STRENGTH TRAINING FOR SENIORS

WHO IS A "SENIOR"?

BIOLOGICAL AGING

Barriers & Facilitators
- Brainstorming Activity

Aging Factoids
- Least physically active of any age group
- Highest medical expenditures of any age group
- Most rapidly growing age group

Sarcopenia
- Age-associated loss of muscle mass and functional capacity
- Reduced ROM
- Causes/Contributors
  - Muscle fiber atrophy
  - Change in rate of protein synthesis
  - Increased fat infiltration of muscle
  - Decrease in firing pattern of motor units
  - Behavioral risk factors

STEREOTYPES OF AGING
- What is their disposition?
- What do they do each day?
- What do they believe in? Support?

What age?
- Betty
  - Lives alone
  - Performs all BADL’s
  - History of hip fracture with ORIF
  - Uses straight cane
- Martha
  - Lives with family
  - Walks 200 ft max with PIV
  - O2 per NC @ 2L

SOCIAL AGING
- Age-related changes in the individual or society as a whole that results from forces arising from society and the individual’s and/or group’s responses to these socially imposed forces.
PSYCHOLOGICAL AGING
- Age-related changes in behavior and mental process. It focuses on changes in the individual's ability to adapt, to adjust, and cope effectively to external or internal changes.

WHY STRENGTH TRAIN?
- Rate of muscle mass loss doubles after age 50.
- Depressive disorders with aging are related to loss of muscle mass & strength over time.
- In adults who do not exercise – 5-10% decrease in strength per decade

Functional Benefits
- Increase Gait Speed
- Increased Gait Tolerance
- Decreased Fall Risk
- Improved Chair Rise Performance

COMMON COMPLAINTS OF AGING
- Costly medications
- Pain in joints
- Limited mobility
- Fatigue
- Depression
- Change in bowel performance
- Urinary incontinence
- Loss of friendships
- Shortness of breath
- Feeling "fally"
- Weight gain
- Loss of memory

WHY STRENGTH TRAIN?
- Those who do regular moderate exercise had better physical function than those who are physically active, but do not exercise (both were better than physically inactive/non-exercising aging adults)

TRANSLATION
IMPROVED FUNCTION
IMPROVED INDEPENDENCE

REALITY CHECK
Do these things ONLY happen to people who are "old"?

BENEFITS OF STRENGTH TRAINING
- Increased Strength
- Improved Body Composition
- Increased Metabolic Rate
- Increased bone density
- Improved Gait Mobility
- Decreased resting BP
- Decreased risk of fracture
- Improved Raven Blood Lipids
- Improved post-exercise performance
- Enhanced self-confidence
- Reduced Depression
- Increased Strength of connective tissue
- Decreased Arthritis Pain

Risks of NOT strength training
- Sedentary People 25% greater risk of HTN
- Decreased mobility
- Functional decline
- Decrease physical activity
- Decreased social activity
- Increased disability
- Decreased quality of life

Off et al 2004
**Research based Evidence**
- Research supports the benefits of resistance training in the elderly.
- Resistance training improves functional mobility and independence of older individuals at varying levels of independence.

**Foldvari et al**
*J Gerontol 2000*
- Leg power was found to be a strong predictor of self-reported functional status in elderly women.

**F-starone et al.**
*Strength Training of the Very Old*
- 50 frail institutionalized elderly (80-90.6y) (n=8)
- 1.0RM Group trained for 6 weeks
- Male (≤ 80% 1RM), female (≤ 80% 1RM)

**RESULTS:**
- Significant strength gains in all groups
- Functional mobility improved
- 5.30±6.94% increase in 10-metre gait test
- Elb: 50.2±5.4% loss of 4 weeks

**Beissner et al**
*Phys Ther 2000*
- LE muscle force was a predictor of functional mobility in older adults living in senior housing communities.
- Physical performance tests used to measure functional ability.

**Mizner et al**
*J Ortho Sports PT 2005*
- Quad strength was the most highly correlated measure associated with functional performance in patients following total knee arthroplasty.

**Si-Mon et al.**
*Effects of Maximal Isometric and Isometric Resistance Training on Strength and Functional Mobility in Older Adults*
- 60 participants: Men and Women (≥ 65 years)
- Training
- 2 groups: Non-resistance; Resistance training
- 15 minutes, 3 times/week
- 15 weeks

**RESULTS:**
- Improved walking times in all groups, especially in older females.
- Improved strength and mobility.

**Chandler et al**
*Arch Phys Med 1998*
- LE strength gain is associated with improvements in chair rise, gait speed, stooping and stair climbing.

**Puthoff et al**
*J Geriatr PT2008*
- LE strength & peak power are related to walking behavior in older adults.

**Lee-Ambrose et al.**
*Resistance Training vs. Agility Training in Reducing Falls*
- 56 seniors: Aged 76.48
- 2 groups: Speed training (control); Resistance Training, Agility Training
- 7 weeks
- 25-week study – Timed Zephyr

**RESULTS:**
- Fall scores decreased in all groups; most significant in resistance group.
- Subjects improved most in second half of study.
**Weight Training Improves Walking Endurance in Healthy Elderly Persons**

- 26 community-dwelling men and women 65 yr and greater
- 2 Groups: Control and Resistance
- Resistance group exercised 3 x week to 75% of Universal GM
- SR = 20% increase

**Results**

- Resistance group increased walking endurance by 5 minutes
- No change in control

**References**

Alexander et al

- 161 residents of congregate housing with assist for mobility-related ADL
- 2 groups: control (flexibility only) and task-specific intervention
- 3 x week x 1 hour
- **Results**
  - Increase in ability to rise from chair
  - Decrease time to complete bed and chair rise tasks

**Resistance Training in the Early Postoperative Phase Reduces Hospitalization and Leads to Muscle Hypertrophy in Elderly Hip Surgery Patients**

- 35 patients (60-85 y)
- 3 Groups: Control and Resistance
- **Results**
  - Hemoglobin A1c decreased 2 units
  - Ultrasound 5 x week
  - Ultrasound resistance training 3 x week

**Results**

- RPE decreased significantly in all 3 ADL simulation tasks
- HR decreased significantly for carry
- RE rates decreased for stair and walking tasks

**References**

Scotts et al

- Significant levels of strength are retained even after 20 weeks of detraining
- 4.5% decrease at week 6
- 13.8% decrease at week 20

**Task-specific resistance training to improve the ability of activities of daily living impaired adults to rise from a bed and from a chair**

- **Results**
  - 37% shorter hospital stay for RT group vs. SR
  - No improvements in SR group from baseline
  - RT increased max gait speed 30%, ES 19%
  - RT increased stair climb 28%, ES 19%
  - SR improved 30% for RT, 21% ES
  - Quad muscle CSA: RT increased 12%, SR decreased 8%, ES increased 7%

**References**

Alexander et al

**Strength Reserve**

- Importance of reserve strength for independence
- Help during exacerbation of illness & disease
**PRINCIPLES OF STRENGTH TRAINING**

**Overload**
Must provide load that is new to the body, an overload, to get a positive training effect.

**Intensity of Training is Important!**
- Vincent et al.
- Kalapothakis et al.
- Jan et al. — higher intensities had larger effect in elderly patients with knee OA.

**PRINCIPLES OF STRENGTH TRAINING**

**Specificity**
Work muscles in a specific way to get a specific outcome. We only get strong in what we do.

**Progression**
- Doesn’t always have to be weights...
- 1. Supported to unsupported or destabilized
- 2. Bilateral to unilateral
- 3. Change the condition
  - Include training skill-related parameters, neural pathways, and dynamic movements simultaneously
  - Inclusion may add an element of creativity and enjoyment

**LAW OF DIMINISHING RESULTS**

Body adapts to demand placed on it in approximately 2 weeks.
If demand is not changed, plateau occurs.
AFTER INITIAL LEARNING PHASE, CHANGE IS GOOD AND NECESSARY!!!
**PRINCIPLES OF STRENGTH TRAINING**

**Recovery / Rest**

Prevents overuse

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**Program Design Variables**

- **Number of Sets**
  - Beginners: 1-3 SET major muscle groups
  - Advanced: 3-5 SETs
- **Rest Periods**
  - Depends on resistance used
  - Exercise Load / Intensity
  - Depends on physiological goal

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**GROUP ACTIVITY**

How do we determine intensity?
Where do we start?

1 RM, 10 RM, 15 RM

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**Program Design Variables**

- Exercise selection
  - One per major muscle group
- Exercise order
  - Large muscles before small

---

**Program Design Variables**

- Progression
  - Increase by 5% or less when maximum number of reps in range are completed with good form on 2 consecutive workouts.
  - 2-5 lbs UE/ 5-10 LB

---

**TRANSLATION**

<table>
<thead>
<tr>
<th>% 1 RM</th>
<th>Reps</th>
</tr>
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<tbody>
<tr>
<td>95</td>
<td>2</td>
</tr>
<tr>
<td>90</td>
<td>4</td>
</tr>
<tr>
<td>85</td>
<td>6</td>
</tr>
<tr>
<td>80</td>
<td>8</td>
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</tr>
<tr>
<td>65</td>
<td>14</td>
</tr>
<tr>
<td>60</td>
<td>16</td>
</tr>
</tbody>
</table>

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**Program Design Variables**

- **Frequency**
  - 2-3 session per week
  - Non-consecutive days spaced evenly through the week
- Split program option
  - Workout on consecutive days
  - Less time each day
  - Requires additional day per week

---

**Strength Training**

Training Continuum

- Maximum Endurance: 12-15 reps
  - 50-90% 1 RM
- Hypertrophy: 8-12 reps
  - 70-90% 1 RM
- Strength: 6-8 reps
  - 80-90% 1 RM

---

**Rating of Perceived Exertion**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Very, very light</td>
</tr>
<tr>
<td>2</td>
<td>Very light</td>
</tr>
<tr>
<td>5</td>
<td>Light</td>
</tr>
<tr>
<td>10</td>
<td>Moderate</td>
</tr>
<tr>
<td>13</td>
<td>Hard</td>
</tr>
<tr>
<td>16</td>
<td>Very hard</td>
</tr>
<tr>
<td>18</td>
<td>Max effort</td>
</tr>
<tr>
<td>20</td>
<td>Very, very hard</td>
</tr>
</tbody>
</table>
**RPE and Intensity**

<table>
<thead>
<tr>
<th>Level</th>
<th>Rate</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rest</td>
<td>1</td>
<td>Low</td>
</tr>
<tr>
<td>Fatig</td>
<td>3</td>
<td>Medium</td>
</tr>
<tr>
<td>Max</td>
<td>5</td>
<td>High</td>
</tr>
</tbody>
</table>

**APTA Section of Geriatrics Recommendations**

- B-15 reps
- 2-3x/week
- 1-3 sets

*Summary from table in Gen notes Vol 10 2008*

**Barriers for Seniors**

- Time
- Cost
- Transportation
- Pain
- Fear
- Effort
- Do not see benefit
- Lack of equipment

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**Avoni D & Brown MJ**

*White Paper: Strength Training for the Older Adult*

"Similar to the cardiovascular system, skeletal muscle requires a workload of approximately 50% of maximum available strength to increase strength".

*J Gerion PT 2009*

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**Precautions to Exercise**

- Acute illness
- Unstable chest pain
- Uncontrolled diabetes
- Asthma
- CHF
- Musculoskeletal pain
- Weight loss
- Falling episodes
- INR 5-6 (exercise should be held, get 6 consider bed rest)

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**Overcoming Barriers**

- Fun
- Convenience
- Quality, safe instruction
- Input into goals
- Meet expectations
- Connect to function

---

**ACSM**

- Position Stand Paper on Resistance Training for Adults 2009
- Guidelines
  - Progressive RT of all major mm groups
  - 2-3 days/week
  - 2-3 sets

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**Contraindications**

- Recent unstable fracture
- Advanced CHF (NYSE level IV)
- Cancer (tumors in target area)
- Recent Unstable MI (in past 4-6 weeks)
- Acute Illness

---

**Cues for Training Success**

- Proper Stabilization (bench or core)
- Proper Technique
- Exhale during exertion
- Move through full range of motion
- Control Speed-Slow "stop on a dime"
- Watch grip
- Specific with verbal cues-watch first!
PRE/POST STRENGTH TRAINING

WARM-UP
- Transition from resting to active state
- 5-10 minutes
- More important for elderly due to changes in physiological state
- Good time for education, discuss goals, encourage.

COOL-DOWN
- Transition to a more restful state
- 5-10 minutes
- Important for cardio system to have ramping down time.

TYPES OF EQUIPMENT
- Frees weights
- Machines
- Swiss Balls
- Dumbbells
- Golf weights
- Balance boards
- Thera-bend/Sports cord
- Body resistance
- Which is best? Depends on individual.

The Adult Learner
- Characteristics
- Learning style
- Teaching style

PHYSIOLOGICAL CHANGES
- Integumentary
- Skeletal
- Muscular
- Cardiovascular

CHOOSING EXERCISES

ARE EXERCISES BAD?
OR
ARE THEY BAD FOR SOME PEOPLE?
FIRST... YOU NEED A LARGE TOOLBOX TO CHOOSE FROM

BEGINNER PROGRAM
- Divided into 5 2-week segments
- Start with 5 exercises involving large muscle groups first (add in smaller groups later)
- Add new exercises every 2 weeks
- Increase weight about 5%

GROUP ACTIVITY
- The Good
- The Bad
- Exercise Controversies
- Modifications to Traditional Exercises

BEGINNER PROGRAM
- Endurance activities
- Postural exercises
- Stretches
- Basic core stabilization exercises
VARIABILITY ENHANCES CARRYOVER "PERIODIZATION"
DIFFERENT PIECES OF EQUIPMENT,
DIFFERENT POSTURAL
DIFFERENT REP RANGES,
DIFFERENT SETS,
DIFFERENT SIZING AND ORDERING OF EXERCISES.
ENHANCES OVERLOAD AND TRANSFERABILITY OF MUSCLES TRAINED.

IMPAIRMENT-BASED TREATMENT
WHAT GUIDES OUR TREATMENT/EX PRESCRIPTION?
AGE?
DIAGNOSIS?
STEREOTYPES?

SO....
WHAT IS THE BEST EXERCISE? WHICH EXERCISE DO I USE?

MONITORING PROGRESS
- Objective Data
  - MMT (dynamometers/kin-folds/II)
- Functional Strength Tests
  - Chair Rise Tests
- Activities of Daily Living
- Range of Motion / Flexibility

IMPAIRMENT-BASED TREATMENT
WHAT GUIDES OUR TREATMENT/EX PRESCRIPTION?
PATHOLOGY: What happened to the body?
PHYSIOLOGY: What happened to the system?
FUNCTIONAL LIMITATION: What you can't do.

FUNCTIONAL TRAINING
Goals of functional training:
- Train movement patterns, not isolate muscles (integrate, not isolate)
- To help your clients better meet the demands of daily life activities
- Emphasize quality of movement over the quantity of movement

CONSIDER LIFE ROLES

WHAT DETERMINES WHICH EXERCISES YOU CHOOSE?
KNOW PATIENT/CLIENTS GOALS
KNOW THEIR FUNCTIONAL LIMITATIONS AND ADDRESS IN EXERCISE CHOICE

FUNCTIONAL TRAINING BENEFIT
SAFETY
DECREASED RISK OF INJURY
DECREASED RISK OF OVERUSE
FUN! VARIETY!
CONTINUED BENEFITS
ARE YOU HOLDING THEM BACK?

GROUP ACTIVITY

"Those with chronic conditions for which activity is therapeutic should have a single plan that integrates prevention and treatment."

Circulation August 1, 2007 Belcher et al.

FOR SOME SENIORS, THESE ARE THE MOST DIFFICULT TASKS THEY ENCOUNTER ALL DAY...

REVIEW.....

WHAT WEIGHT DO I USE?
WHAT REP'S DO I DO?
WHAT EXERCISES DO I CHOOSE?

Obesity

- Exercises to support body weight
- Nutritional counseling
- Breathing Exercises
- 30 minutes cardio prior lifting external weights

ACSM position statement

ARE YOU PREPARING THEM THROUGH EXERCISE TO SUCCEED?

"SPECIAL" POPULATIONS

- Obesity
- Diabetes
- Cardiovascular
- COPD
- Osteoporosis
- Lower back pain
- Arthritis (OA/RA)
- Depression
- Visual/Auditory Impairments
- General Frailty

Diabetes

- Monitor for acute low blood sugar resulting from exercise + insulin supplementation
- Glucose on site
- Type 1 diabetics on beta blockers at risk for hypoglycemia
- Proper footwear/wearing sensitivity/periodic neuropathy
- Nutritional and Foot Care Education
Diabetes
Kitamura et al
- Authors conclude that aerobic + resistance training is more effective for improving insulin action in the elderly than resistance training alone
- Geriatr Gerontol Int 2003

Diabetes
- RT programs should take into account the severity of disorder, age & relative risk
- Start with light – moderate intensity (45-65% 1RM)
- Monitor blood glucose before, after & during exercise

Cardiovascular Disease
- Post coronary patients 40% 1RM 3-6 weeks
- Emphasize breathing & grip
- Avoid isometrics
- Proper warm up & cool down
- Monitor HR / perceived exertion
- Avoid overhead activities initially
- Energy conservation education

Diabetes
Davis JK
- Review of literature
- Circuit training has shown + effect on glycemic control in Type 2 diabetes
- Moderate RT (45-50% 1RM) shown to be safe & effective in improving glycemic control with no adverse events other than mild muscle soreness
- J SSMC Issues 2007

Diabetes
APTA GeriNotes Vol 1 2008
- Carbohydrates before exercise if blood sugar <100
- Type II diabetics with high blood sugar (over 250) can exercise if they feel well and are hydrated. Type 1 should check for ketonuria if over 250
- Consider NIVB exercises for severe neuropathy

APTA GeriNotes 2008
Exercise Prescription for RT in older adults with HF
- Dynamic resistance, circuit weight training 8-10 muscle groups
- Start with 45-50% 1 RM and can progress to 80% based on tolerance
- Start with 1 set 10-15 reps at 3:3 rate
- Work:rest ratio – 1:2 between sets
- 2-3x/week

Diabetes
APTA GeriNotes Vol 1 2008
cont
- Resistance exercises recommended
- 3x/week
- Target all major mm groups
- Progress to 3 sets of 6-10 reps
- Cardiovascular exercise recommended
- 150 minutes / week moderate intensity
- 90 minutes vigorous aerobic activity

Cardiovascular Disease
Vincent et al. 2003
- RT decreased cardiovascular response to exertion and improved recovery from max exertion.
- Am J Geriatr Cardiol
Resistance training on physical performance in disabled older female cardiac patients
- 42 women 65 and over with low self-reported physical function
- 6 month program
- 2 groups: control and resistance trained
- Resistance group showed significant improvement in strength and physical performance
- Ades et al.
- Med Sci Sport & Exer 2003

Osteoporosis
- No forceful spinal flexion exercises
- Include spinal extension exercise
- Focus on technique and posture
- Avoid hip adduction/abduction against resistance
- Weight bearing exercises
- Start with 50-60% 1RM and increase to 70-80% 1RM
- Tennis, golfing, and bowling to be considered judiciously APTA

Low Back Pain
- Include trunk flexion & extension exercises
- Include education on posture, lifting, body mechanics
- Use clinical prediction rules whenever possible

COPD
- Slower progression
- Divide exercises throughout the day—may be better with BID treatments
- Use RPE scales
- Breathing exercises
- Monitor O2 sat

Osteoporosis
- Villareal et al—relatively vigorous exercise training significantly improved lumbar spine BMD
- Mervis et al.—a 16-week strength training program in middle-aged and older men resulted in increased regional BMD
- Nelson et al.—high intensity RT is an effective means to preserve bone density in postmenopausal women

Arthritis
- Avoid exercises that increase joint pain
- Brief sessions
- Decrease variables during exacerbations
- Wrists in neutral
- Avoid overhead lifts with resistance
- Pool programs beneficial
- Avoid overtraining

COPD
Panton et al 2004
- Progressive RT was well tolerated & improved functional outcomes in COPD patients that were involved in an aerobic training program
- Eur J Appl Physiol

Osteoporosis
Zechnacker et al
- Literature review to determine which specific exercise protocols using RT were effective in maintaining or increasing bone density in postmenopausal women
- 30 articles reviewed—improvements in bone density in 7. Conclusions by authors:
  - High loading required 70-90% 1RM
  - 8-12 reps
  - 2-3 sets
  - J Bone Miner Res

Osteoarthritis
Jan M. et al PT 2008
- Investigation of clinical effects of high and low resistance training for patients with knee osteoarthritis: a randomized controlled trial
- Purpose: to compare effects of high and low resistance training in elderly with knee OA
<table>
<thead>
<tr>
<th><strong>Osteoarthritis</strong></th>
<th><strong>Osteoarthritis</strong></th>
<th><strong>Auditory Impairments</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Results</td>
<td>Results</td>
<td>Not overcrowded</td>
</tr>
<tr>
<td>Both high &amp; low intensity training significantly improved clinical effects</td>
<td>No effect of phone contact</td>
<td>Face clients when speaking</td>
</tr>
<tr>
<td>High intensity had a larger effect</td>
<td>Exercise group had average 12% reduction in knee pain</td>
<td>Demonstrations may be beneficial vs. verbal explanation</td>
</tr>
<tr>
<td></td>
<td>Compliance at 2 years – 48.1%</td>
<td>Speak slowly</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Verify comprehension</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Osteoarthritis</strong></th>
<th><strong>Depression</strong></th>
<th><strong>General Frailty</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ettinger W. et al JAMA 1997</td>
<td>Start with beginner workout</td>
<td>Start with a single set</td>
</tr>
<tr>
<td>Older disabled persons with knee OA had modest improvements in physical performance and pain with both aerobic &amp; resistance exercise programs</td>
<td>Move to higher intensities as soon as possible.</td>
<td>Fewer exercises</td>
</tr>
<tr>
<td>Authors suggest that exercise should be prescribed as part of Rx for OA</td>
<td>More effective with depression than lower intensity.</td>
<td>Longer rest periods</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Osteoarthritis</strong></th>
<th><strong>Visual Impairments</strong></th>
<th><strong>General Frailty</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Thomas et al. BMJ 2002</td>
<td>Proper lighting-400 Lumens</td>
<td>Exercise is an underutilized TE for frail elderly</td>
</tr>
<tr>
<td>746 men &amp; women over 45 with self reported knee pain</td>
<td>Large pictures for handouts</td>
<td>Barriers are created by patients, caregivers &amp; health care providers</td>
</tr>
<tr>
<td>4 groups: 1) exercise therapy 2) monthly phone contact 3) exercise + phone 4) no intervention</td>
<td>Large Font, minimum of 14 point</td>
<td>TE is sustainable safe</td>
</tr>
<tr>
<td>2 yr study / primary outcome measurement self-reported knee pain</td>
<td>Be aware of spacing and trip hazards in environment</td>
<td>JABFP 2002</td>
</tr>
</tbody>
</table>
General Frailty
Lord et al 2003
- 561 frail older individuals living in retirement villages
- Group exercise sessions: balance, strength, coordination, flexibility and strength exercises
- 22% fewer falls in exercise group
- Improved chair stepping reaction time and 5 min walk test
- J Am Geriatr Soc

Medications/Vital Signs
- Current Medication list
- Ask about changes at every session
- Vital signs
  - BP
  - HR
  - Pulse Ox
  - Respirations
  - Temperature

General Frailty
Matsuda et al 2010
- The Effect of a Home-Based Exercise Program on Physical Function in Frail Older Adults
  - J Geriatr PT
    - 72 older adults
    - At least 2 chronic conditions
    - 94% diabetic and obese
    - Independent gait with or without devices

Pharmacology Side Effects
- Fatigue & Weakness
- Beta-blockers, diuretics, aspirin
- Dizziness
- Antihypertensives, sedatives, Analgesics / NSAIDs
- Postural Hypotension
- Anti-depressants, anti-parkinsonians, anti-arythemics, beta blockers, diuretics, CA channel blockers

GROUP ACTIVITY
LEISURE
- 1. Gardener
- 2. Grandparent
- 3. Cleaning
- 4. Bowling
- 5. Golf
- 6. Folding Laundry
- 7. Visiting Friends

WHAT EXERCISES WILL YOU INCLUDE IN THEIR PROGRAM?
- EQUIPMENT, POSITION AND REP RANGE

GROUP ACTIVITY CASE STUDIES
- WHAT EXERCISES WILL YOU INCLUDE IN THEIR PROGRAM?
- WHAT MODIFICATIONS TO TRADITIONAL EXERCISES MIGHT BE NECESSARY?
- WHAT ARE PRECAUTIONS OR SPECIAL CONSIDERATIONS THAT COME INTO PLAY?
- EQUIPMENT, POSITION AND REP RANGE

NUTRITION
- Emphasize relationship of weight to disease and decreased functional performance/ increased pain
- Review Food Pyramid/Labels
- Emphasize WATER! (16-20 oz glasses on exercise days)
- Same Nutrition as you would recommend for anyone
- Checkout Websites