HPE*K130 Weight Training/Fitness

Heidi Zenie Office: C102

Phone: 860 215 9485 Office Hours: MW 1:00-3:00

T/R 1:00-2:00

hzenie@trcc.commnet.edu

Prerequisite: Successful completion of ENG*K094 and MAT*K075

Course Description

The student will gain knowledge of the muscular-skeletal system and the importance of exercise physiology, biochemistry, anatomy, biomechanics, and sports nutrition. Primarily, the student may apply these principles to design a safe, effective strength and conditioning program through weight training.

Course Outcomes

With completion of this course the student will have:

1. Knowledge to describe the normal acute responses to resistance training.
2. Knowledge of the normal chronic physiologic adaptations associated with resistance training.
3. Knowledge of the physiologic principles related to warm-up and cool-down.
4. Knowledge of the common theories of muscle fatigue and delayed onset muscle soreness (DOMS).
5. Knowledge of physiologic principles involved in promoting gains in muscular strength and endurance.
6. Knowledge of how the principle of specificity relates to the components of fitness.
7. Knowledge of the concept of detraining or reversibility of conditioning and its implications in fitness programs.
8. Knowledge of muscle actions, such as isotonic, isometric, isokinetic, concentric, eccentric.
9. Ability to identify the major bones.

10. Ability to identify the major joints of the body
11. Knowledge of the primary action and joint range of motion for each major muscle group.
12. Knowledge of the following terms: hypertrophy, atrophy, and hyperplasia.
13. Knowledge of the benefits and risks associated with exercise training and recommendations for exercise programming in children and adolescents.
14. Knowledge of how to modify cardiovascular and resistance exercises based on age and physical condition.
15. Knowledge to describe and the ability to safely demonstrate exercises designed to enhance muscular strength and/or endurance.
16. Knowledge of the principles of overload, specificity, and progression and how they relate to exercise programming.
17. Knowledge of how to conduct and the ability to teach/demonstrate exercises during a comprehensive session that would include pre-exercise evaluation, warm-up, aerobic exercise, cool-down, muscular fitness program, and flexibility exercise.
18. Knowledge of the advantages and disadvantages of implementation of interval, continuous, and circuit training programs.
19. Knowledge of progressive adaptation in resistance training and its implications on program design and periodization.
20. Ability to identify proper and improper technique in the use of resistive equipment, such as stability balls, weights, bands, resistance bars, and water exercise equipment.
21. Ability to teach progression of exercises for all major muscle groups to improve muscular fitness.
22. Ability to modify exercises based on age and physical condition.
23. Ability to adapt frequency, intensity, duration, mode, progression, level of supervision, and monitoring techniques in exercise programs for apparently healthy clients or those who have medical clearance to exercise.
24. Ability to evaluate, prescribe, and demonstrate appropriate flexibility exercises for all major muscle groups.

25. Ability to describe the advantages and disadvantages of various types of commercial exercise equipment in developing cardiorespiratory and muscular fitness.
26. Ability to safely demonstrate a wide variety of conditioning exercises involving equipment, such as stability balls, BOSC balls, elastic bands, medicine balls and foam rollers.
27. Ability to demonstrate a wide range of resistance-training modalities, including variable resistance devices, dynamic constant external resistance devices, static resistance devices, and other resistance devices.
28. Ability to safely demonstrate a wide variety of conditioning exercises that promote improvements in agility, balance, coordination, reaction time, speed and power.
29. Knowledge of training principles, such as progressive overload, variation, and specificity.
30. Knowledge of the Valsalva maneuver and the associated risks.
31. Knowledge of the appropriate repetitions, sets, volume, repetition maximum, and rest periods necessary for desired outcome goals.
32. Ability to safely demonstrate a wide variety of plyometric exercises and be able to determine when such exercises would be inappropriate to perform.
33. Knowledge of periodization in exercise in aerobic and resistance-training program design.
34. Knowledge of the role of carbohydrates, fats, and protein as fuel.
35. Knowledge of the importance of an adequate daily energy intake for healthy weight management.
36. Knowledge of basic precautions taken in an exercise setting to ensure participant safety.
37. Knowledge of the physical physiologic signs and symptoms of overtraining.
38. Knowledge of hypothetical concerns and potential risks that may be associated with the use of exercises such as straight-leg sit-ups, double leg raises, full squats, hurdler's stretch, yoga plow, forceful back hyperextension, and standing bent- over toe touch.
39. Ability to assist or spot a client in a safe and effective manner during resistance exercise.

Instructional Materials:

Brown, Lee. *Strength Training*, National Strength & Conditioning Association, Human Kinetics. 2007

Academic Misconduct

The instructor has primary responsibility for control over classroom behavior and maintenance of academic integrity, and can request the temporary removal or exclusion from the classroom of any student engaging in conduct that violates the general rules and regulations of the institution. Extended or permanent exclusion from lecture or laboratory activities or further disciplinary action can only be effected through appropriate procedures of the institution.

Plagiarism, cheating on quizzes or tests, or any form of academic dishonesty is strictly prohibited. Students guilty of academic dishonesty directly or indirectly will receive a zero for the exercise, quiz or test and may receive an "F" grade for the course in addition to other possible disciplinary sanctions which may be imposed through the regular institutional procedures. Any student that believes that he or she has been erroneously accused may appeal the case through the appropriate institutional procedures if their grade was affected.

Make-Up Work

Any assignment can be obtained from the instructor or on blackboard. Unit tests can only be made up by special arrangement with the instructor. Make-up tests will be granted on an individual basis only following a conference with the instructor; where the reason(s) for missing the test must be determined mitigating circumstances beyond the control of the student such as, illness, death in the family, or change in condition of employment. If two tests are missing during the semester and/or if the final exam is missed the student will receive an "F" grade if he or she is failing other parts of the course or an "I" if the student is passing all other parts of the course.

## Revisions to the Syllabus

Students are responsible for learning all of the objectives and all of the items in the course outline whether they are discussed in lecture, and/or lab or not. The instructor reserves the right to revise the objectives, topic outline, or academic schedule contained in the syllabus without notice. However, if the revisions affect scheduled unit tests, a 48-hour notice will be given for the new test date.

## Technology

Cellular phones and beepers are only allowed in class or lab if they are turned off or in silent mode. Under no circumstances are phones to be answered in class. When there are extenuating circumstances that require that a student be available by phone or beeper, that student must speak to the instructor prior to class, so that together they can arrive at an agreement.

## Special Notice

If you have a visible or hidden disability which may require classroom, lab and/or test-taking modifications, please see me as soon as possible. If you have not registered with Chris Scarborough, learning specialist or a counselor in the Student Services Development Center, you must do so early in the semester.

## Grade Determination

| | |
|---|---|
| 3 written exams | 100 points each |
| Homework | 16.6 points each |
| Vocabulary | 8.3 points each |
| 1 individual routine & journal | 200 points |

Participation Journal

**Keeping a notebook is key to workout success**

**This is an excerpt from *The Strength Training Anatomy Workout* by Frederic Delavier and Michael Gundill.**

## Keep a Workout Notebook

It is very important to keep a workout notebook. You should organize this notebook so that each day of training corresponds to a section of the notebook.

For example, if you exercise three times a week, your notebook will be divided into three parts. In this way, you can easily see the work you did during your previous training for the muscle groups that you are going to work again.

A small box should be reserved for your workout start time. Below it, write the time you finish. Then you will know exactly how much time you worked out. Time measurement is important because if you rest longer between sets, your performance may increase, but it will not necessarily mean you have gained strength. To really compare two workouts, they must be approximately the same duration.

Your notebook must be as precise as possible without being difficult to maintain. Here is one example:

**Biceps**

Curls

22 lbs: 15 reps
26 lbs: 12 reps
30 lbs: 8 reps
35 lbs: 3 reps
Time: 8 min

In this way you know which muscle was worked (biceps) with which exercise (curls). Then you find the weight. Normally, people write the weight lifted by a single arm. We could have written 40 lbs, which is the total weight lifted by both the left and the right arms. You can decide how you want to track the

information. What is important is to stick to the method you have chosen and not write 20 lbs one day and 40 lbs the next.

22 lbs

Right: 15 reps

Left: 14 reps

End the entry with the total training time for the muscle (biceps) so you can compare your performance from week to week. As you lift heavier weights, you have a tendency to take longer rest periods between sets. By noting the training time for each muscle, you help prevent yourself from taking rest breaks that are too long.

Keep all the muscles and all the exercises separate. This way you will know exactly what your goals are for your next workout.

**Analyze Your Workouts**

After each workout, you should examine your training session and ask yourself these questions:

> What worked well?

> What did not work well?

> Why did it not work well?

> How can I make things work better during my next workout?

If you revisit the previous example, here is a sample analysis that you should do for each muscle before your next workout:

> Start with a heavier weight, because the first set may have been too easy (you could do more than 15 repetitions).

> Carry the extra weight through to the second and third sets.

> In the third set, the muscle was starting to get tired, because four repetitions instead of three were lost for an increase in four pounds. So you will need to hang on to get past this fatigue.

> For the last set, the loss of strength is accentuated with a loss of five repetitions

for four pounds in additional weight. You should slow down the rate of increase so that you can do more repetitions without using less weight than last time. The new workout would look like this:

**Biceps**

Curls
24 lbs: 14 reps
28 lbs: 11 reps

The grading in this course is determined by the 1000 Point Grading Method. Please see My Grades in Blackboard to follow your academic performance during the semester.

| Letter Grade | Point Ranges | Grade Point Value |
|---|---|---|
| A | 950 - 1000 | 4.000 |
| A- | 900 - 949 | 3.667 |
| B+ | 890 - 899 | 3.333 |
| B | 810 - 889 | 3.000 |
| B- | 800 - 809 | 2.667 |
| C+ | 790 - 799 | 2.333 |
| C | 710 - 789 | 2.000 |
| C- | 700 - 709 | 1.667 |
| D+ | 690 - 699 | 1.333 |
| D | 610 - 679 | 1.000 |
| D- | 600 - 609 | 0.667 |
| F | 0 - 599 | 0.000 |

Digication Statement

As a student you will maintain an online learning portfolio using a college-designed template in Digication. Through this electronic tool you will have the opportunity to monitor your own growth in college-wide learning. It may even help you determine a major that is best suited to you. You will be able to keep and maintain your learning portfolio after graduation. A Three Rivers General Education Assessment Team will select and review random works to improve the

college experience for all. If your work is selected and reviewed for assessment purposes, it will remain anonymous and private. Digication provides a “place” where you will connect your learning from the classroom, college, and life in general. Sometimes when you review all of the work you have done and think about it, you end up learning something different and perhaps unexpected. Please review your course outlines to determine what assignments to upload into the TRCC Digication template and please post your own choices, as well. Have fun in learning!

Dress Code:

Due to possible changes in the schedule, it is required that you wear workout clothes and appropriate footwear to class each day. Lockers are available for class use.

Class schedule

Week Of:

1/27/14

2/3/14

2/10/14

2/17/14

2/24/14

3/3/14 Structure and Function of Muscle

3/10/14 Bioenergetics of Exercise

| | |
|---|---|
| 3/17/14 | Spring Break |
| 3/24/14 | Endrocrine Responses to Resistance Exercise |
| 3/31/14 | **Exam 1,** Biomechanics of Resistance Exercise |
| 4/7/14 | Adaptations to Anaerobic Training Programs |
| 4/14/14 | Age-and Sex-Related Differences |
| 4/21/14 | Performance-Enhancing Substances |
| 4/28/14 | Nutritional Factors |
| 5/5/14 | Resistance Training and Spotting Techniques |
| 5/12/14 | Resistance Training |
| 5/19/14 | Periodization |