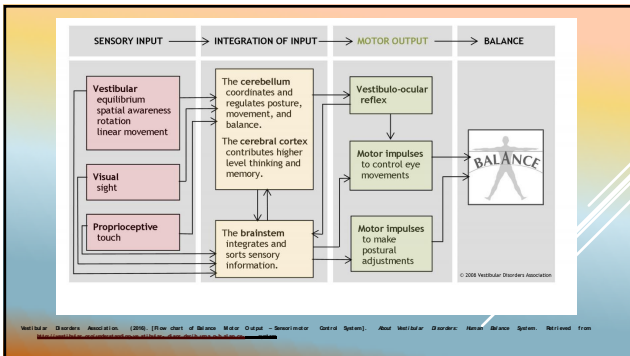


MEDICAL FITNESS WITH OLDER ADULTS

“Understanding the Kinetic Chain Functionally”

GOAL AND OBJECTIVES

- Provide information in better understanding and disseminating techniques associated with older active adults motions for daily living; Activities of Daily Living (ADLs).
- Improve your patient's spatial orientation (Kinesthetic Awareness) basically sensing position of their body as it relates to space.



OBSERVE AND ASSESS

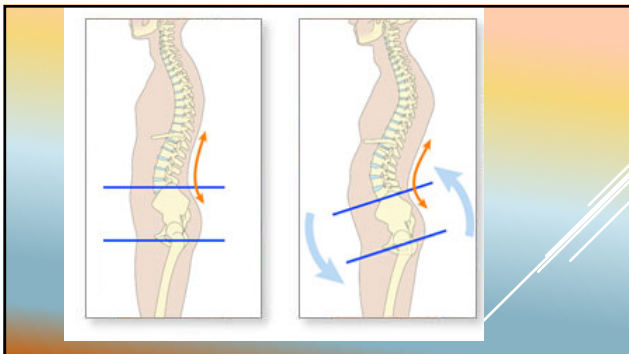
➤ Identify possible misalignments and dysfunctions

- Posture
- Movement
- Gait Cycle

➤ Assess in order to display muscle imbalances

- Range of Motion
- Joint Mobility vs Joint Stability
- Proper core engagement

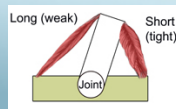
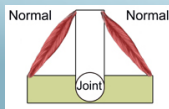




Assessment Tools

Range of Motion Assessment



Integrated Movement Assessment





- CARIOCA STEP
- CHAIR SQUAT
- GAIT ANALYSIS
- SHOULDER MOBILITY
- SPINAL ROTATION

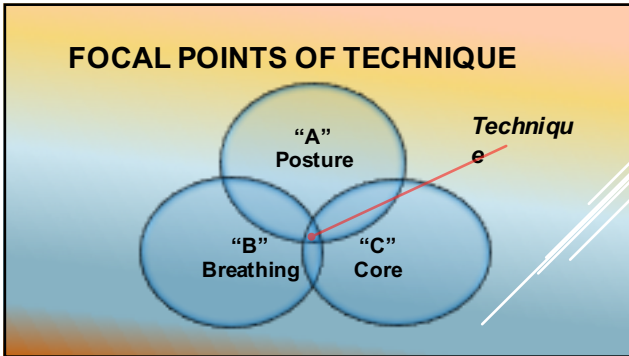
'PROVIDE MULTI-TASK ACTIVITIES'

McKeown, A., Prinsen, C., & Burtin, A. (2015). Balance training with multi-task scenarios improves fall-risk and self-rated fall-risk performance and physical function in older adults with osteoporosis: a randomized controlled trial. *Journal of Medical Rehabilitation*, 28(6), 305-315. DOI: 10.1177/0898010115244460

IDENTIFY AND CORRECT

- Correct posture will provide alignment necessary to perform movements properly.
- Proper mechanics will be necessary to isolate the targeted muscle(s).
- Develop an exercise program isolating specific muscles or muscle groups.



FOCAL POINTS OF TECHNIQUE

Posture "ALIGNS" structures properly and is necessary to perform exercises correctly.

Breathing "B" will engage the core muscle with proper exhalation- *transverse abdominus*.

Core "C" is important in maintaining posture and allowing adjacent muscle to perform more efficiently.

POSTURE- IDENTIFYING LANDMARKS

Ear (Mastoid Process)

Shoulder (Acromial-Clavicular joint)

Chest (Sternum)

Hips (ASIS-Pelvis)

Hip (Greater Trochanter of Femur)

Knee (Patella)

Ankle (Lateral Malleolus)



IMPORTANCE OF POSTURE

- ▶ Posture plays an important factor necessary to create sufficient force and keep one erect and upright over your feet.
- ▶ Posture and engaging the core will allow you to channel "The Core into the Floor."
- ▶ This will enhance your balance keeping on your feet.



BREATHING

- ▶ Importance of proper breathing during exercise.
- ▶ Diaphragm will cause inhalation, the antagonist is Transverse Abdominus.
- ▶ "Exhale on the exertion" will engage nature's weight belt.



BREATHING TECHNIQUE

- ▶ With proper posture and core muscles contracting, breathing will provide the ingredient needed to stabilize the body.
- ▶ Emphasize the importance of exhaling during the exertion and inhaling during the eccentric phase of the movement.

CORE

A sphere of muscles work stabilizing the entire body.

Weak core muscles can result in Contra-lateral muscle imbalances and dysfunctions.



Proper instruction is *ESSENTIAL* cueing when and how to recruit pelvic floor, abdominal-thoracic muscles in anterior and posterior region while performing an exercise.

Analogy of Core Stabilization

Like guy wires on a radio tower



. . . muscles of the core area will create even force to stabilize the spine and hold upright.

Kinetic Energy

- Constant motion is essential in kinetic energy
 - When kinetic energy is present, motion can not be interrupted
- Greater force production is being correctly channeled through the prime movers by way of the stabilizing muscles which continually transmit energy keeping it kinetic.

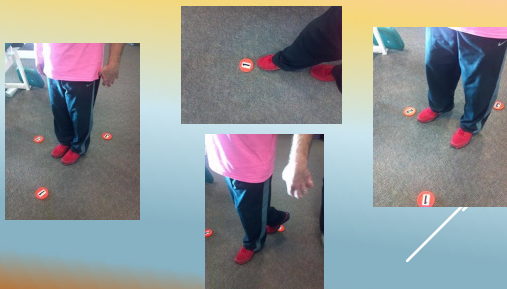
Integrate into Function *ADLs*

- Introduce aspects in order to enhance the action:
 - Importance of posture
 - Engaging core
 - Correct breathing
- Provide instruction guiding the individual to perform a multi joint action that will involve specific muscles.

Importance of Functional Movement *ADLs*

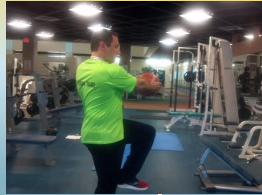
- Optimal results that can reduce injuries.
- Improve skills in performing activities for daily living.
 - Balance
 - Motor coordination
 - Strength
 - Agility
 - Kinethesis
 - Ideal motor skill sequence

CARIOCA STEP



Advance Balance Assessment Exercises

Crane Stance w/ Rotation:



REFERENCES

Granacher, U., Lacroix, A., Muehlbauer, T., Roettger, K., & Gollhofer, A. (2013). Effects of Core Instability Strength Training on Trunk Muscle Strength, Spinal Mobility, Dynamic Balance and Functional Mobility in Older Adults. *Gerontology*, 59, 105-113. DOI: 10.1159/000343152

Halvarsson, A., Franzen, E., & Stahle, A. (2015). Balance training with multi-task exercises improves fall-related self-efficacy, gait balance performance and physical function in older adults with osteoporosis: a randomized controlled trial. *Clinical Rehabilitation*, 29(4), 365-375. DOI: 10.1177/0269215514544983

REFERENCES

Schuenke, Michael (2007). *Atlas of Anatomy: General Anatomy and Musculoskeletal System*. Stuttgart, Germany- New York, NY: Thieme

Skinner, J.S., Bryant, C.X., Merrill, S., & Green, D.J. (Eds.) (2015). *Medical Exercise Specialist Manual*. San Diego, CA: American Council on Exercise.

Vestibular Disorders Association. (2016). [Flow chart of Balance Motor Output – Sensorimotor Control System]. *About Vestibular Disorders: Human Balance System*. Retrieved from <http://vestibular.org/understanding-vestibular-disorder/human-balance-system>

Thank YOU!

☐ Questions???

Contact Information

- Donald Gallucci
- (812) 897-7158
- donald.gallucci@stmarys.org
- LinkedIn 'Donald Gallucci'
