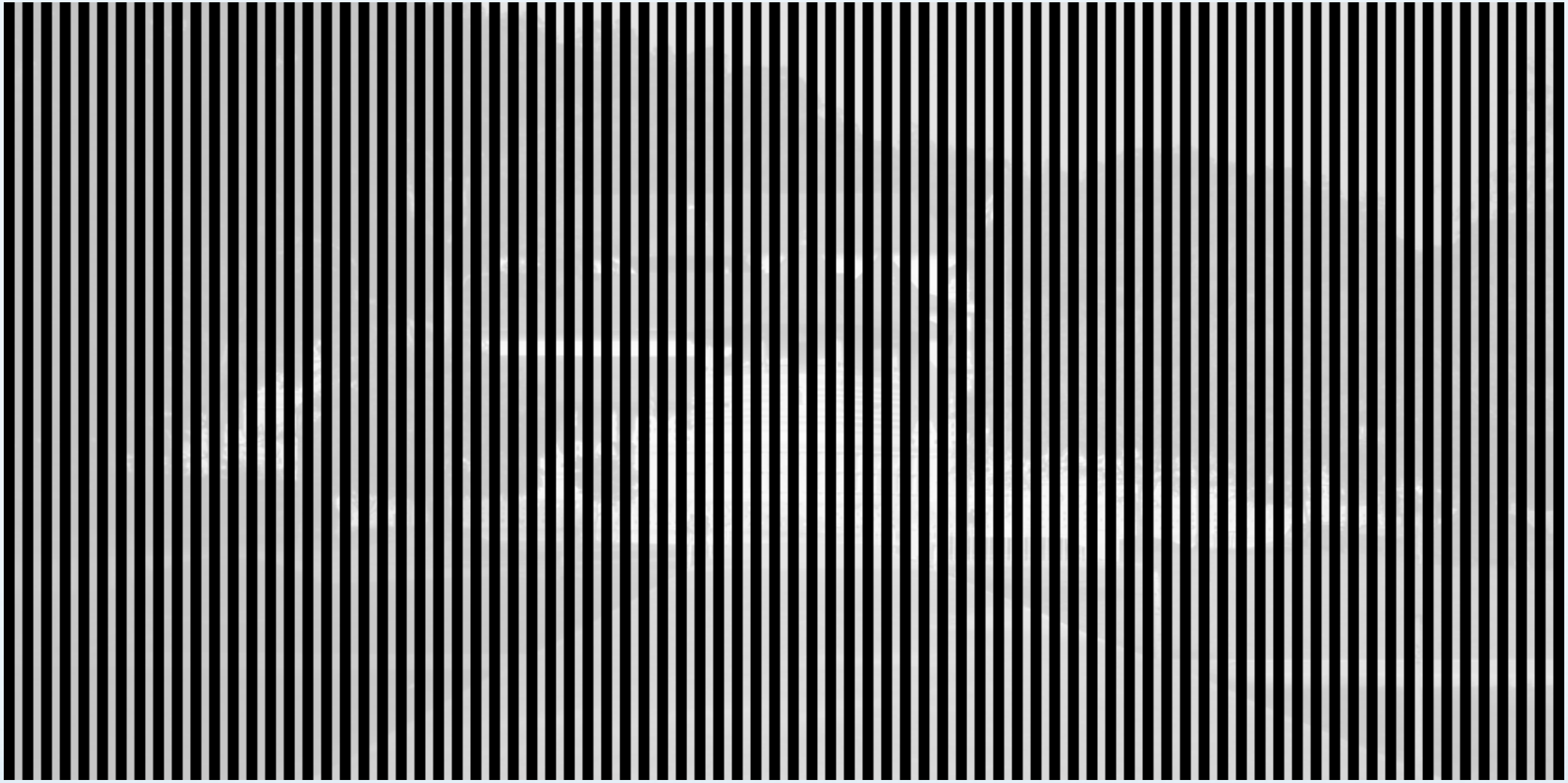
Posture & Breathing

- Normal breathing is diaphragmatic
- Abnormal breathing is thoracic breathing
  - Can have acute effect on respiratory chemistry
  - People with poor posture show signs of faulty breathing mechanics.
  - Thoracic breathing is produced by accessory muscles of respiration
    - Sternocleidomastoid, upper traps, and scalenes

Posture and Hemodynamics (blood flow)

- Poor posture negatively influences the blood flow to the upper extremities.

Stand up



Did you See This?

Static Assessments

- Observe how your partner is currently standing

Five Kinetic Chain Checkpoints

Head

Neutral, center of ear in line with center of shoulder

Shoulders

Neutral, center of shoulder in line with center of hip joint

Hips

Neutral spine with abdominals drawn-in

Knees

Straight ahead in line w/ 2nd and 3rd toes

Feet

Straight ahead w/ neutral position at the ankle

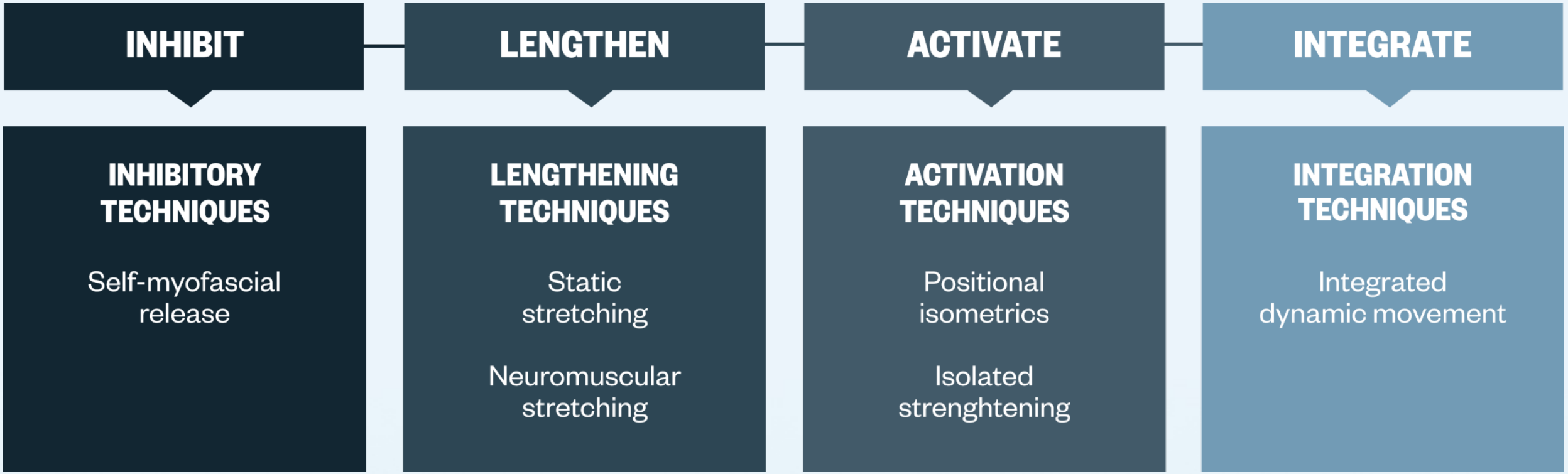
Upper Cross Syndrome

- Rounded shoulders
- Forward head posture

Upper Crossed Syndrome Summary

Short Muscles	Lengthened Muscles	Altered Joint Mechanics	Possible Injuries
Upper trapezius	Deep cervical flexors	**Increased:**	Headaches
Levator scapulae	Serratus anterior	Cervical extension	Biceps tendonitis
Sternocleidomastoid	Rhomboids	Scapular protraction/elevation	Rotator cuff impingement
Scalenes	Mid-trapezius		
Latissimus Dorsi	Lower trapezius	**Decreased:**	
Teres major	Teres minor	Shoulder extension	
Subscapularis	Infraspinatus	Shoulder external rotation	
Pectoralis major/minor			

NASM Corrective Exercise Continuum



Corrective Exercise for Upper Crossed Syndrome

- Inhibit
  - Lats/Teres major: foam roller
  - Pecs: TP massage ball
- Lengthen
  - Lats: kneeling lat stretch
  - Pecs: wall pec stretch
- Activate
  - Mid/lower traps/rhomboids: YTA's standing
- Integrate
  - SL-RDL holding to cobra

What exercises would be contraindicated?

Lower Crossed Syndrome

- Increased lumbar lordosis
- Anterior pelvic tilt

Lower Crossed Syndrome Summary

Short Muscles	Lengthened Muscles	Altered Joint Mechanics	Possible Injuries
Gastrocnemius	Anterior tibialis	**Increased:**	Hamstring complex strain
Soleus	Posterior tibialis	Lumbar extension	Anterior knee pain
Hip flexor complex	Gluteus maximus		Low-back pain
Adductors	Gluteus medius	**Decreased:**	
Latissimus dorsi	TVA	Hip extension	
Erector spinae	Internal oblique		

Corrective Exercise for Lower Crossed Syndrome

- Inhibit
  - Adductor complex: foam roller
  - Hip flexor complex: foam roller
- Lengthen
  - Adductor: Standing adductor stretch
  - Hip flexor complex: kneeling hip flexor stretch
- Activate
  - Glutes: glute bridge
  - Core: floor crunch
- Integrate
  - Reverse lunge to balance to row with tubing

What exercises would be contraindicated?

Pronation Distortion Syndrome

- Excessive foot pronation (flat feet)
- Excessive foot external rotation
- Knee flexion
- Knee internal rotation
- Adduction

Pronation Distortion Syndrome Summary

Short Muscles	Lengthened Muscles	Altered Joint Mechanics	Possible Injuries
Gastrocnemius	Anterior tibialis	**Increased:**	Plantar fasciitis
Soleus	Posterior tibialis	Knee adduction	Posterior tibialis tendonitis (shin splints)
Peroneals	Vastus medialis	Knee internal rotation	Patellar tendonitis
Adductors	Gluteus medius/maximus	Foot pronation	Low-back pain
IT band*	Hip external rotators	Foot external rotation	
Hip flexor complex		**Decreased:**	
Biceps femoris (short head)		Ankle dorsiflexion	
		Ankle inversion	

Corrective Exercise for Pronation Distortion Syndrome

- Inhibit: 1 set 30-60 seconds per area
  - Calf complex: foam roller
  - Peroneals: foam roller or TP ball
  - TFL: foam roller
- Lengthen 1 set 30 second hold
  - Calf complex: Standing gastroc/soleus stretch
  - Biceps femoris (short head): lying hamstring stretch
- Activate 1-2 sets 10-15 reps slow tempo
  - Anterior tibialis: wall toe raises
  - Medial gastroc: internal rotated calf raise
- Integrate 1-2 sets 10-15 reps slow tempo
  - SL balance to reach multiplanar

What exercises would be contraindicated?

Summary

- Posture can influence many areas and systems.
- Can assess static posture at any time.
- Clients can and must focus on posture outside of training sessions to see best results.
- Corrective exercise can be done as part of warm-up or as a daily routine.

Further Reading

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Questions?

Contact

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Corrective Exercise Quick Fixes

By Rick Richey, MS, LMT, NASM Faculty

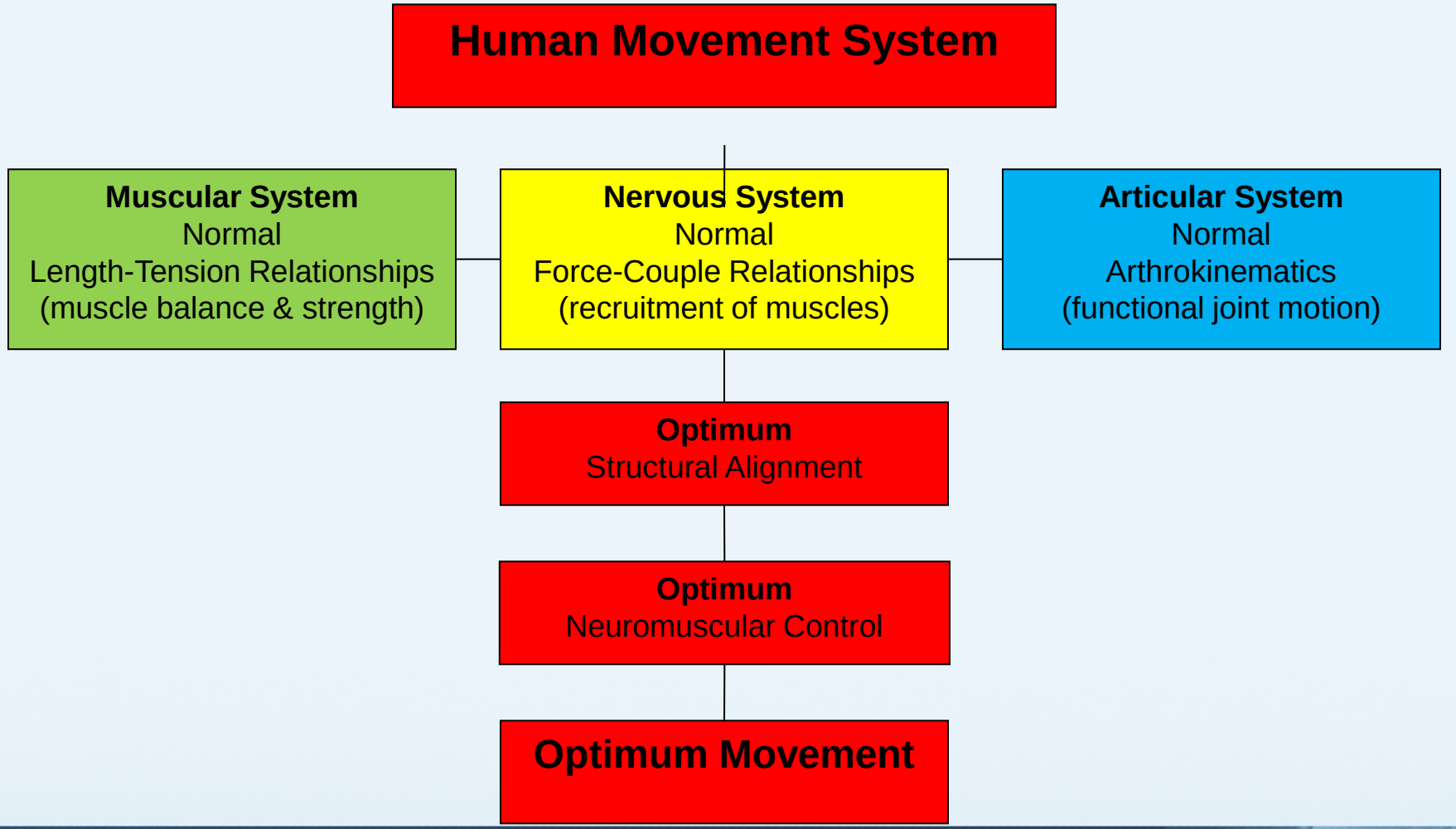
OBJECTIVES

- Identify typical movement compensation patterns.
- Identify short / long muscles in the compensation patterns.
- Rationalize a quick corrective approach for each compensation pattern
- Perform the quick fixes!

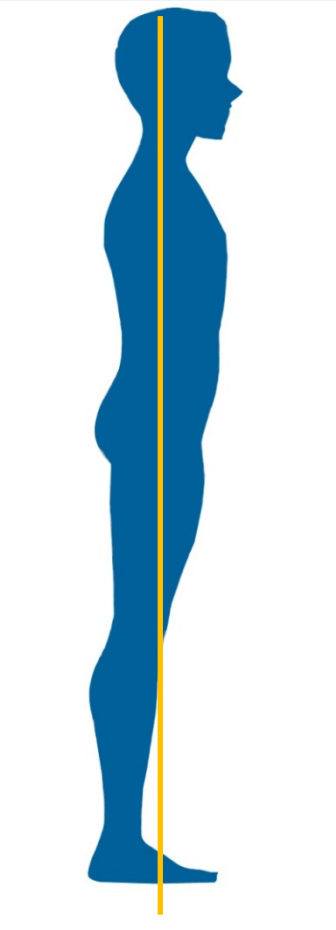
What is CEx?

- The CEx (Corrective Exercise) Process is a systematic process of identifying neuromusculoskeletal dysfunction, developing a plan of action, and implementing a corrective strategy

Identifying Dysfunction

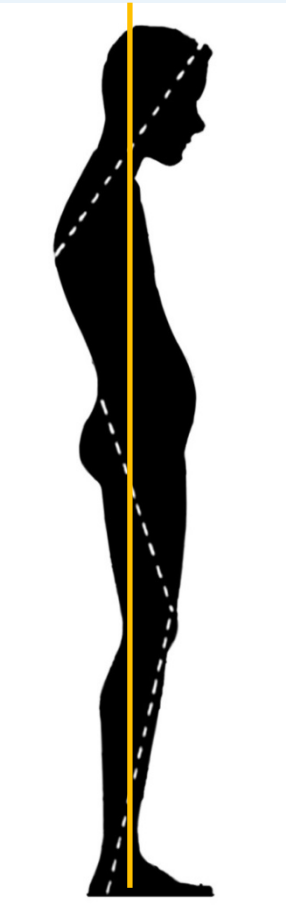


Five Kinetic Chain Checkpoints



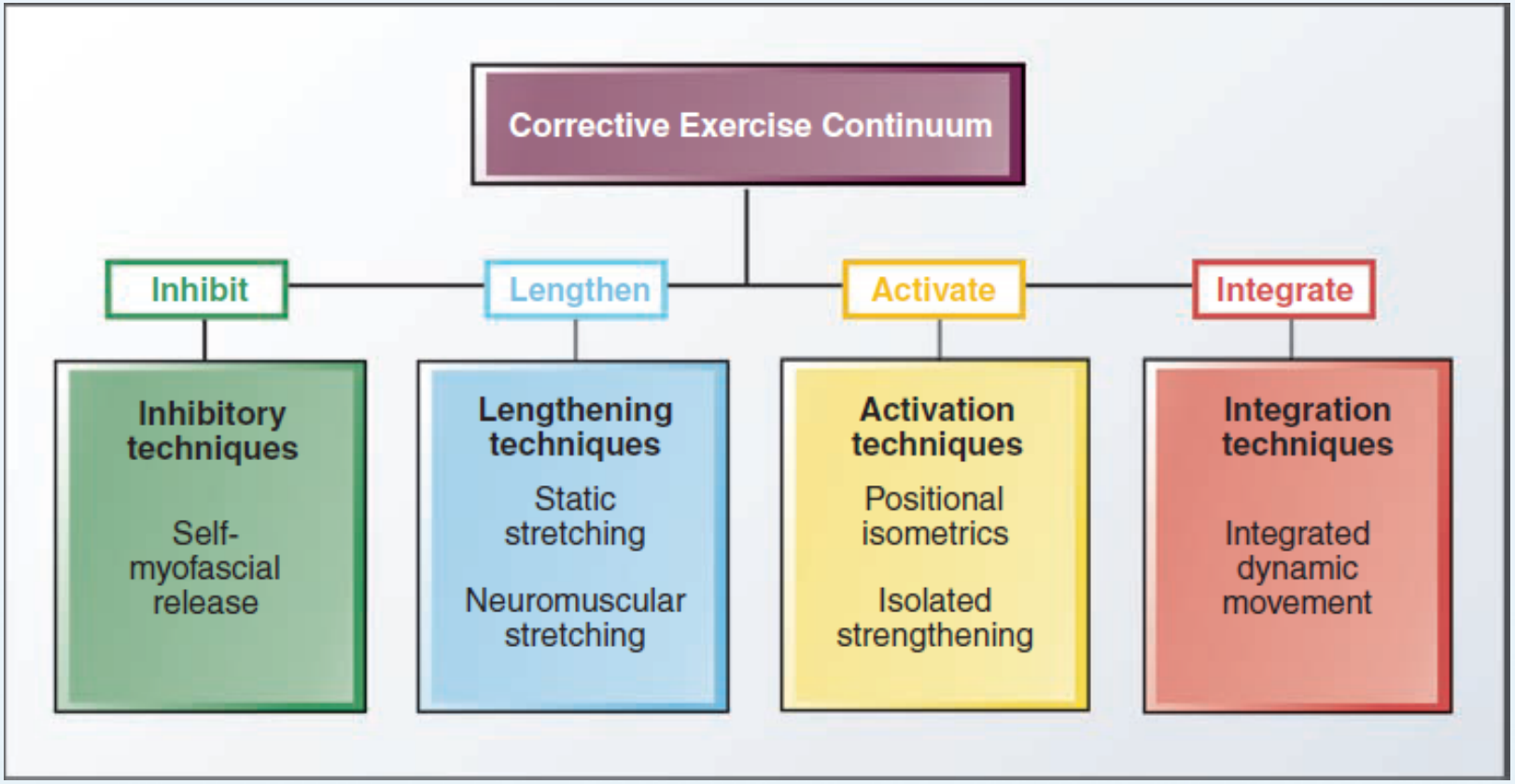
Ideal

- Head
  - Neutral, center of ear in line with center of shoulder
- Shoulders
  - Neutral, center of shoulder in line with center of hip joint
- Hips
  - Neutral spine with abdominals drawn-in
- Knees
  - Straight ahead in line w/ 2nd and 3rd toes
- Feet
  - Straight ahead w/ neutral position at the ankle

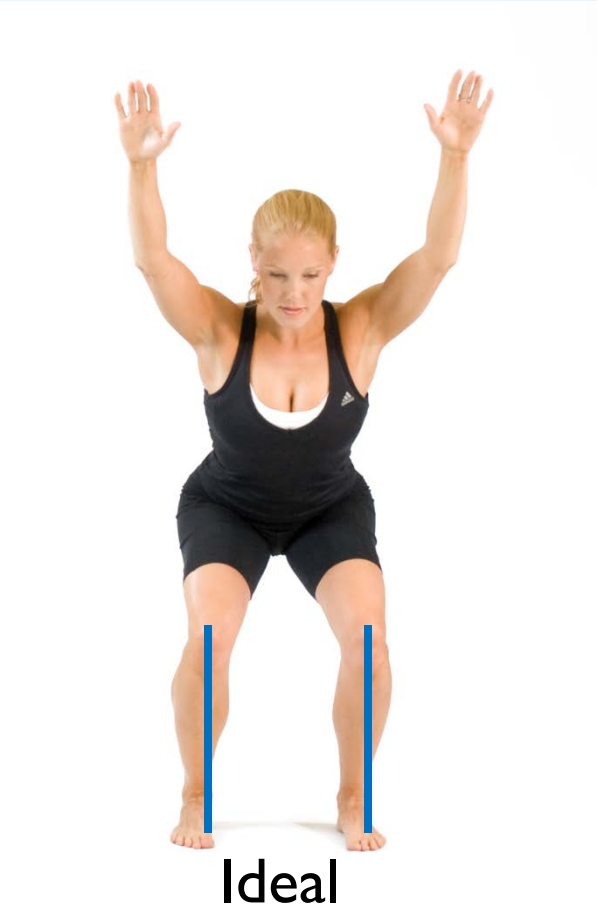


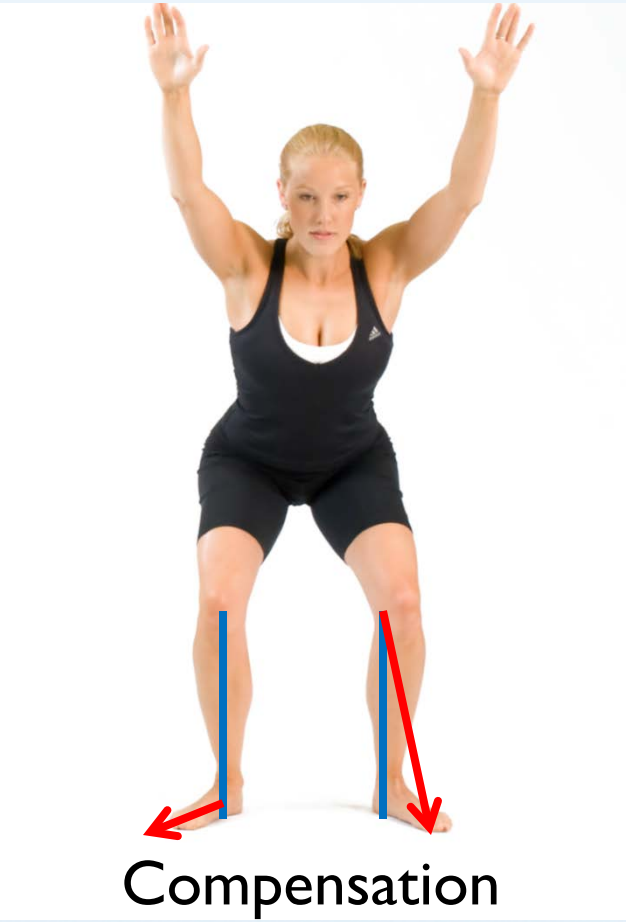
Poor

NASM CES Credential

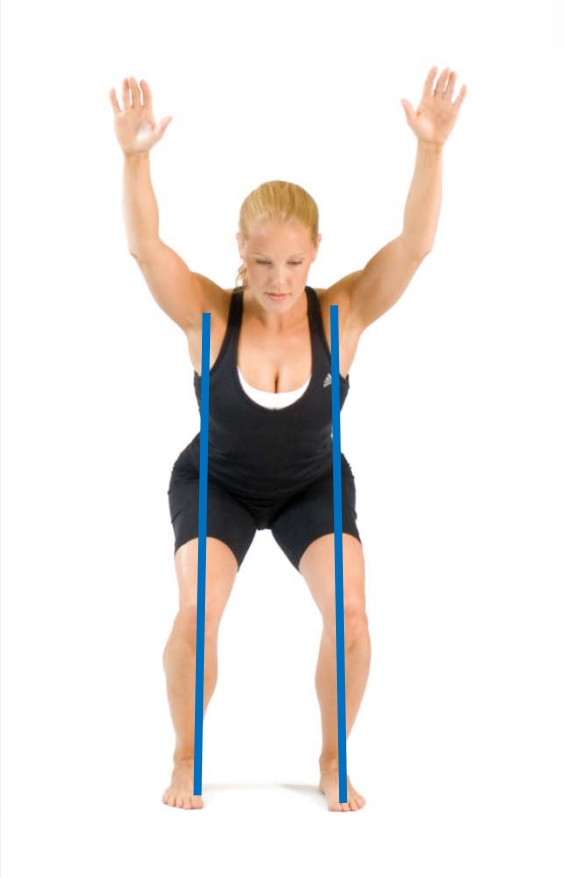


Front View: Feet Turn Out





Front View: Knees Move Inward

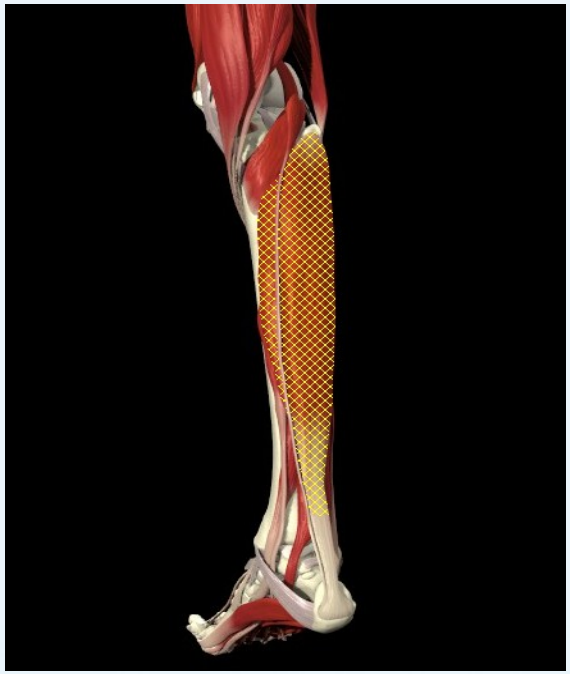


Ideal

Compensation

Feet Turn Out / Knees Cave In: Overactive Muscles

Gastrocnemius (lateral head)

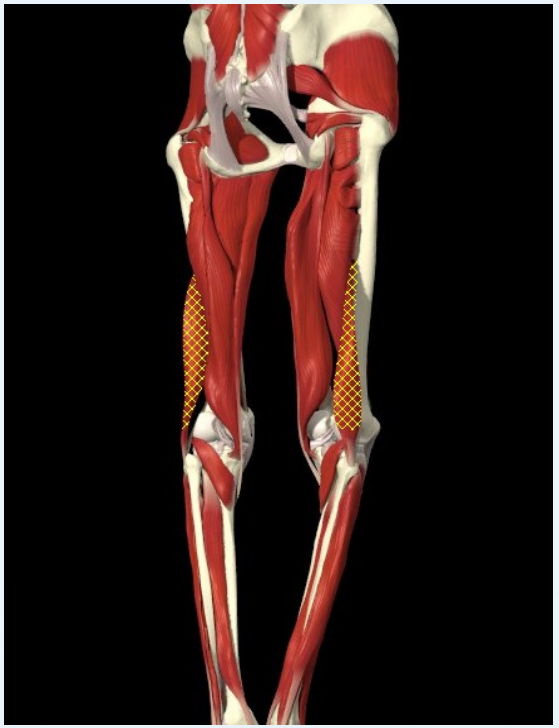


Soleus

Feet Turn Out / Knees Cave In: Overactive Muscles

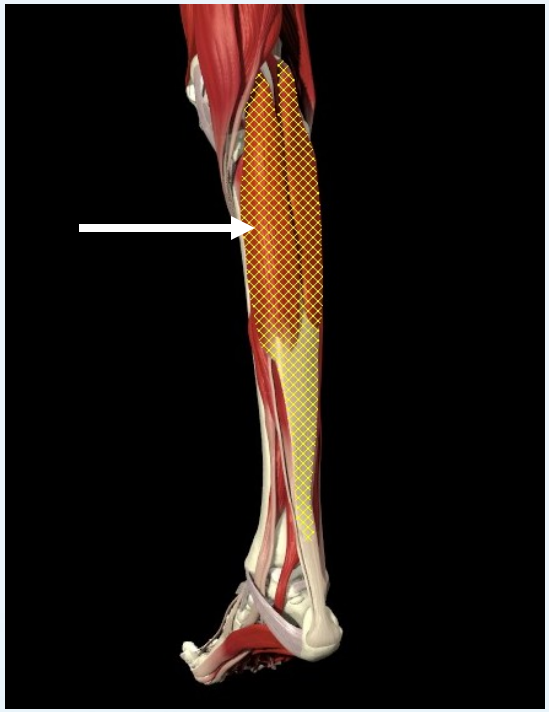
Adductor Complex

TFL (and IT band)

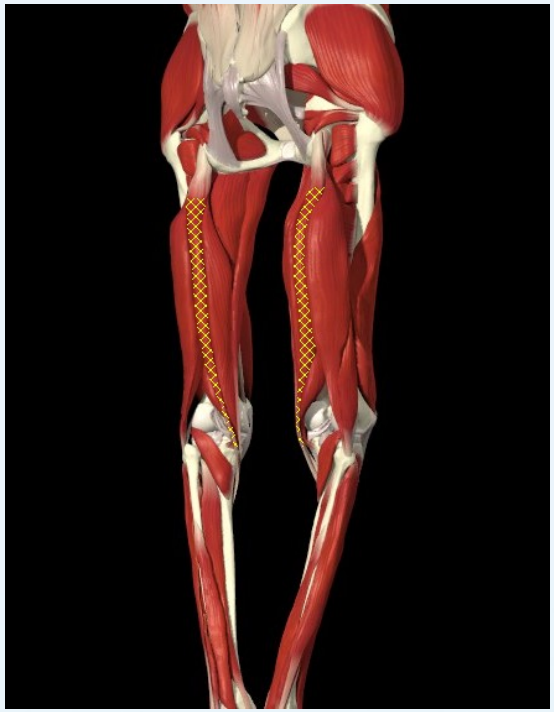


Biceps Femoris (short head)

Feet Turn Out: Underactive Muscles



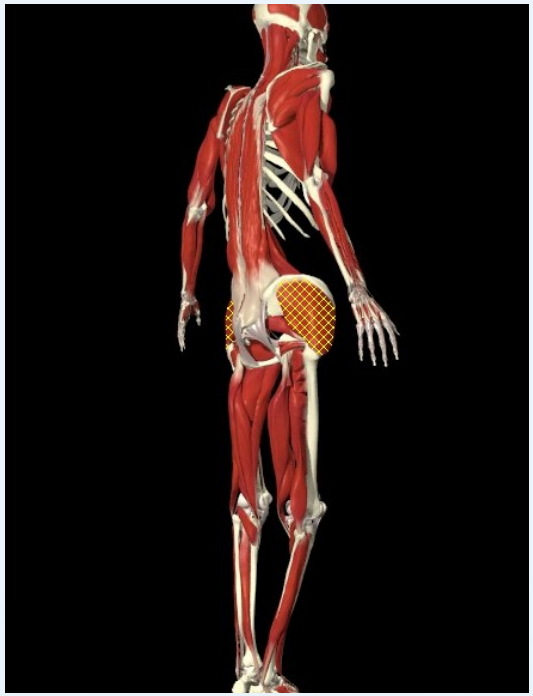
Gastrocnemius (medial head)



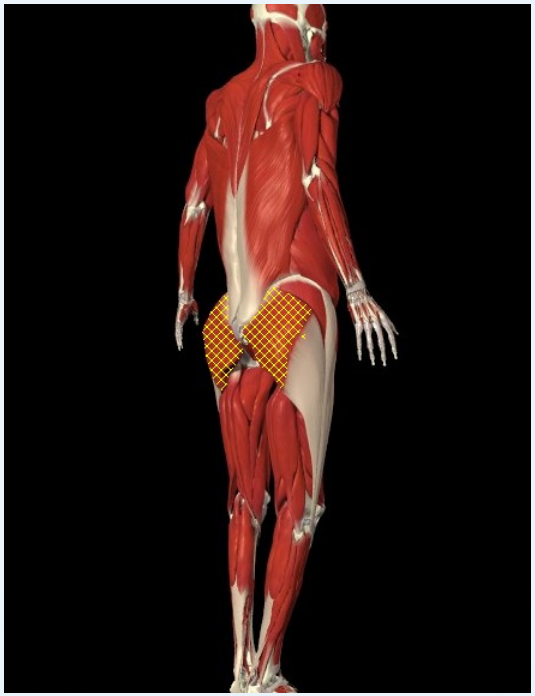
Medial Hamstrings

Anterior Tibilas

Knees Move Inward: Underactive Muscles



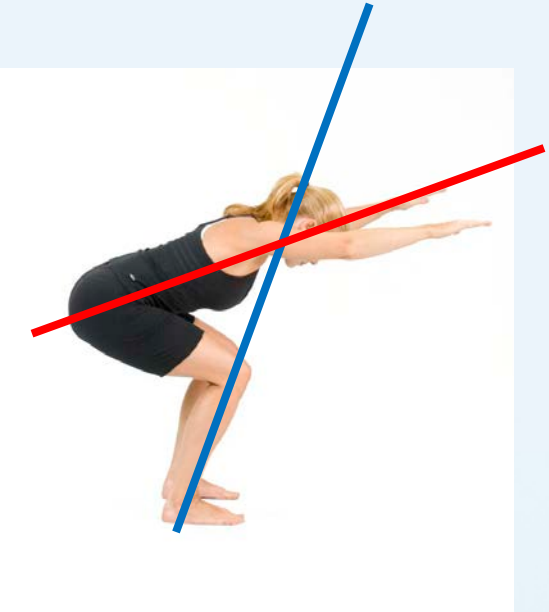
Gluteus Medius



Gluteus Maximus

Side View: LPHC Excessive Forward Lean

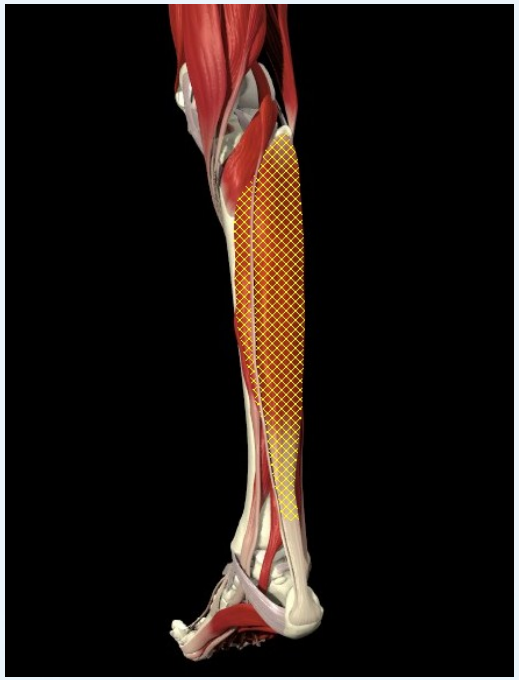
Ideal



Compensation

LPHC Excessive Forward Lean: Overactive Muscles

Gastrocnemius

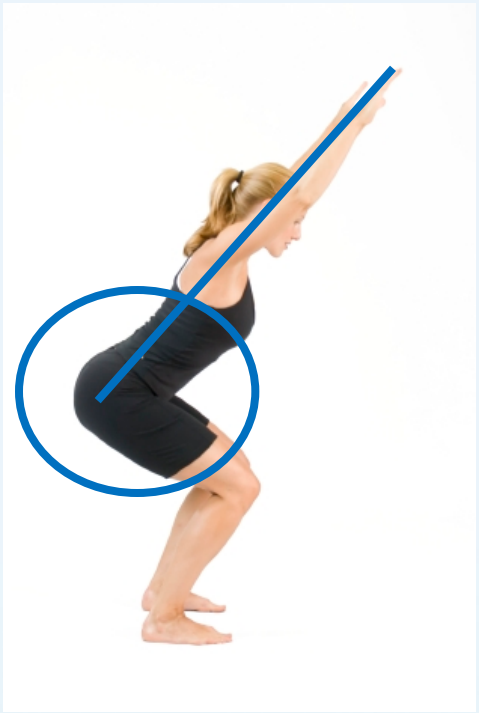


Soleus

LPHC Excessive Forward Lean: Underactive Muscles

Anterior Tibialis

Side View: LPHC Low Back Arch



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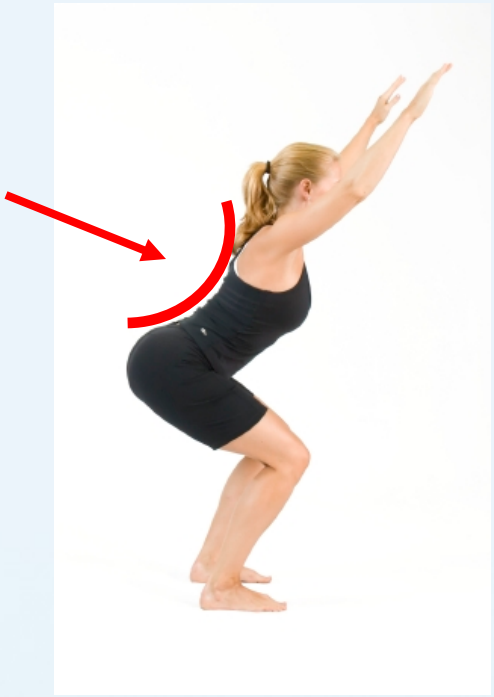
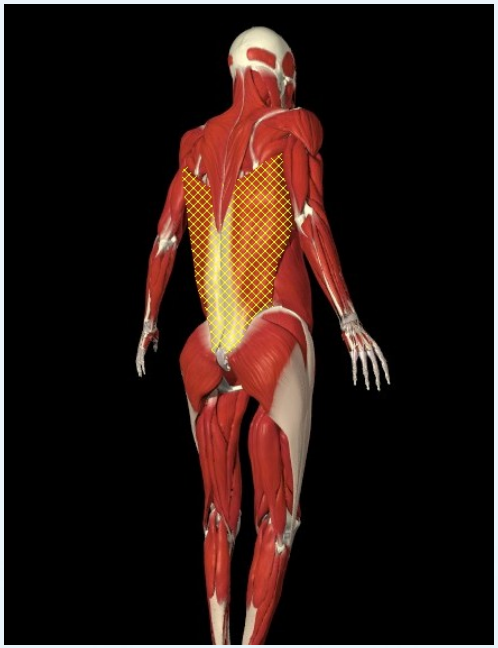


Compensation

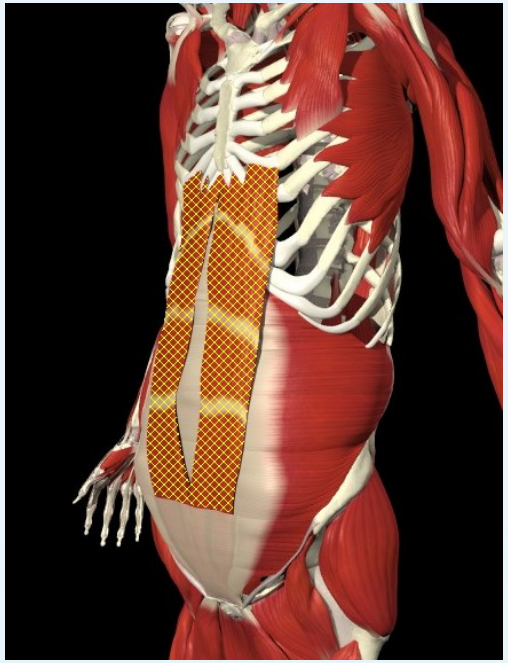
LPHC Low Back Arches: Overactive Muscles

Hip Flexor Complex

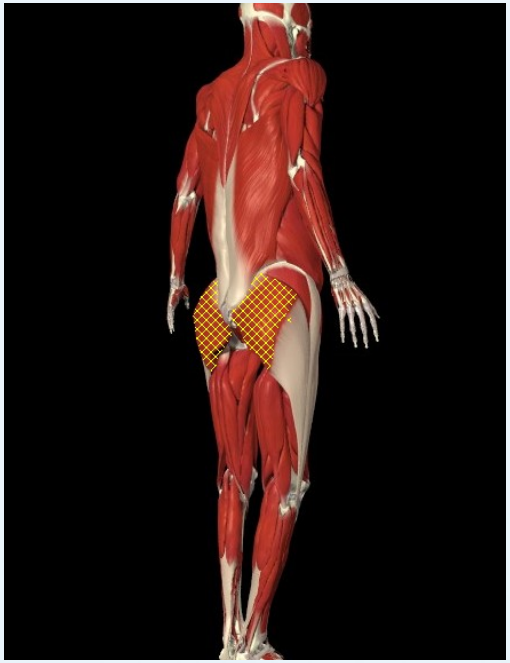


Latissimus Dorsi

LPHC Low Back Arches: Underactive Muscles

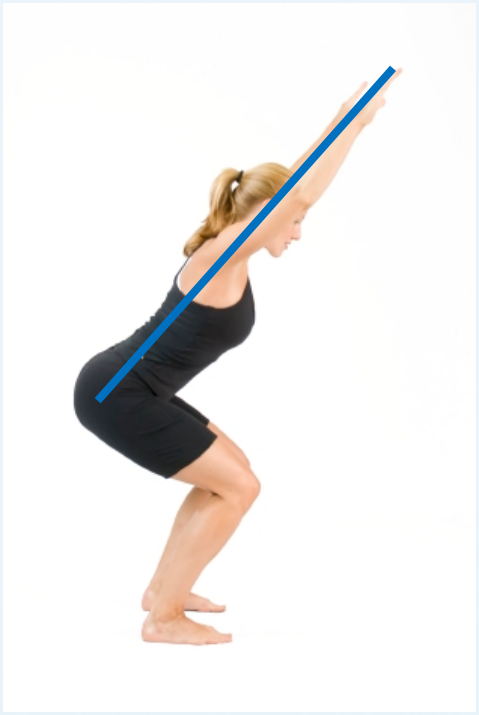


Abdominal Complex



Gluteus Maximus

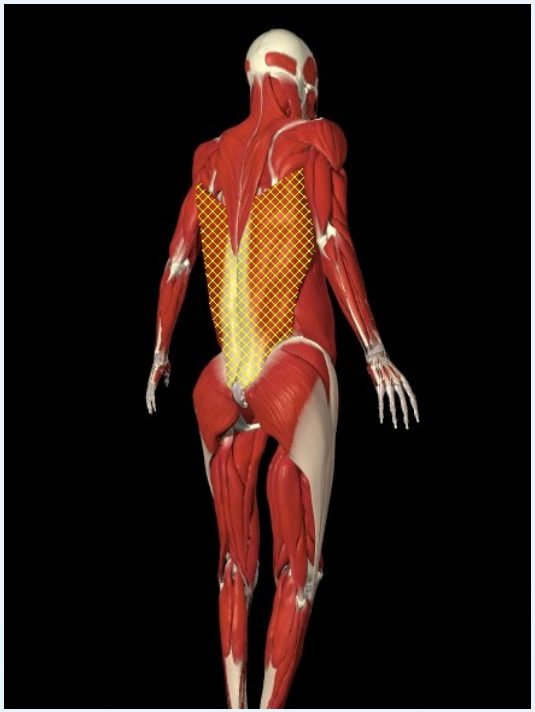
Side View: Upper Body Arms Fall Forward



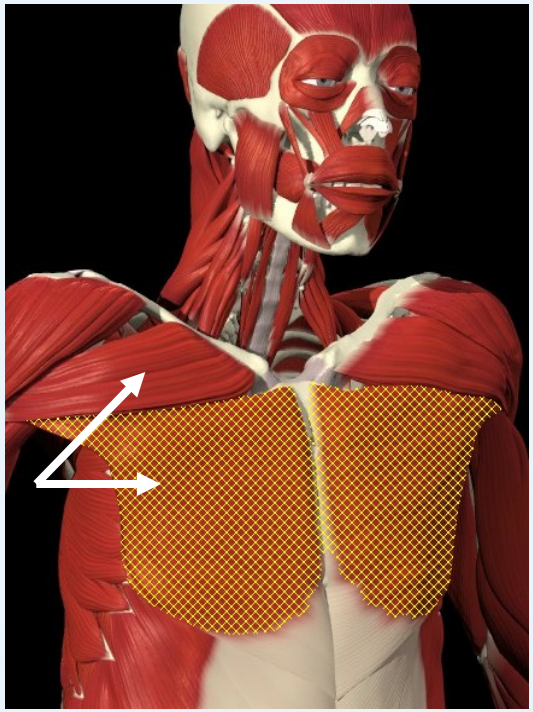
Ideal

Compensation

Upper Body Arms Fall Forward: Overactive Muscles



Latissimus Dorsi

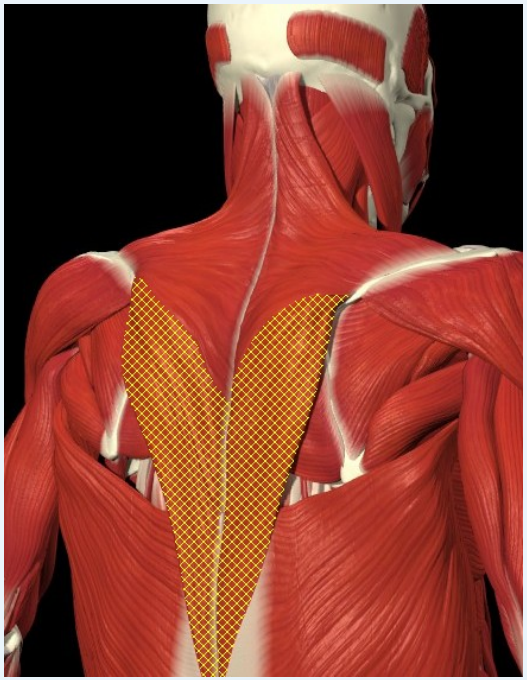


Pectoralis Major

Pectoralis Minor

Upper Body Arms Fall Forward: Underactive Muscles

Rhomboids



Middle & Lower Trapezius

Questions?

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  - Instagram: IndependentTrainingSpot
- NASM
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Integrated Martial Arts

By: Prentiss Rhodes CES PES

Objectives

- Discuss benefits of integrating martial arts techniques in to a training program
- Provide instruction on how to properly execute strikes and ground movements.
- Provide simple progressions for striking and groundwork

Why MA training?

- Integrate various types of fitness
  - SAQ
  - Cardiorespiratory
  - Reactive
  - Strength

Why MA training?

- Dynamic Integrated Movement
  - Multiplanar
  - Dynamic Stability

- The Enjoyment part of FITTE
- Safety

Dynamic Warmup

- Upper Body Dynamic Stretch
- Lower Body Dynamic Stretch
- Rotation Drills
- Gait Drills
- Ground Mobility

Technique Considerations

- Upper body
  - Bone stacking
  - Brace on impact
- Lower Body
  - Proper pivot

Progressions

- Ground Agility #1
  - Top Drills, Top Mobility
- Ground Agility #2
  - Shin box, back mobility
- Falling, Rolling, Standing
- Striking #1
- Striking #2 add front kicks

Progressions Combo #1

Combo #1	Repetitions	Exercise
	30-60s or 1 combo x10 reps	Boxing combo 1-4 (SAQ)
	30-60s or 10 reps	Weave
	30-60s or 10 reps	Slip Lunge
	30-60s or 10 reps	Sit through (alternating)
	30-60s or 10 reps	Figure 4 Crawl
	30-60s or 10 reps	Triangle

Progressions Combo # 2

Combo #1	Repetitions	Exercise
	30-60s or 10 reps	Boxing combo 1-4 w/ kick
	30-60s or 10 reps	Sprawl (Sq to prone iso abs)
	30-60s or 10 reps (5/side)	Back fall ½ kneel
	30-60s or 10 reps (5/side)	Slip Sq. Pickup
	30-60s or 10 reps (5/side)	O-soto gari
	30-60s or 10 reps	Bridge
	30-60s or 10 reps	Scissor to pushup

Questions

Contact

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Interactive Anatomy Review

By Rick Richey, MS, LMT

NASM Faculty

OBJECTIVES

- Learn the basic “rules” of muscles
- Understand of how muscles act on their associated joints
- Relate muscles to specific exercises, movements and planes of motion.
- Squash typical falsehoods associated with certain muscles

3 Rules of Muscles

- 1) Muscles only* move joints they cross.
- 2) Muscles work best in the direction of their fibers
- 3) Muscles only contract or relax – no inbetween

Pectoralis Major

- What joint(s) are crossed by this muscle?
- What are the directions of their fibers?
- What plane(s) of motion does this muscle work best in?
- What joint actions take place concentrically? Eccentrically?
- What exercises are associated with those planes / joint actions?
- **MYTHS?**

Latissimus Dorsi

- What joint(s) are crossed by this muscle?
- What are the directions of their fibers?
- What plane(s) of motion does this muscle work best in?
- What joint actions take place concentrically? Eccentrically?
- What exercises are associated with those planes / joint actions?
- **MYTHS?**

Push/Pull = Pecs/Lats

Pecs

- Horizontal Adduction
- Internal Rotation
- Adduction

Lats

- Horizontal Abduction?
- External Rotation?
- Abduction?

Biceps Brachii

- What joint(s) are crossed by this muscle?
- What are the directions of their fibers?
- What plane(s) of motion does this muscle work best in?
- What joint actions take place concentrically? Ecenntrically?
- What exercises are associated with those planes / joint actions?
- **MYTHS?**

Triceps Brachii

- What joint(s) are crossed by this muscle?
- What are the directions of their fibers?
- What plane(s) of motion does this muscle work best in?
- What joint actions take place concentrically? Eccentrically?
- What exercises are associated with those planes / joint actions?
- **MYTHS?**

Rectus Abdominus

- What joint(s) are crossed by this muscle?
- What are the directions of their fibers?
- What plane(s) of motion does this muscle work best in?
- What joint actions take place concentrically? Eccentrically?
- What exercises are associated with those planes / joint actions?
- **MYTHS?**

Iliopsoas (iliacus/psoas major)

- What joint(s) are crossed by this muscle?
- What are the directions of their fibers?
- What plane(s) of motion does this muscle work best in?
- What joint actions take place concentrically? Eccentrically?
- What exercises are associated with those planes / joint actions?
- **MYTHS?**

TFL/ITB

- What joint(s) are crossed by this muscle?
- What are the directions of their fibers?
- What plane(s) of motion does this muscle work best in?
- What joint actions take place concentrically? Eccentrically?
- What exercises are associated with those planes / joint actions?
- **MYTHS?**

Gluteus Maximus (med/min)

- What joint(s) are crossed by this muscle?
- What are the directions of their fibers?
- What plane(s) of motion does this muscle work best in?
- What joint actions take place concentrically? Eccentrically?
- What exercises are associated with those planes / joint actions?
- **MYTHS?**

Quadriceps Femoris

- What joint(s) are crossed by this muscle?
- What are the directions of their fibers?
- What plane(s) of motion does this muscle work best in?
- What joint actions take place concentrically? Eccentrically?
- What exercises are associated with those planes / joint actions?
- **MYTHS?**

Adductor Complex

- What joint(s) are crossed by this muscle?
- What are the directions of their fibers?
- What plane(s) of motion does this muscle work best in?
- What joint actions take place concentrically? Eccentrically?
- What exercises are associated with those planes, joint actions?
- **MYTHS?**

Hamstrings

- What joint(s) are crossed by this muscle?
- What are the directions of their fibers?
- What plane(s) of motion does this muscle work best in?
- What joint actions take place concentrically? Eccentrically?
- What exercises are associated with those planes / joint actions?
- **MYTHS?**

Calves

- What joint(s) are crossed by this muscle?
- What are the directions of their fibers?
- What plane(s) of motion does this muscle work best in?
- What joint actions take place concentrically? Eccentrically?
- What exercises are associated with those planes / joint actions?
- **MYTHS?**

QUESTIONS?

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  - www.nasm.org
  - www.IndependentTrainingSpot.com

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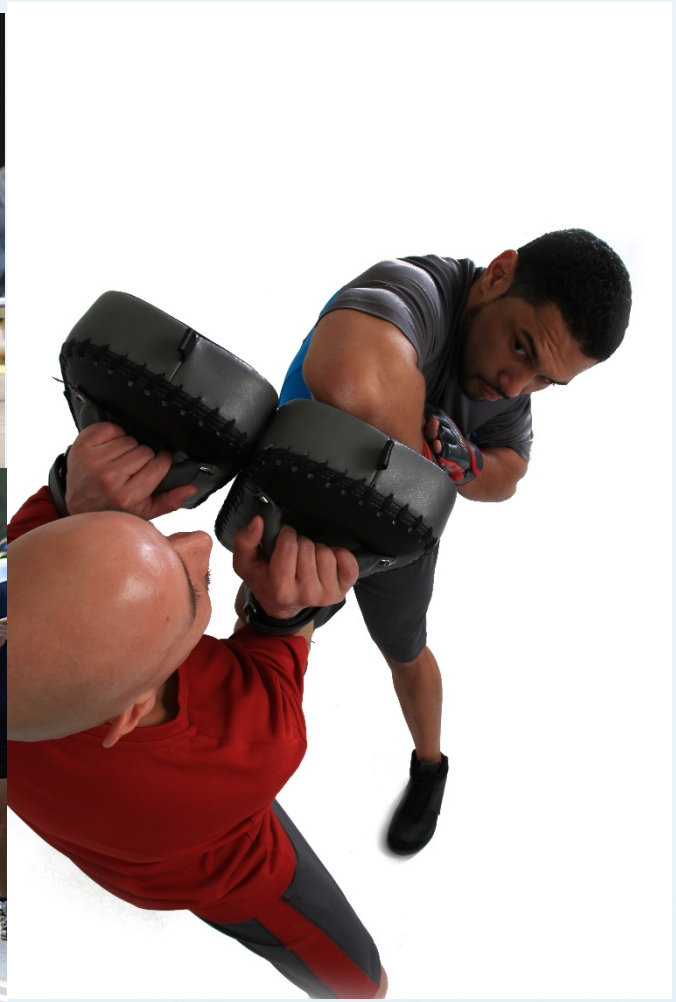
Maximum Strength Training

Presented by: Prentiss Rhodes

Objectives

- Review mechanical adaptations to strength training.
- Discuss technique considerations for optimal motor learning.
- Create individualized training template

A Tale of 3 Athletes



Why Max Strength Train?

Because muscle is OUR friend!

Strength Development

- More efficient muscle contraction
  - Force production
  - Recruitment of synergists
- Better technique
- Increased sensitivity of the nervous system

Neural Adaptations

- Synchronization of motor units
  - Intra / Inter Muscular Coordination
- Ability to recruit muscle fibers
  - Number encoding
- Decrease protective mechanisms

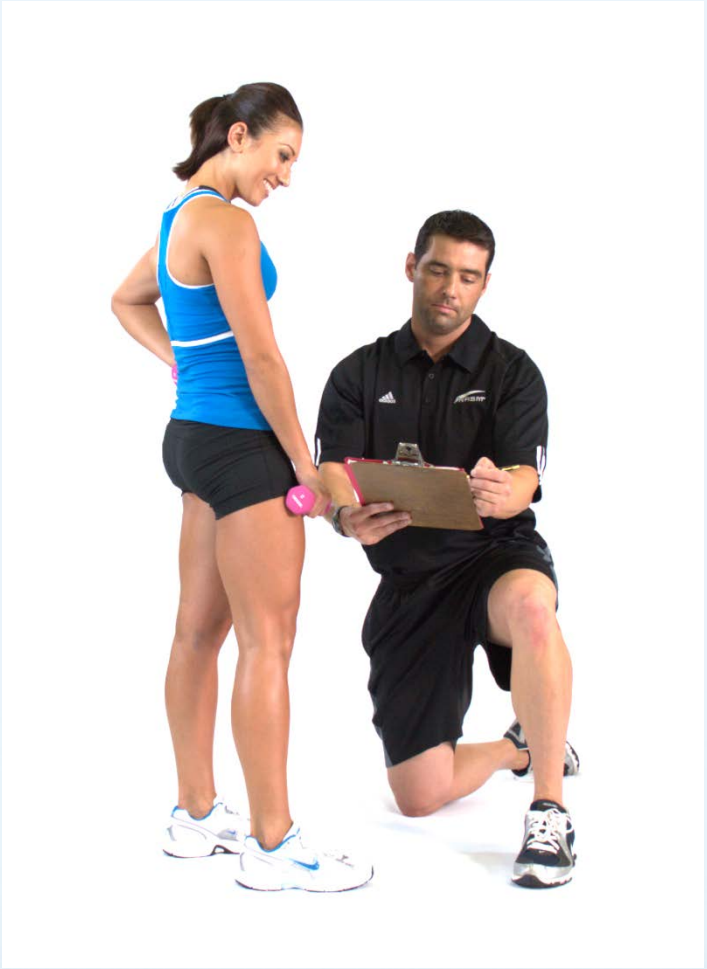
Muscular Adaptations

- Hypertrophy
  - Increased synthesis of contractile proteins
  - Increased myofibrils in the muscle fiber.
  - All fibers
    - Consecutive recruitment
    - Advanced athlete considerations

Primary Considerations

Have you done your homework?

- Stability
- Flexibility
- Posture
- Current Status
  - » Injury History
  - » Training History
  - » Skill level



Primary Considerations

- Sport/ Recreational Activities
  - Specialists
    - Weight lifters
  - Mixed Qualities
    - Triathletes
    - Martial artists

Dynamic Warm-up

- Techniques should be biomechanical match to lifts at the beginning of the session.
- Active isolated stretching
  - Enhance elastic energy storage

Dynamic Warm-up

- Special Considerations
  - Thoracic Spine mobility.
  - Prone-iso abs
  - Single leg dead lift
  - Hip flexor

Squat

- Progression
  - Goblet ➔Front Squat➔ Back Squat
  - Special Variations
    - Asymmetrical Stance
    - Split Squat

Squat Prep

- Optimal Stance
  - Quadruped position
- Bar position
  - High
  - Low
  - Front loaded

Squat Prep

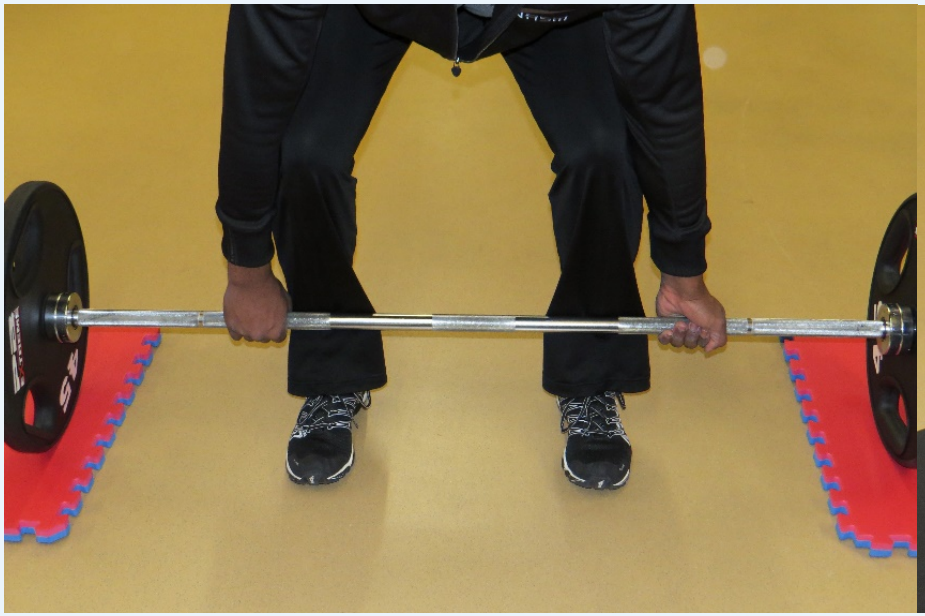
Squat Prep

Squat Prep

Deadlift

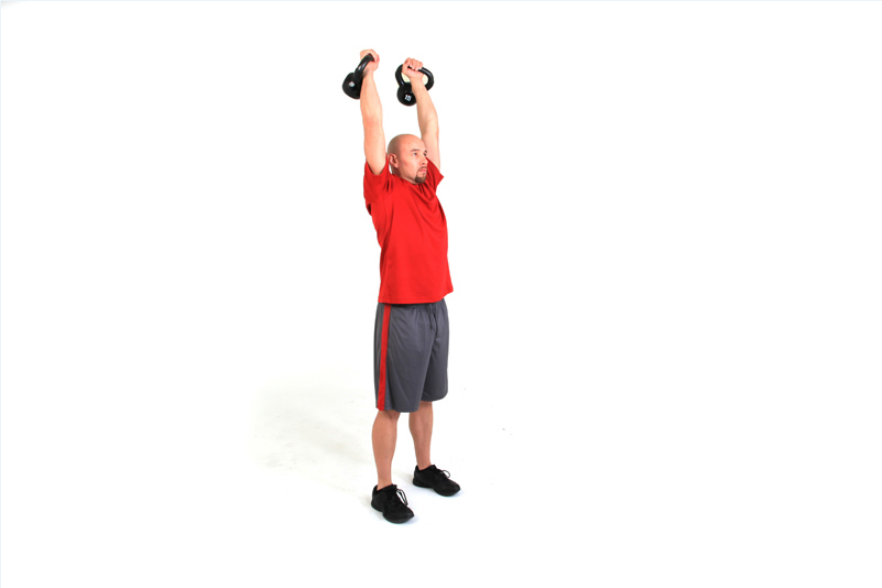
- Prerequisites
  - Goblet squat
  - Kettlebell Swing
  - Trunk Stability (Phase 1 & 2)
  - Single leg deadlift
- Variations
  - Sumo
  - Conventional
    - Sumo style is a prerequisite

Deadlift Setup

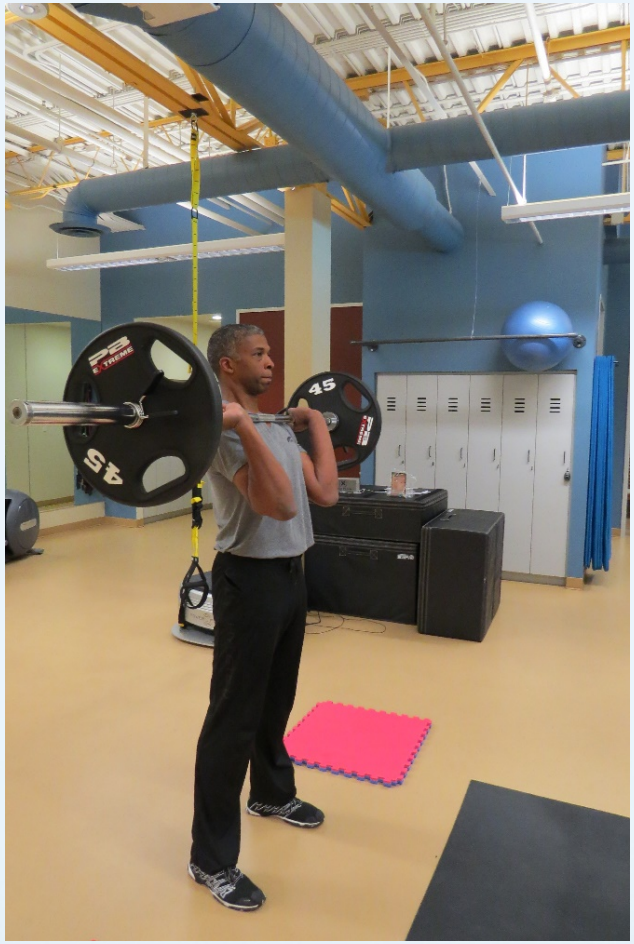


Presses

- Overhead
- Bench
- Assistance Drills
  - Pull-up
  - Row Variations
  - Scaption
  - Serratus Press
  - PNF upper extremity patterns
  - Triceps



Overhead Press



Beginner's Template

- Training Principles
  - Motor learning is important
  - Undulating Periodization
  - Manage fatigue
- 1 RM
- Assistance Exercises
- Select Starting Resistance
  - Perform 5 repetitions until perceived 80%

Beginner's Template

- The Pyramid / Ladder
  - Relatively safe way to build volume without fatigue.
  - Myelination
  - Ascending
    - Post activation potentiation
    - "Drop Set"
  - Descending

Beginner's Template

- Undulating periodization
- Case Study #1

Beginner’s Template

- The Ladder
- Case Study #2

Putting it all together

Weekly Plan

Day 1	Day2	Day 3	Day 4	Day 5	Day 6	Day 7
Strength train	Sports/ SAQ/	Strength train	Off Active Rest correctives	Strength Odd Lifts/ Gymnastics	Sports/ SAQ	Off Active Rest correctives

Putting it all together

- Undulating Periodization ➔ 3-4 weeks
- Ladder ➔ 4-6 weeks
- Power Endurance (speed) ➔ 2 weeks
- Undulating Periodization ➔ 3-4 weeks
- Active Rest ➔ 2 weeks
- Do it all over

Questions?

Contact

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Thank You!

No Gym No Problem

By: Prentiss Rhodes CES, PES

Objectives

- Provide the user with alternatives to exercising in traditional facilities.
- Review OHSA as a daily status check
- Progressions and regressions for common movements.
- Training template

Why Alternatives to the gym?

- Get outside
- Time Constraints
- Travel
- Variability

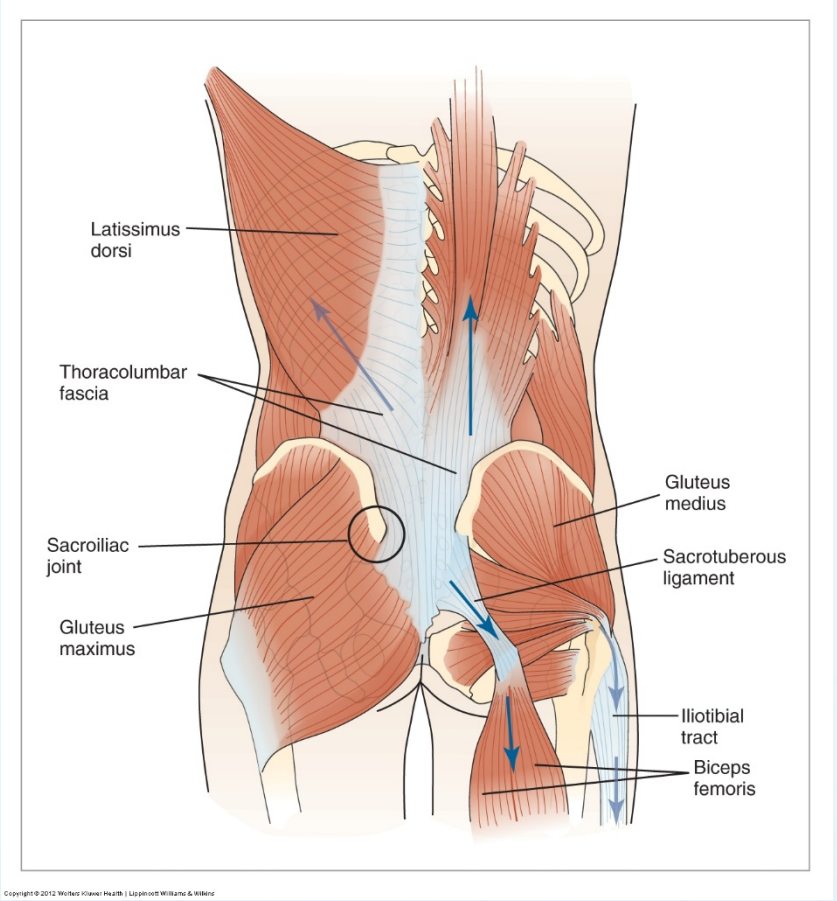
Exercise Selection

- Review OHSA
- Exercise Selection
  1. Movement Subsystems
  2. Squat
  3. Press Progressions
  4. Pulling Progressions
  5. Gait

Exercise Selection

- Movement subsystems
  - Total body
  - POS
  - AOS
  - Examples
    - Squat to row/press
    - Chop

Posterior Oblique Subsystem



Exercise Selection - Squat

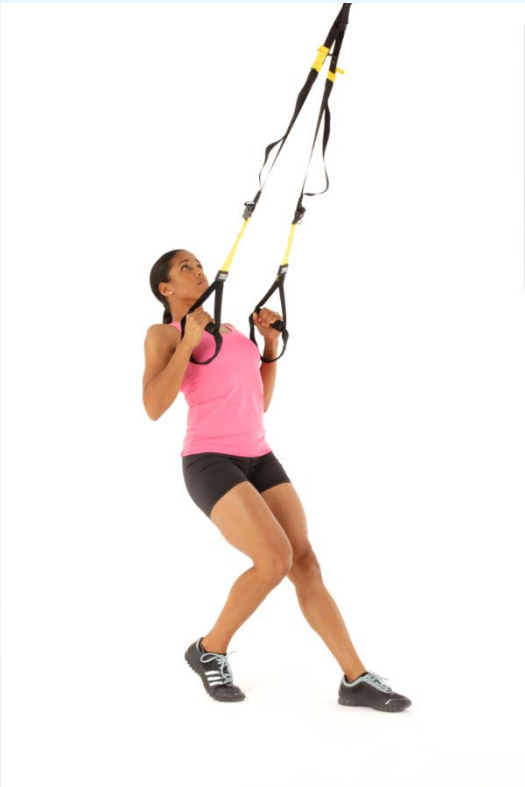
- Quadruped to rock
- Assisted
- Squat
- Lunge progressions

Exercise Selection – Overhead Press

- Scaption
- Circular Movements
- “Serratus” Press
- Band Presses
- Incline pushups
- Inverted pushups

Exercise Selection-Pulling progressions

- Prone Iso-Abs
- Band Rows – Horizontal/Vertical
- Suspension Row – Progressions
- Assisted Pull-ups – Band Assistance
- Pull-up – Isometric Hold to eccentric
- Pull-up



Exercise Selection- Gait

- Crawl Progressions
- Dynamic Balance – Walking, Marching
- Skipping
- Running
  - » “falling”
  - » Leg and arm cycles
  - » Prone iso abs with leg drive

Optimal Training Order

OHSA / Transitional Assessments
Flexibility Continuum
Core Training Continuum
Skill Training (Learn progressions for all drills & exercises in this section)
Strength
Reactive/ SAQ
Met-con (if appropriate)
Reassess

Practice

- Group Case Study

Questions?

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