

FiTOUR® DOUBLE BOOK
Turn it Over - Two in One!



FiTOUR®
Group Exercise
Certification



2nd Edition



Primary Group Exercise Certification Teaching Techniques & Guidelines



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Objectives of Group Exercise Instructor

Definition of Group Exercise

- Formally known as *aerobic dance exercise*, exercise in a group setting has evolved and expanded over the years to encompass several modalities of exercise including step, hi/lo, kickboxing, cycling, aqua, funk, muscle conditioning, etc. Now called *Group Exercise*, or its more recognized and modernized name *Group X*, this social interaction workout between instructor and students has developed into a billion dollar business for clubs, fitness equipment companies, fitness apparel companies, electronic and technology companies, and for the instructor himself/herself.
- Group Exercise Defined: An exercise format that incorporates several different modalities of exercise that is taught in a group setting by one or more professionally trained instructors.
- Group Exercise Instructor Defined: An individual who is professionally trained and certified by a nationally recognized organization to teach individuals in a group setting safe and effective exercises.

Responsibilities of Group X Instructor

- Cue Proper Body Alignment
- Provide Intensity Options
- See every individual in class
- Monitor heart rate and/or perceived exertion periodically throughout the workout.
- Provide feedback concerning participant performance.
- Adjust his/her workout to help correct form or answer questions during a class.
- Encourage participants to select the appropriate movement depending on their fitness level.
- Provide a few minutes before and after class to answer questions and help participants with technique.
- Educate participants about who they are and how they can choose positive lifestyle behaviors, and how to care for their bodies.
- Use transitions that are smooth
- Complete First Aid and CPR certifications
- Obtain Liability Insurance
- Arrive early to class
- Stay current in the fitness industry by reading and maintaining certification
- Use Waivers and Informed Consent Forms (facility may already do this)-See Appendix A
- Obtain Medical Releases from Physician (facility may already do this)-See Appendix C
- Conduct Health Screening: Health History Form and PAR-Q Form (facility may already do this)-See Appendix B
- Conduct Fitness Assessments (facility may already do this)
- Complete Accident Reports when an incident occurs
- When substitute teaching (i.e., subbing), show up on time, follow the normal guidelines of the class, and demonstrate humor and enthusiasm. Sometimes when there is not a regular teaching position available, subbing is the best way to get your foot in the door to pick up regular classes.

Leadership Qualities

- Be a good role model inside and outside of the gym setting.
- Demonstrate good form throughout class.
- Be a good motivator.
- Acquire Proficient Communication Skills/Be a good communicator.
- Assume the role of teacher, guide, and coach.
- Project a Professional and Positive Image.
- Recognize weaknesses but capitalize on strengths.

The Business of Instructing Group X

- Liability
 - Instructors should complete and maintain training and certification programs that include both theoretical and practical skills.
 - Obtain Waivers
 - Medical Clearance: Before teaching a group exercise class, an instructor should ensure that participants complete medical releases if applicable.
 - Liability Insurance: Instructors should carry personal liability insurance policies for protection against any law suits.
 - Instructors should teach a proper warm-up and teach exercises within safety parameters.
- Employee vs. Independent Contractor
 - Instructor Employee (IE) answers to the club management. The IE is directly monitored by his/her superior and responds to that superior. The club collects membership fees and schedules the instructor on a regular basis to teach specific classes. The club takes taxes out of the instructor's paycheck. The club is liable for injuries that may occur during a group exercise class.
 - The Independent Contractor Instructor (ICI) is a fitness professional who acts independently from his/her employer. The ICI usually has a contract with a club to teach various classes for a specific fee. The ICI is responsible for carrying his/her own liability insurance. The ICI is also responsible for reporting his/her income and paying taxes to the government.
- Marketing Yourself and Your Fitness Classes: Revenue is the bottom line for clubs, and Group X numbers mean revenue. In order for instructors to keep classes, the instructors need to increase their participation numbers otherwise there is a risk that the class will be cancelled and or replaced by a new class and sometimes even a new instructor. Word of mouth is the best marketing and promotion an instructor will receive to grow participation numbers. Here are a few suggestions to improve the attendance of your group exercise classes.
 - Write press releases to promote your classes in local magazines and newspapers.
 - Attend health fairs at local schools, universities, and hospitals.
 - Create a repertoire with school teachers and invite them to attend classes.
 - Provide fitness topics/tips for local radio and T.V. spots.
 - Book yourself to speak at functions promoting health and fitness.
- Job Opportunities
 - Gyms, Health Spas, Private Studios, and Country Clubs
 - Community Centers
 - YMCAs
 - International Resorts
 - Gated Community Health Clubs
 - Professional Team Instructor
 - Cruises
 - Governmental Organization Instructor (ex. Fire Department, Police Department, etc.)

Fitness Theory

Physical Fitness

Defined: An improved physiological state that leads to improved health and longevity. A set of attributes that people have or can achieve relating to their ability to perform physical activities. Physical Fitness can be divided into 4 categories, Physiological-Related, Health-Related, Skill-Related, and Sports-Related.

- **Physiological-Related:** Includes non-performance components of physical fitness that relate to biological systems that are influenced by one's level of habitual physical activity.
 - **Metabolic Fitness:** The state of metabolic systems and variables predictive of the risk for diabetes and cardiovascular disease (blood sugars, blood lipids, etc.) which can be favorably altered by increased physical activity or regular endurance exercise.
 - **Morphological Fitness:** A non-performance component of fitness related to body composition factors such as body circumferences, body fat content, and regional body fat distribution.
 - **Bone Integrity:** A non-performance component of fitness related to bone mineral density.
- **Health-Related:** Consists of those components of physical fitness that have a relationship with good health.
 - Cardiorespiratory Fitness
 - Muscular Endurance
 - Muscular Strength
 - Flexibility
 - Body Composition
- **Skill-Related:** Consists of those components of physical fitness that have a relationship with enhanced performance in sports and motor skills.
 - Agility
 - Balance
 - Coordination
 - Power
 - Speed
 - Reaction Time
- **Sports-Related:** Once an individual has developed the necessary physical fitness attributes, he/she can apply specific skills to sports. Skills are developed over time through patience, practice, and precision.
 - Team
 - Individual
 - Life

Health

Defined: A state of being associated with freedom from disease and illness that also includes a positive component (wellness) that is associated with a quality of life and positive well-being.

Wellness

Wellness is a state of being describing a state of positive health in the individual and comprising biological and psychological well-being as exemplified by quality of life and a sense of well-being.

Benefits of Physical Activity

- Reduces Risk of Dying Prematurely
- Reduces the Risk for Cardiovascular Disease
- Decreases Resting Heart Rate
- Improves Core Strength
- Increases Resting Metabolic Rate
- Improves Back Strength
- Promotes Joint Stability
- Strengthens Bones
- Increases Muscle Mass and Decreases Body Fat
- Lowers the Risk for Contracting Diabetes
- LDL Cholesterol Decreases, HDL Cholesterol Increases, and Total Cholesterol Decreases
- Improves Balance, Coordination, and Agility
- Reduces Depression
- Assists in Stress Management
- Self Esteem Increases
- Body Image Improves

Being Healthy vs. Being Fit

- There is a difference between being healthy and being fit. The outcome will depend on how one moves his/her body.
- One is **physically active** in order to be **healthy**.
 - One accumulates 30 minutes of daily activity to achieve health.
- One **exercises** in order to be **fit**.
 - One exercises 3-5 days a week at an intensity level of 60-90% of Maximum Heart Rate for 20-60 minutes per session to achieve fitness.

Five Components of Fitness and Guidelines

Cardiorespiratory Fitness (CRF)- A measure of the heart's ability to pump oxygen-rich blood to the working muscles

- Cardio– Heart
- Respiratory– Lungs and Ventilation
- Vascular– Blood Vessels
- Aerobic– Working with Oxygen
- Anaerobic– Working without Oxygen
- Measurement of Cardiorespiratory Fitness
 - 3-minute step test
 - 1.5 Mile Walk/Run
- Cardio Training Guidelines
 - 3-5 days/week
 - 20-60 minutes per session
 - 60-90% of MHR

Muscular Endurance– The ability of a muscle to perform repetitive contractions over a period of time or the ability to sustain an amount of weight over a period of time.

- Abdominal Curl-up Test
- Push Up Test

Muscular Strength– The ability of a muscle to generate the maximum amount of force in a single effort.

- Measurement
 - 1 Repetition Maximum (1RM) Test (Bench Press/Leg Press)
 - Vertical Jump Test
 - Dynamometer Test (Grip Test)
- Resistance Training Guidelines
 - Minimum 2 days/week
 - 8-10 major muscles
 - 8-12 reps/1-2 sets

Flexibility– The ability to move a joint through a full range of motion without discomfort or pain.

- Measurement
 - Sit and Reach Test
 - Shoulder Reach Flexibility Test
- Stretching Guidelines
 - At least 3 days/week
 - Stretch all major muscles to a feeling of mild discomfort
 - Hold each stretch 15-30 seconds
 - Repeat each stretch 3-5 times

Body Composition– Relative percentages of various components of the body, usually divided into fat mass (%of body fat) and fat free or lean mass (%fat free mass).

- Fat Mass– Subcutaneous Adipose Tissue
- Lean Mass– Muscles, bones, blood, organs, skin, hair, teeth, etc.
- Measurement
 - Hydrostatic Underwater Weighing– Gold Standard
 - Skinfold Calipers
 - Infrared
 - Bioelectrical Impedance
- Body Fat Standards for Active Individuals
 - Men– 5-15%
 - Women– 15-25%

FITT Principle: The 3 principles involved in all progressive exercise programs.

- Frequency: How often one exercises during the week or the number of sessions one exercises during the week.
- Intensity: How hard one works during an exercise session.
- Time (Duration): The length of the exercise session.
- Type: The modality of exercise being executed.

FITT Principle Applied to Cardio/Muscular Endurance & Strength/ Flexibility

- Cardiovascular (Aerobic) Training
 - Frequency: 3-5 Days a Week
 - Intensity
 - Guidelines for Monitoring Intensity (See also page 41)
 - 60%-90% of MHR (Age Predicted Maximum Heart Rate)
 - 50%-85% of VO₂max or HRR (Heart Rate Reserve)
 - Time
 - 20-60 minutes of continuous vigorous activity
 - When just beginning, do as much as you can
 - 1996 Surgeon General's Report– Accumulate 30 minutes of vigorous activity throughout the day for health purposes.
- Resistance Training
 - Frequency: Minimum 2 days/week
 - Intensity: 8-10 Major Muscles
 - Time: 8-12 Reps/1-2 Sets
For continued muscular development increase to 3 sets and heavier load
- Flexibility
 - Frequency: At least 3 days/week or after every workout
 - Intensity: Stretch all major muscles to the point of mild discomfort
 - Time: Hold each stretch 15-30 seconds/Repeat each stretch 3-5 sets



Below are a series of questions designed to help you remember the course material efficiently. Before proceeding to the next page of the course content, please answer the following review questions.

Section # 1 Review Questions

1. **What is the definition of Group Exercise?**

2. **List the responsibility of the Group Exercise Instructor:**

3. **Explain the business of the instructor for Group Exercise:**

4. **List the Benefits of Physical Activity:**

5. **Name the Five Components of Fitness:**
 - A.
 - B.
 - C.
 - D.
 - E.

Training Concepts and Terms

- **Acclimatization:** A physiological adaptation to a new environment (higher altitude, temperature, or humidity). It may take 7 to 12 days to acclimate to different environments.
- **Adherence:** A state of continuing an exercise program as prescribed.
- **Aerobic Activities:** Sub-maximal intense activities that use large muscle groups with energy supplied in the presence of oxygen that can be performed for a long period of time.
- **Agility:** Ability to start, stop, and move the body quickly in different directions.
- **Anaerobic Activities:** High intensity activities during which energy demands exceed the ability to supply oxygen and cannot be performed for a long period of time.
- **Balance:** The ability to maintain a certain posture or to move without falling; symmetrical.
- **Conditioning:** Exercise conducted on a regular basis over a period of time ("training").
- **Coordination:** The ability to perform a task integrating movements of the body.
- **Cross Training:** Incorporating different modalities of exercise into one's overall training regimen to avoid over-training, boredom, and/or plateau.
- **Delayed Onset of Muscle Soreness (DOMS):** Muscle soreness that occurs 1-2 days after an exercise training session.
- **Efficiency:** The ratio of energy expenditure to work output. How well an individual can perform or execute an exercise.
- **Fartlek (Speed Play):** A form of physical conditioning which alternates fast and slow running over varied terrain for 3-4 miles.
- **Force:** Any push or pull that tends to cause movement
- **Interval Training:** A fitness workout that alternates harder and lighter bouts of intensities throughout the session.
- **Overload Principle:** To place greater than usual demands upon some part of the body.
- **Periodization:** A specific period of time (weeks, months, or years) over which the frequency, volume, and intensity of training are systematically varied to avoid over-training and to promote continued progress.
- **Plyometrics:** A method of resistance training that emphasizes the stretching of the muscle prior to the contraction.

- Power: The ability to exert muscular strength quickly.
Expressed as $\text{Force} \times \text{Speed} = \text{Power}$
- Progressive Overload Principle: Introducing overloads in a systematic manner.
- Rest: One must plan days of rest to yield an improvement in one's overall performance
 - Active Rest– Days that consist of light, fun activities different from one's normal workout program
 - Passive Rest– Days that consist of doing no activity.
- Reversibility: A marked decrease in endurance, muscular strength, and flexibility with the cessation of exercise
 - Muscular Strength– Begins to reduce after 72 hours of cessation
 - Cardiovascular Endurance– Begins to reduce after 2 weeks of cessation
- Specificity Concept: The idea that one should train in a specific manner to achieve a specific outcome.
- Speed: The ability to move the whole body quickly.
- Training Effect: Overall positive improvements in the performance of the heart, lungs, and muscles due to conditioning.
- Training Variation: Systematically manipulating training variables to create an overload thereby demanding the body to adapt and improve.



Below are a series of questions designed to help you remember the course material efficiently. Before proceeding to the next page of the course content, please answer the following review questions.

Section # 2 Review Questions

Fill in the blank

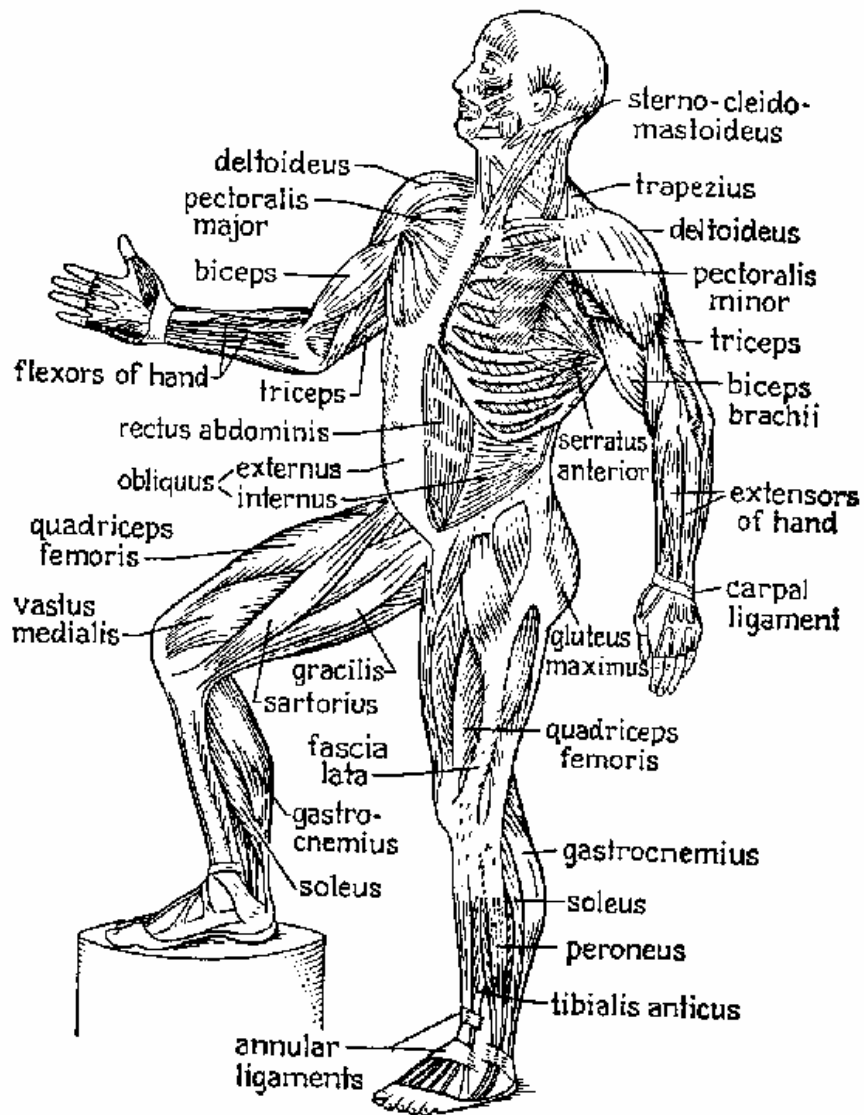
1. _____ is the ability to start and stop and move the body in different directions.
2. _____ is the ability to perform a task integrating movements of the body.
3. _____ is to place greater than usual demands upon part of the body.
4. _____ is any push or pull that tends to cause movements.
5. _____ is a state of continuing an exercise program as prescribed.
6. _____ is the ability to maintain a certain posture.
7. _____ is a method of resistance training that emphasizes the stretching of the muscle prior to the contraction.
8. _____ is exercise conducted on a regular basis over a period of training.
9. _____ is the ability to exert muscular strength quickly.
10. _____ is the ability to move the whole body quickly.

Basic Anatomy

Anatomy Definition—The structure of the human body.

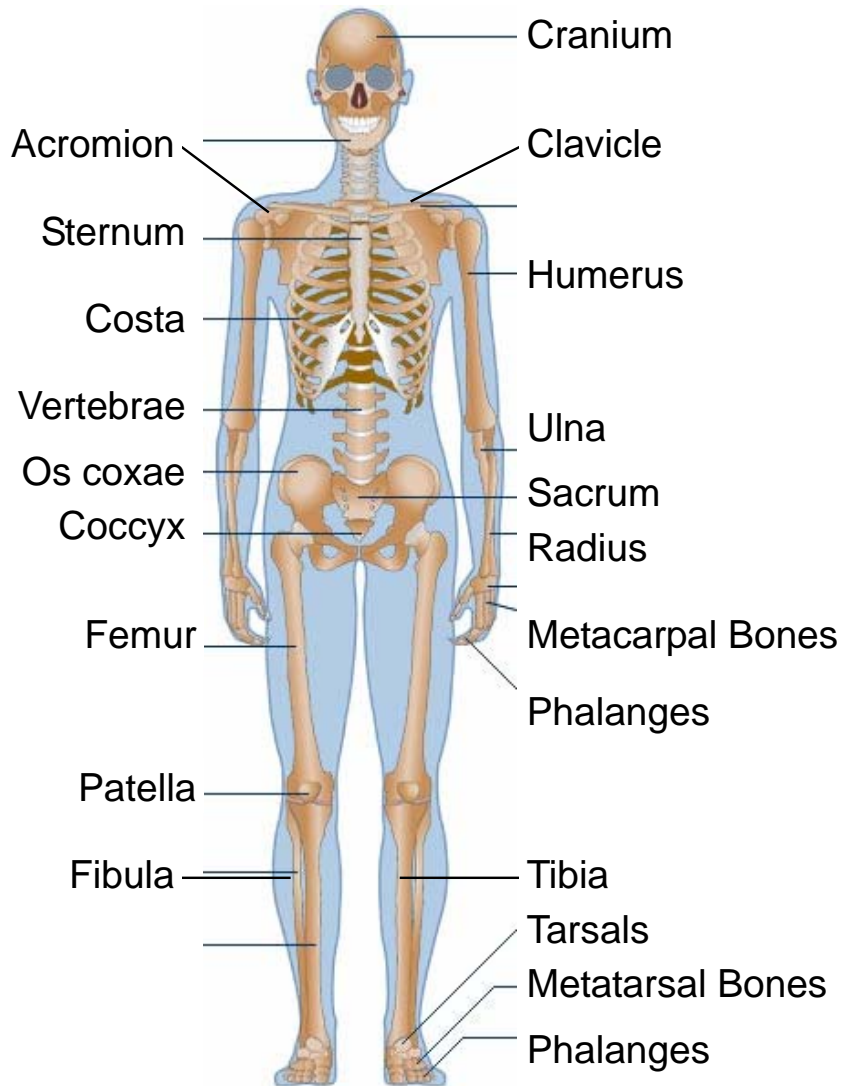
- **Muscle**
 - **Striated or Skeletal Muscle:** The anatomical structure that provides the force necessary to move the body.
 - **Myology:** The study of muscles

Muscular Anatomical Figure



- **Bone:** The anatomical structure that provides support, movement, and protection for the body.
- **Osteology:** The study of bones

Skeletal Anatomical Figure



Basic Physiology

Definition—Physiology is the study of human body function.

Muscles

- 3 Types
 - Smooth (Involuntary)
 - Cardiac (Involuntary)
 - **Skeletal/Striated (Voluntary):** About 400
 - Structure
 - Muscle (Fasciculus— A bundle of muscle fibers surrounded by perimyseum)
 - Muscle Fiber
 - Myofibril
 - Sarcomere: Fundamental Unit of Contraction
 - Actin—Thin Filament
 - Myosin—Thick Filament
 - Motor Unit: The functional unit of muscular contraction that includes a motor nerve and the muscle fiber that its branches innervate.
- Muscle Contraction: Muscles apply force by contracting and pulling on bones.
 - All or None Law: Given a threshold or supra threshold stimuli, a muscle fiber will contract all the way or not at all.
 - Sliding Filament Theory: The actin slides over the myosin pulling the ends of the sarcomere together creating a contraction and shortening the muscle.
 - Isotonic Contraction: A muscle contraction in which the force of the muscle is greater than the resistance, resulting in joint movement with shortening of the muscle.
 - Concentric Phase: A shortening of the muscle as a result of its contraction;
 - Eccentric Phase: A lengthening of the muscle during its contraction; resists movement caused by another force
 - Isometric Contraction: A muscle contraction in which the muscle length is unchanged.
 - Isokinetic Contraction: A muscle contraction with controlled speed, allowing maximal force to be applied throughout the range of motion.
- Muscle Mass Changes from Resistance Training
 - Hyperplasia Theory: An increase in muscle size due to muscle fibers splitting and forming separate fibers.
 - Hypertrophy: An increase in muscle size due to the cross-sectional area of the muscle increasing in size.

- Muscle Fiber Types
 - Type I Slow-Oxidative (SO)
 - Also known as Slow-Twitch Fiber
 - Speed of Contraction: Slow
 - Force: Low
 - Resistance to Fatigue: High
 - Type IIa Fast Oxidative Glycolytic (FOG)
 - Also known as Intermediate Fiber
 - Speed of Contraction: Fast
 - Force: High
 - Resistance to Fatigue: High
 - These muscle fibers can be trained to act as either Type I or Type IIb
 - Type IIb Fast Glycolytic (FG)
 - Also known as Fast-Twitch Fiber
 - Speed of Contraction: Fast
 - Force: High
 - Resistance to Fatigue: Low

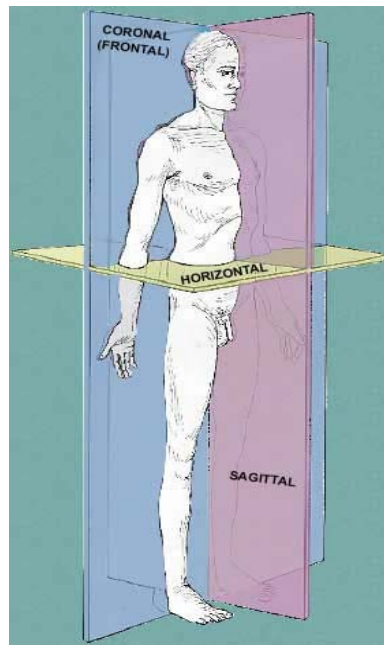
Terms in Metabolic, Cardiovascular, and Respiratory Responses to Exercise

- Energy : Energy comes from Carbohydrates, Fats, and Proteins. Energy must be converted to *Adenosine Triphosphate* (ATP) be used by nerves, muscles, and other cells.
- Oxygen Uptake: The rate at which oxygen is utilized during a specific level of an activity.
- Oxygen Deficit: The difference between the theoretical oxygen requirement of a physical activity and the measured oxygen uptake.
- Steady State: The point during exercise at which oxygen uptake is unchanging or changes very little.
- Oxygen Debt or Excess Postexercise Oxygen Consumption (EPOC): The amount of oxygen used during recovery from work that exceeds the amount needed for rest.
- VO_2 max: The greatest rate of oxygen utilization attainable during heavy work. Expressed in $L \cdot \text{min}^{-1}$ or $\text{ml} \cdot \text{kg}^{-1} \cdot \text{min}^{-1}$
- Heart Rate: The number of beats of the heart per minute .
- Stroke Volume: The amount of blood pumped in one beat of the heart .
- Cardiac Output: The amount of blood circulated by the heart in one minute.
Formula Expressed as Heart Rate X Stroke Volume = Cardiac Output
- Blood Pressure: The pressure exerted by the blood on the vessel walls, measured in milliliters of mercury by the sphygmomanometer.
- Pulmonary Ventilation: The process of oxygenating the blood through the lungs.
- Lactate Threshold (Ventilation Threshold): The point during a graded exercise test at which the blood lactate concentration suddenly increases; a good indicator of the highest sustainable work rate.
- Effects of Endurance Training
 - Increase in # of Mitochondria (The Powerhouse of Cells)
 - Decreased time that it takes to achieve steady state
 - Size of the ventricle of the heart increases, increasing the amount of blood that can be pumped with one beat of the heart.
 - Increased VO_2 max

Basic Kinesiology and Biomechanics

- **Definition**—Kinesiology is the scientific study of human movement.
- **Planes of Movement:** Flat imaginary surfaces that divide the body into halves in order to correspond with movement, motion, and actions. Human movement occurs in a plane.
 - **Median/Sagittal Plane:** A vertical plane that passes through the body anterior to posterior dividing the body into right and left sections. Flexion and extension actions occur within the sagittal plane.
 - **Frontal/Coronal Plane:** A vertical plane that passes through the body from side to side dividing the body into anterior and posterior sections. Abduction and adduction actions occur within the frontal plane.
 - **Transverse/Horizontal Plane:** A horizontal plane that passes through the body dividing the body into superior and inferior sections. Rotation and twisting actions occur within the transverse/horizontal plane.
 - **Oblique Plane:** A plane that lies tilted between the 3 primary planes associated with kinesiology.

*Movement within a plane will always occur parallel to that plane.



Muscle Movement/Action

- **Prime Movers (Agonist):** Muscles responsible for a definite movement.
- **Antagonist:** Muscles that cause movement at a joint in a direction opposite to that of its agonist.
- **Synergists:** Muscles that keep the joint steady while the prime mover applies the force to a neighboring joint.

Joint Actions

- **Flexion:** The movement of a limb caused by concentric muscular contraction, resulting in a decrease in the angle of a joint.
- **Extension:** Increasing the angle of a joint.
- **Hyperextension:** A continuation of extension past the normal anatomical position.
- **Lateral Flexion:** Flexing to the side (Usually an action of the vertebral column)
- **Dorsiflexion:** Flexion of the ankle joint bringing the top of the foot towards the shin
- **Plantar Flexion:** Extension of the ankle joint lowering the top of the foot away from the shin. The bottom of the foot lowers towards the floor.
- **Abduction:** Within the anatomical position, movement of a bone laterally away from the midline of the body.
- **Adduction:** Within the anatomical position, movement of a bone towards the midline of the body.
- **Rotation:** Movement around an axis
- **Internal Rotation:** Rotation around a joint inward towards the midline of the body.
- **External Rotation:** Rotation around a joint outwards away from the midline of the body.
- **Circumduction:** A stationary point on a line with the distal end moving in a circle forming a cone. This is a combination of movements in all planes.
- **Elevation:** Upward movement/action of the scapula
- **Depression:** Downward movement/action of the scapula
- **Protraction:** Abduction of the scapula
- **Retraction:** Adduction of the scapula
- **Pronation (eversion):** The position of the hand with the palm facing down. The inward rotational roll position of the foot.
- **Supination (inversion):** The position of the hand with the palm facing up. The outward rotational roll position of the foot.
- **Neutral Spine:** The natural inward arch of the low back which distributes load equally throughout the low back. This distribution of load helps to prevent injury and allows for efficient movement.
- **Anterior Tilt:** An arching of the lower back that causes the pelvis to tilt towards the front of the body.
- **Posterior Tilt:** A rounding of the lower back that causes the pelvis to tilt towards the back of the body.

Anatomical Directional Terminology

- Anterior: In front or in front of the body
- Posterior: Behind, in back, or in the rear
- Prone: The body lying face downward
- Supine: Lying on the back, face upward position of the body
- Midline: An imaginary external vertical line which is used as a reference line to divide the body or body parts into left and right sections
- Lateral: On or to the side, outside, farther from the median or midsagittal plane
- Medial: Relating to the middle or center, nearer to the medial or midsagittal plane
- Proximal: Nearest the trunk or the point of origin
- Distal: Situated away from the center or midline of the body, or from the point of origin
- Superior (Supra): Above in relation to another structure, higher
- Inferior (Infra): Below in relation to another structure, lower

General Biomechanical Concepts

- Stability: The ease at which balance is maintained. Stability is greater when the center of gravity is closer to the ground and the support base is as wide as possible.
- Rotational Inertia: Reluctance to rotate; proportional to the mass and distribution of the mass around the axis.
- Torque: The effect produced by a force causing rotation; the product of the force and length of force arm (perpendicular distance from the axis)
- Angular Momentum: The quantity of rotation. Angular momentum is the product of the rotational inertia and angular velocity.

Newton's 3 Laws of Motion

- Inertia: An object at rest will remain at rest and an object in motion will remain in motion unless acted upon by some external force.
- Acceleration: A distance transversed per unit of time will remain constant unless a force acts upon the moving object. Acceleration is directly proportional to the force produced and inversely proportional to the mass while moving in the same direction as force is produced.
- Reaction: For every action there is an equal and opposite reaction.



Below are a series of questions designed to help you remember the course material efficiently. Before proceeding to the next page of the course content, please answer the following review questions.

Section # 3 Review Questions

1. **What is the definition of Oxygen Uptake?**
2. **What is the definition of Steady State?**
3. **What is the definition of Stroke Volume?**
4. **What is the definition of Cardiac Output?**
5. **What is the definition of Blood Pressure?**
6. **What is the definition of Kinesiology?**
7. **List five joint actions:**
8. **What are Newton's 3 Laws of Motion?**

Exercise Safety and Injury Prevention

General Safety Tips

- Always consult a physician before beginning a new exercise program.
- Warm up and Cool down before and after every workout.
- Avoid exercising in extreme temperatures (hot or cold) and humidity.
- Take days off during the week to rest and repair the body.
- Wear Proper Clothing and Footwear
- Drink Water Before During and After Exercise
- Maintain Heart-rate Within the Target Heart Rate During Exercise
- If one has a special health condition, take medication as prescribed by the doctor.
- Warning Signs to Discontinue Exercise and Seek Medical Advice
 - Labored Breathing (Difficulty breathing not associated with regular increased ventilation during exercise)
 - Loss of Coordination
 - Dizziness
 - Tightness in Chest
 - Nausea

Injury Prevention

- Increase training gradually
- Alternate more aggressive training days with less aggressive training days
- Get plenty of sleep
- Eat a healthy diet
- Make adjustments to training program when needed.
- Avoid over-training—a condition in which there is a plateau or drop in performance over a period of time. This condition occurs when there is not sufficient time for the body to re-coup after a workout session.
 - Warning Signs
 - Extreme soreness and stiffness after training
 - Irritableness
 - Decrease in body weight
 - Decrease in appetite
 - Lack of motivation
 - Unable to complete a training session

RICEM: If one is injured implement basic first aid until medical professionals take over.

- Rest
- Ice
- Compression
- Elevate
- Modality—Change activity until healed

Clothing and Shoes

- Clothing
 - Clothing should be loose and should breathe with the body.
 - In heat and cold weather, clothing should be made out of materials that will “wick” sweat away from the body.
- Shoes
 - Shock Absorption
 - Flexibility Component
 - Stability Component

Floor Surfaces for Group Exercise Classes

- Avoid Concrete Floors
- Use Appropriate Choreography for Carpet or Rubber Surfaces
- Check Flooring Regularly for Damage that May Cause Injury

Environment

- Altitude
 - Acclimatization (7-12 days)
 - An increase in altitude decreases the partial pressure of oxygen and reduces the amount of oxygen bound to hemoglobin.
 - Heart Rate increases to meet the demand
 - VO₂ Decreases
 - Cut back on the level of intensity of exercise until the body acclimates.
- Pollution (Carbon Monoxide/Cigarette Smoke/Ozone/Sulfur Dioxide)
 - Acclimatization (7-12 days)
 - VO₂ Decreases
 - Decrease in Lung Function
 - Increase in Adverse Respiratory Symptoms
 - Increase Airway Resistance
 - The perception of effort required is altered when the eyes burn and the chest hurts.
 - Avoid areas where one will receive an extreme high dose of Carbon Monoxide (Smoking areas, high traffic areas, and urban areas).
 - Avoid scheduling activities around high pollutant times due to traffic.
- Extreme Cold
 - Acclimatization (7-12 days)
 - Windchill increases body heat loss.
 - Wear clothing in layers.
 - Peel off layers to minimize sweating.
 - Stay dry.

- Extreme Heat and Humidity
 - Fit people have a lower risk for heat injury.
 - Focus should be on hydration.
 - Heat loss from the body by convection and radiation decreases.
 - Evaporation of sweat must compensate if body temperature is to remain at a safe volume.
 - Higher Humidity decreases sweat evaporation
 - Exercise during cooler times of the day.
 - Acclimatization (7-12 days)
 - An increase in plasma volume
 - An earlier onset of sweating
 - A higher sweat rate
 - A reduction in salt loss in sweat
 - A reduced skin blood flow

Music Volume

- Occupational Safety and Health Administration Recommends Music under 85 decibels.
- Warning Signs of Music Being Too Loud
 - If your ears are ringing after an aerobic class. Tinnitus, a ringing or buzzing in the ears, is usually a symptom of acoustic trauma.
 - Temporary Threshold Shift (TTS): If you listen to your car radio after an evening aerobic class and then are surprised the next morning at how loud the volume is, this is a sign that after class, you suffered from TTS. This can turn into a permanent Threshold Shift resulting in permanent damage.
- Relatively low levels of noise (55 to 60 dB) can interfere with conversation. The danger zone for hearing loss begins at about 85 dB. To give you an idea of noise levels in most of our environments, here are some decibel guidelines:
 - Hair Dryer: 75-90db
 - Lawn Mower: 90-100db
 - Leaf Blower: 95-115db
 - Rock Concert: 110-120db
 - Portable Stereo (full volume): 115db
 - City Traffic: 80-100db
 - Jet Engines: 140db
 - Subway Trains: 100db
 - Fireworks: 130-190db
 - Handgun/Rifle: 160-170db

Vocal Care

- Warm Up Voice
- Speak From Diaphragm
- Avoid Shouting
- Develop Proper Breathing Technique
- Avoid Environments that are smoky, smoggy, etc.
- Use a Microphone During Class
- Maintain Hydration

Risk Factors For Coronary Heart Disease (CHD)*

Primary Risk Factors

- Age—Men>45 years/Women>55 years
- Family History
- Smoking
- High total cholesterol—CHL>200 mg/dl
- High low-density cholesterol
- Low high-density cholesterol HDL<35 mg/dl
- Hypertension (High blood pressure) - Blood Pressure>140/90
- Physical inactivity
- Diabetes

Secondary Risk Factors

- Obesity
- High very-low density cholesterol
- Inability to cope with stress
- African American Male
- Low Cardiorespiratory Fitness
- High Fat Diets

Major Symptoms of Cardiopulmonary Disease

- Pain, discomfort in the chest, neck, jaw, arms, or other areas that may be ischemic in nature
- Shortness of Breath at Rest
- Dizziness
- Orthopnea or paroxysmal nocturnal dyspnea
- Ankle Edema
- Palpitations or Tachycardia
- Intermittent Claudication
- Known Heart Murmur
- Unusual Fatigue

Initial Risk Stratification*

- Apparently Healthy—Individuals who are asymptomatic and apparently healthy with no more than one primary coronary risk factor
- Increased Risk—Individuals who have signs or symptoms suggestive of possible cardiopulmonary or metabolic disease and/or two or more primary risk factors
- Known Disease—Individuals with known cardiac, pulmonary, or metabolic disease

FITOUR recommends that individuals who are stratified within the *Increased Risk* or *Known Disease* categories, they should be medically examined and tested before beginning an exercise program.

*Information provided by ACSM Guidelines for Exercise Testing and Prescription

Special Populations

Exercise and Safety Guidelines

Older Adults

- Choose a modality that does not impose significant orthopedic stress.
- The activity should be convenient and fun—stressing social aspects.
- Emphasize programs that will enhance functional strength and flexibility thereby enhancing one's ability to lead an independent lifestyle.
- Incorporate cardio activity.
- Incorporate resistance training that focuses on muscular health and endurance emphasizing all major muscle groups.
- Incorporate a flexibility program.

Youth

- Incorporate consistent but fun exercise programs.
- Children are more apt to adapt to a cardio exercise program that emulates the way children play. For example, intermittent bouts of cardio activity within a session models after how children play tag.
- Incorporate a light resistance training program that incorporates tubing or light weights that will elicit a rep range of about 20. Limit resistance training to 2 days a week.
- Incorporate a flexibility program.
- Teach proper eating habits.
- Use multi-joint rather than single-joint exercises.
- Children overheat much faster and are more prone to heat injuries than adults. Ensure proper hydration.

Pregnant Women

- Discuss first with the physician an exercise plan of action.
- Exercise 3 days a week.
- Perform a longer warm-up (10-15 minutes).
- Avoid overheating.
 - Keep heart rate at 140 bpm or lower.
 - Keep pool temperature between 80-84° if exercising in pool.
 - Drink water before, during, and after exercise.
- Avoid exercising to exhaustion.
- Avoid exercises that are performed while lying on the back after the 1st trimester.
- As part of the muscle conditioning, perform kegel exercises.
- Avoid deep stretches.
- Consume 300 more kcals a day.

Asthma

- Exercise Induced Asthma– A condition that occurs when an individual breathes large volumes of dry air that cools and dries the respiratory tract. This causes the airway to constrict making it difficult to receive oxygen.
- Avoid exercise in a cold, dry environment.
- One may choose an aquatic exercise program. The warm, humid air in an aquatic setting makes it easier for one to breathe.
- Perform a longer warm-up.
- Interval training is optimal.
- Avoid eating at least 2 hours prior to exercise.
- Take prescribed medication prior to exercise.
- Have the bronchodilator on hand.
- Exercise with a buddy in case of an incident.

Hypertension/Cardiac/Stroke Rehab Released Clients

- One should exercise only if he/she has been released by his/her doctor.
- Exercise 3-5 days/week.
- Perform a longer warm-up.
- Emphasize large muscle dynamic movement done at moderate intensities (40-60% of MHR or RPE= 10-12) for long durations.
- Avoid interval training.
- Avoid raising the arms overhead for an extended period of time.
- If an individual complains of pain or pressure in the chest or feels dizzy, he/she should stop exercising and contact his/her doctor.
- Avoid Valsalva Maneuver: Increased pressure in the abdominal and thoracic cavities caused by breath holding and extreme effort.
- Encourage those who are prescribed medications to take them on a regular basis.

Arthritis

- Avoid exercise when the joint is inflamed.
- Avoid exercise in the morning. This is when an individual has the least amount of mobility.
- Perform a longer warm-up to increase the viscosity of the joint due to synovial fluid being released.
- Move all joints through full range of motion including fingers and toes.
- Perform exercises gently with little to no bounding.
- These individuals should consider an aqua exercise program with the water temperature maintained at between 86-90°
- Incorporate a well-rounded exercise program that incorporates cardio, resistance training, and flexibility.

Diabetes

- Type I Diabetes– A metabolic disorder characterized by inability to oxidize carbohydrates because of inadequate insulin. (Insulin Dependent)
 - Accounts for 10% of all diabetics
 - If blood glucose is below 80-100 mg/dl, one should consume carbohydrates before exercising.
 - If blood glucose is above 250 mg/dl, one should delay exercise until the glucose is lowered.
 - One should not exercise during the peak insulin action. One should avoid injecting insulin into the working muscles and instead inject the insulin into a skinfold.
 - One should consume additional carbohydrates after exercise.
- Type II Diabetes– A metabolic disorder characterized by inability to oxidize carbohydrates because of a resistance to insulin. (Noninsulin Dependent)
 - Adult Onset
 - Individuals with Type II Diabetes usually have other conditions such as obesity, high blood pressure, and high cholesterol.
 - Can be controlled with diet and exercise. Individuals may take oral medication.
- Exercise Guidelines (set by The American Diabetes Association)
 - Participants should drink water before, during, and after exercise
 - Participants should plan the insulin injection in conjunction with the exercise session.
 - Participants should wear protective footwear.
 - Avoid extreme heat and cold environments.
 - Exercise at a steady pace, about 50-70% of VO_2 MAX or HRR. Avoid interval workouts.
 - Exercise with a buddy in case hypoglycemia or hyperglycemia occurs.
 - Have easily digestible carbohydrates on hand in case of a drop on glucose.
 - These individuals should know how to alter carbohydrates and insulin prior to exercise.

Osteoporosis

- A disease characterized by a decrease in the total amount of bone mineral and a decrease in the strength of the remaining bone.
- These individuals should consider a water exercise program that strengthens bones and the ligaments and tendons around the joints for stability.

Knee/Hip Problems

- Incorporate resistance training to strengthen the ligaments and tendons that support the knee and hip.
- Keep the movements fluid; avoid jerky, rushed movement.
- Avoid twisting while keep the feet planted on the floor.
- Keep knees flexed.
- Individuals with hip replacement should avoid crossing one leg over the other. Avoid hip flexion beyond 90°.

Low Back Problems

- Avoid bounding movements.
- Avoid hyperextension of the lower back.
- Strengthen abdominals.
- Develop core strength.
- Maintain neutral spine.
- Stop if an exercise is painful.
- These individuals should learn proper lifting techniques.

Athletes

- Provide a variety of activities that offer a challenge.
- Incorporate plyometric moves and interval training.
- Incorporate games.

Obesity

- Encourage a complete program of diet and exercise for weight loss.
- These individuals should place importance on health as opposed to physical appearance
- Exercise 3-5 days/week.
- Exercise for longer durations at a lower intensity.
- Avoid high impact moves.
- Wear protective footwear.
- These individuals may want to participate in water exercise for a combination of cardio and resistance training.



Below are a series of questions designed to help you remember the course material efficiently. Before proceeding to the next page of the course content, please answer the following review questions.

Section # 4 Review Questions

- 1. List some general safety tips for exercise:**
- 2. What is the recommended clothing and shoes for exercise:**
- 3. What are the primary risk factors for Coronary Heart Disease?**
- 4. What are the guidelines for Pregnant Women?**
- 5. What are the guidelines for people with knee-hip problems?**
- 6. What are the guidelines for a person that has obesity?**

Basic Nutrition and Weight Management

7 Nutrients

- Carbohydrates (CHO)*
 - Function: Body's primary source of energy
 - Stored as glycogen in liver and muscles
 - 4 kcals per 1 gram of CHO
 - Categories of CHO
 - Complex
 - Whole Grain Breads, Cereals, Pastas, Flour
 - Vegetables
 - Fruits
 - Simple
 - Syrups
 - Jellies
 - Cakes
 - 55%-60% of daily caloric intake should come from CHO
- Fats*
 - Function: Involved in the maintenance of healthy skin, insulation against heat and cold, protection of vital organs, major storage form of energy
 - Stored in fat cells around organs and within the adipose tissue
 - 9 kcals per 1 gram of Fat
 - Categories
 - Unsaturated Fats (mono and poly): Associated with lower risk of developing heart disease
 - Olive Oil
 - Canola Oil
 - Corn Oil
 - Saturated Fats
 - Meats
 - Milk
 - Cream
 - Butter
 - Egg Yolks
 - 20%-30% of daily caloric intake should come from Fats
 - Less than 10% of Fat intake should come from saturated Fats
- Proteins*
 - Function: The building blocks of the cells within the body. They repair, rebuild, and replace cells. They also regulate bodily processes involved in fighting infection.
 - The most simple form of protein is amino acid and cannot be stored within the body.
 - 4 kcals per 1 gram of Protein
 - Categories of Amino Acids (20 total amino acids)
 - 9 Essential Amino Acids: Must be supplied through diet
 - Complete Protein: Foods that contain all 9 essential amino acids (lean meats, fish, milk, and eggs)
 - Incomplete Protein: Foods that only supply some of the essential amino acids (cereals, nuts, dried peas, and beans)
 - 11 Non-Essential Amino Acids: Produced by the body
 - 10%-15% of daily caloric intake should come from protein

*Energy Yielding Nutrients

Basic Nutrition and Weight Management

7 Nutrients....continued.

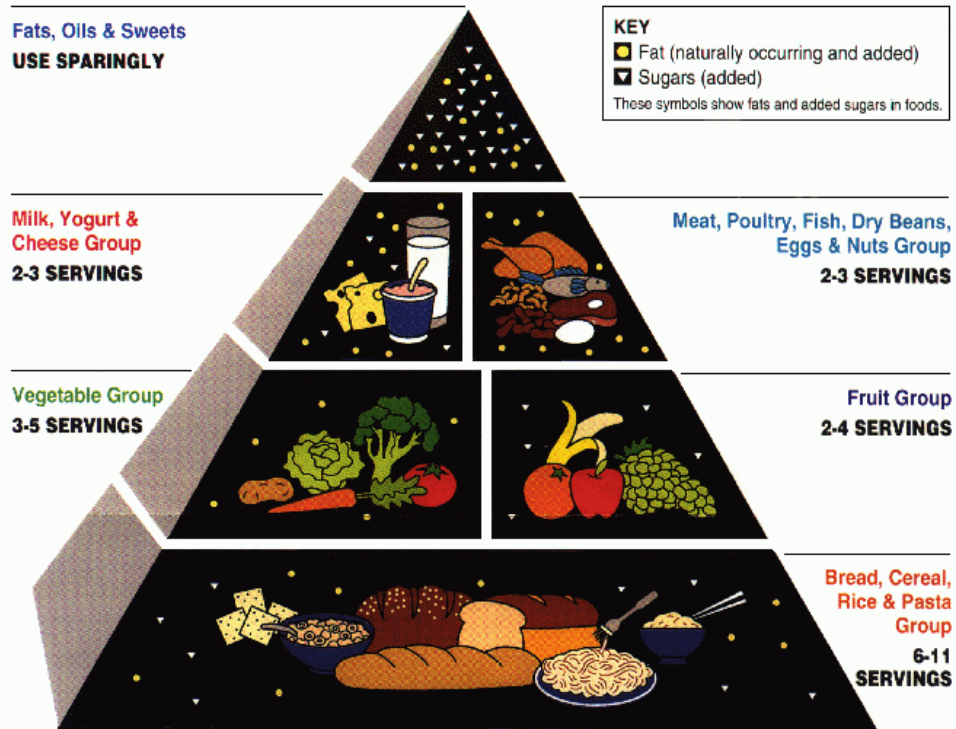
- Fiber
 - Function: Fiber passes through the body and is not digestible. Fiber gives bulk to foods within the body to help with waste products. Fiber keeps the digestive tract muscles healthy and carry harmful substances out of the body, thus preventing heart disease and cancer.
 - Is not Stored
 - 0 kcals
- Vitamins
 - Function: Vitamins (13) are responsible for many bodily processes
 - Categories
 - Fat Soluble Vitamins
 - Stored in Fat
 - A, D, E, K
 - Can be toxic if over-consumed
 - Water Soluble Vitamins
 - Not stored within the body: Either used or secreted
 - Bs and C
 - 0 kcals
- Minerals
 - Function: Builders, Activators, Regulators, Transmitters, and Controllers of the body's metabolic processes. Work with Vitamins for absorption into the body.
 - Is not stored
 - 0 kcals
- Water
 - Function: Provides the medium for and is an end product of activity. Water is important for efficient metabolism.
 - Represents 40%-60% of an individual's total body weight
 - Makes up about 72% of the weight of muscle
 - 0 kcals
 - One should consume at least 64 ounces of water per day.

Supplements/Ergogenic Aids

- It is recommended that one focuses on receiving nutrients through proper eating habits as opposed to pills.
- "Mega Vitamins" may be too much for the body to actually absorb.
- If one is involved in a highly intense training program, he/she should consume a little more protein and carbohydrates.
- Women may want to take an iron and/or calcium supplement for added insurance.
- A multi-vitamin supplementation is sufficient for proper health if one is eating a balanced diet.
- Anabolic Steroid usage is hazardous to one's health and has many adverse side effects.

Basic Nutrition and Weight Management

Food Guide Pyramid



*Image supplied by U.S. Department of Agriculture and the U.S. Department of Health and Human Services

Basic Nutrition and Weight Management

Weight Management

- Maintaining Weight
 - Combining proper eating habits and regular exercise is the best method for managing weight.
 - Caloric Intake = Caloric Expenditure
- Losing Weight
 - Goal: To increase lean mass while decreasing fat mass
 - Caloric Intake < Caloric Expenditure = Weight Loss
 - Method
 - Aerobic Activity: Expend 400-480 calories within 40 minutes
 - Weight Resistance Training: Work all major muscles.
 - Aerobic vs. Resistance Training: Not as many calories are expended during Resistance Training like Aerobic Exercise, but Weight Resistance training will help to maintain or increase muscle mass which burns more calories at rest than by just having an Aerobic program.
 - Nutrition: Reduce daily caloric intake by 250-500 kcals, but do not reduce too much
 - Females: Will begin to lose muscle tissue if caloric intake goes below 1,200 kcals per day.
 - Males: Will begin to lose muscle tissue if caloric intake goes below 1,500 kcals per day.
 - Weight Loss Rate
 - Lose weight at a rate of 1-2 pounds per week.
 - 1 lb of fat = 3,500 calories
 - Create a deficit of 3,500-7,000 calories per week through reducing caloric intake and increasing activity level
- Gaining Weight
 - Goal: To increase lean mass. Some individuals will hire a personal trainer to help them gain muscle tissue/mass.
 - Caloric Intake > Caloric Expenditure = Weight Gain
 - Method
 - Aerobic Activity: Maximum 20 minutes
 - Weight Resistance Training: Focus more on building up to a strength conditioning program using heavier weights working all major muscles.
 - Nutrition: Increase daily caloric intake by 250-500 kcals
 - An increase in proteins and carbohydrates will promote lean tissue growth.
 - Additional 1 lb of muscle requires 2,500 calories more than normal metabolism needs.



Below are a series of questions designed to help you remember the course material efficiently. Before proceeding to the next page of the course content, please answer the following review questions.

Section # 5 Review Questions

Name the 7 Basic Nutrients and give details about each:

1.

2.

3.

4.

5.

6.

7.

How To Instruct Group Exercise

Class Format and Guidelines

Below is the basic guidelines for a group exercise class format. Depending upon the modality of the exercise class, the format below may vary.

- Warm-Up
 - Purpose: Prepares the body for vigorous exercise and may reduce the risk of injury.
 - Time: 8-12 Minutes
 - Guidelines: Rhythmic limbering and static stretches are recommended for a proper warm-up. If your participant breaks a sweat before he begins exercising, he may be more than likely to use the glycogen in his muscles more efficiently. After a warm-up, reactions can be quicker and movement may be more fluid. The likelihood of a strained muscle or muscle soreness after the workout is reduced with an adequate warm-up. It is important to stretch all major muscles during the general warm-up. The warm-up increases the oxygen-carrying capability from blood to muscles - and the muscles, ligaments, and tendons will be more powerful because they are warm and supple and can endure a greater range of motion. A warm-up should be long enough to raise the body's core temperature. This will be influenced by the temperature in the room and your participant's fitness level. Instruct your participants to begin moving gradually and to increase the intensity as the workout progresses.

- Cardio Movement
 - Purpose: Aerobic capacity is the body's ability to deliver oxygen to your working muscles. The muscles' ability to use nutrients from oxygen efficiently is measured in VO2 max. If your participants train at the upper limits of their aerobic capacity, they will perform favorably by increasing their training pace gradually. If participants remain aerobic, but very close to their lactate/anaerobic threshold, they can maximize their time during class.
 - Time: 20-45 Minutes
 - Guidelines:
 - Start slowly and gradually increase the intensity.
 - Steady state should be reached within 3-5 minutes of beginning the cardio portion of class.
 - Regardless of the modality of class, movements should be controlled, non-ballistic, and should optimize full range of motion.
 - Maintain Heart Rate within the range of 60-90% of MHR

- Post Cardio Cool Down
 - Purpose: To provide a transition between vigorous activity and less taxing exercise. This time allows the working heart rate to decrease and return to pre-exercise rate. It also helps participants to flush the lactate out of the muscles and decrease muscle soreness.
 - Time: 2-5 Minutes
 - Guidelines: Use rhythmic movement for both upper and lower body that gradually decreases in speed and range of motion. Lightly stretch muscles that were particularly used during the workout. Cooling down also includes re-hydrating with water, a sports drink, or electrolyte solution to replenish fluids, carbohydrates and electrolytes. Check heart rate before moving down to the floor to exercise.
- Muscle Conditioning
 - Purpose: To develop often neglected muscles
 - Time: 5-10 Minutes
 - Guidelines: Exercises such as push-ups and planks (chest, triceps, back and arms) are good choices for upper-body strengthening exercises. Dynamic strength/stability exercises such as v-sits and trunk curls, for the core muscles (rectus abdominis, external and internal obliques, transverse abdominis, and erector spinae), are a perfect complement to the cardio movement segment of the class. First teach your participants proper form, then focus on increasing intensity. On all supine exercises, keep the lower back pressed gently toward the floor or in neutral (slightly arched) and never lock the elbows or knees.
 - Do's
 - Contract the abdominal muscles for stability.
 - Maintain perfect posture.
 - Move through full range of motion.
 - Use slow controlled movements.
 - Allow progressive adaptation to each exercise.
 - Don'ts
 - Hold the breath.
 - Arch the back too much/Keep a neutral spine.
 - Pull on the neck.
 - Swing the legs.
 - Continue repetitions if form is compromised.

- Slow Stretch
 - Purpose: Flexibility is as significant as strength. If your range of motion is limited due to inflexibility, your potential physiological benefits may be reduced. The post workout stretches improve posture and performance. Stretching alleviates stiffness, maintains joints and prevents low back pain and other injuries. Performing a series of slow stretches is a relaxing way to finish up the workout and increase feelings of well-being.
 - Time: 5-8 Minutes
 - Guidelines: Appropriate static stretches may include soleus, calves, quadriceps, hamstrings, hip flexors, low back, upper back, shoulders, biceps, triceps, and neck. Encourage your participants to practice the slow stretches outside of class as well. A slow, continuous stretch is desired. Exhale as you move into each position. Hold the limits of joint motion until there is tension in the muscle, then relax into the stretch for 15 to 20 seconds.
 - Do's
 - Maintain a lengthened and neutral spine.
 - Lead with the chest not the head.
 - Stop the stretch with loss of form.
 - Stretch when the muscles are warm.
 - Breathe from the diaphragm throughout the entire stretching routine.
 - Don'ts
 - Stretch to the point of pain.
 - Compete with others and exceed range of motion.
 - Bounce into the stretch.
 - Hold the breath on the stretches.
 - Rush through the stretch routine.

Music

- Class Style of Music: Whatever style of music that is selected, it should reflect the type of class that is being taught and the type of clientele that are participating.
 - Hip/Hop
 - Classic Rock
 - Motown
 - Disco
 - Oldies
 - Techno
 - Country
 - Pop
 - Instrumental
 - Latin
- Resources
 - Promotion Music www.promotionmusic.com (800) 380-4PRO
 - Power Music www.powermusic.com (800) 777-BEAT
 - Sports Music www.sportsmusic.com (800) 878-4764
 - Music Mix Productions www.musicmixproductions.com (732) 460-1052
 - MusicFlex Music www.cybercise.com/musicflex/ (800) 430-FLEX
 - Dynamix Fitness Music www.dynamixmusic.com (800) 843-6499
 - Monster Music (773) 551-6950
 - John Sines www.32mixes.com (888) 32-MIXES
 - Pure Energy www.pureenergymusic.com (212) 213-6350
 - MixPlanet Music www.mixplanet.com (877) 294-9567
 - Workout Music.com www.workoutmusic.com (800) 777-BEAT
 - Muscle Mixes Music www.musclemixesmusic.com (800) 52-MIXES
 - AeroBeat Music aerobeat1@aol.com (800) 536-6060
- Downbeat: The first beat of a musical measure. This is indicated by a strong sound.
- Upbeat: An unaccented beat or beats that occur before the first beat of a measure.
- 4/4 Rhythm: A Rhythm Unit that contains 2 beats of music
- Musical Measure: 4 Beats of Music
- Mini Phrase: 8-Count or 8 Beats of Music
- 32-Count Phrasing: The number of beats or pulses that are in one "phrase" of music that totals 32 and is therefore a 32-count phrase. Music is naturally divided into phrases, which can be broken into smaller parts called measures, which normally consist of 4 beats of music. If you were to put 8 measures together, you would have 32 beats or counts of music. These 32-count phrases are the building blocks for complete songs. The phrases create patterns that you can follow and use as an instructor. Music that is phrased in 32 counts makes it possible for instructors to choreograph combinations and routines that end up "on the right beat". Moves or combinations should be structured in 32 count blocks so that you begin and end exactly on beat. Create patterns of movement that follow the patterns of the music to add energy to your classes, along with a sense of smoothness and organization.

- Beats Per Minute (BPM): The pace of music measured by the number of beats occurring in 60 seconds.
 - BPM Guidelines
 - Hi Impact Dance Aerobics: Up to 155 bpm
 - Low Impact Dance Aerobics: Up to 145 bpm
 - Step (Reebok Guidelines)
 - Step 1/Novice Someone who hasn't taken part in a regular exercise class for some time. (4 inches/118-122 bpm)
 - Step 2/Beginner: A regular exerciser who has never done step training. (up to 6 inches/124 bpm)
 - Step 3/Intermediate: A regular step trainer. (up to 8 inches/126 bpm)
 - Step 4/Advanced: A regular and skilled step trainer. (up to 10 inches/128 bpm)
 - Circuit Training: Up to 155 bpm depending upon format chosen.
 - Sports Conditioning: Up to 132
 - Kickboxing: Up to 128 bpm
 - Hip Hop/Funk/Street Dance: Up to 125 bpm
 - Group Resistance Training: Up to 130 bpm
 - Core Conditioning: Up to 130 bpm
 - Water Exercise: Up to 126-155 bpm depending if class is taught in tempo or half-tempo.
- Music Laws: By law, group exercise instructors are not permitted to make or use "copies" of original music for use when teaching a fitness class.
- Licensing: 1976 Copyright Law states, "the copyright owner has the right to charge a fee for the use of his or her music in a public performance." Clubs, gyms, studios, etc. must pay a licensing fee to ASCAP and BMI.

Building Choreography

- General Guidelines
 - Choreography should not have repeated stresses over one body part
 - Higher stressed movements should be interspersed with lower stressed movements.
 - Movement patterns should be carefully organized and choreographed to avoid sudden, rapid changes in direction.
 - Modifications should be included to accommodate all levels of fitness unless the class schedule specifies otherwise.
- Learning Types
 - Visual: Early learning stage primarily visual.
 - Auditory: Cross of visual and auditory is mid-learning stage, as terms start to trigger automatic response.
 - Reaction time: Reaction time is greater in early learning and shorter in later learning. Terms must be mentally processed until pathways are established through repetition.
- Smooth Transitioning: The transition is the bridge between movement patterns.
 - Change one thing at a time.
 - Begin your second movement where your first movement ends.
 - Use conspicuous cueing.
 - It is the creative part of choreography.
 - It enhances the flow of moves and combinations created.
 - Introduces or teaches a new move or skill.

- Choreographic Building Techniques
 - Stage 1: Establish Lower Body Base Moves
 - Low Impact Examples: March, Walk, Toe Touch, Step Touch, Low Kick, Knee Lift, Grapevine, Lunge, Squat, etc.
 - High Impact Examples: Run, Leap, Hop, Jump, Jumping Jacks, Skip, Shuffle, etc.
 - Stage 2: Incorporate Teaching Formulas (Building Blocks)
 - Linear Progression: Movements are repeated and progressed from one to the other, but not necessarily repeated.
 - Add-On: Developing sequences by introducing the movement patterns in the order in which they will be performed. After each pattern is introduced, the combined movements are reduced in repetitions as the next pattern is added to the sequence.
 - Approach to Approach: Developing sequences based on the various approaches - front, side or on the diagonal.
 - Pyramid: Developing a sequence with a large number of repetitions of the movements and gradually reducing to a final sequence or combination.
 - Insert: Movements or a sequence added between combinations.
 - Layering: Developing a sequence at its most basic level, followed by “layers” to demonstrate various options for variety, intensity or complexity.
 - Extended Sequence: Developing smaller sequences and combining to build larger sequences.
 - Stage 3: Add Variation—Taking a base move and spicing it up.
 - Direction: Forwards/Backwards/Sideways/Diagonal
 - Rhythm/Tempo:
 - Tempo: Movement on the count or downbeat of the music.
 - Slow Tempo: Over 2 or more beats of the music.
 - Up Tempo: Movement on and between the counts or beat of the music.
 - Levers: Straight arms and legs or bent arms and legs
 - Unilateral/Bilateral: Moves can include the limbs on one side of the body and can be varied to include bilateral moves with both sides together or alternating moves.
 - Mode: Vary moves by adding or removing impact. Include low impact, moderate impact, high impact, and power moves.
 - Plane: Move the limbs in different planes of movement (horizontal, vertical, diagonal, forwards/backwards, and side-to-side).

- Pattern Types
 - Neutral: Movements that repeat the same lead.
 - Self- Reversing: Movements that “reciprocate” or change the lead.
 - Transition Movements: Movements commonly used to transfer to other lead.
- Cueing Tools
 - Anticipatory Cues: Key words and small phrases which describe an exercise or a sequence which will be performed next.
 - When counting down, always state what move that will be performed on the count of “1.” Avoid saying the number “1.”
 - Countdown – signals transition or movement change
 - Establishing base patterns – movements performed at most basic level
 - Single element change – one movement at a time
 - Adding variations – arms and levers
 - Turns, pivots – from base movement, add optional turns or pivots
 - Intensity options – show elements for increased or decreased intensity
 - Visual Cues
 - Visual Preview – all or in part
 - Hand signals – directional cues
 - Pre-mix (warm-up) – preview of new elements in warm-up
 - Floor mapping
 - Body Alignment Cues
 - Stand Tall but Keep Posture Relaxed
 - Keep Body Weight Balanced and Evenly Distributed
 - Abdominal Muscles are Always Engaged
 - Lift Rib Cage
 - Tailbone Pointing Down
 - Neutral Alignment
 - Soft Knees and Elbows/Avoid Hyperextending
 - Head and Neck Alignment
 - Shoulders Back, Down, and Relaxed
- Mirror vs. Actual Teaching
 - Mirror Teaching: The instructor faces the class. Challenging because left is right and right is left. Allows the instructor to fully see the class.
 - Actual Teaching: The instructor has the back turned to the class. The class can see exactly how to move in coordination with the instructor. The instructor, however, has a more difficult seeing the class unless there is a mirror present.

Choreography Building Blocks

- Each block represents either a 4 count pattern or an 8 count pattern.
- The 4-count pattern method equals a 16-count combination that will be repeated but on the other lead foot to total 32 counts.
- The 8-count pattern method equals a 32-count combination all performed on one lead foot then repeated again on the other lead foot to total 64 counts.
- Build each combination individually, then add all combinations together to form an entire class.
- See Appendix D to make extra copies.

EXAMPLE

<p>Pattern #1a 4 or 8 Counts</p> <p>Step Touch 4X's (Right Lead)</p>	<p>Pattern #2a 4 or 8 Counts</p> <p>Grapevine Right Grapevine Left (Right Lead)</p>	<p>Pattern #3a 4 or 8 Counts</p> <p>Walk Up 4 Counts Walk Back 4 Counts (Right Lead)</p>	<p>Pattern #4a 4 or 8 Counts</p> <p>Pivot Turn 2X's March Right March Left Run Run Run (Transitions to Left Lead/Repeat Same Combination Leading with the Left)</p>	<p>Patterns 1a-4a = Combination #1</p> <p>Add Variations</p> <ol style="list-style-type: none"> 1. Change the Step Touches to a Pony Hop. 2. Change the Walk Up to a Jog.
<p>Pattern #1b 4 or 8 Counts</p>	<p>Pattern #2b 4 or 8 Counts</p>	<p>Pattern #3b 4 or 8 Counts</p>	<p>Pattern #4b 4 or 8 Counts</p>	<p>Patterns 1b-4b = Combination #2</p> <p>Add Variations</p>
<p>Pattern #1c 4 or 8 Counts</p>	<p>Pattern #2c 4 or 8 Counts</p>	<p>Pattern #3c 4 or 8 Counts</p>	<p>Pattern #4c 4 or 8 Counts</p>	<p>Patterns 1c-4c = Combination #3</p> <p>Add Variations</p>
<p>Pattern #1d 4 or 8 Counts</p>	<p>Pattern #2d 4 or 8 Counts</p>	<p>Pattern #3d 4 or 8 Counts</p>	<p>Pattern #4d 4 or 8 Counts</p>	<p>Patterns 1d-4d = Combination #4</p> <p>Add Variations</p>



Below are a series of questions designed to help you remember the course material efficiently. Before proceeding to the next page of the course content, please answer the following review questions.

Section # 6 Review Questions

1. **Explain the Warm-Up section of the class format:**

2. **What is muscle conditioning:**

3. **Explain the music section of the class format:**

4. **What are the Choreographic Building Techniques:**

5. **What are Cueing Tools?**

Monitoring Intensity

- Monitor Intensity 3 Times During the Class
 - 5 minutes after class begins
 - During the most intense part of the class
 - After the post exercise cool down
- Measuring Intensity
 - Taking a Pulse: Target Heart Rate Zone (THRZ)
 - Either at neck (carotid artery) or wrist (radial artery)
 - Take for 10 seconds and multiply by 6
 - Age Predicted Maximum Heart Rate
 - $220 - \text{Age} = \text{MHR}$
 - $\text{MHR} \times .60 = \text{Low end of THRZ}$
 - $\text{MHR} \times .90 = \text{Upper end of THRZ}$
 - Target Heart Rate Zone is within 60-90%
 - Karvonen Formula
 - $220 - \text{Age} = \text{MHR}$
 - $\text{MHR} - \text{Resting Heart Rate} = \text{HRR}$
 - $\text{HRR} \times .50 + \text{Resting Heart Rate} = \text{Low end of THRZ}$
 - $\text{HRR} \times .85 + \text{Resting Heart Rate} = \text{Upper end of THRZ}$
 - Target Heart Rate Zone is within 50-85%
 - Perceived Exertion (See Appendix E)
 - Borg's Original Rating of Perceived Exertion
 - Borg's Revised Rating of Perceived Exertion
 - Talk Test
 - Intensity is too high– If one cannot speak
 - Intensity is too low– If one can sing songs and make long speeches
 - Optimal Intensity– One should be breathing heavily and be able to speak in short phrases

Choosing Equipment

Incorporating various pieces of equipment can spark up any class and keep your students coming back for more.

- Stereo Equipment
 - CD Player and/or Tape Player
 - Pitch Control
 - Microphone System
- Charts
 - Target Heart Rate
 - RPE
 - Anatomy
 - Stretching
 - Food Guide Pyramid
 - CPR
- Mats
- Cardio Props
 - Jump Ropes
 - Punching Bags
 - Agility Ropes
 - Steps
 - The Slide
 - Mini Trampolines
 - Ramp™
- Resistance Training
 - Barbell and Plates
 - Hand Weights (2 lbs, 3 lbs, 5 lbs, 8 lbs, 10 lbs)
 - Medicine Balls
 - Exercise Balls
 - Exercise Tubing
 - Balancing Disks
- Safety: Always check the maintenance of the equipment. Check for any damage that may pose a situation that may cause injury.

Motivating the Class

- **Motivation Defined:** The psychological feature that arouses one to action toward a desired goal; the reason for the action; that which gives purpose and direction to behavior.
- **Intrinsic Motivation:** Motivation that comes from within. The motivation that emerges from a positive self-concept and is the ideal form of energy for pursuing dreams and goals.
 - **Intrinsically Motivated People (IMP)**
 - Place emphasis on the process
 - Pursue the “pleasure principle”
 - Strive to be competent and self-determining
 - Enjoy mastering a task and being successful
 - Take pride in exercise experiences
 - **Instructor Role for IMP**
 - Keep the classes enjoyable and creative
 - Provide maximum involvement for everyone
 - Educate the participants about the changes/processes that are taking place during exercise. The IMP love to acquire more knowledge. The more knowledge, skills, and understanding the IMP have the more they will desire to continue.
 - Emphasize the social experience. The comradery provides a form of self-acceptance.
- **Extrinsic Motivation:** Motivation that comes from outside. More emphasis is placed on the outcome as opposed to the process.
 - **Extrinsically Motivated People (EMP)**
 - May workout in an addictive and compulsive way to reach a specific weight goal or to avoid the negative consequences of being overweight.
 - Too much too soon may be a characteristic of the EMP.
 - **Instructor Role for EMP**
 - Find a way to turn extrinsic motivation into intrinsic motivation.
 - Emphasize the enjoyment of the workout.
 - Emphasize exercise in moderation and variety.
 - Create a warm and supportive environment.
 - Reward personal achievements such as attendance, weight loss, strength goals, etc.
- **Different Client Characteristics**
 - **Skill-Oriented Motivated:** Individuals that will be drawn to new steps and choreography.
 - **Socially Motivated:** Individuals that go to class for the interpersonal connections.
 - **End Result Motivated:** Individuals that want to get fit, thin or strong.

- Determining a Client's Needs to Achieve Motivation
 - Need for Stimulation: Individuals who seek optimum level of arousal.
 - Fit the difficulty level of the class to the ability of the participants.
 - Vary the activities and routines.
 - Keep everyone challenged and active.
 - Assist clients in setting realistic body, health and performance goals.
 - Include your clients' opinions and suggestions when designing classes.
 - Set up an atmosphere of unconditional acceptance.
 - Need for Affiliation: Individuals who thrive on acceptance, approval, and appreciation.
 - Mingle with the participants.
 - Show true empathy and concern.
 - Need to Feel Worthy
 - Turn Failure-Oriented students into Success-Oriented students.
 - Encourage students to actualize goals.
 - Encourage students to be committed and dedicated through hard work.
 - Encourage students to follow proper nutrition.
 - Encourage students to think positively.
- Motivate Different Students Through Different Styles of Teaching
 - The Command Style: The instructor has full responsibility of the class including music, choreography, and positions. This style signifies the class being the *instructor's* class as opposed to the *group's* class. The class feels secure but there may lack spontaneity.
 - The Submissive Style: The instructor has no clear plan with no goals set. There is a lack of organization. The students may feel insecure and unmotivated and may in the long run drop out.
 - The Cooperative Style: The instructor is organized and listens to the students' desires. The instructor is creative, open to changes and suggestions. The instructor is sensitive to the needs of the students and can therefore design the class accordingly.
- Characteristics of an Effective Motivator
 - Encourages students independence and self-growth.
 - Encourages students to set realistic goals.
 - Encourages students to take personal responsibility for their actions towards those goals.
 - Encourages students to enjoy the process of reaching those goals.
 - Effective Communicator
 - Be an Active Listener.
 - Place yourself in the room so that your students can see and hear you.
 - Articulate each word.
 - Put enthusiasm into what you have to say.
 - Don't over talk.
 - Understand non-verbal communication
 - Resolve conflict.

Exercise Adherence

- The inability to maintain an exercise regimen is one of the more perplexing problems facing professionals in various health-related enterprises.
- 50% of all who start a fitness campaign will drop out in 6 months or less.
- Positive Predictors of Exercise Adherence
 - Physical Proximity to the Exercise Area
 - Spousal or Significant Other Support
 - Exercising in Small as Opposed to Large Groups
 - Socioeconomic Status
 - Intrinsic Motivation
- Negative Predictors of Exercise Adherence
 - Lack of Time
 - Accessibility
 - Smoking
 - Poor Choice of Exercise
 - Injury
 - Type A Personalities going too hard too soon.
- Improving Exercise Adherence
 - Agreement to a Behavioral Contract between Group Exercise Instructor and Student
 - Maintain Objective Records of Exercise Regimen
 - Stimulus Cueing - Exercising using the same activity at the same time and place everyday.
 - Set and Record Goals
 - Reinforcement and Reward for Meeting Goals
 - Begin an Exercise Program with low intensity and gradually progress



Below are a series of questions designed to help you remember the course material efficiently. Before proceeding to the next page of the course content, please answer the following review questions.

Section # 7 Review Questions

1. **Explain how you choose the equipment that is needed:**

2. **List ideas how you can motivate a class:**

3. **Explain Exercise Adherence:**

Teaching Specific Classes

As a Group X Instructor, you will expand in several areas within which to teach. Although it is beyond the scope of this Primary Group Exercise Instructor training to go into details with each class modality, the following sections include a sample format for each class type. The list of class modalities is limited and is ever changing and expanding. FiTOUR recommends that one receive specific training in each class modality in order to expand his/her skill level and perfect that specific class format.

Hi/Lo Aerobics

Hi/Lo Aerobics is the original group exercise class format, formally known as aerobic dance exercise. The difference between *Hi* and *Lo* Impact Aerobics is: *Hi* Impact means at one point in time within the movement both feet are elevated off the floor. *Lo* Impact means that one foot remains on the floor at all times within the movement. Contrary to popular belief, Hi/Lo Impact is **not** synonymous with *Hi* and *Lo* Intensity. One can still participate in a *Hi* Intense class and still remain *Lo* with impact.

- Defined: Hi/Lo Aerobics is a modality of exercise that combines movement patterns on the floor to form sequences within a routine.

<ul style="list-style-type: none">• Base Moves<ul style="list-style-type: none">• March• Walking in a Particular Direction• Grapevine• Knee Lifts• Step Touch• Hamstring Curl• Mambo• Pivot Turns• Pony Hops• Football Drills• Shuffle• Power Squats	<ul style="list-style-type: none">• Cha Cha Cha/Run Run Run• Jump Rope• Twist• Hop• Scoop Hop• Pendulum• Jumping Jacks• Cross Country Ski• Boxer Shuffle• Heel Dig• Single Jacks
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- Sample Hi/Lo Choreography
(Provided by CarolAnn, FiTOUR Education Director from Tampa, FL)
 - Combination #1 (32 count phrase)/Lead Right 1st set, then Lead Left 2nd set
 - Step Touch 4Xs
 - Grapevine Right/Left
 - Walk Up 4 counts/Walk Back 4 counts
 - Pivot Turn 2Xs/March Right, Left/Cha Cha Cha (changes to left lead)
 - Combination #2 (32 count phrase)
 - Walk Right 4 counts Shuffle Right 4 counts
 - 4 Alternating Knee Lifts beginning with right knee
 - Walk Left 4 counts Shuffle Left 4 counts
 - 4 Alternating Knee Lifts beginning with left knee

Step Aerobics

- Defined: Cardiovascular training performed by stepping up and down on an elevated platform.
- Body Alignment
 - Shoulders back, down, and relaxed
 - Body erect with chest lifted
 - Abdominals are engaged to protect the lower back
 - Neutral spine
 - Buttocks gently tucked under the hips
 - A slight leaning forward of the entire body
 - Knees are soft and not locked
- Stepping Guidelines/Technique (Established by Reebok International/1993)
 - Platform Height: Weight-bearing knee should not flex beyond 90°
 - Deconditioned/Sedentary Individual: 4 inches
 - Regular Exerciser but New to Stepping: Up to 6 inches
 - Regular Stepper: Up to 8 inches
 - Regular Stepper AND Highly Skilled: Up to 10 inches
 - Stepping Up
 - Use full body lean from the ankles. Do not lean from the waist.
 - Contact the platform with the entire sole of the foot.
 - Avoid allowing the heels to hang off the back of the platform.
 - Step up softly.
 - Periodically look down at the platform to ensure proper foot placement.
 - Stepping Down
 - Step down close to the step (no more than one shoe length)
 - Place the entire foot down on the floor (heels in contact with the floor) except when performing propulsion or lunge type movements.
 - Leading Foot: Ensure that the lead foot changes often. Avoid leading with the same foot longer than one minute.
 - Propulsion Movements
 - Propulsion movements are considered advanced stepping.
 - Avoid performing propulsion movements longer than one minute.
 - All propulsion steps should be performed up onto the platform and not down to the floor. Therefore always leap up, jump up, hop up and not down.
 - Avoid forcing your heel down to the floor when performing propulsion movements.
 - Repeaters: Avoid performing more than 5 consecutive repeaters at a time.
 - Arm Movement
 - Master the footwork before adding arm movement.
 - Avoid lifting the arms overhead for an extended period of time to reduce shoulder girth stress.
 - Frequently vary low, mid, and high-range arm movement
 - Music: Up to 128 bpm depending on the level of ability
 - Weights: It is recommended that weights not be used during the cardio portion of a step class. Reserve using weights for the resistance training portion of the class.
 - Carrying the Step: Use proper lifting technique and carry the step close to the body.

- Base Moves and Terminology

- Basic Step
- Knee Lift
- Hamstring Curl
- Leg Extension
- Hip Abduction
- V-Step
- Travel (Corner to Corner)
- Turn Step
- Shuffle Step
- L-Step
- T-Step
- A-Step
- Around the World

- Lunge
- Straddle
- Mambo
- Pivot Turn
- Across the Top (end to end)
- Over the Top
- Hop Turn Over
- Quarter Turn
- Reverse Turn Step
- Swinging Door
- Pendulum on Top of Step
- Stomp Step
- Walk the Plank
- Walk the Curb

- Sample Step Choreography

(Provided by Nicole Keane, FiTOUR Master Trainer from Tampa, FL)

- Combination #1 (32 Counts)
 - 1 right V-Step, 1 left knee to the corner (8cts)
 - 1 left V-Step, 1 right knee to the corner (8cts)
 - L-step Left (8cts)
 - L-step Right(8cts)
- Combination #2 (32 Counts)
 - 2 Turn Steps (8cts)
 - Over the top and Back Over (8cts)
 - Kick corner to corner (8cts)
 - Lunge for 2 Repeater (8cts)

Cardio Kickboxing

- Defined: Cardiovascular training performed by using martial arts and boxing type movements formatted together to form an entire workout.
- Kickboxing Guidelines/Technique
 - Never lock out knees or elbows (keep them "soft").
 - Keep your body in a neutral position--neither arch nor round your back.
 - Always keep your abdominal muscles tight.
 - All kicks should be low kicks until mastered.
 - The music should be at about 122 to 128 bpm in order to complete each move with proper form.
 - While doing high impact footwork, keep light on the balls of the feet. Imagine you're on a glass floor.

Starting Positions

- Stances
 - Basic Stance - Both feet on floor, guard up.
 - Boxer's Dance - Up on balls of feet, shift body weight to each foot.
 - Shuffle - Shuffle forward four steps, then shuffle back.
 - Bounce - Bounce on balls of both feet simultaneously
 - Switch Stance - Switching the lead foot.
 - Torso Twist - Basic stance, with waist up movement only.
- Defense Position
 - Elbows at 90 degrees along side the body with arms in front of shoulders, and fists in front of chin.
 - You will be able to feel your chest with your biceps.
- Front Fighting Stance
 - Elbows at 90 degrees along side the body with arms in front of shoulders, and fists in front of chin.
 - Feet are shoulder width apart.
 - Lead toe points forward with a slight angle out.
 - Knees are soft.
 - Weight is evenly distributed over both feet.
 - Hands are in a Defense Position.
 - Abs tight, lean in slightly with no pelvic tilt.

- Right and Left Hand Fighting Stance
 - Feet are shoulder width apart.
 - Feet are on a diagonal to each other.
 - Lead toe points forward.
 - Rear toe points outward.
 - Knees are soft.
 - Weight is evenly distributed over both feet to start.
 - Hands are in a Defense Position.
 - Facing right is called the "Orthodox" Fighting Stance.
 - Facing left is called the "Southpaw" (left-handed) Fighting Stance.
 - Abs tight, lean in slightly with no pelvic tilt.

Base Moves

- Upper Body
 - Forward Jab
 - Hook Punch
 - Power Punch
 - Cross Jab
 - Uppercut Punch
 - Blocks
 - Strikes
- Lower Body
 - Front Kick/Back Kick
 - Push Kick
 - Side Kick
 - Roundhouse Kick
 - Turning Kick
- Bob and Weave

- Sample Cardio Kickboxing Choreography
(Provided by Nicole Keane, FiTOUR Master Trainer from Tampa, FL)
 - Combination #1 (32 Counts)
 - 3 Left Jabs, 1 Right Cross (moving forward)/Shuffle back (8cts)
 - 4 Jacks (8cts)
 - 3 Right Jabs, 1 Left Cross (moving forward)/Shuffle back (8cts)
 - 4 Jacks (8cts)
 - Combination #2 (32 Counts)
 - 2 Right Knees, 1 Right Side Kick, 1 Left Jab (8cts)
 - 2 Power Squats (8cts)
 - 2 Left Knees, 1 Left Side Kick, 1 Right Jab (8cts)
 - 2 Power Squats (8cts)

Funk/Hip-Hop/Street Dance

- Defined: Since the early 1990's, street dancing is fast becoming one of the most popular aerobic exercises. Popularized by rap music, classic funk, and the growth of vigorous "Street Jam" dancing in music videos, street dancing is viewed as an excellent method of having fun and developing cardiorespiratory fitness. Funk Aerobics can be defined as low impact aerobics with a whole lot of attitude!
- Funk/Street Dance Guidelines/Technique
 - Use arm and hand movements such as snapping, jazz fingers, and vogue arms.
 - Use foot patterns such as jazz squares and syncopated footwork.
 - Practice dancer turnouts.
 - Allow plenty of time to practice new moves.
 - During warm-up practice moving in directions to properly loosen the muscles and joints.
- Sample Funk/Street Dance Choreography
(Provided by Dolly Banks, FiTOUR Master Trainer from Mobil, AL)

Combination Description	Rhythm	Counts
The "Vogue" Right Lead Funky Hop* Front	1 & 2	2
Funky Hop Side	3 & 4	2
Funky Hop Rear	5 & 6	2
Funky Hop Side	7 & 8	2
Side Tap w/Ball Change (LRL, RLR, LRL, RLR) [moving forward]	1&2-3&4-5&6-7&8	8
Repeat with Left Lead/Move Backwards on Side Taps *Funky Hop is a Mambo with Syncopation		16
		32
"Slow...Slow..." Walk w/Stomp (right) [face right/moving right] Walk w/Stomp (left) [face right/moving right]	1-2 3-4	2 2
"Quick-Quick-Quick-Quick" Walk (R, L, R, L) [Continue facing right/moving right] {drag toes}	5-6-7-8	4
"Back Up" Rear Lunge 2x (L foot lead) [Continue facing right] Shift (right) [face front] {mini-quick squat} Shift (left) [Continue facing front]	1-2-3-4 5-6 7-8	4 2 2
Repeat Entire Combo Left Lead	16	32

Circuit Training

- Defined: A class format in which a sequence of exercises are performed at a quick rate one right after the other usually set up in series of stations.
 - Cardio Circuit: Moving from one cardio activity to another with little to no rest in between.
Example: Treadmill 10 minutes/Bike 10 minutes/Stepper 10 minutes/Elliptical 10 minutes
 - Weight Training Circuit: Moving from one weight resistance activity to another with little to no rest in between.
Example: Push-ups/Squats/Shoulder Presses/Lunges/Bent-Over Rows/Step-Ups/Bicep Curls/Ab Crunches/Triceps Extensions
 - Cardio/Resistance Combo Circuit: Alternating Cardio Activity and Weight Resistance Activity moving through a sequence of exercises with little to no rest in between.
Example: Jumping Jacks/Push-ups/Stepping/Bicep Curls/Mini Trampoline/Ticep Extensions/Jump Rope/Shoulder Presses/Running in Place/Ab Crunches
- Circuit Training Guidelines/Technique
 - Emphasize proper posture and body alignment.
 - Emphasize full range of motion.
 - Emphasize control.
 - Place equipment safely around the room to avoid tripping and injury.
- Sample Circuit Training Format
(Provided by Renita Brannan, FiTOUR Master Trainer from Bismarck, ND)
 - Sport Circuit- Great for females and males. One-hour class.
 - As an instructor, explain and demonstrate proper technique of the following exercises. Show a modified version if necessary. Modifications may include, but are not limited to decreasing the pace, eliminating arm movements, and not using resistive tools such as dumbbells or stability ball.
 - 10 Stations: 5 Cardio/5 Strength
 - Begin with a 5-7 minutes of dynamic stretching to warm up major muscles.
 - Continue with 1.5 minute stations moving quickly from station to station.
 - Approximately 15 second break between each station.
 - Repeat circuit three times.
 - When complete, cool down with marching for two minutes followed by static stretching of major muscle groups holding each stretch for a 30 second minimum.

• Sample Circuit Training Class.....Continued

Interval Type	Exercise	Performance Recommendations	Time
Cardio	Jumping Jacks	Standing with feet together and hands at sides, jump into air as feet spread laterally apart (approximately shoulder width) and arms extend next to your ears. Your body is in an X position. Jump back to original stance. Repeat with vigor and control.	1.5 Minutes Rest 15 Secs
Strength	Walking Lunges (variations: with dumbbells or stationary lunges)	Standing with feet together take a long step forward with lead foot and bend the back knee until it is approximately six inches from the ground. Make sure you can always see your lead toe and that your lead leg is flexed at a 90 degree angle to prevent stress on the knees. Push forward to a standing position with both legs coming together. Alternate legs. Repeat continuously emphasizing proper technique.	1.5 Minutes Rest 15 Secs
Cardio	Lateral Shuffle	Standing in a ready position with feet shoulder width apart, toes facing forward and elbows bent at a 90 degree angle with palms facing opponent, begin the lateral shuffle by bringing the trail leg to the lead leg. Do 10 shuffles in one direction and 10 in the opposite direction. Repeat as quickly as possible without losing precision.	1.5 Minutes Rest 15 Secs
Strength	Lat Pull/ Pike on the Ball	Lying in the prone position with the ball located under mid-section, walk hands forward until the ball is located: 1)under thighs (beginner) 2)under knees(intermediate) or 3)under ankles (advanced). With hands outstretched in front on the floor, press upper body toward floor engaging latissimus dorsi. Tighten abdominal muscles. Keep back straight and head in line with trunk. The further the ball is away from the waist, the greater the challenge will be. Slowly, bring toes toward chest into a pike position (body looks like an inverted V). Count to four lowering slowly to starting position. Repeat with precision and control.	1.5 Minutes Rest 15 Secs
Cardio	Cross Country Skiing	Standing with feet parallel to one another-one foot is located in front of your body and the other behind your body with both knees slightly flexed. The opposite arm of the foot that is located in the anterior position of the body is raised shoulder height while the other arm swings back alongside your body, as if holding on to ski poles. Bound into the air and alternate arms and legs to simulate cross-country skiing. Repeat with vigor and zest.	1.5 Minutes Rest 15 Secs

• Sample Circuit Training Class.....Continued

Interval Type	Exercise	Performance Recommendations	Time
Strength	Push-ups w/legs on the Ball (variation: standing with arms on wall or on floor in a push-up position or balancing on tops of knees in a push-up position for a modified version)	Lying in the prone position with the ball located under your mid-section, walk hands forward until the ball is located 1)under thighs (beginner) 2)under knees (intermediate) 3) under ankles (advanced). Place hands on the floor with thumbs aligned to nipple line. Spread hands 1 ½ times shoulder width, spreading fingertips to take pressure off of wrists. Tighten abdominal muscles. Keep back straight and head in line with trunk. The further the ball is from your waist, the greater the challenge will be. Lower upper body as close to the floor as possible, maintaining a rigid center. Using the pectoralis, deltoids, triceps, rhomboids, and abdominals push back to starting position. Repeat as many times as possible without compromising form.	1.5 Minutes Rest 15 Secs
Cardio	Jumping Rope (w/ or w/o rope)	Standing with both feet together and holding jump rope in each hand with elbows at your sides, circle the rope around until it nears both feet. Simultaneously, jump into air as rope circles below feet. Repeat as quickly as possible.	1.5 Minutes Rest 15 Secs
Strength	Standing Bicep Curl (variation: seated or alternating bicep curls)	Standing with feet hip width apart, hold a dumbbell in each hand with an underhand grip. Arms should hang straight down with palms forward. Simultaneously curl both dumbbells up to shoulder height. Lower them to full extension, pause and repeat.	1.5 Minutes Rest 15 Secs
Cardio	Quick Feet Drill This movement is more effective if a visual indicator is placed on the floor using tape. (There are numerous variations with this exercise- be creative!) XXX XXX XXX	Standing with feet together at the 1 st X (top row, left side), hop with both feet together in a clockwise direction, covering the entire outside pattern of X's. Quickly reverse directions, until back to the starting X. Repeat 10 times each direction. Next drill- making a 5 pattern, start on 3 rd X (top row, right side) with feet together and hop counterclockwise 2 hops, backwards one hop, right two hops, backwards one hop, and clockwise two hops. Quickly reverse directions to make the same 5 pattern. Repeat 10 times in each direction.	1.5 Minutes Rest 15 Secs
Strength	Tricep Body Weight Dips	Sit on a chair or bench with the hands gripping the front edge. Legs may either be straight (more difficult) or the knees bent and feet closer to the bench (modified). With legs together, move forward until the hips are off the seat. Slowly lower the hips toward the floor, and press up to full arm's extension, but do not lock out the arms. Repeat with precise form.	1.5 Minutes Rest 15 Secs

Interval Training





- Defined: A type of training that incorporates bouts of high intensity activity followed by a period of active or passive recovery. This type of training enables one to burn extra calories and to increase his/her aerobic capacity.
 - Work Phase: The high intensity phase of the workout.
 - Active Rest: Resting but still exercising, however, at a lower intensity than the highly intense portion of the workout.
 - Passive Rest: Resting completely.
 - Work/Active Recovery Ratio: The work interval is the high intensity phase of the workout. The active recovery is the lower intensity phase of the workout. Both combined is called a cycle. Recovery is relevant to the intensity and length of cardio work (the higher the intensity, the longer the rest)
- Example 1: Conditioning Anaerobic Interval
 - This method is for the more conditioned individual to improve power and speed.
 - 85-95% of MHR
 - Cardio Work 30 seconds to 2-3 minutes/Recovery is relevant to the intensity and length of cardio work (the higher the intensity, the longer the rest)
 - Perform Passive Rest
 - Example: Running as fast as one can for 30 seconds, then passively resting or recovering for 2-3 minutes.
- Example 2: The Deconditioned/Beginner Aerobic Interval
 - This type of interval training builds a beginner up to performing an aerobic class for a continuous 20-60 minute session.
 - 60-90% of MHR- Should work at a lower % of Maximum Heart Rate (lower than conditioning anaerobic interval training) for a longer period of time followed by a rest period
 - Cardio Work 2 minutes/Recovery 15 to 30 seconds
 - Perform Active Rest
 - Gradually increase the work time and decrease the recovery time until the participant is continuously performing the cardio work.
- Example 3: Conditioning Aerobic Interval
 - This type of interval training is for the more conditioned individual who would like to increase his/her aerobic capacity but remain active through the entire workout.
 - 85-95% of MHR during Work Phase
 - Cardio Work 30 seconds to 1 minute/Recovery is relevant to the intensity and length of cardio work (the higher the intensity, the longer the rest)
 - Perform Active Rest
 - Example: Running as fast as one can for 30 seconds to 1 minute, then walking for 2-5 minutes.
- Interval Training Guidelines/Technique
 - Can be performed 2-3 times per week.
 - Always give the lower option for those who need to rest.
 - During Active Recovery do not let heart rate drop below 60% of MHR
 - Emphasize proper posture and body alignment.
 - Emphasize control.

- Sample Interval Training Format: Example of Conditioning Aerobic Interval Format “1-2-3 Interval Workout”
(Provided by Keena Hilsberg FiTOUR Master Trainer from Green Bay, WI)
 - Interval 1: These high-intensity exercises are performed for 1 minute intervals. This interval is considered the work phase of the interval workout format.
 - Interval 2: These strength exercises are lower intensity exercises that are performed for 2 minutes as an active recovery phase.
 - Interval 3: These moderate intensity cardio exercises are performed for 3 minutes as an the second active recovery phase preparing one for the next highly intense Interval 1
- Format: Move through the workout by performing Interval 1, then Interval 2, then Interval 3. Then start over performing the next Interval 1, then Interval 2, then Interval 3.






Interval 1 High Intensity Exercises Work Phase 1 Minute	Interval 2 Strength Exercises Active Recovery #1 2 Minutes	Interval 3 Moderate Intense Cardio Active Recovery #2 3 Minutes
<p>Jack and Jab: One jumping jack one right jab one jumping jack one left jab.</p>	<p>Controlled punches (jabs) using a band wrapped around the upper backand both hands holding onto the ends of the band...alternating between right and left jab for 1 minute.....then 30 seconds right jabs with band....30 seconds left jabs with band...</p>	<p>Step Combinations: Easy combos (alternating knees, alternating front kicks, alternating leg extensions, alternating hamstring curls....right lead then left lead)</p>
<p>Choo Choo Train with Jump Rope: The jump rope is on the floor laid out in front of the participant the long way....then with fast feet step forward over the jump rope and then back again ...right left right left.....</p>	<p>Tricep dips off of the bench (step) for 1 minute Bicep curls (both hands) with the band for 1 minute.</p>	<p>Front kicks (boxing) 8 right 8 left 2x....then alternating right and left</p>
<p>Wall Jumps: Give the participants a spot on the wall to reach for ...make sure it is high enough for a challenge...then they try to jump up and touch itand they do that as many times as they can for the 1 minute.</p>	<p>Wall Push-ups: Hands on the wall standing....can add a clap when they push up from the push-up for 1 minute. Dead Rows with bands or weights...knees are bent and feet are hip to shoulder width apart.....neutral spine but slightly bent forward at the hips...pull band or weights in towards the belly button for the dead row. 1 minute</p>	<p>Alternating lunges off the back of the step 1 minute. Basic step 1 minute. Alternating repeater knees 1 minute.</p>
<p>Jump Rope Shuffle: Jump rope on floor in upside down U shape....start on left hand side away from the rope....begin to shuffle feet to the right stepping over both ends of the rope when you get there and keep going back and forth while traveling forward....then when you get to the top of the rope keep going but travel backward...</p>	<p style="text-align: center;">Other Cardio Ideas</p> <ul style="list-style-type: none"> • Down Hill Skier: jumping right and left like skiing down hill) • Squat Jumps: step and feet straddling the step jump up onto the step then just step down....then jump again.... • Football shuffle in place/shuffle in different directions • Jump Rope in place with or w/o jump rope • Cross Country Ski: in place and/or moving forward and backward • Cross Country Ski Jumps: side to side 	

Sports Conditioning





- Defined: Training the body through cardiovascular and muscular conditioning specifically to perform sports of choice.
- Sports Conditioning Guidelines/Technique
 - Emphasize proper posture and body alignment
 - Warm-up the proper muscles that will be utilized within that specific sport.
 - Follow general exercise guidelines established by ACSM
- Sample Sports Conditioning Class Exercises
(Provided by Lisa Mercer, FiTOUR Master Trainer from Frisco, CO: Mountain Sport Pilates and Fitness)

Sport	Exercise Description	Reps	Sets	Picture
Running	Hip Flexor Stretch on Exercise Ball: Straddle exercise ball with right leg bent in front of ball (knee over ankle) and left leg extended behind ball left toes facing forward and heel up. Roll the ball forward feeling the stretch on the left leg. Release and repeat right side.	0	0	
Warm-up for all throwing sports	Kneeling Chest Stretch on Exercise Ball: Kneel on hands and knees with ball on your right side. Extend right arm and place it across top of ball. Maintain a neutral back and neck. Gently lower chest toward floor without straining shoulder. For variation roll the ball slightly forward or back to change the angle of stretch. Hold and repeat other side.	0	0	
Golf	Seated Twist on the Exercise Ball with Medicine Ball: Seated on the Exercise Ball, start with the arms in a forward extended position. Keeping the hips facing forward, twist from the torso without any movement from the legs or arms, coming to a comfortable stop with the shoulders facing one side. At a slow controlled pace, go through the above movement, twisting to the other side. Maintain a neutral posture throughout the exercise, the only movement coming at the waistline. To increase the intensity of this exercise, follow the above routine with one foot off the ground, and then attempt with the other foot off the ground.	8-12	1	
Golf and Baseball	Golf Twist with Exercise Ball and Toning Bar: Start in a supine position on the Exercise Ball head and shoulder blades rest on the ball knees are directly over-top of ankles knee joint is at a 90-degree angle. Grip the Body Toning Bar at approximately one foot apart or comfortably apart. Keep the arms straight and hips level. Slowly rotate upper body to one side by rolling bottom shoulder under. Keep eyes and head looking in that direction. With abdominals engaged slowly return to starting position. Alternate sides repeat 10 times.	8-12	1	

• Sample Sports Conditioning Class Exercises....continued

Sport	Exercise Description	Reps	Sets	Picture
Golf and Baseball	<p>Russian Twists on Exercise Ball w/Medicine Ball: Lie face up in a bridge position head and shoulders on the exercise ball and knees aligned over the ankles. Holding the medicine ball in both hands extend arms toward ceiling medicine ball aligned over chest. Keeping the arms extended contract the abdominals and slowly turn right lifting the left shoulder off the ball. Stop when your shoulders are vertically aligned. Do not twist the hips or lift the feet off the floor. Release and repeat left side.</p>	8-12	1	
Golf and Baseball	<p>Medicine Ball Twister w/Partner: Stand back to back with a partner knees slightly bent feet hip-width apart. Hold a medicine ball and turn torso to your right. At the same time your partner turns to his or her left so you are both facing the same direction. Hand the medicine ball to your partner and return to starting position. Repeat other side.</p>	20	1	
Golf and Baseball, and Tennis	<p>Lunge Cross-Overs w/Medicine Ball: Begin in a lunge position with right foot forward knee over ankle and left foot behind you heel up and knee pointing toward floor. Hold medicine ball with both hands by your left hip. As you straighten your legs out of the lunge position lift ball diagonally until it is overhead. Lunge again this time bringing medicine ball to right hip. Repeat other side.</p>	8-12	2	
Volleyball	<p>Crunch and Toss on Exercise w/Medicine Ball: Lie face up on the exercise ball with hips back and shoulders touching the ball and knees over ankles. Hold a medicine ball in both hands and extend arms overhead. Slowly perform a crunch lifting shoulders off the ball. At the same time bring arms forward keeping them straight. When the medicine ball is in front of chest throw it to a partner. Partner then tosses medicine ball back to you. Release and repeat.</p>	16	1	
Skiing	<p>Lateral Flexion on Exercise Ball: Lie on your side with Exercise Ball under waist and hips. Extend legs and anchor feet against a wall. Bend arms and place hands by ears. Drape over ball then lift torso in opposite direction bringing side of ribcage to side of hips. Don't let your pelvis roll forward or back on the ball. Return to starting position and repeat.</p>	8	2	

• Sample Sports Conditioning Class Exercises....continued

Sport	Exercise Description	Reps	Sets	Picture
Skiing	<p>Side Flexion on Exercise Ball w/Medicine Ball: Lie on right side with Exercise ball under right hip and right side of rib cage. Cross feet so left foot is in front of right foot for balance or anchor both feet against a wall. Holding a medicine ball in both hands at chest-height lift right side of rib cage off ball. Keep hip on ball. Visualize bringing right side of ribcage toward right side of pelvis. Release. Repeat other side.</p>	8	2	
Skiing	<p>Supine Hamstring Curl (feet on exercise ball): Start in Supine Hip Extension arms extended at your sides. Bend the legs and roll the exercise ball toward your buttocks until the soles of your feet touch the ball and the shoulders hips and knees are in line. Extend legs to release. Caution: People with neck problems should avoid this exercise.</p>	8	3	
Swimming	<p>Swimming w/Exercise Ball: Lie face down with Exercise Ball under pelvis and ribs arms and legs extended feet on floor. Inhale as you extend right arm by right ear. Maintain extension in spine and avoid arching or rotating your back. Exhale as you lower right arm and extend left arm to left ear. Repeat then gradually speed up movement while keeping shoulders spine and pelvis stable. Increase the number of repetitions per inhale and exhale to a maximum of four.</p>	4	1	
Swimming	<p>Swimming w/Exercise Ball-Variation: Assume a push-up position with Exercise Ball under pelvis legs extended feet off the floor. Inhale as you lift right leg toward ceiling. Maintain extension in spine and avoid arching or rotating your back. Exhale as you lower right leg and lift left leg. Repeat then gradually speed up movement while keeping shoulders spine and pelvis stable. Increase the number of repetitions per inhale and exhale to a maximum of four.</p>	4	1	



Below are a series of questions designed to help you remember the course material efficiently. Before proceeding to the next page of the course content, please answer the following review questions.

Section # 8 Review Questions

- 1. Define Hi/Lo Aerobics and provide examples:**
- 2. Define Step Aerobics and provide examples:**
- 3. Define Cardio Kickboxing and provide examples:**
- 4. Define Funk/Hip-Hop/Street Dance and provide examples:**
- 5. What is Circuit Training and give samples:**
- 6. What is Interval Training and give samples:**
- 7. Define Sports Conditioning and provide examples:**

Group Resistance Training

- Defined: A class format that incorporates hand weights (dumbbells), weight-plated bars, body bars, tubing, exercise bands, etc. and is designed to develop muscular strength, endurance and/or definition.
- Group Resistance Training Guidelines/Technique
 - Perform resistance training at least 2Xs per week.
 - Demonstrate and Cue proper posture and body alignment.
 - Avoid using momentum to avoid muscle and joint injury.
 - Breathing
 - Exhale on the execution phase/lifting phase
 - Inhale on relaxation phase/lowering phase
 - Avoid the Valsalva Maneuver: Holding the breath increasing pressure in the thoracic region thereby increasing blood pressure and the risk for fainting, stroke, heart attack, or aneurysm.
 - Vary long lever exercises with short lever exercises to avoid over-stressing the joints. The longer the lever the greater the resistance and the greater the risk for injury.
 - Avoid hyper-extending the joints.
 - Avoid using too much weight. The resistance should be just enough to achieve 8-20 reps.
 - Train the larger muscle groups first then train the smaller muscle groups. Example: Perform Bench Presses (pectoralis muscles) before performing Bicep Curls (bicep muscles).
 - Properly warm up the muscles prior to the resistance workout and properly stretch after the resistance workout.
- Class Format: A typical Group Resistance Training Class will train the entire body to music. Each specific muscle group is trained for the length of one song (approximately 5 minutes each). There is a one minute break between songs or muscle groups to allow the participant to change the resistance load (weight plates) of the barbell if being used. The next section includes an example of a Group Resistance Training Exercise Class using a weight-plated barbell. The amount of weight resistance load is indicated next to the muscle group. This load is relative to the individual participating and will vary among participants.
- Sample Group Weight Resistance Training Class (See Appendix F for additional exercises)

(Provided by CarolAnn, FiTOUR Education Director)



Total Length of Class Including Weight Changing Time: 58 Minutes

- Warm-Up: Light Weights (5 Minutes)
 - Lower Back and Hamstrings: Dead Lift
 - Upper Back: Bent Over Row
 - Total Body: Clean and Press
 - Shoulders: Shoulder Press
 - Lower Body: Squats
 - Biceps: Bicep Curls
- Lower Back/Rhomboids/Total Body: Medium to Heavy Weights (5 Minutes)
 - Dead Lift
 - Bent Over Row
 - Clean and Press





- Pectoralis Majors: Medium Weights (5 Minutes)
 - Bench Press using a Step or Exercise Ball
 - Use a variety of tempo changes with the 4/4 music.
 - Tempo (Singles)
 - Half-Time (up 2 down 2)
 - Slow-Time (up 4 down 4)
 - Combo (up 3 down 1/up 1 down 3)
- Total Lower Body: Heavy Weights (5 Minutes)
 - Squats
 - Use a variety of tempo changes with the 4/4 music.
 - Tempo (Singles)
 - Half-Time (up 2 down 2)
 - Slow-Time (up 4 down 4)
 - Combo (up 3 down 1/up 1 down 3)
- Deltoids: Light to Medium Weights (5 Minutes)
 - Lateral Raises: Light Weights/Using Plates Only (1 Minute)
 - Anterior Raises: Light Weights (1 Minute)
 - Shoulder Presses: Medium Weights (3 Minutes)
 - Use a variety of tempo changes with the 4/4 music.
 - Tempo (Singles)
 - Half-Time (up 2 down 2)
 - Slow-Time (up 4 down 4)
 - Combo (up 3 down 1/up 1 down 3)
- Triceps: Light Weights (5 Minutes)
 - Overhead Extensions
 - Single Tricep Kickbacks/Using Plate Only
- Total Lower Body: Heavy Weights (5 Minutes)
 - Lunges
 - Perform Alternating Lunges (1 Minute)
 - Perform One Leg Lunges (2 Minutes on Each Leg)
 - Use a variety of tempo changes with the 4/4 music.
 - Tempo (Singles)
 - Half-Time (up 2 down 2)
 - Slow-Time (up 4 down 4)
 - Combo (up 3 down 1/up 1 down 3)
- Biceps: Light Weights (5 Minutes)
 - Barbell Bicep Curls
 - Use a variety of tempo changes with the 4/4 music.
 - Tempo (Singles)
 - Half-Time (up 2 down 2)
 - Slow-Time (up 4 down 4)
 - Combo (up 3 down 1/up 1 down 3)
- Abdominal Crunches (5 Minutes)
 - Upper Rectus Abdominis
 - Lower Rectus Abdominis
 - Obliques
- Slow Stretch (5 Minutes)

Core Conditioning





- **The Core Defined:** All the muscles in your abdominal and lower back areas. This includes all the abdominal muscles (rectus abdominus, internal and external obliques, transverse abdominus and intercostals) as well as the muscles associated with the spine (the erector spinae group) and the hip flexors (iliacus and psoas, collectively known as the iliopsoas). These muscles all work in harmony to provide stabilization for your body and to transfer power from the legs to the upper body and vice versa. The core muscles also function to stabilize your organs. Weak core muscles contribute to all kinds of problems in the body, the most prevalent of which is lower back pain. By strengthening the muscles that help support the spine and improve posture, you can dramatically decrease the symptoms of lower back pain.
- Pilates and Yoga are excellent group exercise classes that incorporate exercises to condition the core.
- **Core Conditioning Guidelines/Technique**
 - Do a variety of exercises to ensure balanced development. No single ab or low-back exercise is perfect. Only by performing a variety can you hit all of the various muscles and fiber angles.
 - Mix up the order in which you perform exercises to continue stimulating the muscles.
 - Spend more time training via stabilization and less time training via movement (i.e., fewer crunches and sit-ups).
 - Use a variety of rep speeds: some faster, some slower.
 - Use a variety of tools (e.g., exercise balls, medicine balls) to add fun and diversity to your program.
 - Use a variety of training angles (incline, decline, flat) to manipulate the intensity and change the emphasis.
 - Train your core 2-4 times a week.
 - Spot reduction is a myth.
- **Sample Core Conditioning Exercises**
(Provided by Beth Perdue, FiTOUR Master Trainer from Charleston, SC)

Exercise	Equipment	Description	Picture
Beginner Hover	None	<ol style="list-style-type: none"> 1. Start prone on the floor with arms bent and fingers interlocked (tripod arms). Knees are on the floor slightly bent. Your upper body is supported by your bent arms. Shoulders are down. 2. Focusing on your core, imagine you have a lasso around your abdomen and someone is above you pulling your navel to your spine. Your core is initiating the movement. 4. Hold the position for 20 secs then repeat. (You should start to shake slightly.) 	
Advanced Hover	None	<ol style="list-style-type: none"> 1. Start prone with tripod arms and bent knees on the floor. Initiating from the core pull up to straight knees not locked. Press back into the heels. The body is rigid and the hips are not lifted above or dropped below the rib cage. 2. Keeping the core tight, rock front and back. 	

• Sample Core Conditioning Exercises.....continued

Exercise	Equipment	Description	Picture
Beginner Swimming	None	<ol style="list-style-type: none"> 1. Start prone with arms extended overhead with palms down and the legs extended straight back. 2. Pulling the navel to the spine lift opposite arm and leg. (Don't think of arching up think of lengthening your arms and legs to the opposite ends of the room) 3. Lower the arm and leg down and switch. 4. Perform 8-12 reps on each side. 	
Swimming on the Ball	Exercise Ball	<ol style="list-style-type: none"> 1. Start prone with hips on the exercise ball and the balls of the feet are on the floor with legs in a wide position and arms are extended front also wide with finger tips on the floor. 2. Pull your navel to spine as you try to levitate off the ball. You want to feel light on the ball. 3. Lift opposite arm and leg trying to keep your balance. 4. Keep your chin slightly tucked lengthening your spine. 5. Lower the arm and leg down and switch. 6. Perform 8-12 reps on each side. 	
Advanced Swimming	None	<ol style="list-style-type: none"> 1. From a plank position (prone) with arms and legs in a wide stance, contract the core and lift the opposing arm and leg. 2. Lower the arm and leg down and switch. 3. Perform 8-12 reps on each side. 4. Do not lock any joints and keep your head in line with your spine. 5. BREATH- Inhale on the extension exhale on the down movement. 	
Ball Tucks	Exercise Ball	<ol style="list-style-type: none"> 1. Start in a plank position on the ball with thighs on the ball, feet elevated off the floor, and the arms are fully extended with the palms on the floor. 2. Elbows are soft and navel is pulled to spine. 3. Inhale and as you exhale, contract your abs and bend your knees as you pull your knees towards the chest into a tuck position. Your legs move only because your core initiates the movement- they are along for the ride. 4. Extend your legs back out into a plank position. 5. Perform 8-12 reps. 	

• Sample Core Conditioning Exercises.....continued

Exercise	Equipment	Description	Picture
Ball Pike (Advanced Ball Tucks)	Exercise Ball	<ol style="list-style-type: none"> 1. Same starting position as the ball tucks but the shins are on the ball (not the thighs). 2. Push up into a pike position with the legs straight. Push the hips up towards the ceiling as high as possible. 3. Perform 5 reps. 	
Beginner Bridge	None	<ol style="list-style-type: none"> 1. Start in a supine position. Feet are on the floor hip width apart with the knees bent towards the ceiling. The arms are resting on the floor alongside the body and the hands are reaching past the hips. The chin is slightly tucked. 2. Inhale to prepare, then exhale as you peel your spine off the floor until you are in a bridge keeping your knees in line with your hips. Feel your navel dropping or sinking to your spine the higher you go into the bridge. 3. Inhale as you hold the bridge position then peel down as you exhale. 4. Perform 8-12 reps. 	
Bridge on the Ball	Exercise Ball	<ol style="list-style-type: none"> 1. Same as the Beginner Bridge; however, this time place your heels on the ball. 2. Go into the bridge with heels pressing into the ball. 3. Perform 8-12 reps. 	
Advanced Bridge on the Ball	Exercise Ball	<ol style="list-style-type: none"> 1. Start in the bridge position on the ball with your heels on the outer sides of the ball. 2. Inhale to prepare, then on the exhale draw the heels to the buttocks as you bend your knees keeping the hips up. 3. Feel the navel pull towards the spine. 4. Inhale as you hold, then exhale as you extend the legs back out while keeping the hips lifted. 5. Perform 8-12 reps. 	

Water Exercise

- Defined: Water exercises pose an extremely low risk of injury, while providing an opportunity to improve cardiovascular endurance, increase muscular strength, decrease body weight, and improve overall fitness levels. Since water supports and cushions the joints, participants can run, jump, and stretch without the forceful impact that causes strains and injuries on dry land. Water also provides a natural resistance that is 12 to 14 times greater than that of air, so during normal movements, muscles work harder than they would on land. Circuit training, interval training, water-walking/jogging, deep-water aerobic exercise, aqua bench training, aqua play, athletic team training, aquatic rehabilitation assistance, and personal aqua training are some examples of the various aerobic programs that are available in the water.
- Water Exercise Guidelines/Technique
 - Teaching Position: Deck vs. Water
 - Deck– Students are more apt to understand the execution of the exercise. Instructor is able to check body alignment and movement pattern better.
 - Water– Instructor is able to motivate students better.
 - Combination is best– Demo the move on deck then get in the water to motivate!!
 - Cueing
 - Visual
 - Hand Signals
 - Deck Demonstration
 - Use facial expressions and eye contact for positive reinforcement and motivation
 - Verbal
 - Cueing vocally is challenging in an aquatic environment due to acoustics and external noise
 - Keep verbal cues short and specific
 - Use an aqua microphone
 - Music
 - Style– Choose music that corresponds with the demographics of your participants.
 - 120-155 BPM
 - Using Music with Choreography
 - Water tempo is slower than land tempo
 - Land Tempo– One movement per beat/count
Example: Jack out 1 Jack in 2
 - Water Tempo– One movement per 2 beats/counts
Example: Jack out 1, 2 and Jack in 3, 4
 - Using Music as a Motivator– An instructor can use music for background ambience only for motivation....no specific choreography to the music.

- Ensure that a lifeguard is on duty
- Make sure that pool conditions are safe, i.e., pool chemicals
- Wait at least 2-3 hours after a heavy meal before exercising; Wait an hour after a light meal
- When breathing during the workout, inhale at the height of the bounce and exhale at the lowest point. This will prevent one from swallowing water.
- Nonswimmers should be encouraged to join a swim class to build confidence.
- Wear protective aqua shoes
- Avoid water exercise if one has the following conditions:
 - Fever, diarrhea, and/or is vomiting
 - Open wound
 - Infectious disease
 - Skin condition
- Be aware of signs of distress
- Wear sun protection if exercising outside
- Avoid electrical shock– Avoid using electrical cords, use battery operated sound equipment and mic.
- Cue Participants on the Following:
 - Neutral Spine/Proper Body Alignment
 - Proper Breathing
 - Intensity Options
 - Safe Entry and Exiting of the Pool
- Check Safety of Equipment
 - Wrist Alignment– There should not be a break in the wrist
 - Grasping of Equipment– Firm but relaxed

- Base Moves: FiTOUR Recommends taking the FiTOUR Aqua Fitness Certification to better understand the execution of the following exercises. Listing the base moves is for the purpose of obtaining supplemental knowledge not for practicality purposes.

Cardio Exercises

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Wide Knee Jog 2. Cross Country Ski 3. Jacks 4. Crossovers 5. Single Heel Kick 6. Double Heel Kick 7. Front Kicks 8. Back Kicks 9. Can-Can 10. V Kicks 11. Front Split Jumps 12. Cheerleaders 13. Rocking Horse 14. Side Leaps 15. Pendulum | <ol style="list-style-type: none"> 16. Leap Frog 17. Power Knee Jumps 18. Single Bunny Hop 19. Double Bunny Hop 20. Leg Swings 21. One Leg Frog Jump 22. Football Drill 23. Downhill Ski 24. Twists 25. Side Knee Lift 26. Sponge |
|---|--|

Muscle Conditioning Exercises

- | | |
|--|--|
| <ul style="list-style-type: none"> • Shallow Water 1. Straight Leg Kick 2. Bicycle 3. Wall Crossovers 4. Front Flutter Kick 5. Slap Kick 6. Leg Circles 8. Toe RaisesSagital Leg Lifts 9. Side Straight Leg Lifts 10. Fire Hydrant 11. Tricep Push-ups 12. Wall Abs 13. Butterfly 14. Lateral Raises 15. Sagital Arm Swing 16. Arm Curls 17. Quad Extension 18. Leg Curl • Deep Water 1. Vertical Cross Country Ski 2. Vertical Jacks | <ol style="list-style-type: none"> 3. Vertical Crossovers 4. Vertical Quick Scissors 5. Vertical Knee Lifts 6. Vertical Double Heel Kick 7. Vertical Egg Beater 8. Seated Jacks 9. Seated Crossovers 10. Seated Quick Scissors 11. Ab Curls 12. Knees to Chest 13. Oblique Twists |
|--|--|

Stretches

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Side Stretch 2. Quad Stretch 3. Hamstring Stretch 4. Ankle Rotations 5. Calf Stretch 6. Upper Back 7. Chest | <ol style="list-style-type: none"> 8. Shoulders 9. Triceps 10. Biceps 11. Head 1/2 Rolls 12. Back Stretch |
|--|--|

Teaching Flexibility

- Defined: The ability to move a muscle or joint through its full range of motion without discomfort or pain.
- Flexibility Training Guidelines/Technique
 - Frequency: At least 3 days/week or after every workout
 - Intensity: Stretch all major muscles to the point of mild discomfort
 - Time: Hold each stretch 15-30 seconds/Repeat each stretch 3-5 sets
 - Avoid Bouncing
- Pilates and Yoga classes are excellent disciplines to develop flexibility.
- Sample Stretches
 - Upper Body Stretches



Pectorals



Rhomboids
Upper Back



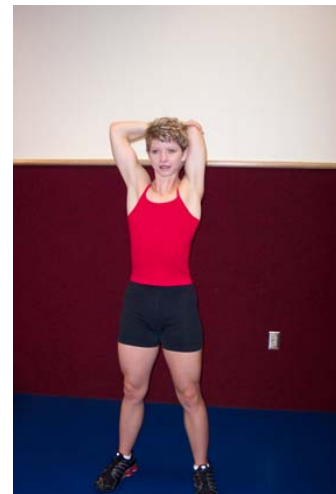
Deltoids



Lats



Biceps



Triceps

- Lower Body Stretches



Quadriceps



Hamstrings

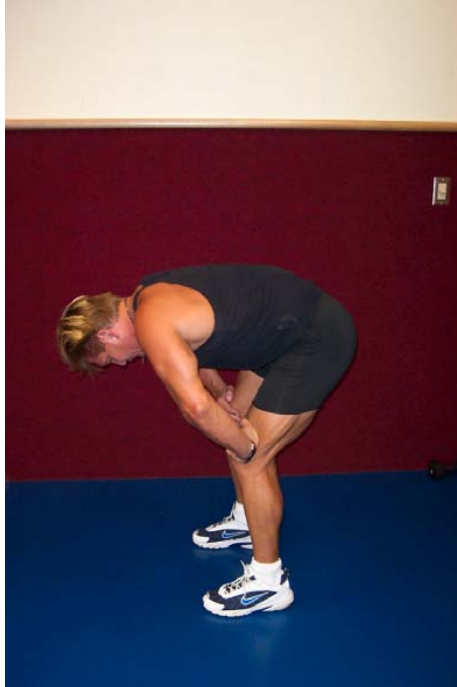


Hip Flexors



Gastrocnemius

- Core Body Stretches



Erector Spinae/Lower Back



Abdominals



Below are a series of questions designed to help you remember the course material efficiently. Before proceeding to the next page of the course content, please answer the following review questions.

Section # 9 Review Questions

- 1. Define Group Resistance Training and provide examples:**
- 2. Define Core Conditioning and provide examples:**
- 3. Define Water Exercise and provide examples:**
- 4. Explain how you teach Flexibility and provide examples:**
- 5. After completing the review of the study manual, please take the time to complete the Instructor Observation form located on the next page of this study manual. This is an optional review exercise. However, completion of this exercise will significantly increase the knowledge and understanding necessary to become a certified fitness instructor.**

Appendix A

Informed Consent Form

I hereby voluntarily give consent to engage in a group exercise class. I understand that the exercise class will involve progressive stages of increasing effort and that at any time I may terminate my participation for any reason. I understand that during the class I may be encouraged to work at sub-maximum effort and that at any time I may terminate participation for any reason.

I understand that I am responsible for monitoring my own condition throughout the exercise class, and should any unusual symptoms occur, I will cease my participation and inform the instructor of the symptoms. Unusual symptoms include, but are not limited to: chest discomfort, nausea, difficulty in breathing, and joint or muscle injury.

Also, in consideration of being allowed to participate in the exercise class, I agree to assume all risks of such exercise, and hereby release and hold harmless _____, and their agents and employees, from any and all health claims, suits, losses, or causes of action for damages, for injury or death, including claims for negligence, arising out of or related to my participation in the exercise classes.

I have read the foregoing carefully and I understand its content. Any questions which may have oc-

Name	Date
Witness	Date

curred to me concerning this informed consent have been answered to my satisfaction.

Appendix B PAR-Q Form

Physical Activity Readiness Questionnaire

Name _____ Date _____

DOB _____ Age _____ Home Phone () _____ Work Phone () _____

Regular exercise associated with many health benefits, yet any change of activity may increase the risk of injury. Completion of this questionnaire is a first step when planning to increase the amount of physical activity in your life. Please read each question carefully and answer every question honestly:

Y	N
---	---

1) Has a physician ever said you have a heart condition and you should only do physical activity recommended by a physician?

Y	N
---	---

2) When you do physical activity, do you feel pain in your chest?

Y	N
---	---

3) When you were not doing physical activity, have you had chest pain in the past month?

Y	N
---	---

4) Do you ever lose consciousness or do you lose your balance because of dizziness?

Y	N
---	---

5) Do you have a joint or bone problem that may be made worse by a change in your physical activity?

Y	N
---	---

6) Is a physician currently prescribing medications for your blood pressure or heart condition?

Y	N
---	---

7) Are you pregnant?

Y	N
---	---

8) Do you have insulin dependent diabetes?

Y	N
---	---

9) Are you 69 years of age or older?

Y	N
---	---

10) Do you know of any other reason you should not exercise or increase your physical activity?

If you answered yes to any of the above questions, talk with your doctor by BEFORE you become more physically active. Tell your doctor your intent to exercise and to which questions you answer yes.

If you honestly answered no to all questions you can be reasonably positive that you can safely increase your level of physical activity **gradually**.

If your health changes so you then answer yes to any of the above questions, seek guidance from a physician.

Participant's Signature _____ Date _____

Appendix C Letter to Physician

Dear Doctor:

Your patient _____ wishes to begin an exercise program involving progressive resistance training, flexibility exercises, and a cardiovascular program; increasing in duration and intensity over time. After completing a Modified PAR-Q and discussing their medical condition we agreed to seek your advise in setting limitations to the program. Please identify any recommendations or restrictions that are appropriate for your patient in this exercise program:

	I am not aware of any contraindications toward participation in a fitness program.
	The applicant should not engage in the following activities:
	I recommend the applicant not participate in the above fitness program.

Physician's Name (Please Print) _____
 Address _____
 City, State, Zip _____, _____, _____
 Phone Number () _____ Email Address _____

 Physician's Signature

 Date

Appendix D

Choreography Building Blocks

Pattern #1a 4 or 8 Counts	Pattern #2a 4 or 8 Counts	Pattern #3a 4 or 8 Counts	Pattern #4a 4 or 8 Counts	Patterns 1a-4a = Combination #1 Add Variations
Pattern #1b 4 or 8 Counts	Pattern #2b 4 or 8 Counts	Pattern #3b 4 or 8 Counts	Pattern #4b 4 or 8 Counts	Patterns 1b-4b = Combination #2 Add Variations
Pattern #1c 4 or 8 Counts	Pattern #2c 4 or 8 Counts	Pattern #3c 4 or 8 Counts	Pattern #4c 4 or 8 Counts	Patterns 1c-4c = Combination #3 Add Variations
Pattern #1d 4 or 8 Counts	Pattern #2d 4 or 8 Counts	Pattern #3d 4 or 8 Counts	Pattern #4d 4 or 8 Counts	Patterns 1d-4d = Combination #4 Add Variations

Appendix E

Borg's Scale of Rating of Perceived Exertion

Original Scale

6	No Exertion at All
7	Extremely Light
8	
9	Very Light
10	
11	Light
12	
13*	Somewhat Hard
14*	
15*	Hard (Heavy)
16*	
17	Very Hard
18	
19	Extremely Hard
20	MAX

Revised Scale

0	
.5	Extremely Weak
1	Very Weak
2	Weak
3	Moderate
4*	
5*	Strong
6*	
7	Very Strong
8	
9	
10	Extremely Strong (MAX)

*The intensity level that is optimal for cardiovascular improvements.

Appendix F

Additional Group Resistance Training Exercises

(Provided by Tracy Heimerl, FiTOUR Master Trainer from Atlanta, GA)

- 1. Walking Squats:**
Beginner: No weights
Intermediate: Hold weights in hands at sides
Advanced: Holds weights at shoulders or hold weighted bar on shoulders.
1 squat = 4 counts
Start with feet together. Count 1 step right foot out to the side shoulder width apart; Count 2 squat; Count 3 stand; Count 4 step left foot in with feet together. Repeat for a total of 4 walking squats to the right. Repeat 4 walking squats to the left. Repeat all of the above for a total of 8 to the right and 8 to the left.
- 2. Balance Lunges:**
Beginner: No weights with arms out to the side for balance
Advanced: Hand weights held at sides
Start by standing on the step. Balance on left foot with right foot held out behind the body engaging glutes and abs. Do not lean forward. Slowly bend left leg as if doing a lunge but do not let right foot touch the floor then straighten back up for a total of 8 then bend left leg and hold for 4 counts followed by 8 quick pulses and hold for 4 counts. Repeat on right leg.
- 3. Step Chest Presses**
Place a mat on the step and lie supine on the step holding either hand weights or weighted bar. Engage abs, do not arch back.
Weights held shoulder width apart or grip shoulder width apart on the bar. Exhale while pressing weights up over chest and inhale while lowering. 8 repetitions. Now keep the same grip but lower hands until weights are held over the ribs, just above the navel. Inhale, lower weights over ribs and exhale while pressing weights up. 8 repetitions. Move hands wider apart with weights held over the chest. Inhale and lower, exhale and press weights up over the chest. 8 repetitions. Repeat all three exercises again for a total of 16 repetitions each.
- 4. Shoulder/Plie' Combo:**
Begin with feet wide apart and toes turned out. Holding hand weights, palms are pronated. Engage abs., tailbone pointed down toward the floor, knees bent, hold plie' squat. Exhale, lift weights in front of body to shoulder height, inhale lower. 8 repetitions. Stand but keep wide stance. Exhale, lower into plie' squat while lifting weights into a lateral raise to the sides, shoulder height. Inhale, lower weights to sides at same time standing. 8 repetitions.
- 5. Standing glutes workout:**
Equipment needed: 3 to 4 pound soft weighted ball.
Hold a bar, pole or step in a vertical position in front of the body for balance. Hold pole/step with one hand while holding weighted ball with the other. Place weighted ball behind the right knee and bend leg to hold the ball in place. Keep left knee soft. Press right leg backwards slowly while squeezing the ball for 8 repetitions then hold ball back for 4 counts. End with 8 quick pulses backward. Repeat with other leg. Engage glutes. Working glutes and hamstrings.

6. **3 Minute Circuit Cardio/Strength Combo:**
Begin in push-up position in front of the step. If doing push-ups on knees, place a mat on the floor. Do 8 push-ups; quickly step over the step and sit on the step still facing forward. Place hands on the step and do 8 triceps dips; quickly stand and walk to the side of the step. Face the side toward the step and stand on the step. Do 8 lunges off the step. Go back to the front of the step and repeat all, this time 6 each then 4 each then 2 each.
7. **Step Calf Raises:**
Hold pole or bar vertically in front of body for balance. Stand on a step while holding pole in front of step. Hang heels off the step. Exhale and rise up on balls of feet. Inhale and lower. 12 repetitions then hold at the top for 4 counts and hold at the bottom for 4 counts. Repeat.
8. **Biceps Variations.**
Begin with feet together and palms supinated holding hand weights shoulder width. Do 8 biceps curls. Move feet hip width apart and keep elbows "glued" to the waist. Hand turned out to the sides. Do 8 wide biceps curls. Move feet wider apart into a plie' stance. Lower into a plie' squat and hold squat while bringing weights up to shoulder height. Place weights on shoulders with elbows pointed out to the sides at shoulder level. Do 8 side biceps curls.
9. **Step Back Extensions:**
Place mat on step and also partially off the side of the step on the floor or place a second mat on the floor off the side of the step. Lie in prone position with upper body off the step and resting on the second mat. Hips/legs are still on the step. Engage abs. Hands behind the back or resting on the mat on the floor. Slowly rise until upper body is completely off the floor then lower back to the floor. Begin with 4 repetitions.
10. **Abdominal Resistance:**
Sit on the step with knees flexed and toes on the floor. Heels off the floor. Hands held out to the sides. Take a deep breath and lean backwards about 45 degrees. Retract and depress shoulder blades. Maintain spinal extension and engage abs. Hold for 4 deep breaths and release by leaning forward, rounding the back and hugging the knees. Repeat but this time lift the feet completely off the floor and hold for 4 deep breaths. Release, stretch and repeat again only this time stretch the legs out farther away from the body with feet off the floor and hold.
11. **Bicycle Step Resistance:**
Sit on the step facing the side. Lean backwards while maintaining spinal extension and engaging the abs. Hold onto the step with hands, elbows soft, don't impinge shoulders. Stretch feet straight out and begin a pedaling motion with feet. 8 forward, 8 backward and repeat.
12. **Supine Obliques:**
Lie in supine position. Knees are flexed and feet flat on the floor. Engage abdominals while maintaining neutral alignment. Press shoulder blades into the floor and lift head and neck while maintaining cervical nod. Palms facing toward the ceiling and hands held at the sides. Rotate from side to side as if trying to touch each ankle with fingertips. 8 repetitions. Hold last repetition for 4 counts then 8 quick pulses. Repeat on other side.

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