

WEIGHT ROOM MANUAL



FITbear

BARNARD

PHYSICAL EDUCATION

Weight Room Rules

1. The Weight Room and Recreation Facilities are for the use of Barnard students, Barnard faculty & staff, Barnard alumnae (with Sport Pass) and Columbia undergraduate students (CC, SEAS). Guests are not permitted.
2. Proper identification with a Weight Room sticker is always required upon entry to the Weight Room. Patrons will always leave their identification with the Weight Room Supervisor while they are using the Weight Room.
3. Personal belongings are not permitted in the Weight Room (except ipods, water bottles, reading materials and workout clothing). Lockers are available through the Physical Education Department, Room 206 Barnard Hall.
4. Patrons must wear proper workout attire (i.e., athletic shoes, shorts, sweatpants, t-shirt, sweatshirt) when using the Weight Room.
5. No food, chewing gum, or drink (except water or a sports beverage in a closed plastic container), is permitted in the Weight Room.
6. Use of all Cardiovascular Equipment will be on a sign-up basis. There is a 20 minute limit on all equipment, at which time the patron must stop, unless the next time slot is available.
7. A towel is recommended for use in the Weight Room to use as a barrier when working on the benches and mats.
8. Men are allowed to use the Barnard College Weight Room during co-ed hours only.
9. Unruly behavior will not be tolerated in the Weight Room.
10. All Weight Room Supervisor decisions are final.

General Exercise Guidelines

To experience the full benefits of physical activity, participation in regular physical activities 3-6 days a week, 20 to 60 minutes per session is recommended by the American Council of Exercise & American College of Sports Medicine.

A complete exercise program should include the following three components of training:

- Cardiovascular efficiency and endurance
- Muscular strength and endurance
- Flexibility

Regular physical exercise is safe for most people. However, some individuals should check with their doctor before they start an exercise program. If you are unsure of your current health condition or have never been physically active, please consult your doctor before starting to exercise.

Stay hydrated. Drink water throughout your exercise sessions. Your body will need water before you feel thirsty.

If you strain a muscle or become injured while exercising, stop exercising and follow these steps before you are able to see a doctor: R.I.C.E. (Rest-Ice-Compression-Elevation).

Always warm-up before your exercise session and always cool down after your exercise session.

Always workout in a safe environment.

Benefits of Regular Physical Activity

- Reduced risk of Heart disease, stroke, and high blood pressure
- Improved blood cholesterol levels
- Increased energy levels
- Reduced stress and tension
- Improved sleep patterns
- Ability to perform life tasks with greater ease and efficiency
- Increased quality of life
- Decrease in body fat
- Improved self-confidence
- Increased bone density

Warm-up

A graduated aerobic activity incorporating major muscle groups to increase circulation and heart rate in preparation for participation in physical activity, flexibility, cardiovascular and strength training.

Benefits of a Warm-up

- Increase in heart rate, preparing the cardiovascular system for work
- Increase body and tissue temperature
- Increases elasticity of connective tissue and muscular extension
- Increase of blood flow through the active muscles
- Decrease in muscular tension
- Helps psychological preparation

Warm-up Guidelines

1. Always warm-up before performing intense physical activities.
2. Warm-up should last 5-10 minutes.
3. Intensity should raise heart rate but not cause fatigue.
4. Warm-up should be followed by flexibility exercises.

Cool Down

A period of adjustment from exercise to rest

Benefits of Cool Down

- Decreased heart rate
- Improved venous return
- Reduced muscle soreness and tightening

Cool Down Guidelines

1. Always cool down after performing intense physical activities.
2. Reduce intensity of activity gradually to help decrease heart rate slowly.
3. Cool down should last 5-10 minutes.
4. Perform flexibility exercises for the muscle groups utilized during your workout.

Suggested Warm-up & Cool Down Activities

- Low-level aerobic activity
- Walking or jogging at a slow pace
- Cycling with little or no resistance
- Swimming motions

Cardiovascular Training

Cardiovascular exercise consists of rhythmic and continuous movement involving major muscle groups of the body.

Benefits of Cardiovascular Training

- Increased cardiac muscle strength and endurance
- Reduced risk of heart disease, stroke, and high blood pressure
- Reduced body fat
- Increased energy levels
- Reduced stress and tension

Cardiovascular Guidelines

A simple way to understand and remember the guidelines for achieving a cardiovascular training effect is the **FITT** acronym.

- F-** Frequency refers to the number of exercise sessions per week.
To improve cardiovascular fitness, **individuals should exercise at least 3 to 5 days per week.**
- I-** Intensity refers to how hard a person works out during exercise
To determine how hard you are working, monitor your heart rate or monitor intensity based on your perceived exertion level.
- T-** Time or Duration per **exercise session is recommended at 30 minutes.**
Beginners should start with 10 to 20 minutes of cardiovascular exercise.
- T-** Type or Mode of exercise consists of rhythmic and continuous movement involving major muscle groups of the body.

Examples: Walking, jogging, aerobics, swimming, cross-country skiing, rowing, cycling, rollerblading, rope skipping, individual and team sports, stair climbing, and running.

Make sure to choose cardiovascular activities that you enjoy and use different modes to help keep your workouts fresh and to avoid overuse injuries.

How intense should your cardiovascular workout be?

Cardiovascular development occurs when the workload is maintained between 60% and 90% of **maximal heart rate**. Lower intensities, between 60% and 70% of heart rate max, are advised for beginners with lower fitness levels. The average exercise intensity for apparently healthy adults is usually between 75% and 85% to improve your level of fitness.

Find your Resting Heart Rate (RHR): Take a 30 second pulse x 2 = _____

Estimating Maximal Heart Rate (MHR) : $220 - \text{age} = \underline{\hspace{2cm}}$

Find **Target Heart Rate** Training Zone: $\text{MHR} \times .60 = \underline{\hspace{2cm}}$

$\text{MHR} \times .90 = \underline{\hspace{2cm}}$

An alternate method of prescribing intensity uses the **rate of perceived exertion** (RPE) scale developed by Gunnar Borg. With this method an individual subjectively rates the difficulty of the current level of exercise. The intensity for maximal results should be between 13 and 16 (see the chart below).

Ratings of Perceived Exertion

6	13 Somewhat Hard
7 Very, very light	14
8	15 Hard
9 Very Light	16
10	17 Very Hard
11 Fairly Light	18
12	19 Very, very hard

The **American College of Sports Medicine** allows participants to rate their effort from 0-10 (nothing 0, to very hard 10). Over time, experienced exercisers will learn how to recognize their feeling at each level of intensity.

Flexibility Training

The range of motion of a joint or a group of joints. Increasing flexibility increases the range of motion, creating more efficient muscle movement and minimizing the chance of skeletal muscle injury.

Benefits of Flexibility Training

- Improved posture and balance
- Reduction of muscle tension and soreness
- Reduction of joint sprain and/or muscle strain
- Alleviation of lower back pain
- Increased mental and physical relaxation
- Reduction of severe or painful menstruation (dysmenorrhea)

Flexibility Training Guidelines

1. Always warm-up prior to performing flexibility exercises.
2. Stretch all muscle groups, paying extra attention to problem areas and those body parts being utilized in your primary exercise activity.
3. Use correct technique
4. Move slowly and smoothly into each flexibility exercise
5. Stretch to the farthest point of your pain free range of motion
6. Breath normally, exhale when moving deeper into a stretch
7. Hold each stretch 15-30 seconds.
8. Do Not Bounce!

The exercises illustrated and explained on the following page are designed to stretch each of the major joints. Stretch for as long as you are comfortable, but if you feel pain...stop!

SUGGESTED FLEXIBILITY EXERCISES



Pectoral: Stand facing a corner or narrow doorway. Raise your elbows in a reverse T (elbows below your shoulders). Exhale and lean your entire body forward.



Neck: Interlock your hands behind your head near the crown. Exhale, pull your head forward, and allow your chin to rest on your chest. Keep your shoulders depressed during the stretch.



Quads: Raise your heel to your buttocks. Lean forward, slightly flex your supporting leg, and grasp your raised foot with the opposite hand. Pull your heel toward your buttocks without over compressing the knee.



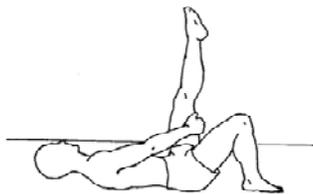
Groin: Sit on the floor with your legs flexed and spread, and your heels touching each other. Grasp your feet or ankles and pull them as close to your groin as possible. Keep your back straight and attempt to lower your chest to the floor.



Lower Back: Lie flat on your back. Flex your knees and slide your feet toward your buttocks. Grasp your thighs and pull your knees toward your chest, elevating your hips slightly.



Triceps: Place one hand behind you neck. Grasp that arm above the elbow with your other arm. Gently pull the elbow backward. Repeat with the opposite arm.



Hamstring: Lie on your back with your legs flexed and your heels close to your buttocks. Inhale and extend one leg upward. Exhale and slowly pull the raised leg toward your face, keeping the leg straight.



Buttocks and Hips: Sit upright on the floor, put your hands behind your hips and your legs extended. Bring your left foot over your right leg and slide your heel and slide your heel toward your buttocks. Reach over your left leg with your right arm. Press your right arm into your knee and look over your left shoulder.

Strength Training

Strength Training increases the ability of muscle to do maximum work within the shortest amount of time. Strengthening a muscle requires working the muscle against resistance in a controlled, deliberate manner.

Benefits of Strength Training

- Increased muscular size, strength, and endurance
- Increased bone density
- Increased tendon and ligament strength and thickness
- Decreased risk of injury from normal activities
- Increased metabolic rate

Designing Your Workout

- Determine your goals:
 - Muscular strength and/or size, muscular endurance
- Decide how much time you will spend per workout and number of days you are committed to training. *(The recommended minimum strength training program includes one set of 8-12 repetitions of 8 to 10 exercises that work the major muscle groups at least two times per week).*
- Determine the amount of weight to use and number of repetitions to perform according to your goals:
 - Muscular strength and/or size, 5-8 reps should be done with a heavy weight
 - Defining/toning (strength & endurance), 8-12 reps with a medium weight
 - Muscular endurance/maintain existing muscle strength, 12-15 reps with a light weight
 - If the goal is to build endurance and you can complete more than 15 repetitions, the weight is too light. If the goal is to build strength and you cannot complete more than 5 reps, then the weight is too heavy.
- Choose exercises you enjoy and include exercises for all the major muscle groups
- .Stick with it and have fun.

Strength Training Guidelines

1. Always perform warm-up and cool down exercises
2. Always perform flexibility exercises for muscles groups being exercised before, during, and after strength training
3. Exercise large muscle groups first, i.e. perform chest and back exercises before biceps and triceps.
4. Be sure to breath throughout the full range of motion. Exhale on the exertion phase (as you lift) inhale on the return phase (as you lower).
5. Keep your back straight and supported while strength training. Never arch your back.
6. Utilize only the muscle groups being exercised. Use no extraneous body movement while exerting force.
7. Keep your knees slightly bent, never lock your knee or elbow joints.
8. Use a smooth full range of motion. Control the weight using the 2-4 rule. Two seconds to lift and four seconds to return to the starting position. Never let your muscles relax.
9. Be sure to train opposite muscle groups equally, i.e. biceps & triceps, quadriceps & hamstrings.
10. Workout each muscle group at least twice a week. Always allow 24 to 48 hours of rest for each muscle group between workouts.
11. Always use a spotter when using heavy weights.

Major Muscle Group Exercises

LEGS:

Squats, Leg Press, Leg Extension, Hamstring Curl, Calf Raises, Abductor/Adductor

CHEST

Chest Press, Dumbbell Flys, Push-Ups

BACK

Lat. Pull Down, Seated Row, Pull-Ups

SHOULDERS

Shoulder Press, Front Raises, Lateral Raises

ARMS

Bicep Curl, Hammer Curl, Tricep Extension

Glossary

Abduction: Lateral movement away from the midline of the body

Adduction: Movement towards the midline of the body

Aerobic: Requiring oxygen, or in the presence of oxygen

Anaerobic: Requiring no oxygen; usually short spurt, high-energy activities

Antagonist: A muscle that acts in opposition to the action produced by a prime mover

Calorie: The amount of heat necessary to raise the temperature of 1 gram of water 1°C

Carbohydrate: The main energy source for muscular work and one of the basic foodstuffs

Concentric contraction: A movement in which the muscle shortens (lifting)

Eccentric contraction: A movement in which the muscle lengthens (lowering)

Endorphin: A natural substance that can be produced by the body during extended exercise periods that may exhibit “morphine-like” pain inhibiting qualities

Fat: Stored as adipose tissue in the body, it serves as a concentrated source of energy for muscular work

Hyper: Beyond normal limits

Hypo: Less than normal

Isometric: Movement against an immovable force; static; a muscle contraction in which a tension increases, but muscle length remains the same

Isotonic: A contraction in which a muscle shortens against force, resulting in movement and performance of work

Metabolism: The chemical reaction of a cell or living tissue that transfers usable materials into energy

Prone: Lying face down

R.I.C.E.: Immediate injury treatment: rest, ice, compress, elevate

Spot reducing: A popular but false assumption that an individual can lose fat only in desired areas

Supine: Lying face up

References

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Jordan, Peg, editor. 1995. *Fitness: Theory & Practice*. 2nd edition, Sherman Oaks, CA: RN Aerobics and Fitness Association of America.

Peterson, James A., editor. 1997. *ACSM's Health/Fitness Facility Standards and Guidelines*. 2nd edition, Champaign, IL: Human Kinetics.

Sudy, M. editor. 1991, *Personal Trainers Manual*. San Diego: American Council on Education.

Web Resources*

<http://www.acefitness.org>

ACE is committed to promoting active, healthy lifestyles and their positive effects on the mind, body...

<http://www.acsm.org/>

Promotes and integrates scientific research, education, and practical applications of sports medicine.

<http://www.americanheart.org>

American Heart Association - speaks for itself.

<http://www.concerningwomen.com/>

ConcerningWomen.com – “A free information resource concerning the issues of today's women.” Includes topics on health, exercise, and wellness.

<http://www.fitness.gov/activity/activity5/womenshealth/womenshealth.html>

"Physical Activity and Women's Health" - article by Christine L. Wells, Arizona State University. A discussion of physical activity among women today, health risks and benefits, and the need for "culturally appropriate and sensitive health programs and educational materials."

<http://www.ivillagehealth.com>

Ivillagehealth.com - good balance of information on fitness/exercise, food, and women's health concerns.

<http://www.womens-running.com>

Women's Running - a division of Runner's world, contains articles and information on nutrition, running and fitness routines, and daily tips.

*Barnard College Department of Physical Education does not promote the use of any service or product advertised on these web resources.

*Web resources are not to be used for the diagnosis and/or cure for any physical or mental health problems.