

# Exercise Programming for the Older Adult

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# Conventional Mindset

- “Be careful!”
- “You’re frail!”
- “You’ll have a heart attack!”
- “You’re not 18 anymore, quit horsing around!”
  
- “Walk a little, do some gardening, just keep it **low-intensity.**”

# The problem with “Low-Intensity” and Fat Loss

- Greater % of calories burned from fat
  - But less overall calories burned
- At moderate- to high-intensity exercise
  - Lesser % of calories from fat
    - Greater overall number of calories burned
  - Result: more fat burned at moderate- to high-intensity!

# Why Stay Fit As We Age?

- Attenuate/reverse “normal” deterioration of physiological function
- Better cholesterol profile
- Improved insulin sensitivity
- Higher  $VO_2$ max
- Lower blood pressure
- Greater strength, quicker reaction time
- Reduced risk of falling

# Needs Analysis for Healthy Aging

- Most common ailments
  - Osteoporosis
  - Sarcopenia
  - Falls
  - Difficulties with ADLs
- Importance of independent functioning

# Conventional Exercise Prescription for the Older Adult

- Lower-intensity
- 150-300 minutes of “moderate intensity” exercise/week
  - Moderate intensity:
    - 40-60% of  $VO_2R$ 
      - $MHR - RHR \times \% + RHR$

# What IS Functional Training?

- Training that focuses on **movements**, not *individual muscles*
- Exercises that simulate daily activities & athletic movements
- Emphasis is placed on CORE muscles
  - 29 muscles which “connect” torso to the pelvis and the pelvis with lower limbs
  - The body’ s center of strength, power, & stability

# Objectives of Functional Training

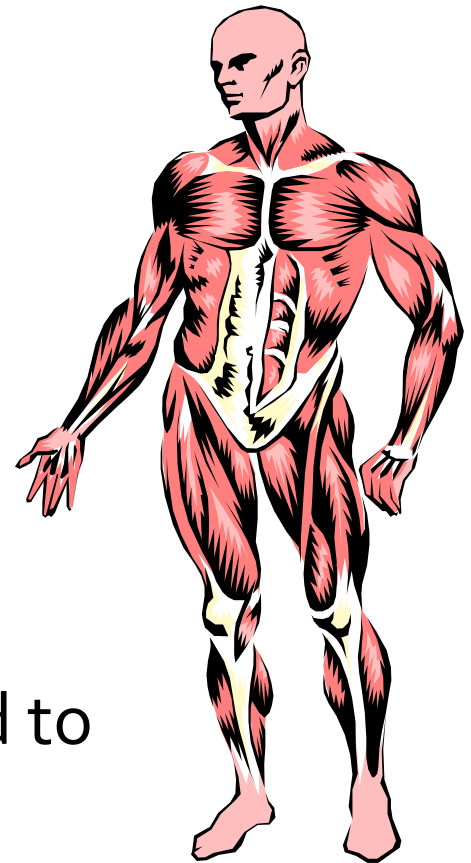
- Injury prevention
- Improved neuromuscular efficiency
- Improved performance
- Balance limb strength
  - Dominant/non-dominant
- Time efficiency





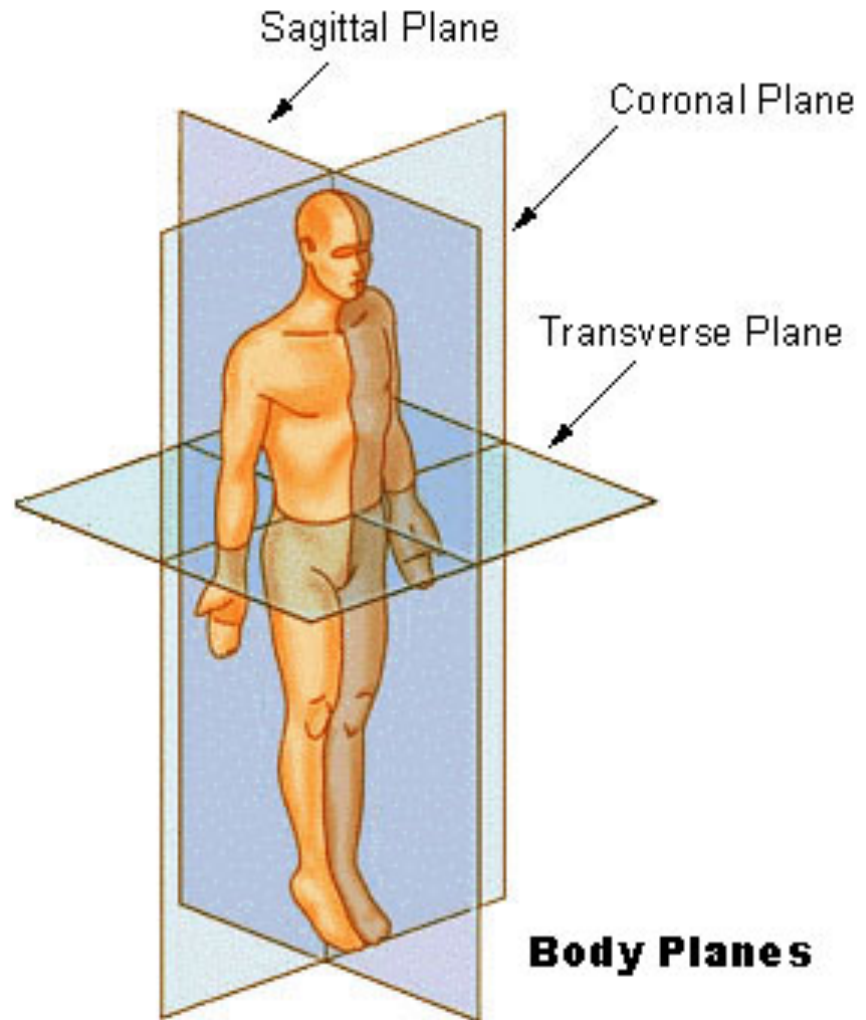
# Functional Anatomy Primer

- Human body
  - Has almost 700 muscles
  - Has 206 bones
  - Is capable of an infinite number of combinations of these
- Kinetic chain
  - Negative lifestyle factors may lead to dysfunction



# Primer, cont'd...

- Planes of Motion
  - Frontal (coronal)
  - Sagittal
  - Transverse

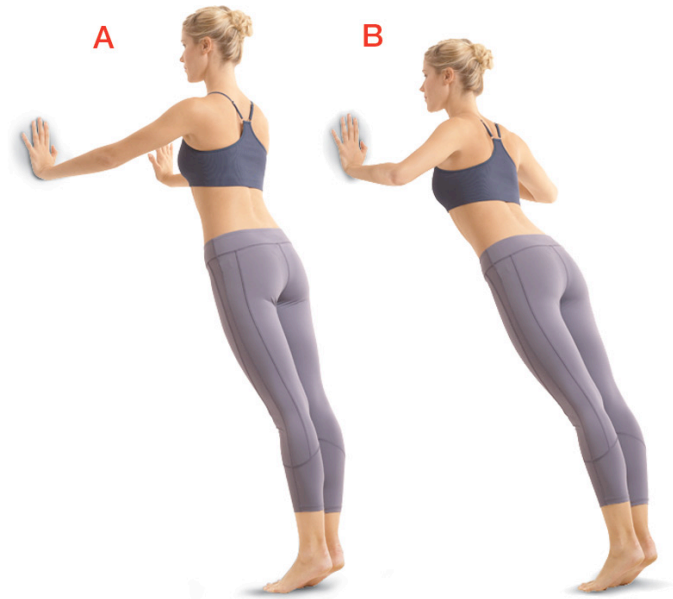
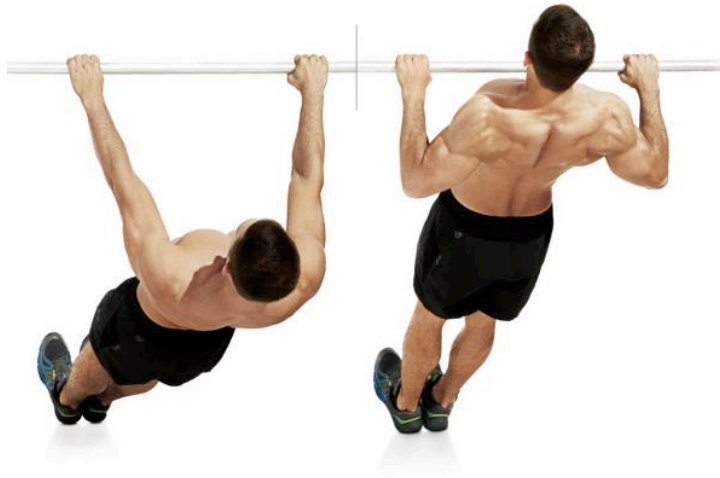


# Functional Training vs. “Machine” Resistance Training

Functional	“Fixed Machine”-based
Compound movements	Isolated movements
Engages stabilizers	Artificial stabilization
Emphasizes all <b>3</b> planes of motion	Often, uniplanar ( <i>sagittal</i> )
Minimal need for equipment	Equipment is specific to one movement
Performance-based	Hypertrophy gains

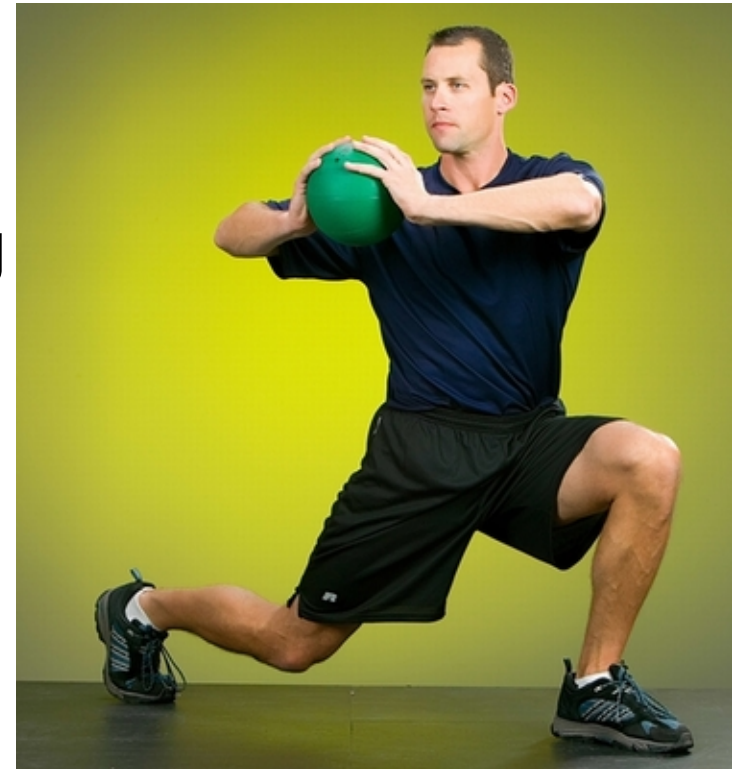
# Movements with Purpose

- Squatting
- Push variations
- Pull variations



# Functional Training Progressions

- Gait
- Balance & Reaches
- Squatting, Lunging, Stepping
- Pulling, Pushing
- Rotation



# Functional Training Modalities

- Anything, *really!*
  - Bodyweight
  - Dumbbells & Barbells
  - Medicine balls
  - Stability balls
  - Exercise bands & tubing
  - Rocker boards
  - Dyna discs



# Guidelines

- Exercise on MOST days of the week
- Moderate- to high-intensity work SHOULD both be included
- Constantly varied:
  - Movements
  - Modalities
  - Time course
- With proper form!!!
- If training at higher-intensities
  - 2 days on, 1 day off **OR** 3 days on, 1 day off

# Guidelines, cont'd...

- No days off from “self-maintenance”
- Emerging fitness models showing promise:
  - H.I.T.
    - CrossFit
    - Tabata



# Increasing functional capacity

- Key components
  - Metabolic conditioning
    - Improve CRF parameters
  - Strength and power work
    - Improve muscular and stability parameters
  - Mobility training
    - Focus on flexibility and on eliminating movement restrictions
      - Getting into good position!

# Programming workouts

- Formats
  - Interval
    - Examples: Tabata
      - 4 minutes of 20-sec of WORK/10-sec REST (=8 rounds)
  - Sustained effort
    - Single element
    - Multiple element
      - Couplet
      - Triplet
      - Chippers

# Single element

- “AMRAP”
  - As many rounds/repetitions as possible (in specified time frame)
- “For time”
  - Perform work as fast as possible with perfect form
- “EMOM or EOMOM”
  - Every minute on the minute
  - Every other minute on the minute
- Tabata
  - 8 rounds of 20 seconds WORK, 10 seconds REST
    - 4 total minutes!

# Multiple element

- AMRAP
  - Couplet or triplet
- For time
  - Couplet, triplet, or chipper
- EMOM or EOMOM

# AMRAP example

- 12-minute AMRAP
  - 5 pull-ups
  - 10 push-ups
  - 15 air squats
  
- 15-minute AMRAP
  - 90s of Stair Stepper
  - 25m Farmer's Carry
  - 8 bench dips

# Couplet examples

- For time
  - 21-15-9 repetitions of:
    - Thrusters
    - Pull-ups
  
- For time
  - 5 rounds of:
    - 250m row
    - 10 push-ups

# Triplet examples

- For time:
  - 5 rounds of:
    - 400m run (or other CV exercise)
    - 20 step-ups
    - 10 wall-balls
- For time:
  - 7 rounds of:
    - 15-calorie AirDyne
    - 10 sit-ups

# EMOM & EOMOM examples

- EMOM

- For 12 minutes:

- 10 walking lunges
    - 5 pull-ups

- EOMOM

- For 16 minutes:

- 10 Thrusters (odd minutes)
    - 5 sit-ups, 5 jumping jacks (even minutes)



# What the Research is Saying

- Gibala et al., **High-intensity Interval Training: A Time-efficient Strategy for Health Promotion?** *Current Sports Medicine Reports* 2007, 6:211–213.
- Warburton DE, McKenzie DC, Haydowsky MJ, et al.:
- **Effectiveness of high-intensity interval training for the rehabilitation of patients with coronary artery disease.** *Am J Cardiol* 2005, 95:1080–1084.
- Shaw JM, & Snow CM (1998). **Weighted vest exercise improves indices of fall risk in older women.** *The journals of gerontology. Series A, Biological sciences and medical sciences*, 53 (1).
- McNamara, A., Gunter, K., & Snow, C. (2005). **Postmenopausal Women Who Participate In Rowing Exercise Have Higher Spine BMD Than Controls** *Medicine & Science in Sports & Exercise*, 37 (Supplement).