

The FAI logo consists of the letters 'FAI' in a bold, white, sans-serif font, centered within a red shield-shaped background.

FAI

Dan Ritchie, PhD

Functional Core and Balance Circuits

Derek Mikulski

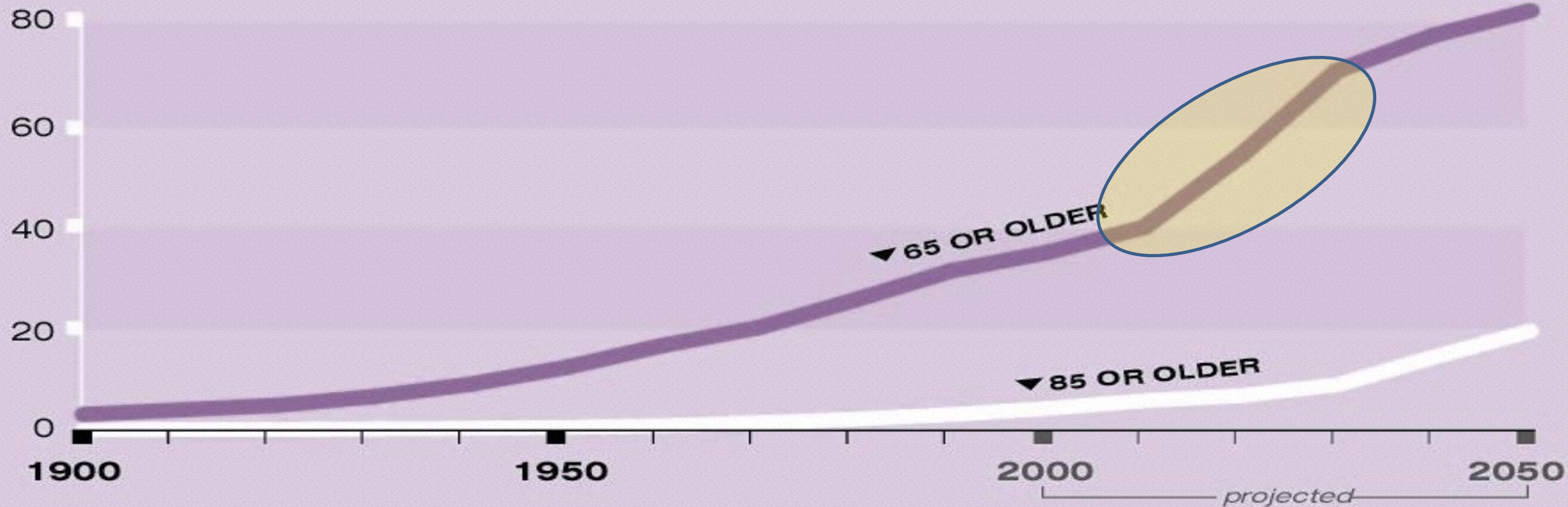


ACTIVMOTION BAR[®]

Let It Move You.

Huge Growth means Huge Potential

Total number of persons age 65 or older, by age group, 1900 to 2050, in millions



Note: Data for the years 2000 to 2050 are middle-series projections of the population.

Reference population: These data refer to the resident population.

Source: U.S. Census Bureau, Decennial Census Data and Population Projections.

Why Functional Circuits for Aging Clients?

Opportunity – large and growing numbers of mature adults

Programming Diversity – range of functional and health levels

Efficiency – accomplish a lot in a short amount of time

Group Dynamic – creates a fun, interactive and social atmosphere

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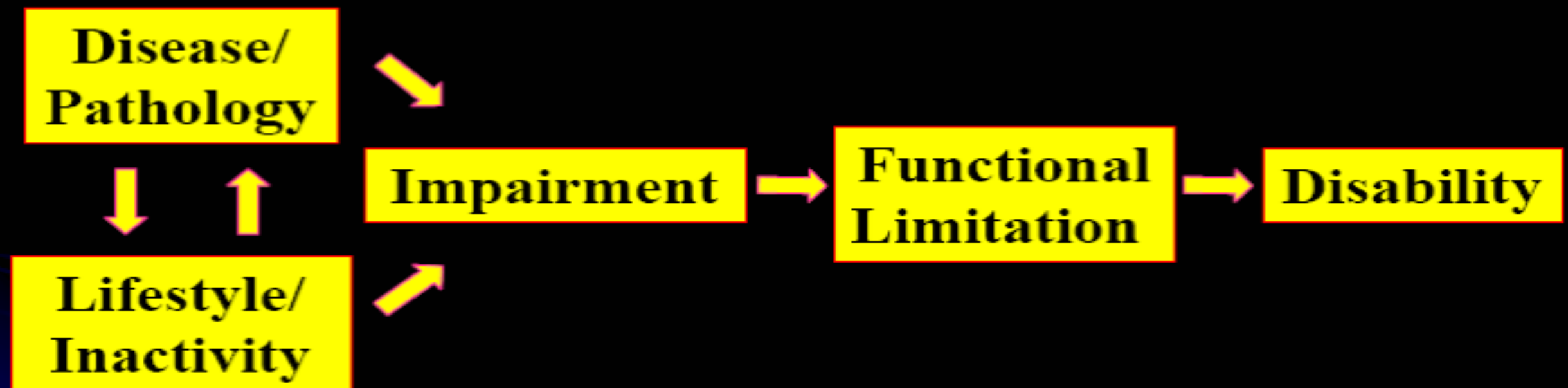
FAI

The background is a dark, grayscale photograph of a diverse group of people, including men and women of various ages. Some individuals are standing, while others are seated or leaning over, suggesting a group activity or training session. The image is semi-transparent, allowing the text to be clearly visible.

Functional Aging Training™ Model

The Nagi Model

Revised, Rikli and Jones, 1997

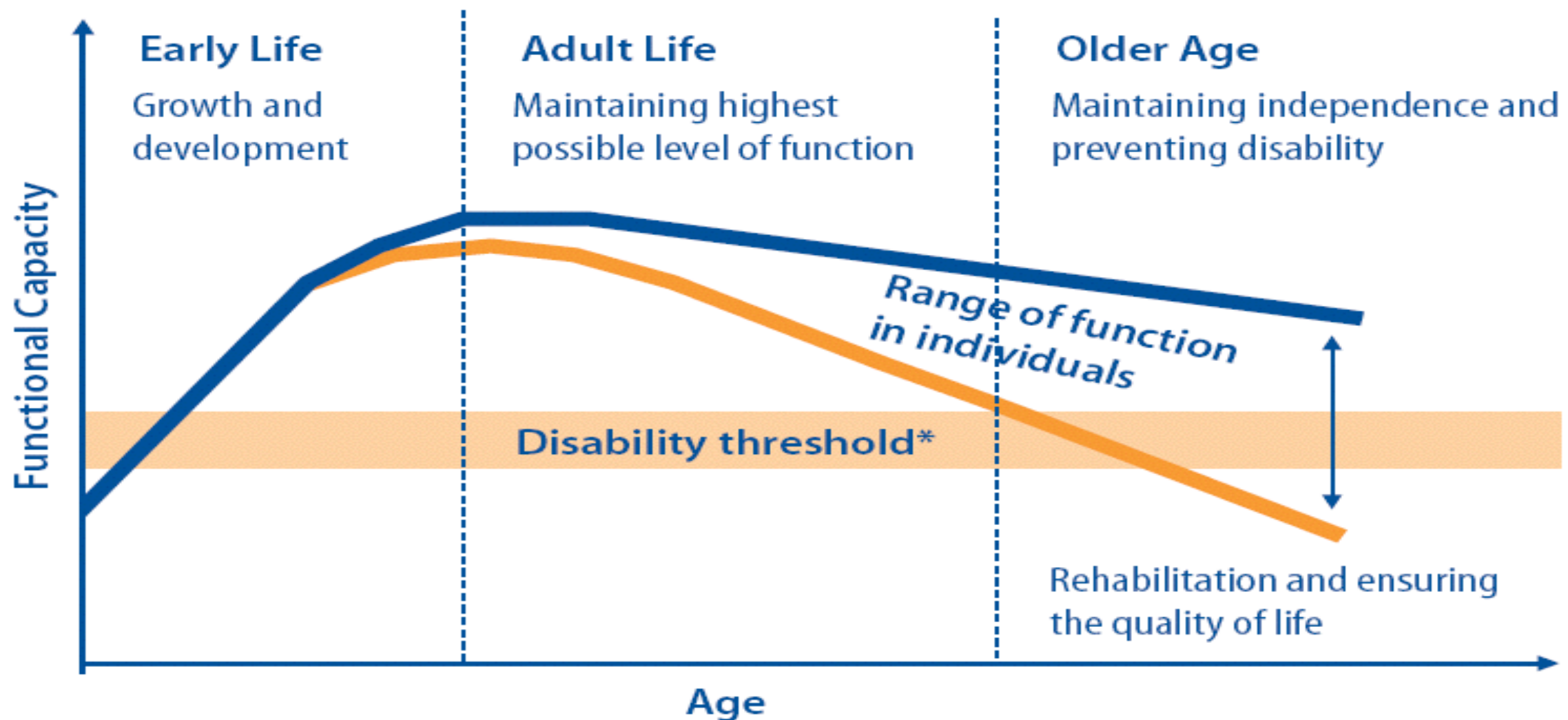


What Impairment Level Factors are Vital for Function?

- Muscular Strength
 - Concentric
 - Eccentric
 - Isometric
- Contractile Velocity
 - Acceleration
 - Deceleration
- Muscular Power
- Muscular Endurance
- Aerobic Power
- Flexibility
- Joint Range of Motion
- Coordination
- Reaction Time
- Motor Control
- Proprioception
- Somatosensation
- Vestibular control
- Vision
- Mobility
- Agility
- Balance**
- Stability
- Gait
- Postural Control
- Core Stability

Huge variability in impairments means huge variability in functional abilities

Figure 4. Maintaining functional capacity over the life course



Source: Kalache and Kickbusch, 1997



Functional Aging Training™ Model

7 Key Principles

1. Assess, prioritize and train ALL components of function
2. Make purposeful decisions for every aspect of training
3. Integrate movement patterns (train in all 3 planes) to prepare for functional demands
4. Include isolation-type exercise movements as supplementary and complementary rather than the primary component of the routine
5. Perform exercise movements in a seated position only when absolutely necessary or when it serves a specific purpose
6. Order the session according to energy level with more complicated, multi-component movements occurring earlier and less complicated, isolation-type movements occurring later
7. Maximize client safety and success by taking a holistic approach to training



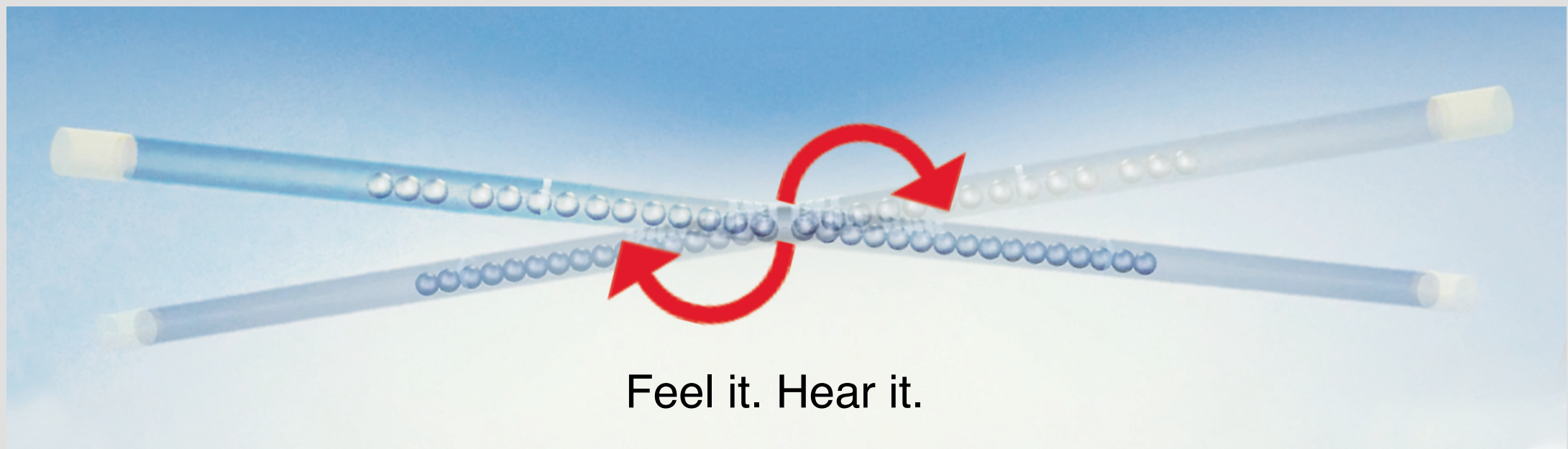
ACTIVMOTION BAR[®]

Let It *Move* You.



ABOUT THE ACTIVMOTION BAR™

ActivMotion Bars are hollow and partially filled with rolling steel weights that glide smoothly and gently within.





4', 4.5-pound compact variation



5' Variations (6, 8, 10, 15, 18-pound options)



- ☑ Sealed at each end.
- ☑ 25 to 35 ball bearings in each bar.
- ☑ As weight increases, ball diameter increases.

MUSCLE ACTIVATION WITH WEIGHTED FITNESS EQUIPMENT



HUMAN PERFORMANCE INNOVATION LAB

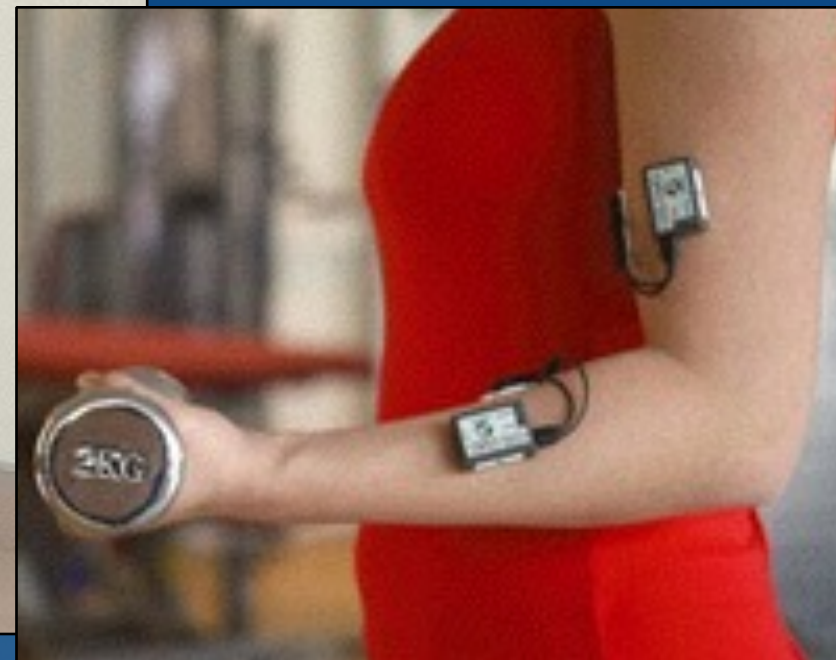
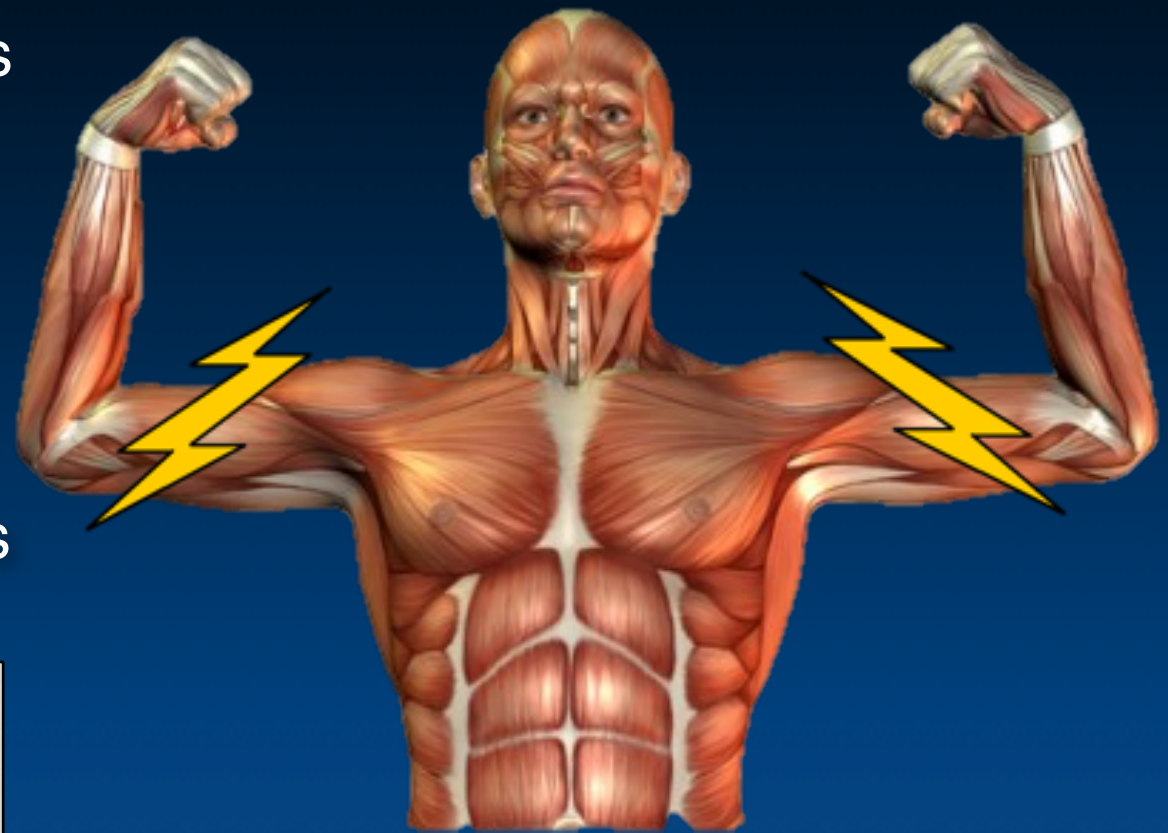
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How do we measure muscle activity?

Muscle contraction produced by electrical signals

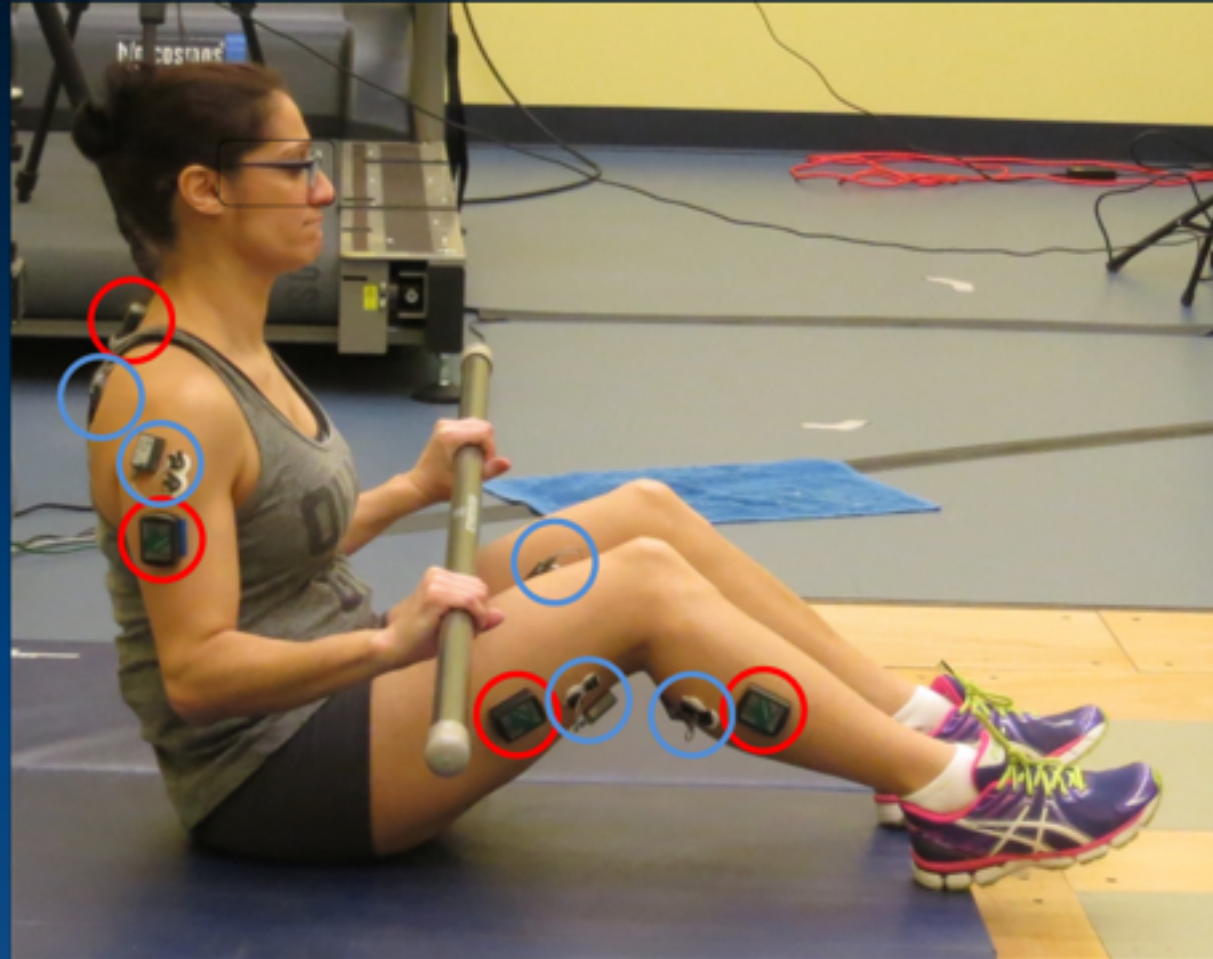
SURFACE ELECTROMYOGRAPHY

- Sensors measure electrical activity of muscles



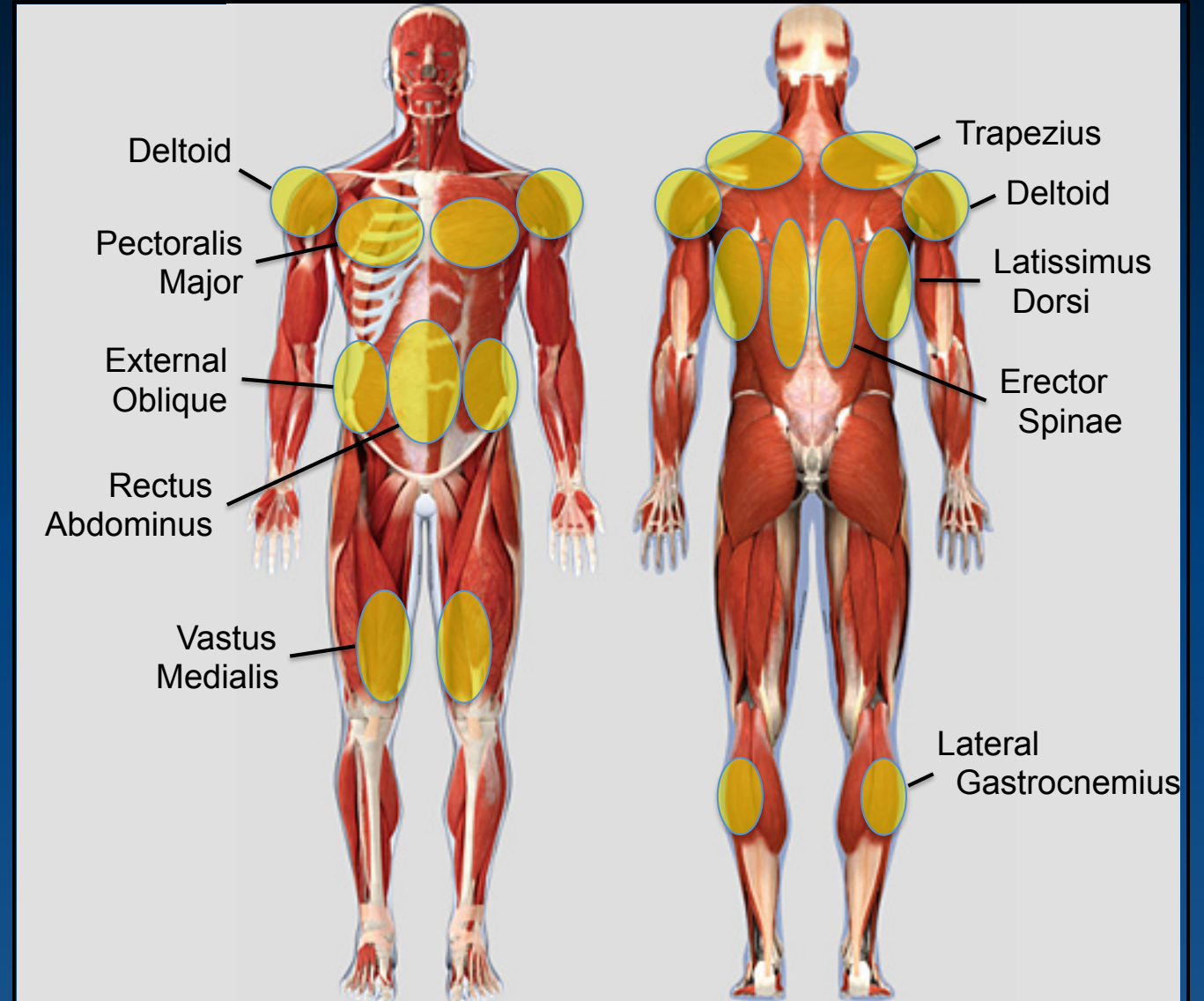
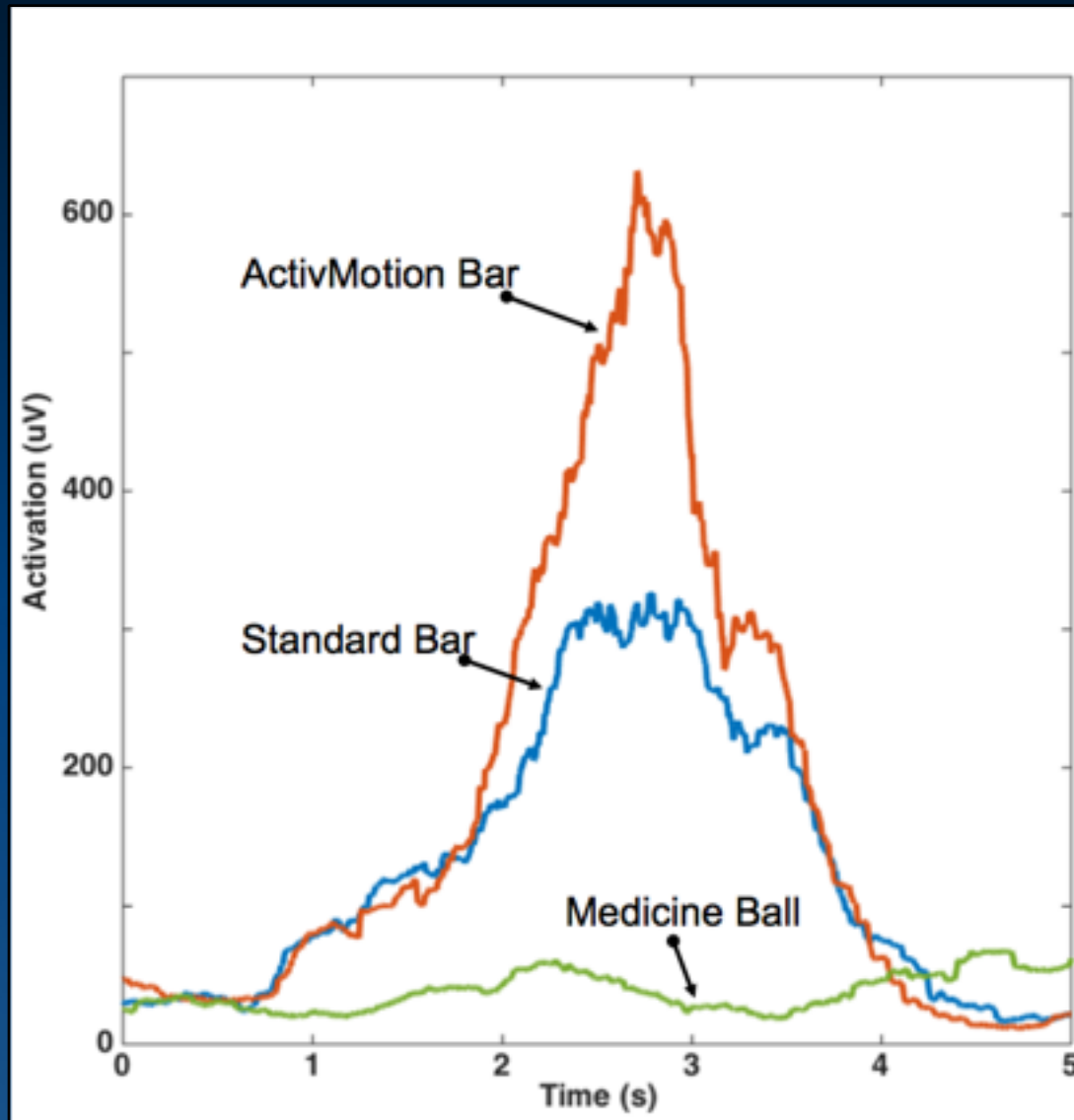


Study Protocol



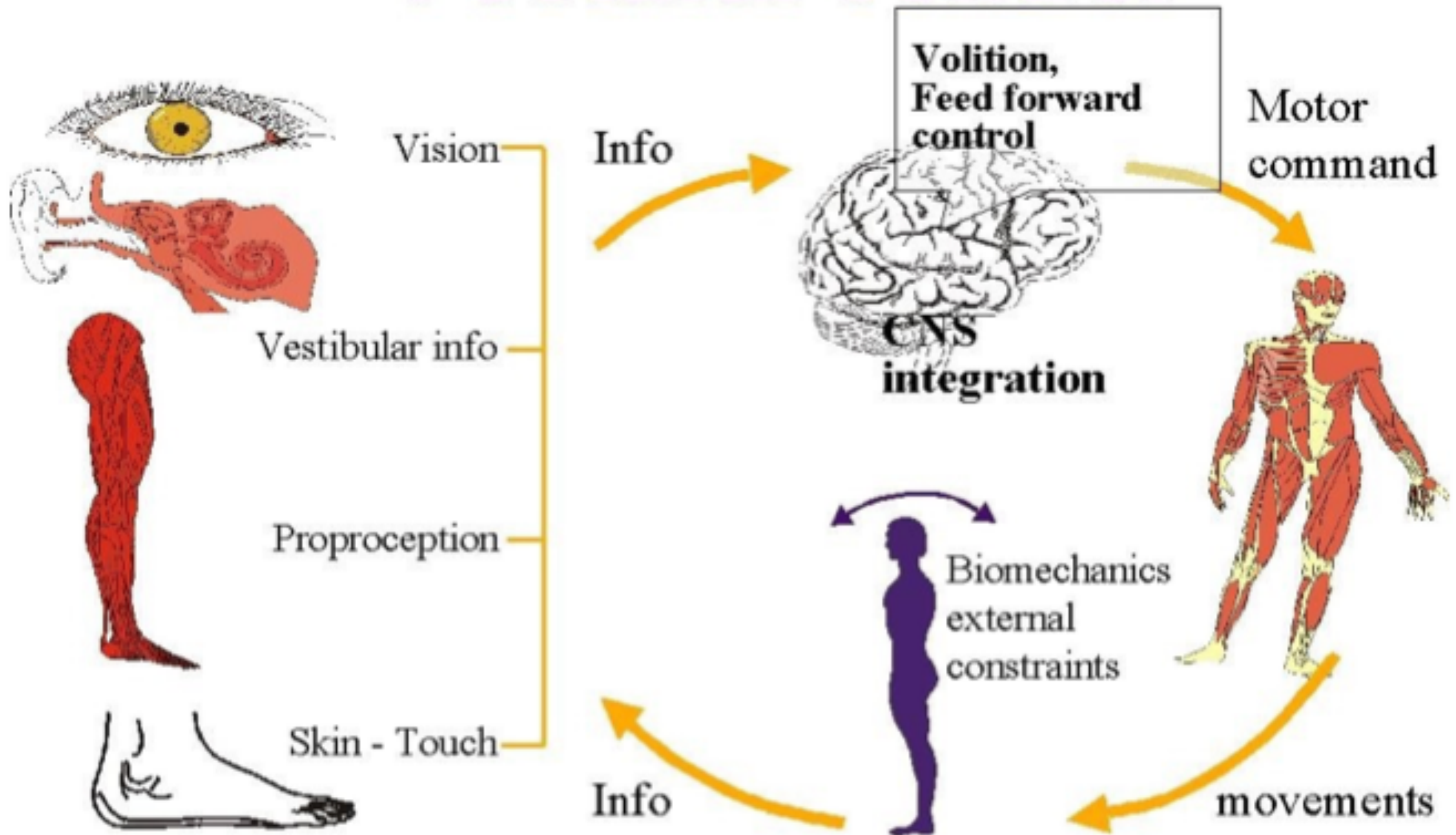
- Active, 30-50 years of age
- 30 People
- Standardized series of exercises
- Equipment
 - Standard weighted bar (10 lbs for males; 6 lbs for females)
 - Medicine ball
 - ActivMotion bar

Results



ActivMotion Bars activated all muscles or muscle groups tested (highlighted above) up to 173% more than the standard fitness bar and medicine ball, with averages being 20%-40% more; still a very significant difference.

Postural control



Feel. Hear. See.  Heighten these senses!



ACTIVMOTION BAR™

Feel It. Hear It.
Ignite the Mind and Body.



GPS Approach to Training

- Generalized
 - Cover all of the functional areas equally
 - Appropriate for large group classes and programs
- Prioritized
 - Weight functional areas according to client characteristics such as age, gender, functional ability
 - Appropriate for small group training
- Specialized
 - Specifically target the individuals' areas of deficiency while still prioritizing the functional areas according to their characteristics
 - Appropriate for 1-1 and small group training

Keys to Successful Functional Circuits

1. Keep the purpose functional
2. Match the movements to the clients' abilities
3. Address a broad mix of functional domains
4. Keep safety first
 - Instructions, cueing, spotting
 - Be diligent

Functional Aging Circuits

Level 1

New exerciser, frail to lower independent

Level 2

Less experienced exerciser, independent

Level 3

Experienced exerciser, independent to fit

Level 4

Experienced exerciser, fit

Level 1 Circuit - Low Function

- Chair Stands/Power Stands
- Standing two arm tubing chest press
- Standing two-arm tubing row
- Step Ups alternating legs
- Ankle Sways
- Side Step with Reach
- Calf Raise on floor or step
- Bird Dog arms only
- Bird Dog legs only
- AMB Walk the Plank (prop, bar against body, bar with body, tip and tilt)
- AMB Single Leg Balance (prop, bar against body, bar with body, tip and tilt)
- AMB Standing March (prop, bar against body, bar with body, tip and tilt)
- AMB Modified Side Plank (no bar, with bar)
- AMB Bridge (bar against body, bar with body)

Level 2 Circuit - Mid Function

- Sleeping Dog front and back
- Pushup
- Monster Walk

- Standing reciprocating tubing row
- Sleeping Dog side to side

- Side Step Ups with knee raise
- Side Lunge
- Bird Dog with alternating limb movement

- AMB Staggered Stance Deadlift
- AMB Heel-Toe Walk the Plank
- AMB Bridge marching
- AMB Reverse Lunge (prop, bar against body, bar with body)
- AMN Standing Rotation (bilateral, split stance)

Level 3 Circuit – Mid Function

- Bush Walk
- Standing 1-arm tubing shoulder press
- One-legged stand (eyes closed)
- 30s Plank
- Standing one-arm tubing row
- Carioche
- Standing one-arm chest press
- 30s Plank
- Half-kneeling one-arm lat pull down
- High kicks on wall
- One-legged airplanes
- 30s Plank
- AMB Forward-Reverse Lunge
- AMB Walking Lunge (optional visual challenges)
- AMB Single Leg Deadlift
- AMB Steering Wheel Squat
- AMB High Plank Bar Climb

Level 4 Circuit - High Function

- Backward Crossover Walk on Toes
- Staggered Stance Rotation
- 30s Marching Plank

- Rear Lunge with one-arm tubing row
- Carioche
- Power Punch with tubing
- Ladder Drill
- 30s Plank Rolls

- AMB Lunge to Single Leg Balance, Press
- AMB Golf Swing/Ice Skater
- AMB SL Balance Hip Extension Hold, Row
- AMB 90 Degree Functional Squat Pattern
- AMB Single Leg Bounds
- AMB Single Arm Over Head Lunge

Programming Strategies

- Sets and reps vs. Time intervals
- Pace, Rest Periods
- Volume
- Complexity
- Partner Drills, Group Work

Thank You!



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