

Aerobics
102



Vanderbilt University
Student Recreation Center

The goal of this course is to provide those participating with the knowledge necessary to lead group fitness classes. Upon completion of this course, you will have the basic understanding of the human body and the components that make up an organized and safe class such as: proper technique, music, cueing, and choreography. This class does not take the place of a national certification, which is required by most facilities before you teach. However, this class is a great opportunity to begin preparation for a national certification.

This course does not guarantee that you will be hired by the Vanderbilt Student Recreation Center as an Aerobics Instructor, but it will give you the opportunity to audition for a position. Fitness is a fun and exciting industry, and being a fitness professional is one of the best jobs to have!

SEE YOU IN CLASS!



NATIONAL CERTIFYING BODY'S

AFAA

Aerobics and Fitness Association of America

1-800-233-4886

IDEA

International Dance and Exercise Association

1-800-828-8225

ACE

American Council on Exercise



NSCA

National Strength and Conditioning Association

719-632-6722

ACSM

American College of Sports Medicine

317-637-9200

WHAT CAN I EXPECT FROM THIS CLASS?

Classroom Portion :

- Muscle
- Stretching
- Safety Standards
- Choreography
- Music
- Exercise Physiology



Hands on Portion :

- Teaching with microphone
- Using equipment
- Working with the "32"

RESPONSIBILITIES OF AN INSTRUCTOR

- Lead and Motivate the Class
- Develop a Class Routine
- Be a Role Model
- Basic CPR and First Aid
- Answer Questions about Health and Fitness
- Ensure Safety

M uscle C onditioning in A erobic E xercise

The purpose of muscle conditioning in a group exercise class is to improve strength and endurance in the major muscles of the body. It is important to have an understanding of the muscular foundations of the body in order to provide the safest, most effective workout for your class.

M uscular Strength

The maximum force a muscle can exert against resistance in a single effort.

Example: One rep max.

M uscular Endurance

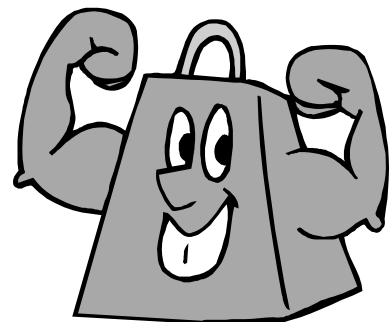
The number of times a muscle can exert force against a given submaximal resistance.

Example:



M U S C L E T E R M S

- **Agonist:** The muscle that is primarily responsible for the movement (prime mover)
- **Antagonist:** The muscle that produce the opposite joint action to that of the agonist.
- **Stabilizer:** For a desired movement to occur in joints, other joints must not move. Muscles that perform this joint stabilizing function are stabilizers.
- **Joint:** The location where two bones meet.
- **Tendon:** Connects muscle to bone. Example: Achilles
- **Ligament:** Connects bone to bone. Example: ACL
- **Muscle:** A special bundle of fibrous tissues that contract,



TYPES OF MUSCULAR CONTRACTION

Isometric: Muscle contraction where there is little if no change in the angle of the involved joint(s). The muscle group contracts against a fixed or immovable resistance.

Isotonic: Muscle contractions where a constant of variable load is moved through a range of motion of the involved joint(s).

2 types:

Concentric: Muscular contraction with shortening.

Eccentric: Muscular contraction with lengthening.

Isokinetic: Muscle contraction where resistance adjusts so that it is exactly matched to the force applied by the muscle throughout the full range of motion.

GUIDELINES

- Exercise range of motion :
Full vs. Partial
- Exercise speed :
Slow and controlled
- Breathing :
Exhale during Exertion
- Balance :
Equal amounts of sets and repetitions with
opposing muscle groups
- Rest :
Repair



TRAINING PRINCIPLES

Overload Principle: When the muscle works against workloads that are above those normally encountered, muscular strength and endurance will increase.

Progressive Resistance Principle: Resistance against which a muscle works should be increased periodically to achieve the desired results.

Principle of Specificity: Weight training programs should simulate as closely as possible the movement patterns involved in the use of the particular muscles being worked.

FIVE QUESTIONS

1. What muscle are you trying to stretch, tone or exercise?
2. Are you doing that?
3. Is there any stress on the back or knees?
4. Are there any other stress points?
5. Who is this exercise appropriate for?



*Ask yourself these questions before adding any movement to your routine.

MUSCLE CONDITIONING WORKSHEET

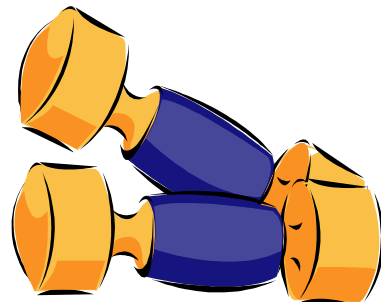
Use the space provided to list exercises that can be done for each muscle group.

Lower Body:

1. Quadriceps
2. Hamstrings
3. Hip Adductor (inner thighs)
4. Hip Abductor (outer thighs)
5. Gluteal
6. Gastrocnemius (calves)

Upper Body:

1. Chest
2. Shoulders
3. Upper Back
4. Lower Back
5. Biceps
6. Triceps
7. Abdominals

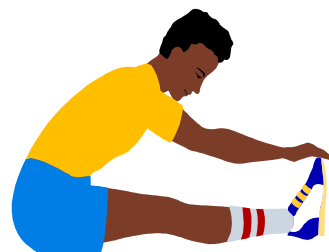


STRETCHING

One of the main goals of stretching is to increase flexibility. Flexibility refers to the total range of motion of a joint or group of joints. Flexibility differs from person to person and from joint to joint. With the increase in the aging population the importance of stretching to increase flexibility has become more apparent.

BENEFITS OF STRETCHING

1. Increase in range of motion.
2. Reduction in the incidence and severity of injury.
3. Improvements in posture and muscle symmetry.
4. Prevention and alleviation of muscle soreness.
5. Promotion of mental relaxation.
6. Opportunity for spiritual growth, meditation, and self evaluation.



TY P E S O F S T R E T C H I N G

Passive: Usually performed with an outside force such as a towel or partner.

Active: Muscle or joint being stretched is actively moved through the ROM .

Static: Muscle group is gradually stretched to the point of limitation and then held in position for 15-30 seconds.

Ballistic: Rapid movements requiring jerking and bouncing (not safe).

PNF (proprioceptive neuromuscular facilitation): Involves stretching a muscle for a short period, contracting, stretching again, contracting, and then one last relax stretch.

G U I D E L I N E S

- Warm up before stretching to increase body temperature and range of motion and decrease risk of injury.
- Pre Workout: Hold stretches between 15 and 30 seconds (research suggests that four sets per stretch will yield best results).
- Stretch to limited movement not to the point of pain. Keep breathing slow and rhythmic while holding stretches.
- Post Workout: Hold stretch to point of tension, then stretch further. Hold entire stretch for 30-40 seconds. (The stretch after a workout increases flexibility).

STRETCHING WORKSHEET

Use the space provided to list stretches that can be done for each muscle or muscle group.

Lower Body:

1. Quadriceps
2. Hip Flexor
3. Hip Adductor (inner thighs)
4. Hip Abductor (outer thighs)
5. Hamstrings and Gluteals
6. Gastrocnemius (Calves)

Upper Body:

1. Chest
2. Shoulders
3. Upper Back
4. Lower Back
5. Biceps
6. Triceps
7. Abdominals

What's wrong with this picture?



M O N I T O R I N G C L A S S I N T E N S I T Y

R esting heart rate: The heart rate upon w aking up .

M axim um heart rate: The fastest rate the heart can pum p . This rate cannot be changed or trained and decreases w ith age (220-age) .

T arget heart rate: The heart rate high enough to w ork the heart w ith an intensity that w ill produce change and im prove cardiovascular system .

R ecovery T im e: The am ount of tim e it takes the heart to return to norm al or resting rate after exercise .



CALCULATING TARGET HEART RATE

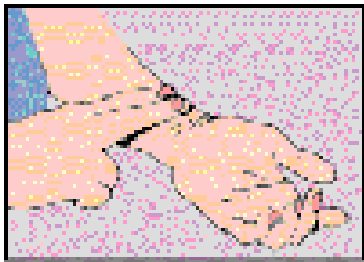
In order to get aerobic benefits at a SAFE and CONSISTENT pace, you should exercise at 50–85% of your maximum heart rate.

$(220 - \text{Age}) \times .50$ _____ (a) _____

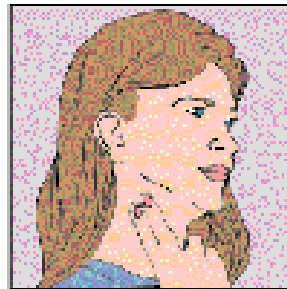
$(220 - \text{Age}) \times .85$ _____ (b) _____

(a) to (b) = target heart rate zone

TAKING YOUR PULSE



Radial Pulse



Carotid Pulse

- When taking pulse, select one of these locations – use index and middle finger. Begin counting pulse on zero.
- Take for 6 seconds and add 0 to the end or take for 10 seconds and multiply by 10. Compare this number to your target heart rate zone.
- The radial (wrist) pulse is the preferred method for checking the pulse for health/medical reasons.

PERCEIVED EXERTION

Perceived exertion ratings are used to obtain subjective information from participants relating to how intense they are working.

Borg's Scale of Perceived Exertion 0-10 scale:

0	Nothing at all
1	
2	
3	
4	
5	Strong
6	
7	Very strong
8	
9	
10	Very, very strong

TALK TEST

During the workout, the participants should be able to carry on a conversation.

If they cannot talk, decrease intensity.

If they can sing, increase intensity.



CLASS FORMAT

Warm up:

Purpose - to prepare the body for workout;
8-12 minutes - keep it simple - active stretching.

Body:

20-70 minutes of continuous activity depending on length of the class, intensity should progress as the class progresses.

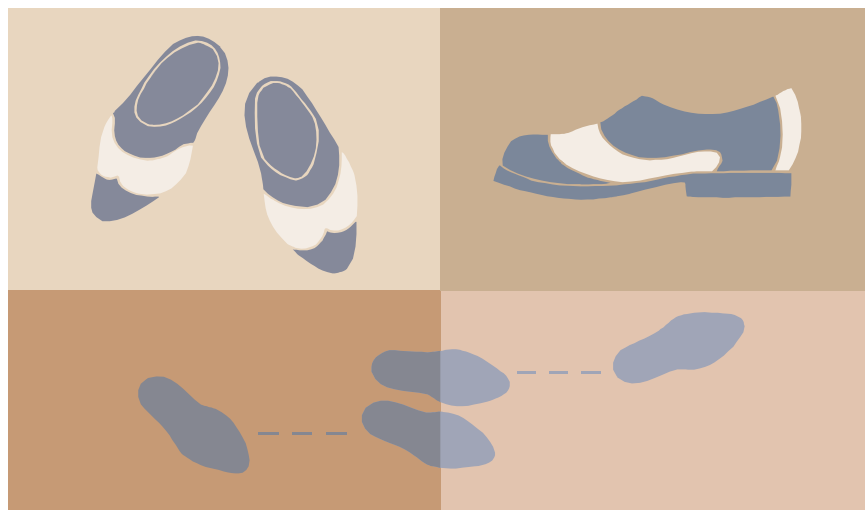
Cool down/stretch:

Purpose - bring heart rate down and increase flexibility; 5-10 minutes - static stretching.



CHOREOGRAPHY

- . Teaching choreography effectively
- . 32 Count Patterns
- . Putting combinations together to make a class



TEACHING CHOREOGRAPHY

Flow : Putting movements and combinations together in a way such that there is a logical progression from one movement to another without jerkiness, "making it FEEL right".

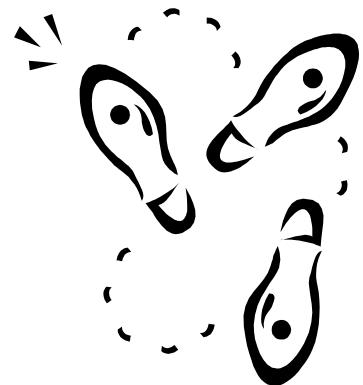
Break Down : Difficult choreography needs to be broken down into more basic movements that will allow someone to choose one or the other and still be "with" the class.

Avoid : Teaching combinations facing the back of the room - there should be an option facing the front.

Teach choreography in such a way that it limits reduction in intensity. ("HOLD YOURS-WATCH ME")

Closure should be felt after each combination as well as the end of the class.

The 32 Count Phrase does not have to be used when breaking down the choreography but should always be used in the final product.



MUSIC

Music is essential to the success of any group exercise session. It helps to provide timing for the group, but it also makes the class FUN, enjoyable, and motivating.

It can make or break your class!

MUSIC TERMS

Beat: Regular pulsations that occur in a continuous pattern.

Tempo: The speed of the movement.

Down Beat: Stronger pulsations.

Up Beat: Weaker pulsations.

Beats Per Minute (BPM): The number of down beats occurring in a minute.

32 count phrasing

4 sets of 8 counts

5,6,7,8...

GUIDELINES

Class:

Step: 122 - 128 bpm

Hi/Lo: 130 - 150 bpm

Toning: 115 - 130 bpm

Kick boxing: 125 - 140 bpm



Counting Beats Per Minute:

You need to learn where the down beat is and find the beat and counts as fast as possible in the music. With that mastered, cueing can then take place properly.

LISTENING TO THE MUSIC

Working with down beat

Clap on the down beats of the following music selections then attempt to add a basic movement, like a march or a basic.

Working with the 8 count phrase

Clap on the 8 count phrase of a music selection then add movements to the eight count, like 2 grapevines or 2 V-steps.

Working with the 16 count phrase

Clap on the sixteen count phrase of a music phrase and add movement.

Working with the 32 count phrase

Clap at the beginning of the 32 count phrase and add movement.



CUEING

Types of Cues:

- **M ovement C ue**
A cue that describes the action to be done in addition to all related details regarding its execution (when, where, how).
- **Safety A lignment C ue**
A cue that informs about an action, specifically for the purpose of safety and effectiveness.
- **M otivational C ue**
A cue designed to increase or decrease the energy, attitude and response of the class.
- **V isual C ue**
A cue that uses hand motions to aid in directional changes.

T iming:

The cue should PRECEDE the movement.

Voice Inflection :

The inflection of your voice can be used to add energy to your class as well as a sense of urgency that will act as a source of motivation.

C onsistency:

Once you choose a name for a movement, use that name throughout the entire class.

32 COUNT PATTERNS

Patterns of choreography should:

- Consist of a 32 count of music (each movement representing a certain number of beats).
- Have different levels of difficulty (a basic and a more complex version).
- Change leg lead (right to left).

How many patterns should I teach in one class? This is a difficult question to answer. Being a good instructor means being able to adapt to your class. Sometimes your class may not "get it" and you may need to break things down a little longer. You may even have to get rid of an entire combination if you see they are getting frustrated. At the same time, you may "fly" through your combinations and need to add something to fill the time. Knowing the



number of combinations you will teach will come with practice, experience, and knowing your class.

PUTTING IT TOGETHER

At the end of class:

Alternating leg lead in each combination

A (r+1) + B (r+1) + C (r+1) + D (r+1)

Alternating leg lead AND alternating combinations:

A (r) + B (1) + C (r) + D (1) + A (1) + B (r) + C (1) + D (r)

Alternating combinations but keeping leg lead:

A (r) + B (r) + C (r) + D (r) + A (1) + B (1) + C (1) + D (1)



PUTTING COMBINATIONS TOGETHER

There are several different ways to put choreography together in your class. These are a few examples. The way you decide to do it will depend on you and your class!

Within the class:

1. Link Method

A

B

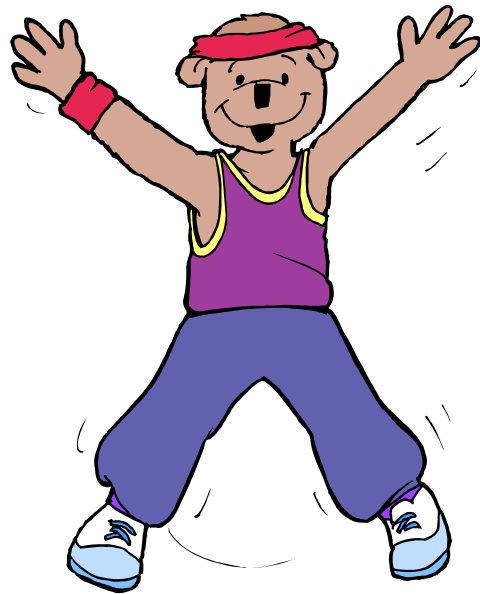
A + B

C

A + B + C

D

A + B + C + D



2. Add-On Method

A

B

C

D

A + B + C + D