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## **Whole Health Training: Exercise Prescription**

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### **EXERCISE PRESCRIPTION**

Learning objectives:

1. Describe common effects of aging on functional mobility
2. Identify evidence-based recommendations for physical activity for adults
3. Explain the benefits of progressive resistance training (PRT) for adults
4. Prescribe an evidence-based exercise program for adults, consistent with the Physical Activity Guidelines. (Beginner Level)
5. Utilize exercise and its benefits to optimize short-term and long-term patient outcomes

### **PART ONE**

Didactic presentation

- A. Current Recommendations/Guidelines for Physical Activity (PA)
  1. Are similar for all “healthy” adults, of all ages
    - Per Physical Activity Guideline November, 2018
      - 150 to 300 minutes/week of moderate intensity activity
        - Sit less, move more.
        - Especially people who have low activity level, any increase in activity provides health benefits
        - Replaces 2008 recommendation of 10 minute bout exception – for very deconditioned people
      - Resistance training 2-3 days/week
      - Less specific, but some flexibility activity recommended
  2. Other medical associations arrived at the same recommendations via evidence in their respective disciplines, but with some variations. (These are in the powerpoint file.)
  3. Emerging area of high Intensity interval training – some but limited evidence for short bouts with similar CV benefits.

B. Why Exercise?: Inactive Aging increases risk for, or severity of:

- Muscle loss
- Fat gain
- Degenerative joint disease
- Reduced bone mineral density
- Chronic pain
- Metabolic decline
- Diabetes
- CAD
- Cognitive decline
- Depression
- Mortality: Inactivity is a greater single risk factor than Obesity
- Certain forms of Cancer

C. Benefits of Resistance Training

- Increased strength/lean muscle mass
- Improve cardiovascular and metabolic health\*
  - Until recently, only aerobic exercise was thought to improve
- Combats bone density loss
- Reduces risk of falls and fractures
- Improved mental health and cognition
- Improves functional mobility = independent living

D. Resistance Training (RT) Program Design

- Choose Wisely Campaign (American Physical Therapy Association)
  - “Don’t prescribe **underdosed** strength training programs for older adults. Instead, match the **frequency, intensity, and duration** of exercise to the individual’s abilities and goals.”
- RT Principles and Adaptations
  - Acute and chronic effects occur
  - Periodization – varying training parameters (advanced)
  - Specificity
- “Extreme Conditioning”
  - Cross Fit, P90x, etc
  - Consensus is “caution,” especially for beginners
  - Evidence of higher inflammatory response/inadequate recovery
  - In **well trained** military population: no increased injury risk vs other training
  - \*But – limited evidence to date

E. Resistance Training in Physical Medicine & Rehabilitation Settings

- s/p Total Knee Arthroplasty
- Osteoarthritis
- Chronic Low Back Pain
- Fibromyalgia
- Cardiac-Related Conditions
- Multiple Sclerosis
- Parkinson's Disease
- s/p Stroke

#### F. Putting the pieces together

- Warm-up: relative to specific exercise activity
  - i. Simple exercise, such as moderate aerobic exercise may indicate just starting slowly and/or at a lower intensity. Example of walk>jog>run
  - ii. More intense exercise indicates longer and more progressive warm-up
- Aerobic/cardio - 3 to 7 days/week x 30 minutes or more
- Resistance training – 2 to 3 days/week
- Flexibility exercise – 2 to 7 days/ week
  - i. Before exercise: active or “dynamic” flexibility
  - ii. After activity, when muscles are warm: “static stretches.”
- Other – active recreation, sports, yoga...

#### G. Summary and Conclusions

- Exercise, as outlined in CDC/HHS Guidelines for Physical Activity, is recommended for everyone through the lifespan, to reduce the effects of aging
- “Exercise is medicine” for prevention, treatment, and management of many health-related problems
- Exercise, including resistance training, is safe for most people
- Resistance and aerobic exercise are primary treatment for most physical mobility problems, including osteoarthritis and low back pain.

## **PART TWO**

### Hands-On Exercise Techniques:

- Focus on stability, posture, balance, resistance and aerobic exercise
- Aerobic or “cardio” options
  - Walking
  - Bike
  - Elliptical
  - Row
  - Swim, other pool exercise
- Resistance training hands-on

- Safety: preventing common injuries
  - Shoulders, back, knees
  - Core – the more functional, the better.
- “Equipment” for resistance training
  - Body weight
  - Bands and cords
  - Health club or home gym
    - Selectorized machines, Free weights, Pulleys

## References

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