

**THE USE OF FITNESS IN THE
CLINICAL AGE MANAGEMENT
PRACTICE: ASSESSING THE
PATIENT AND DEVELOPING THE
INDIVIDUALIZED TREATMENT
PLANS:**

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DISCLAIMER:

I have no commercial or financial interest in any particular exercise program or diet regimen that are listed in this presentation.

All Case study clients have given their permission to use their personal information.



OBJECTIVES:

- 1. Participants will describe the benefits of exercise to their clients.**
 - 2. Participants will state the AHA and ACSM recommendations for exercise for clients under and over 65 years of age.**
 - 3. Participants will identify normal and abnormal $\dot{V}O_2$ Max Values.**
 - 4. Participants will develop exercise programs for beginner and advanced AMM clients.**
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BENEFITS OF EXERCISE:

Decreased risk of:

CHD

Stroke

Type II Diabetes

Cancer (Colon and Breast)

Hypertension

(Garber, C., 2011)



BENEFITS OF EXERCISE CONTINUED:

Improved Cholesterol Panel
C-reactive Protein
Enhanced Insulin Sensitivity
Better Weight Management
Decreased Depressive Disorders
Decreased Anxiety



BENEFITS OF EXERCISE AND AGING:

Improved Bone Mineral Density

Decreased Risk for Falls

Improved Cognitive Function

Decreased Risk of Cognitive Decline and Dementia

Improved Quality of Life

Improved Energy

(Garber, C., 2011)



UPDATE FROM OFFICE OF DISEASE PREVENTION AND HEALTH PROMOTION

For Adults:

Exercise can help prevent 8 types of Cancers:

Bladder

Breast

Colon

Endometrium

Esophagus

Kidney

Stomach

Lung

(ODPHP, 2019)



EXERCISE IS MEDICINE:

Website:

www.exerciseismedicine.org

Partnership with American Medical Association and
American College of Sports Medicine

Goal: To make activity assessment and prescription a standard part
of the disease treatment and prevention paradigm.

(Sallis, R. E., 2009)



TIPS FOR TRAINING CLIENTS:

Train at the new clients level NOT YOURS.

Make the exercise fun.

Empower the client to exercise by making them realize they can do it.

Compliance starts when they start seeing increased energy and stamina.

The worst thing is a client injury when they are starting a new exercise program.




CARDIOVASCULAR, CEREBROVASCULAR, AND RESPIRATORY CHANGES, INDUCED BY DIFFERENT TYPES OF MUSIC.

Objective: To assess the potential clinical use, particularly in modulating stress, of changes in the cardiovascular and respiratory systems induced by music.

Conclusion: Music induced an arousal effect predominantly related to tempo. Slow or meditative music can induce a relaxing effect. The relaxation phase brought HR, BP and Minute Ventilation below baseline.

(Bernardi, L. Porta, C. & Sleight, P. 2005)



ASSESSING CLIENTS FOR EXERCISE:

Physical Activity Readiness Questionnaire (PARQ)

Questions 1-3

Heart Disease or Chest Pain

Questions 4 & 5

Balance & MSD

Questions 6 & 7

Problems with exertion and medications

Question 8

Pregnancy



VO2 MAX TESTING:

VO2 Max – Aerobic Fitness

ml/kg/min

Measures cardiac output and volume of oxygen consumed

Recreational Athlete 45-60

Health Adult 28-44

Deconditioned 16-27

Possible Heart Disease less than 16

(Leake & Greenberg, 2015)

VO2 MAX TESTING:

Measures Cardiac Function and Energy Expenditure.

O₂ Pulse measures liters of flow X Cardiac Output

Good predictor of Heart Disease

Athletic Heart 40-20

Healthy Heart 15

Men under 10 (indicates Heart Disease)

Women under 8 (indicates Heart Disease)

(Not accurate when client on Beta Blocker)



VO2 MAX TESTING CONTINUED:

Minute Ventilation (VE)

Amount of air moved through the lungs per minute.

Normal Values are greater than 70 L/min.

Lower values indicate an obstruction.



(Leake & Greenberg, 2015)

RESPIRATORY EXCHANGE RATIO:

RER

Ratio of expelled V_{CO_2}/V_{O_2} .

Conditioned athletes may have trouble reaching 1.0.

Less fit individuals will be higher than 1.1.

Optimal test is 1.1

(Leake & Greenberg, 2015)

WATTS OF WORK:

Bike measurement in Watts:

Healthy Female 150-200

Healthy Male 200-250

Recreational Athlete 250

World Class Athlete 400



CONTRAINDICATIONS FOR EXERCISE TESTING:

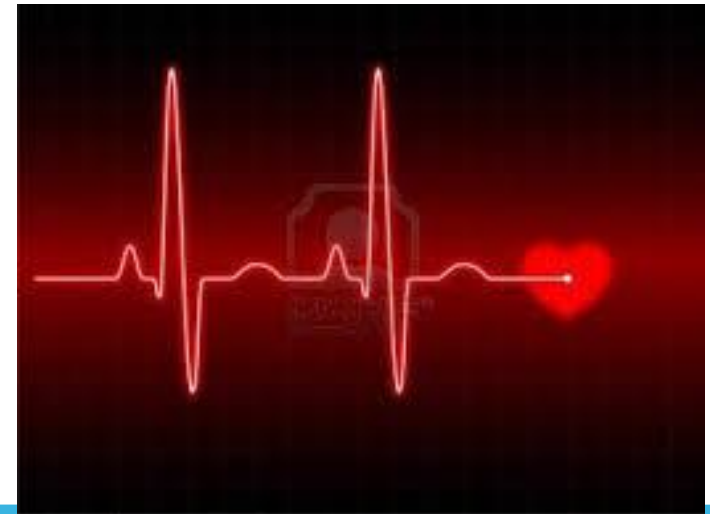
Recent EKG Changes

Acute Myocardial infraction

Unstable Angina

Third Degree Heart Block

Acute Congestive Heart Failure



RELATIVE CONTRAINDICATIONS FOR EXERCISE TESTING:

Elevated Blood Pressure

Cardiomyopathies

Valvular Heart Disease

Complex Ventricular ectopy

Uncontrolled Metabolic Diseases



AHA AND ACSM GUIDELINES FOR EXERCISE 18 TO 65 YEARS OF AGE:

1. Cardiovascular Activity 30 min moderate 5 days per week or 20 min vigorous 3 days per week.
Combination of moderate and vigorous activity.
2. Strength training two days per week
exercising upper and lower body parts.
3. Recommend exceeding these amounts to further improve fitness.

(Haskell, W. L., 2007)



AHA AND ACSM GUIDELINES FOR EXERCISE FOR CLIENTS 65 YEARS OF AGE:

1. Cardiovascular Activity 30 min moderate activity 5 days per week or vigorous 20 min 3 days per week.
Moderate activity 5 to 6 scale
Vigorous activity 7 to 8 scale
2. Strength Training 2 days per week. 8 to 10 exercises, 10 to 15 repetitions
Non-consecutive days
3. Flexibility Training two days per week for at least 10 minutes.
4. Balance Training
5. For clients with medical conditions that benefits from physical activity, they should perform exercise that effectively and safely treats the condition.

(Nelson, M. E., 2007)



MODIFICATIONS TO THESE GUIDELINES:

Recommended for clients 65 years of age or older:

Neuromotor Exercise training- Functional Training

Utilizes motor skills:

Balance

Coordination

Gait

Agility

(Garber, C. et al 2011)



NEUROMOTOR EXERCISE TRAINING:

Examples of Neuromotor Exercise Training:

Tai chi

Qigong

Yoga

Incorporates:

Resistance Training

Neuromotor Exercises

Flexibility Exercises



2 to 3 days per week for 20 to 30 minutes

(Garber, C., et al. 2011)

CASE STUDY FOR PC:

57 year old female

Post menopausal

BMI 26.6

Hx. of Hypertension

Osteopenia

Pre-diabetes

No regular exercise program

Training Heart Rate 126 to 145 THR 136



HOW TO FIGURE TARGET HEART RATE:

Karvonen Method to calculate heart Rate:

$$220 - 57 = 163$$

$$163 - \text{RHR } 70 = 93$$

$$93 \times .60 = 56$$

$$56 + 70 = 126$$

$$93 \times .70 = 65$$

$$65 + 70 = 135$$

$$93 \times .80 = 74$$

$$74 + 70 = 144$$

$$60 \text{ to } 80\% \text{ of heart rate} = 126 - 144$$

CARDIOVASCULAR TRAINING FOR PC:

Walking Program

Moderate Intensity for first 3 months

High Intensity Interval Training

90 sec moderate 30 sec higher intensity

Walk with Hand weights

Walking Hills

Heart Rate Monitor

Target Heart Rate 135- 144 on higher intensity



BENEFITS OF HIGH INTENSITY INTERVAL TRAINING:

Benefits:

Improves aerobic and anaerobic fitness

Decreases Blood Pressure

Improves cardiovascular health

Insulin sensitivity

Improved Cholesterol profile

Decreases abdominal fat and body weight

(ACSM, 2014)



STRENGTH TRAINING FOR BEGINNERS:

For Safety: Train on selectorized, or wt. stack equipment. Helps prevent injuries that can occur with free weights.

Joint Limitations:

Shoulders: Use grip that allows adduction of upper arm and internal rotation of the forearm.

Avoid super pull-overs and lateral raises.

Knee and Hip: Leg presses better than leg extension because it can produce increase sheer force.

Avoid leg adduction and abduction.

Exercises should not elicit pain or discomfort.

(Puitt, B., 2003)



PERIODIZATION OF STRENGTH TRAINING:

Weeks 1 & 2

Leg Press

Chest Press

Compound Row

Abdominals

1 to 2 sets of 8-15 repetitions

Week 3

Overhead Press

Lower Back

Neck Flexion/Extension

Add these exercises.



STRENGTH TRAINING CONTINUED:

Week 4

Leg Extensions

Leg Curl

Arm Extensions

Arm Curls

Add these exercises.

Week 5

Chest Flyes

Rotary Torso

Lateral Raises

Super Pull-over

Add these exercises if no joint problems.



STRENGTH TRAINING:

Benefits:

Improved Muscle:

Strength

Mass

Power

Loss of Power associated with falls

(Leake & Greenberg, 2015)

CASE STUDY FOR LW:

65 year old male

5' 9" tall

Weight 150

BMI 22.1

Marathon runner

No hx. Of strength training

Works part-time

Plays Golf

CARDIOVASCULAR TRAINING CLIENT LW:

High intensity interval training:

Tabata training

Longer bouts of high intensity

5 minute warm up moderate intensity

4 minutes high intensity

1 min rest interval

Moderate Heart Rate 113-124

Higher Intensity 70% to 80% 124- 134

80% to 90% 134-145

STRENGTH TRAINING FOR LW:

After first six months of basic weight training.

3 sets X 10 Repetitions upper and lower body exercises

One day upper body

One day lower body

One day total body exercises

Or

Two non-consecutive days

Total body exercises



STRENGTH TRAINING CONTINUED:

Mix IT UP:

Drop Sets:

Four Sets – set 1	15 repetitions lower weight
set 2	12 repetitions higher weight
set 3	8 repetitions higher weight
set 4	8 repetitions lower weight



STRENGTH TRAINING CONTINUED:

Super Sets:

5 Sets of 5 Repetitions

Set 1 5 repetitions keeping flexion on muscle

Set 2 5 repetitions

Set 3 5 repetitions

Set 4 5 repetitions

Set 5 5 repetitions

Pick a weight that you can easily do 10 reps

Add this set between 2 drop sets

ECENTRIC TRAINING:

Highly cautioned:

Use with well conditioned individual.

Eccentric is the lengthening of the muscle

Concentric shortening of the muscle

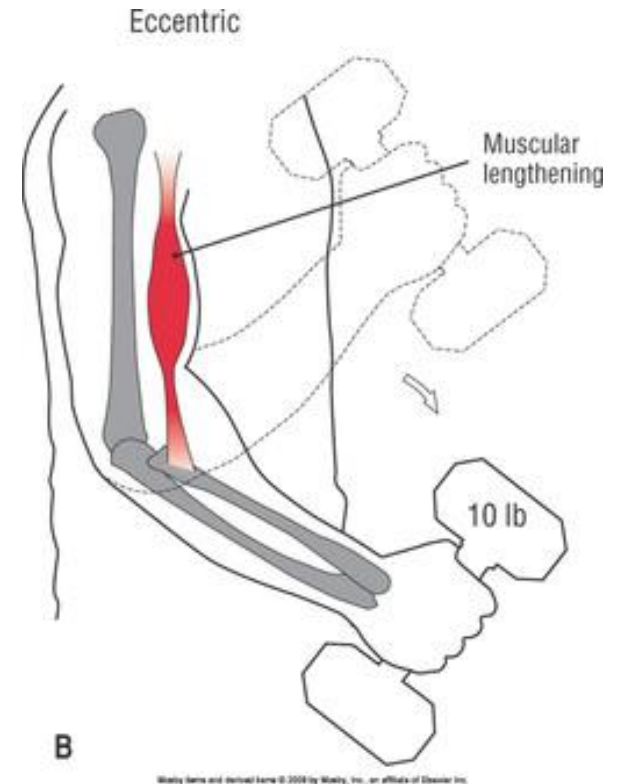
Total body workout

Each Exercise - One Set 10 to 12 Repetitions

Flexion to the count of 1

Extension to the count of 4

(Garber, 2011)



BALANCE EXERCISES:

Dynamic:

- Walk with head turns
- Walking with quick stops
- Marching in place
- Tiptoe walk
- Heel walk
- Heel to toe walk
- Step over an object



BALANCE EXERCISES:

Static:

Sit to stand

Ankle sways

Side leans

Twisting side to side

Stretch tall



FLEXIBILITY:

Hamstring stretches:

Wall hamstring stretch

Standing Hamstring stretch

Seated Hamstring stretch

Towel Hamstring stretch

(Ullrich, P.,)



FLEXIBILITY:

Quadricep Stretch

Calf Stretch

Lliotibial Band



(Bowman, 2014)

FLEXIBILITY:

Piriformis stretch

Psoas stretch



(Bowman, 2014)



FLEXIBILITY:

Groin

Upper back

Low Back



(Bowman, 2014)

NEUROMOTOR EXERCISE TRAINING:

Good for Cross Training:

Yoga

Tai chi

Qigong

(Graber, 2011)



MOTIVATION:

People often say that
motivation doesn't last.
Well, neither does bathing –
that's why we recommend it daily.

Zig Ziglar



InspirationBoost.com

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