

## Examples of exercises in categories for the elderly:

EE\_2.doc

1. Aerobic/endurance examples for 20 hours of low intensity (60% of max HR) or 10 hours of vigorous intensity 70-80% maxHR or 5 hours of high intensity 80-90% maxHR.  
Example (71 year old): Complete 5-10 hours exercising at heart rates between 70-90% maxHR as follows:
  - a. Treadmill - 15% incline at 3 mph carrying 5-17 lb weight for 30 minutes at 78-85% maxHR is high intensity long duration (HILD). High HR 90%.
  - b. Treadmill - 15% incline 0 power carrying weight while walking 30 seconds and running 30 seconds as fast as possible (high intensity interval training – HIIT) for 20 minutes or for 5-10 minutes after running on treadmill 20-30 minutes for 80-85% avg HR and high HR 90%
  - c. Trail run – 20-21 minute pace for 30 minutes uphill (Tanque Verde Ridge Trail) with 15 lb pack in heat then back down in 30-33 minutes for 80-85% avg HR and 90-95% high HR.
  - d. Sand run – 60 minutes in sand (Tanque Verde Wash) with 15 lb pack in heat at 20 minute pace or about 3 miles for 70% avg HR and 80% high HR.
  - e. Stair Mill – 60% incline. 10-30 minutes on stair climber at 70 steps per minute (40 ft/min) at 75-85% avg HR.
  - f. VersaClimber – 75% incline. 10-30 minutes on VC at 90-180 feet per minute at 80-85% avg HR. Record 1,000 ft climbed in 7:12 on 8-25-16 (141 feet/minute) with 78% avg HR (144) and 91% max HR (168).
  - g. Actual max heart rate of 185 is applied, not “predicted” maxHR based  $220 - \text{age} = 149$ . Running at average HR over 80% ( $148 \times 185$ ) increases  $V_{O2}$  max to help maintain maxHR near 185 and resting HR near 50 ( $V_{O2\text{max}} = 15.3 \times (\text{MRH } 185 / \text{RHR } 50) = 57$ ) see link <http://www.shapesense.com/fitness-exercise/calculators/vo2max-calculator.shtml> . High  $V_{O2}$ max for 20-29 age is 52; over 60 age is 40).  $V_{O2}$ max is increased by higher intensity, duration, and frequency.
2. Strength training examples for core, upper, and lower body 4 days a week 30 minutes average alternating muscle groups for 2 hours/week or 8 hours/month.
  - a. Core examples:
    - i. mixed planks (level, sides) avg 20 minutes/daily with 5 lb weight for 10 hours/month minimum (abs, obloquies, shoulders, back)
    - ii. Ab roller on knees – immediately after plank: 10 reps with 5 lb and 10 rep 0 wt; later 10-30 reps. Total 30-50 reps (abs, shoulders, arms, back)
    - iii. Ab crunch machine – 100 reps forward and both sides at 110-130 lbs x 3 sets for 900 reps total at 110-130 HR (upper abs and obloquies)
    - iv. Side bends – 60 lb each side x 50 reps x 3 sets (obloquies)
    - v. Roman chair – leg lifts x 50 reps x 2-3 sets (lower abs)
  - b. Upper body examples:
    - i. Curls – 50 lb bar x 12 reps x 3 sets
    - ii. Shrugs – 55 lb x 20 reps x 2 sets
    - iii. Ring pull down across chest – 30-40 lb x 12 x 3 sets
    - iv. Row – 90-110 lb x 12 reps x 3 sets
    - v. Rotator cuff – 4-5 plates x 12 x 3 sets
  - c. Lower body examples:
    - i. Running with weight at incline works glutes, quads, and calfs 400% more than on level and reduces impact on knee by 40%

- ii. Stair climbing with weight at 65% incline works lower body and knees
- iii. Leg raise with 10 lb x 10 second x 5 minutes (keeps knee cap aligned)
- iv. Leg squat on one leg with and without weight on solid surface and BOSU ball (flat and round sides) builds knee and leg muscles

- 3. Balance examples: 10 minutes daily for 70 minutes weekly and 3 hours/month
  - a. BOSU ball one leg balance and squats on flat side up
  - b. BOSU ball(s) on round side up – balance and bend to touch ball on one leg
  - c. Solid surface – balance 60 seconds each leg; bend and touch floor on one foot
- 4. Stretching/flexibility examples: 10 min/daily for 70 min/week and 3 hours/month
  - a. Leg extensions at waist level
  - b. Various

Total recommended exercise times per month:

- Aerobic/endurance - vigorous-high intensity cardio (over 70% maxHR) 8 hours
- Strength training – core, upper, lower body 8 hours
- Balance 4 hours
- Stretching 4 hours
- Total 24 hours