

APPENDIX B: SCREENING FORM

Participant Phone Questionnaire and Screening Form

Part 1: Confirm Initial screening

Participant ID _____
AGE _____

Current Weight _____ Height _____ (*without shoes*)
BMI _____

Part 2: Explanation of Study/Study Essentials

- ✓ to random assignment? _____
- ✓ to supplement? _____
- ✓ diet group? _____
- ✓ to Folic Acid/Vitamin D? _____
- ✓ to exercise 3 times per week at UNCG? _____
- ✓ Three measurement points? _____
- ✓ urine pregnancy tests? _____
- ✓ Blood collection? _____
- ✓ Length of w/o and intervention? _____
- ✓ Upcoming vacations? _____
- ✓ Menstrual cycles? _____
- ✓ No other exercise _____

Part 3: Usual Diet Habits

Typical Breakfast:

Typical Lunch:

Typical Dinner:

Daily Beverages/Snacks:

Vitamins/Herbs/Minerals/Supplements:

Brand Names:

Fortified Foods:

On an average day, how many servings of dairy (milk, cheese, yogurt) do you consume?

Do you currently have any aversion, intolerance, or allergy to dairy products? If yes, please explain _____

Part 4: Medical History/Medications

<i>History of Disease or Surgery</i>	<i>Orthopedic Injury History</i>
<u>Disease Diagnosis</u> <u>Yes/No</u>	<u>Injury</u> <u>Date/Comments</u>
1) Diabetes/Endocrine Dz	Ankle
2) HTN	Hip
3) GI disease	Knee
4) Kidney disease	Shoulder
5) Heart Disease	Back/Neck
6) Liver Disease	Other Joint Pain
7.) Musculoskeletal	Orthopedic Surgery
8) Surgery	

Para# _____ Time since last birth: _____ wean date: _____

Prescription medications or birth control you are currently taking:

Part 5: Physical activity/Exercise History

Are you currently involved in an exercise program? If yes describe _____

Have you ever participated in weight training? _____ If yes, how long ago?

Are you still participating in this program? _____

How would you describe your physical activity level?

a.) sedentary (no physical activity) b.) mild physical activity

c.) moderate physical activity d.) very active

Think about the total number of days you are physically active in a given week, Has this activity pattern changed in the past three months? _____, if yes, please explain

Are you currently participating in any sort of **physical activity** or **diet** in hopes of losing/gaining weight or changing body composition?

Part 6: Additional Info/Planning

Reported Ethnicity _____

Menstrual flow start time _____

Starting month _____

Preferred Workout Cycle _____

Preferred Time of Day _____

NOTES _____

APPENDIX C: ACSM SCREENING FORM

AHA/ACSM.Health/fitness facility Preparticipation screening Questionnaire

Assess your health status by marking all *true* statements

History

You have had:

- a heart attack
- heart surgery
- cardiac catheterization
- coronary angioplasty (PTCA)
- pacemaker/implantable cardiac
- defibrillator/rhythm disturbance
- heart valve disease
- heart failure
- heart transplantation
- congenital heart disease

Symptoms

- You experience chest discomfort with exertion.
- You experience unreasonable breathlessness.
- You experience dizziness, fainting, or blackouts.
- You take heart medications.

Other health issues

- You have diabetes.
 - You have asthma or other lung disease.
 - You have burning or cramping sensation in your lower legs when walking short distances.
 - You have musculoskeletal problems that limit your physical activity.
 - You have concerns about the safety of exercise.
 - You take prescription medication(s).
 - You are pregnant.
-

If you marked any of these statements in this section, consult your physician or other appropriate health care provider before engaging in exercise. You may need to use a facility with a **medically qualified staff**.

Cardiovascular risk factors

- You are a man older than 45 years.
 - You are a woman older than 55 years, have had a hysterectomy, or are postmenopausal.
 - You smoke, or quit smoking within the previous 6 months.
 - Your blood pressure is >140/90 mm Hg.
 - You do not know your blood pressure.
 - You take blood pressure medication.
 - Your blood cholesterol level is >200 mg/dL.
 - You do not know your cholesterol level.
 - You have a close blood relative who had a heart attack or heart surgery before age 55 (father or brother) or age 65 (mother or sister).
 - You are physically inactive (i.e., you get <30 minutes of physical activity on at least 3 days per week).
 - You are >20 pounds overweight.
-
- None of the above

If you marked two or more of the statements in this section you should consult your physician or other appropriate health care provider before engaging in exercise. You might benefit from using a facility with a **professionally qualified exercise staff** to guide your exercise program.

Modified from American College of Sports Medicine and American Heart Association. ACSM/AHA Joint Position Statement: recommendations for cardiovascular screening, staffing, and emergency policies at health/fitness facilities. Med Sci Sports Exerc 1998: 1018.
Professionally qualified exercise staff refers to appropriately trained individuals who possess academic training, practical and clinical knowledge, skills, and abilities commensurate with the credentials defined in Appendix F.

You should be able to exercise safely without consulting your physician or other appropriate health care provider in a self-guided program or almost any facility that meets your exercise program needs.

APPENDIX D: CONSENT FORM

UNIVERSITY OF NORTH CAROLINA AT GREENSBORO

Project Title: The Effect of a High Dairy Diet and Resistance Exercise on Improving Body Composition

Project Director: Cheryl Lovelady Ph.D., R.D., and Travis Thomas, MS, R.D.

Participant's Name: _____

DESCRIPTION AND EXPLANATION OF PROCEDURES:

The purpose of this study is to determine the effectiveness of a high dairy diet along with dairy supplementation before and after resistance exercise on improving body composition when daily calorie intake is reduced. If you consent to participate, the study will begin with an initial analysis of your diet, and measurements of strength, body composition, and hormone levels in your blood. You will be asked to take part in the same measurements at week 8, and week 16 of the study. After initial measurements, you will then be assigned by chance to one of two diet groups to follow for 16 weeks: high dairy calcium or low dairy calcium. You will have assistance from a Registered Dietitian to follow this individualized, healthy, reduced calorie diet. In addition to your assigned diet, you will be asked to consume a supplement 30 minutes before and immediately after weight training three times per week. Study measurements, along with diet and exercise descriptions are outlined below.

All participants of the study will be asked to do the following:

1. Follow an individualized nutritionally balanced diet that will be taught to you by a Registered Dietitian (RD). You will be assigned by chance to the low dairy calcium or high dairy calcium diet. This diet will be easy to follow, allow for food substitutions, and will be constructed to create a small daily calorie reduction.
2. Participate in resistance exercise sessions (45 minutes) three times each week at the Human Performance Laboratory in the Department of Nutrition on the University of North Carolina at Greensboro's campus. A qualified research assistant trained on proper resistance training technique will be present at all of your exercise sessions to provide encouragement, monitor your training technique (to prevent injury), and exercise intensity level.
3. Consume an assigned 6oz. supplement (based on your group) 30 minutes prior and immediately following each exercise session (3 days per week). You will not be asked to consume this supplement on non-exercise days (4 days per week).
4. Participate in 6 short dietary recall interview sessions. You will be called to participate in an interview (twice in one week) prior to beginning the diet and exercise protocol, half-way through the intervention (8 weeks), and at the end of the intervention (16 weeks).

5. This diet record will be used to determine your nutritional intake, develop a reduced calorie diet specifically for you, and ensure compliance.
6. You will be surveyed weekly as part of one of your exercise sessions to notify us of changes in your physical activity or diet outside of the prescribed resistance training/diet intervention. This will also be an opportunity to answer any questions you may have regarding your daily diet and physical activity.
7. You will be weighed once weekly immediately prior to a scheduled resistance exercise session. This weight will be used to assess compliance to the reduced calorie diet.
8. Prior to beginning your diet and exercise routine, at 8 weeks, and at 16 weeks muscular strength will be assessed. We will be testing the strength of your muscles using hand weights.
9. Prior to beginning your diet and exercise routine (baseline) and at 16 weeks you will be given a body scan by dual energy x-ray absorptiometry (DXA). This whole-body scan is necessary to determine your body composition. The scan will be completed at the Human Performance Laboratory in the Department of Nutrition on the University of North Carolina at Greensboro's campus. You will lay still and flat on an x-ray table, and the scanner will move back and forth several feet above you. Depending on your height, the entire procedure takes approximately 30-45 minutes. You will be given a pregnancy test to ensure that you are not pregnant prior to administering the DXA scan.
10. Prior to beginning your diet and exercise routine, at 8 weeks, and at 16 weeks you will be asked to visit the Human Performance laboratory at UNCG twice within one week for measurements. The first visit should take no more than 2 hours (including the DXA scan) and the second visit should take no more than 2 ½ hours (including the exercise session).

VISIT 1

- a) Urine pregnancy test to rule out pregnancy.
- b) You will be asked to provide approximately 2 teaspoons of venous blood after an overnight fast (no alcohol for 24 hours prior to blood draw). The blood will be drawn in the morning at the lab. Venipuncture will be performed by a trained phlebotomist. The blood is needed to assess your hormone levels.
- c) Trained research personnel will obtain a measurement of your waist circumference using a tape measure. Your weight will also be measured.
- d) DXA scanning (at baseline and week 16 only)
- e) Strength measurements

VISIT 2

You will be asked to visit the lab after an overnight fast (no alcohol for 24 hours prior to blood draw) on a regularly scheduled exercise day. You will be given your assigned supplement and be asked to rest quietly for 30 minutes. Right before you begin your exercise session, you will be asked to provide approximately 2 teaspoons of venous blood. Immediately following your exercise you will be given your post-exercise supplement

and will be asked to provide approximately 2 teaspoons of venous blood. Two additional blood samples (2 teaspoons each) will be collected at 30 minutes after exercise, and 60 minutes after exercise.

RISKS AND DISCOMFORTS:

There is a small risk of injury when participating in an exercise program. In addition, temporary muscle fatigue and/or soreness can occur with resistance exercise. Insertion of the needle during venipuncture may be slightly painful. Every precaution will be taken to minimize the risks involved with venipuncture (air emboli, infection, bruising, and fainting). You will be exposed to very mild radiation from the DXA scan, equivalent to 1/10 the exposure from a routine chest x-ray, and less than the exposure of a dental x-ray.

You may be concerned about bone health if assigned to the low calcium diet group. A 16 week study with low calcium intake is too short to be detrimental to bone health. In addition, the resistance exercise portion of the study provides a protective benefit to bone density.

You may be concerned about the supplementation that you will be asked to consume. All supplements are safe and provide the same amount of energy per serving. In addition, you will be given the opportunity to substitute flavors at your discretion. You may have concerns in regard to providing waist measurements. These measurements will be performed by female research personnel in the privacy of our lab.

POTENTIAL BENEFITS:

Results of all the tests conducted will be provided to you at no cost. Participants in the study will undergo three DXA scans, which provide valuable bone density and body composition information. All participants will receive, at no cost, biweekly nutrition guidance from a Registered Dietitian, free dietary analysis, and a structured supervised exercise program. Benefits to resistance exercising include the potential for increased muscular strength, increased lean muscle tissue and weight loss. Benefits to society include the promoting a healthy weight and preventing further weight gain/obesity.

COMPENSATION/TREATMENT FOR INJURY:

The University has no policy or plan to pay for any injuries you might receive as a result of participating in this research protocol.

By signing this consent form, you agree that you understand the procedures and any risks and benefits involved in this research. You are free to refuse to participate or to withdraw your consent to participate in this research at any time without penalty or prejudice; your participation is entirely voluntary. Your privacy will be protected because you will not be identified by name as a participant in this project.

The University of North Carolina at Greensboro Institutional Review Board, which ensures that research involving people follows federal regulations, has approved the research and this consent form. Questions regarding your rights as a participant in this

project can be answered by calling **Mr. Eric Allen** (research compliance officer) at (336) 256-1482. Questions regarding the research itself will be answered by **Dr. Cheryl Lovelady** or **Travis Thomas** by calling **(336) 256-0310**. Any new information that develops during the project will be provided to you if the information might affect your willingness to continue participation in the project.

By signing this form, you are agreeing to participate in the project described to you by _____.

Participant's Signature

Date

Principal Investigator's Signature

Date

APPENDIX E: MEASUREMENT DATA SHEET

Strength & Anthropometric Data Documentation Sheet

Participant ID _____ DATE _____

**MEASUREMENT TIME POINT: Baseline Midpoint
Endpoint**

EXERCISE DAY: ____/48 **WEEK:** _____ **WEIGHT:**
lbs _____ **kg** _____

BMI: _____ [wt (kg) ÷ ht (m²)] www.nhlbisupport.com/bmi

EXERCISE DATA- 1 RM

Exercise	Max Amount Lifted (lbs)	60%	70%	80%	90%
DB Squats					
Bench Press					
DB Row					
Deadlift					

BODY MEASURES

Waist circumference (cm): 1st _____, 2nd _____, 3rd _____, FINAL

Sagittal Diameter (cm): 1st _____, 2nd _____, 3rd _____, FINAL

Research Study Food Group B

You have been randomly selected to follow guidelines for Food Group B. Please refer to the attached list to help with your food selections. Please remember to follow these guidelines everyday (even on the weekends) and to take the provided supplements daily as directed.

Workout Days: (3 days per week)

Please consume at least 2 serving of low-fat milk (8oz) or cheese (1oz) on work out days.

Consume at least 2 servings of non-dairy high calcium foods (≥ 100 mg/serving)

Non Workout Days: (4 days per week)

Please consume at least 3 servings of low-fat milk (8oz), cheese (1oz), or yogurt on non work out days.

Consume mixed dishes (ex. Casseroles) made with dairy products as desired.

Choose processed and pre-packaged food listing $\geq 20\%$ calcium per serving

Please use the attached list and consume at least 2 servings per day of non-dairy foods that are highest in calcium (≥ 200 mg/serving).

Thank You!

**Please contact the study dietitian with any questions:
dtthomas@uncg.edu**

Bread, Cereal, Rice, & Pasta Group

Food	Serving Size	Calcium Content (mg)	Calorie Content
Biscuit	1 medium	105	195
Bread, Cornbread	1 slice	110	175
Bread, Spoonbread	1 slice	155	155
Bread, White	1 slice	25	65
-calcium fortified	1 slice	190	75
-calcium fortified, diet	1 slice	180	45
Bread, Whole Wheat	1 slice	20	70
-calcium fortified	1 slice	170	40
Cereal, Total™	1 cup	345	140
Muffin, English	1 whole	100	135
Pancake, homemade	1, 4 inch	110	90
Rolls, Hamburger	1	60	120
Spaghetti, calcium fortified	2/3 cup	300	210
Tortilla, Corn	1, 6 inch	45	60
Waffles	1 medium	20	60

Vegetable Group

Food	Serving Size	Calcium Content (mg)	Calorie Content
Broccoli			
-cooked	½ cup	45	25
-raw	½ cup	20	10
Cabbage, green			
-cooked	½ cup	25	15
-raw	½ cup	15	10
Cabbage, Bok Choy			
-cooked	½ cup	80	10
-raw	½ cup	35	5
Celery, raw	1 each	15	5
Chard			
-cooked	½ cup	50	20
-raw	½ cup	10	5
Greens, Beet			
-cooked	½ cup	100	15
-raw	½ cup	25	5
Greens, Collard			
-cooked	½ cup	20	25
-raw	½ cup	5	5
Greens, Mustard			
-cooked	½ cup	105	15
-raw	½ cup	40	5
Greens, Turnip			
-cooked	½ cup	100	15
-raw	½ cup	40	5
Kale			
-cooked	½ cup	90	20
-raw	½ cup	50	10

Kohlrabi			
-cooked	½ cup	20	25
-raw	½ cup	15	20
Okra			
-cooked	½ cup	75	30
-raw	½ cup	50	20
Parsley			
-cooked	½ cup	60	15
-raw	½ cup	40	10
Rhubarb			
-cooked	½ cup	235	10
-raw	½ cup	120	5
Rutabaga			
-cooked	½ cup	40	35
-raw	½ cup	30	25
Seaweed Kelp			
-raw	½ cup	70	20
Summer Squash			
-cooked	½ cup	25	20
Watercress			
-cooked	½ cup	65	5
-raw	½ cup	20	2

Fruit Group

Food	Serving Size	Calcium Content (mg)	Calorie Content
Figs, dried	5 each	135	240
Grapefruit			
-half	½ fruit	15	40
-sections	1 cup	30	75
Orange			
-fruit	1 medium	50	60
-juice	1 cup	20	105
-juice, calcium-fortified	1 cup	285	105
-slices	1 cup	70	85

Milk, Yogurt & Cheese Group

Food	Serving Size	Calcium Content (mg)	Calorie Content
Cheese, American			
-fat free	1 oz	200	45
-processed	1 oz	140	105
-reduced fat	1 oz	120	60
Cheese, Cheddar			
-natural	1 oz	150	115
-reduced fat	1 oz	120	50
Cheese, Cottage			
-1% lowfat	½ cup	70	80
-2% reduced fat	½ cup	85	100
-4% fat (regular)	½ cup	60	110
Cheese, Mexican	1 oz	185	105
Cheese, Mozzarella			
-part skim	1 oz	205	80
-whole	1 oz	160	90
Cheese, Muenster			
-natural	1 oz	200	105
-reduced fat	1 oz	205	80
Cheese, Parmesan, grated	2 T	140	45
Cheese, Romano, grated	2 T	140	45
Cheese, Ricotta			
-nonfat	½ cup	200	100
-part skim	½ cup	335	170
-whole	½ cup	255	215
Cheese, Swiss			
-natural	1 oz	270	105
-reduced fat	1 oz	350	90
Ice Cream,			
-regular	½ cup	85	135
-7% fat, light	½ cup	85	110
Ice Milk	½ cup	90	90

Milk			
-skim/nonfat	1 cup	300	85
-1% low-fat	1 cup	300	100
-2% reduced fat	1 cup	295	120
-whole	1 cup	290	150
Milk, Buttermilk			
-skim	1 cup	290	100
-whole	1 cup	275	150
Milk, Chocolate			
-skim/nonfat	1 cup	280	145
-2% reduced fat	1 cup	285	180
-whole	1 cup	280	210
Milk, Dry Powder			
-nonfat	2 T	105	30
-whole	2 T	150	80
Milk, Evaporated			
-skim	½ cup	370	100
-whole	½ cup	330	170
Milk, Goat	1 cup	290	150
Milk, half and half	1 T	15	20
Pudding, ready to eat	½ cup	100	145
Yogurt, fruited			
-nonfat	1 cup	320	160
-2% fat	1 cup	370	250
Yogurt, plain			
-nonfat	1 cup	490	135
-1-2% fat	1 cup	445	155
Yogurt, frozen			
-1% fat	1 cup	175	200

Meat, Poultry, Fish, Dry Beans, Eggs, & Nuts Group

Food	Serving Size	Calcium Content (mg)	Calorie Content
Almonds, raw	2 oz	150	335
Beans, Black, cooked	1 cup	120	245
Beans, Navy, cooked	1 cup	130	260
Beans, Northern, cooked	1 cup	160	245
Beans, Pinto, cooked	1 cup	80	235
Beans, Soy	1 cup	175	300
Chickpeas, cooked	1 cup	80	270
Milk, Soy, canned			
-fat-free (fortified)	1 cup	350	110
-regular	1 cup	10	80
Oysters			
-cooked	3 oz	75	115
-raw	3 oz	40	60
Salmon, canned w/bones	3 oz	180	120
Sardines, canned in water, w/bones	3 oz	65	175
Shrimp, cooked	3 oz	35	85
Tempeh	½ cup	75	165
Textured Vegetable Protein	½ cup	70	185
Tofu Soybean Curd, lowfat, firm	½ cup	30	45

Fats, Oils & Sweets

Food	Serving Size	Calcium Content (mg)	Calorie Content
Molasses, Blackstrap	1 T	175	50

1 cup = 8 fluid ounces; oz = ounce; t = teaspoon; T = tablespoon

APPENDIX H: WEEKLY EXERCISE LOG

Resistance Training Weeks 3-16 Progression

Participant ID: _____

3 Days per week 80-100% 1-RM (8-12RM) 3-4 sets per exercise
 day__60 seconds between sets/exercises

**Please record date and weight lifted each

Day 1		DB Chops	Squat	Bench Press	Deadlift	Rows
Date:	Number of Sets					
W/O #:	Repetition #					
	Pounds Lifted/Set					
Totalwork/exercise						
Day 2		DB Chops	Squat	Bench Press	Deadlift	Rows
Date:	Number of Sets					
W/O #:	Repetition #					
	Pounds Lifted/Set					
Totalwork/exercise						
Day 3		DB Chops	Squat	Bench Press	Deadlift	Rows
Date:	Number of Sets					
W/O #:	Repetition #					
	Pounds Lifted/Set					
Totalwork/exercise						
Total Work Lifted/Week						