

Wellness and Recreation Services Strength Training Survey



Prepared for:

**Kristy Leen, Personal Fitness Coordinator
University of Northern Iowa- Wellness and Recreation Services**

**by
Project Assistants:**

**Jeff Lucas, Julia Cira,
&
Students of spring 2008 Research & Evaluation in LYHS Course**

Dr. Kathy Scholl, Project Director

Table of Contents

List of Tables and Figures	2
Purpose of Study	3
Justification of Study	3
Methodology	4
Results:	
Demographics	6
Basic Exercise Information	8
Thoughts on Strength Training	10
Perceived Benefits and Barriers of Strength Training	11
Other Interests and Preferences	14
Open-Ended Responses	16
Conclusions	21
Recommendations	22
References	24

List of Tables and Figures

List of Tables:

Table 1	Demographics of Sample	7
Table 2	Age of Survey Respondents in Comparison to Current UNI Student Population	8
Table 3	Ethnicity	8
Table 4	Regularity of Exercise	9
Table 5	Importance of Exercise Outcomes	9
Table 6	Have you strength trained in past 5 years?	10
Table 7	Familiarity of Current FWR Facility	11
Table 8	Perceived Benefits of Strength Training	12
Table 9	Perceived Barriers of Strength Training	13
Table 10	Strength Training Course Interest	14
Table 11	WRC Free Weight Room Hours	14
Table 12	Best Times to Workout	15
Table 13	Interest in “women or men only” hours	15
Table 14	Recommended Equipment (overall)	15
Table 15	Recommended Equipment (Male/Female)	16

List of Figures:

Figure 1	Most Likely Workout Location	10
-----------------	-------------------------------------	-----------

Purpose of the Study

The purpose of this study was to monitor and evaluate current UNI students' perceptions and activities regarding strength training and the Wellness and Recreation Services (WRS) Free Weight Room (FWR). Also, the study was designed to gain knowledge on ways in which students participate in strength training, as well as to understand UNI students' view of strength training as a form of exercise and fitness. The information gathered will be used to develop strategies to reach out to the student population by WRS administration, to ultimately improve upon current participation rates.

WRS administration was contacted by the Research/Evaluation class, directed by Dr. Kathy Scholl, regarding a study that may be developed to provide data for the return of efficient services rendered by the WRS.

Justification

Simply stated the overall health of an individual can and will increase through from the benefits of strength training. According to a study conducted by Myers and Roth (1997), the perceived benefits of strength training were broken down into four different and distinct groups: social, psychological, body image, and health. These categories were then broken down into different aspects that were perceived to be the benefits to strength training. These subcategories are described below.

- *Social*
 - Provides a way to meet people, good to do with friends, companionship, and competition.
- *Psychological*
 - Helps one deal with pressure, feel energized, lift's one's spirits, to relax, confidence in self, attitude, and helps one feel better in general.
- *Body Image*
 - Appearances, lose weight, stay in shape, maintain proper body weight, helps one to look good, and to improve one's self-image.
- *Health*
 - Improves strength, health, flexibility, cardiovascular fitness, and metabolism.

These benefits were aspects of a holistic approach to determine what UNI students' perceptions and practices were related to strength training. The WRS strives to provide leisure activities for all students to participate, therefore the data collected would enable management to make sound decisions regarding the purchasing of equipment, promotion materials, hours of operation, and state of facilities.

Related to the benefits of strength training are the barriers that hinder participation of strength training programs and facilities. Described in Myers and Roth's study are four aspects that describe different barriers. These barriers include time-effort, physical, social, and specific barriers. Once again, Myers and Roth broke down these four barrier categories into subcategories. They are described below.

- *Time-effort*
 - Too much work, too inconvenient, too tired, takes too much discipline, too boring, too lazy, too busy, and don't have enough time.

- *Physical*
 - Look silly, get hot and sweaty, causes sore muscles, too uncoordinated, makes me uncomfortable, and become too fatigued.
- *Social*
 - Don't like to exercise alone, friends/family do not encourage strength training, and friends do not exercise.
- *Specific*
 - Bad weather, no convenient place/facility, interferes with social life, interferes with school, medical problems, interferes with work, and family obligations.

Much like the benefits associated with strength training, these above mentioned barriers are aspects of strength training that the study is trying to measure, record, and track. These barriers are the aspects of usage WRS staff would like to determine how to eliminate, ultimately encouraging/allowing for more usage within the Free Weight Room (FWR).

Moreover, to understand the importance of strength training to individuals, one must first understand what strength training is and what is involved. Strength training is defined as a form of exercise to improve muscle endurance and/or muscle strength. By providing a non-linear path of motion across all three planes of movement, free weights/strength training increases muscle mass, bone density, muscular endurance, and metabolism. Free weights allow a limitless number of exercises for a modest amount of space. User-friendly materials and bright coloring have helped to break the "pumping iron" reputation that for a long time has dominated free weight training and intimidated many people from using free weights or strength training.

Also, research has shown that building "bulging muscles" are more difficult to build in women, one possible perceived barrier to participation. Due to the fact that women generally have high levels of the hormone estrogen, those bulging muscles are extremely difficult to build. Actually, improvements are made in muscle tone, muscle strength, and endurance, and not necessarily in size. As those muscles become toned, the body begins to lose fat tissue and become firmer. These benefits are obvious in the overall health of an individual.

Methodology

The "WRS Strength Training Survey" attempted to collect information regarding students' view on strength training as a regular form of exercise, their current usage of the weight room, and determine any perceived barriers or benefits to this activity. The basic questions for this study are as follows:

- 1) How often are students currently using the Free Weight Room?
- 2) What are the perceived barriers and perceived benefits that UNI students hold regarding strength training for as a choice of regular exercise?

Listed below are the steps to create this study.

- *STEP 1: Determination of topic*
Discussion took place between Dr. Kathy Scholl, Project Director, and Kristy Leen, Personal Fitness Coordinator, UNI WRS. A need existed to encourage better usage rates within UNI'S WRS Free

Weight Room. "Strength training" was chosen determined to be the need and that particular topic was chosen as the center of the study.

- *STEP 2: Collection of research/Important questionnaire information and topics*
Each class member was required to bring in two (2) peer-reviewed articles pertaining to the topic of strength training. A class discussion took place regarding what information was gathered and what specific information was pertinent to the topic as well as the college campus setting. These ideas decided upon, strictly from research, were to be included in the design of the survey.
- *STEP 3: Determination of population and sample size*
UNI's campus student population was determined to be approximately 13,500 students; therefore, a sample size of 375 was needed using statistical theory.
- *STEP 4: Survey design*
The design of the survey was a collaboration by all members of the class and Project Director. Each student was to build their own independent survey from the research/important topics determined from Step 2. Each student then developed their own independent survey and those respective surveys were brought to class to evaluate by the class and Project Director. Surveys were evaluated on four main categories:
 - 1) Adequate information in the title and introduction.
 - 2) Layout of survey- attractive uncluttered appearance, sequence of questions, etc.
 - 3) Body of survey- response options, minimum of five ordinal questions, >1-2 open-ended questions.
 - 4) Demographics- allow for adequate profile of the respondents, located at end, age related questions presented in ratio level of measurement.

The surveys voted "most outstanding" were selected to be included in the final survey collaboration. Questions from many surveys were included, but the design was limited to those certain surveys deemed best. The design was then constructed by Project Director and was reviewed by class via class discussion and revision. Changes were made regarding spelling, grammar, punctuation, wording, etc. and a final survey was developed. Before actual data was collected, a pilot survey was given to each class member. This was done to make any final changes and to test the flow of the study.

- *STEP 5: Selection of sampling destinations/Collection of data*
Students in Research/Evaluation class were required to choose a site on UNI's campus to collect data at random locations. Each student collected fifteen (15) surveys from individuals from 18 different location both on and off the UNI campus.
- *STEP 6: Recording of data/Organization of data*
Data collected from each class members' fifteen surveys was then organized and recorded into a computer program, Statistical Packages for the Social Sciences (SPSS). The program (SPSS) was used to organize data to perform Step 7.

- **STEP 7: Analyzing of data/Reporting of data**
Using SPSS, students analyzed the data collected to determine results and to make recommendations and draw conclusions regarding the study. Recommendations are then outlined in a report presented to Kristy Leen, Personal Fitness Coordinator, UNI WRS.
- **MATERIALS:**
The data for this study was collected using a questionnaire-based survey adapted from the collaboration of class members and project director using available research on the topic. Barriers, Benefits, usage of facility, perceptions of strength training were evaluated using this study. (See Appendix A)
- **CONFIDENTIALITY/ANONYMITY:**
All data collected and reported will remain property of the Project Director and Kristy Leen, Personal Fitness Coordinator. This information will only be distributed to and analyzed by members of Research/Evaluation class and final recommendations will only be given to Kristy Leen. No personal information was collected and any student wishing not to participate was not obliged to do so. All recommendations and data will only be used by Kristy Leen to make administrative decisions regarding the planning of new facility equipment, promotional materials, or any other means necessarily to provide a quality leisure experience, while keeping confidentiality and anonymity a top priority.

Results: Demographics of Sample

Respondents were asked questions regarding their “sex,” “age,” “ethnicity,” “year in school,” “do you live on or off campus,” “college credit classification,” and “years attending UNI.” Out of 444 respondents, 57.7% (256) were female and 42.3% (188) were male. In comparison to the university as a whole, our results were surprisingly close in many areas. At UNI, 57.8% of the student body is female and 42.2% are male. The University statistics were drawn from the 2007-2008 UNI Fact Book that can be found at http://www.uni.edu/instrsch/pdf/facts/factbook_0708.pdf. Table 1 represents demographics of the study, including sex, housing, and college credit classification.

Two thirds of UNI students live off campus, yet there is a significant difference between males and females and their housing location. Although only 34.5% (n=153) of respondents indicated that they live on-campus, twice as many females live on-campus than male students ($\chi^2(1) = 6.676, p < .011$).

Table 1: Demographic of Sample

Demographic	Frequency	Percentage of Sample
Sex:		
male	256	57.7%
female	188	42.3%
Housing:		
on campus	153	34.5%
off campus	291	65.5%
College Credit Classification:		
Freshman	49	11.1%
Sophomore	73	16.5%
Junior	156	35.3%
Senior	148	33.5%
Graduate Student	16	3.6%
Years Attending UNI:		
1 year	85	19.3%
2 years	102	23.1%
3 years	110	24.9%
4 years	103	23.4%
5 years	30	6.8
6 years	11	2.5

Age: An age range of 18-50 years of age was represented in our sample, with the average age of respondents being 21.2 years of age. Ninety-seven percent (97%) of respondents were within the age range of 18-25 years of age (see Table 2). Comparing our sample to the 2007 UNI student body, this study is more to represent the undergraduate student body than UNI Graduate students.

Table 2: Ages of Survey Respondents in Comparison to Current UNI Student Population

Age	% of Respondents	% of UNI Student 2007 Body
18	3.2%	15.7%
19	13.1%	15.9%
20	21.6%	18.0%
21	26.4%	19.2%
22	19.1%	12.9%
23	9.0%	5.4%
24	4.5%	2.8%
25 and above	3.2%	8.9%

Ethnicity: The majority of respondents (89%) were from white ethnicity, with six percent of respondents being African American or Black. The ethnicity of the respondents to strength training survey was very similar to the UNI student body as shown in Table 3.

Table 3: Ethnicity

Ethnicity	% of Respondents	% of UNI Student 2007 Body
White	88.9%	86.5%
Black or African American	5.8%	2.8%
Hispanic or Latino	2.3%	1.6%
Asian	2.3%	1.2%
American Indian or Alaskan Native	0.2%	0.3%
Other	0.5%	NA

Results: Basic Exercise Information

Exercise Frequency: When asked “How many times per week do you usually exercise?” Results show that 72.4% of respondents participate in some form of exercise at least once per week. Table 4 demonstrates the sample size’s activities regarding participation in exercise during a typical week. Approximately 35% of

respondents exercise at least four (4) times per week, while 6% of respondents never exercise. There was no significant difference between females and male in the amount of their regular exercise activity.

Table 4: How many times per week do you usually exercise?

Response	Frequency	Percentage of Sample
Never	28	6.3%
A couple times per month	94	21.3%
1-3 times per week	168	38%
4-7 times per week	132	29.9%
8 or more times per week	20	4.5%

Expected Exercise Outcomes: Table 5 shows the response rates of the sample that represents the importance of the exercise benefits to the respondent. Although 91% of respondents rated general conditioning as either extremely important or important, and 86% of respondents thought cardiovascular conditioning was extremely important or important, there was no difference between males and female students.

Females were more likely than male to consider “Weight Loss”, “Stress Reduction”, “Muscle Endurance”, and “Flexibility” as important exercise outcomes. Males were more likely than females to consider “Weight Gain”, and “Muscle Strength” as important exercise outcomes related to strength training.

Table 5: Importance of Exercise Outcomes

Benefit of Strength Training:	Extremely Important	Important	Neither	Unimportant	Extremely Unimportant
General conditioning	139 (31.2%)	258 (58.9%)	17 (3.9%)	14 (3.2%)	10 (2.3%)
Cardiovascular conditioning	142 (32.3%)	236 (53.6%)	34 (7.7%)	17 (3.9%)	11 (2.5%)
Muscle strength	84 (19.1%)	272 (61.8%)	54 (12.3%)	25 (5.7%)	5 (1.1%)
Stress reduction	108 (24.4%)	227 (51.2%)	66 (14.9%)	33 (7.4%)	9 (2.0%)
Muscle endurance	73 (16.6%)	252 (57.1%)	80 (18.1%)	26 (5.9%)	10 (2.3%)
Flexibility	57 (12.9%)	230 (52.2%)	112 (25.4%)	33 (7.5%)	9 (2.0%)
Weight loss	99 (22.4%)	184 (41.7%)	83 (18.8%)	56 (12.7%)	19 (4.3%)
Weight gain	29 (6.6%)	61 (13.9%)	112 (25.5%)	115 (26.1%)	123 (28.0%)

Exercise Location: When asked where respondents were most likely to exercise, over half (58%) choose to do so at the WRC. Other locations to exercise include Snap Fitness, 24-hour Fitness, Gold’s Gym, Iowa’s Best

Muscle, United Sport and Athlete, Martial Arts Academy, Valley Lutheran, Workout room in Lawther, Roth or ROTC West Gym.

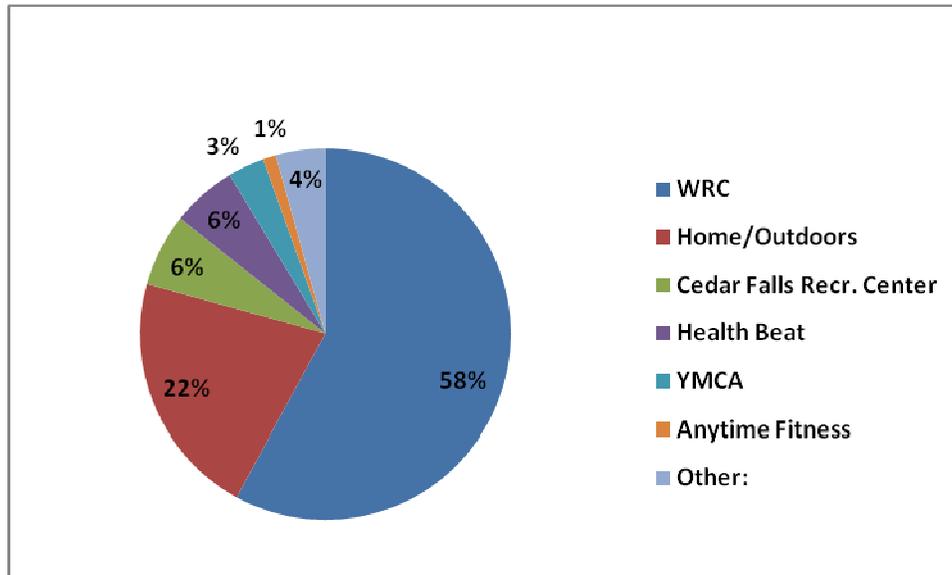


Figure 1: Most likely workout location

Results: Thoughts on Strength Training

Past experience: Three-fourths of those surveyed had participated in some form of strength training within the past five years. Even though 41.5% of female have participated in strength training in the past five years, males are more likely to participate in this activity within the past five years than females ($X^2(1) = 13.720$, $p < .001$).

Table 6: Have you strength training in the past five years?

Gender	Strength trained in last 5 years?
	(%) of gender
Females:	Yes= 183 (41.5%)
	No= 72 (16.3%)
Males :	Yes= 161 (36.5%)
	No= 25 (5.7%)
Total of genders combined:	Yes= 344 (78.0%)
	No= 97 (22.0%)

Familiarity with the free weight room: Of those who responded, 91.2% (405) know that the free weight room exists, yet 47.7% of these students have never used the facility. There was a significant difference between male and female and their knowledge or use of the facility with female having less knowledge and less use than males. Table 7 demonstrates the respondent’s current knowledge and participation rate of the FWR. Over 8% of the sample didn’t know the WRC had a FWR.

Table 7: Familiarity of the current WRC FWR facility

Gender:	Didn't know WRC had a FWR	I know about it but never have used it	I know it, have used in past, but not now	Currently use the FWR
Female:	32 (12.5%)	142 (55.7%)	62 (24.3%)	19 (7.5%)
Male:	6 (3.2%)	69 (36.9%)	69 (36.9%)	43 (23.0%)
Total Sample:	38 (8.6%)	211 (47.7%)	131 (29.6%)	62 (14.0%)

Source: UNI Research and Evaluation. 2008 Strength Training Study

Results: Perceived Benefits and Barriers of Strength Training.

This section identifies perceived benefits and barriers to strength training as determined by the importance each category was given by survey respondents.

Perceived Benefits: Table 8, below, refers to the importance of perceived benefits of strength training. Results are ordered by which benefit category was of most importance to both males and female students. There were significant difference between males and females and their perceptions of the benefits of strength training. Females were more likely than males to perceive strength training will provide the following benefits: Help one to lose weight, helps one to maintain proper body weight, helps one relax, and improves flexibility. Males are more likely than females to perceive improved strength as an important benefit of strength training as a form of regular exercise.

Table 8: Perceived Benefits of Strength Training

Strength training is beneficial to me because it:	Extremely Important to me	Important to me	Neither	Unimportant to me	Extremely Unimportant to me
Helps one feel better in general (n=443)	33.9% (150)	56.2% (249)	6.1% (27)	2.3% (10)	1.6% (7)
Improves one's appearance (n=443)	28.2% (125)	56.7% (251)	11.3% (50)	3.4% (15)	0.5% (2)
Improves strength (n=444)	29.1% (129)	55.6% (247)	9.9% (44)	4.3% (19)	1.1% (5)
Helps to improve one's self-image (n=443)	26.2% (116)	56.9% (252)	12.2% (54)	3.4% (15)	1.4% (6)
Gives one confidence (n=444)	21.6% (96)	58.8% (261)	23.8% (105)	8.1% (36)	1.6% (7)
Helps one maintain proper body weight (n=442)	25.6% (113)	54.1% (239)	14.7% (65)	3.8% (17)	1.8% (8)
Improves cardiovascular fitness (n=442)	19.0% (84)	59.0% (261)	11.8% (52)	4.3% (19)	5.9% (26)
Gives one time to think (n=442)	13.8% (61)	52.7% (233)	23.8% (105)	8.1% (36)	1.6% (7)
Increases metabolism (n=444)	23.4% (104)	51.4% (228)	19.8% (88)	4.3% (19)	1.1% (5)
Helps one to relax (n=444)	14.0% (62)	59.2% (263)	17.1% (76)	7.9% (35)	1.8% (8)
Improves flexibility (n=444)	18.7% (83)	52.9% (235)	20.7% (92)	6.1% (27)	1.6% (7)
Helps one to lose weight (n=443)	22.8% (101)	44.5% (197)	23.0% (102)	7.2% (32)	2.5% (11)
Helps one cope better with pressure (n=444)	8.3% (37)	51.4% (228)	27.0% (120)	10.8% (48)	2.5% (11)
Provides a good activity to do with friends (n=442)	6.1% (27)	35.5% (156)	36.9% (163)	17.4% (77)	4.3% (19)

Perceived Barriers: Table 9 refers to the perceived barriers of strength training. Results are ordered by percentage of responses that felt the category was somewhat/very much a barrier. There were no difference between males and females for the following potential barriers to strength training: a) "I don't like to exercise alone", b) "My friends do not exercise", c) "It causes sore muscles", and d) "I have medical problems."

Males are more likely than females to state the hours of the weight room don't fit their schedule, whereas females are more likely than males to view the following as a barrier to strength training: a) "I am uncomfortable with weight training", b) "The current environment is uncomfortable", c) "It is too boring", d) "It is too much work", e) "I am too busy", f) "I am too lazy", g) "I don't like to exercise alone", h) "I might get too muscular."

Table 9: Perceived Barriers of Strength Training

Strength training is a barrier for me because	Very much a Barrier for me	Somewhat of a Barrier for me	Neither	Usually not a Barrier for me	Never a Barrier for me
I am too busy (n=442)	25.3% (112)	40.5% (179)	9.5% (42)	18.3% (81)	6.3% (28)
I am too lazy (n=442)	7.7% (34)	29.6% (131)	20.6% (91)	25.8% (114)	16.3% (72)
It takes too much discipline (n=441)	7.3% (32)	29.0% (128)	18.6% (82)	32.0% (141)	13.2% (58)
It is too much work (n=440)	5.0% (22)	30.5% (134)	19.5% (86)	31.4% (138)	13.6% (60)
The hours of the weight room don't fit my schedule (n=443)	7.7% (34)	23.3% (103)	25.3% (112)	22.1% (98)	21.7% (96)
The current environment is uncomfortable (n=441)	9.1% (40)	20.4% (90)	22.9% (101)	26.3% (116)	21.3% (94)
It is too boring (n=441)	7.5% (33)	19.7% (87)	20.6% (91)	32.4% (143)	19.7% (87)
I am uncomfortable with weightlifting (n=441)	7.0% (31)	16.6% (73)	18.4% (81)	27.4% (121)	30.6% (135)
I don't like to exercise alone (n=441)	7.0% (31)	16.6% (73)	17.9% (79)	29.3% (129)	29.3% (129)
My friends do not exercise (n=441)	3.2% (14)	14.5% (64)	22.0% (97)	25.2% (111)	35.1% (155)
It causes sore muscles (n=438)	3.4% (15)	13.5% (59)	19.9% (87)	33.8% (148)	29.5% (129)
The WRC weight room hours are not posted (n=440)	2.5% (11)	12.7% (56)	27.3% (120)	22.5% (99)	35.0% (154)
I might get too 'muscular' (n=437)	2.5% (11)	8.0% (35)	21.5% (94)	22.4% (98)	45.5% (199)
I have medical problems (n=441)	1.8% (8)	7.5% (33)	18.1% (80)	19.3% (85)	53.3% (235)

Results: Other Interests and Preferences

Interest in Strength Training Courses: Over 60% of the respondents marked that they were highly or somewhat interested in strength training courses. Results are displayed in Table 10 below.

Table 10: Strength Training Course Interest

Interest Level	Responses
Highly Interested	62 (14.5%)
Somewhat interested	200 (46.6%)
Indifferent to strength training courses	70 (16.3%)
Not very interested	59 (13.8%)
Not at all interested	38 (8.9%)

WRC Free Weight Room Hours: The following results in Table 11 display which of the current free weight room hours best fit students' schedules.

Table 11: WRC Free Weight Room Hours:

Current Hours	Best Fit to Students Schedules
Monday-Thursday 7-11pm	275 (34.0%)
Sunday 3-11pm	184 (22.8%)
Saturday 1-6pm	165 (20.4%)
Monday-Friday 6-8am	83 (10.3%)
Monday-Friday 12-1pm	66 (8.2%)
None of these times work with my schedule	35 (4.3%)

Table 12 shows the best times to workout broken down by gender response and the overall sample. Over 62% of respondents, as a whole, chose Monday- Thursday 7pm-11pm as the best time to work out. While only 15.1% of respondents overall chose Monday-Friday 12pm-1pm as the least convenient/worst time to work out.

Table 12: Best times to workout

Gender:	Mon-Fri 6am-8am	Mon-Fri 12pm-1pm	Mon-Thurs 7pm-11pm	Sat 1pm-6pm	Sun 3pm-11pm	None of these times work
Females: (% of females)	55 (21.8%)	39 (15.5%)	172 (68.3%)	101 (40.1%)	113 (44.8%)	12 (4.8%)
Males: (% of males)	28 (15.1%)	27 (14.5%)	103 (55.4%)	64 (34.3%)	71 (38.2%)	23 (12.4%)
Total of genders combined: (% of sample)	83 (18.9%)	66 (15.1%)	275 (62.8%)	165 (37.7%)	184 (42.0%)	35 (8.0%)

Interest in “men only” or “women only” hours for the weight room: 60% (153) of women responded they would be very or somewhat likely to use the weight room if there were “women only” hours, whereas the majority of men were indifferent to “men only” hours for the weight room. Refer to Table 13 below.

Table 13: Interest in “Men Only” or “Women Only” Free Weight Room Hours

	Very Likely	Somewhat Likely	Indifferent	Not at all likely
Men	10 (5.4%)	29 (15.6%)	115 (61.8%)	32 (17.2%)
Women	69 (27.1%)	84 (32.9%)	80 (31.4%)	22 (8.6%)

Equipment Recommendations: Most people marked that they would like to see more dumbbells, machines, and benches in the weight room. Full results are below in Table 14.

Table 14: Equipment Preferred

Equipment	Preference by Students
Machines	174 (20.6%)
Dumbbells	151 (17.8%)
Benches	146 (17.3%)
Resistance Bands	101 (11.9%)
Plate-loaded free weights	82 (9.7%)
Platforms	50 (5.9%)
No preference/don't know	135 (16.0%)

Table 15 shows the differences between females and males response to recommended equipment. Forty-six percent of females responded with “machines” being their most recommended piece of equipment to provide, while “platforms” were the lowest with 5.2% responding that they wanted “platforms.” The male data showed a 53.3% recommendation for “benches”, while a 17.8% recommendation for “resistance bands” to be provided.

Table 15: Preference/Recommendation of New Equipment: Male/Female Preference

Females:	Response Rate (%)	Males:	Response Rate (%)
Machines	114 (46%)	Benches	96 (53.3%)
No preference	91 (36.7%)	Dumbbells	81 (45.0%)
Dumbbells	70 (28.2%)	Plate loaded free weights	66 (36.7%)
Resistance bands	69 (27.8%)	Machines	60 (33.3%)
Benches	50 (20.2%)	No preference	44 (24.4%)
Plate loaded free weights	16 (6.5%)	Platforms	37 (20.6%)
Platforms	13 (5.2%)	Resistance bands	32 (17.8%)

Source: UNI Research and Evaluation. 2008 Strength Training Study

Results: Open-Ended Responses

The final question on our survey, “What do you think can be done to support UNI students to participate in strength training as a form of exercise?” had a multitude of responses.

Hours & Availability

Hours

- Better hours (x8)
- More hours (x12)
- Offer afternoon hours (x3)
- Change hours (x2)
- Have the weight room open at same time as fitness center.

Athletes

- Have different free weight rooms for athletes and non-athletes (x8)
- Keep improving hours and also open it up more it is very frustrating when the athletes have total control. We want to use it all day also.

- The weight room is basically for the football players from what I have seen, every time I walk by it looks like the whole team is in there, and no equipment is available
- Have a facility that is for students only. Every time I want to lift, the place is jam packed with athletes. Then I am limited to machines and free weights.

Women/Men Only Times

- Like idea of women only times
- Good to have women only and men only hours (x2)
- Offer “women-only” hours in facility
- Make weights available to men/women separately

Education and Classes

Fitness Classes/Programs

- Offer strength training courses (x10)
- Offer free/discounted cost strength training courses (x6)
- Classes involving “fun” while strength training (x2)
- As a female, it’s difficult to enter the free weight room individually. Time for women/men would be very helpful and classes specific to women.
- More women only strength classes and programs
- Many women were not taught how to lift weights properly and don’t have experiences with strength training as much as males; offer classes/programs that teach females how to participate in strength training.
- Co-ed classes
- Offer trainers to help students in need to use the equipment and show how you use properly (x2)
- Providing a group to do it with

Education

- Educate everyone about the benefits of strength training (x6)
- Teach different loading techniques so they will be able to design their own specific workouts
- Put to rest all of the myths about strength training. I.e. you’ll get big, lost flexibility, etc.
- Education about strength training (x6)
- Emphasize to females that strength training won’t cause them to necessarily “bulk up”
- Encourage residence halls to have workout nights, have WRC personnel speak at housing meetings about the facilities and new programs that may be offered to UNI students (x2)
- More people to help you and show you what to do (x2)

Personal Wellness

- Extra credit for personal wellness courses for utilizing the facility outside of class (x2)
- Have it be one of the activities for personal wellness of an elective course
- Incorporate a strength training program into the Personal Wellness Class.
- Involve strength training in all cardio classes through personal wellness – this will help introduce students to strength training
- Offer a strength training skill class for personal wellness

Awareness

- Advertise free weight room (x4)
- Awareness (x8)
- Posting the hours on flyers around campus
- Promote it more throughout campus. I never knew the hours of the weight room until I took this survey.
- Get the word out especially when we get new equipment
- Make the availability of opportunities more well known to students and information for proper exercises for students who feel they don't know much about this
- Talk more about the different programs (exercise class/dance class) available to students
- UNI Newspaper postings

Room/Environment/Equipment

Environment

- Female specific – scary for us to enter a room full of guys who know everything and are watching
- Make it a friendly atmosphere, way too many guys that seem to show off in there.
- Make the room more appealing
- More inviting environment
- More student appeal
- Play better music in there when students are lifting
- Weight room is intimidating
- A huge barrier for me in regard to weight lifting is the fact that I'm a girl and it's uncomfortable for me to exercise in a small room that tends to be filled with men.

Room

- Bigger area (x4)

Equipment

- Maybe get new equipment

- More dumbbells
- Provide more free weights
- Provide new and better equipment
- Put more free weights in WRC
- To have more dumbbells and have a bench

Other

- Bomb – Muscle Milk – HGH
- Hold some sports activities regularly
- I think people just need to make it better for themselves or make more time for it. Maybe offer it at times such as night when people don't have classes or work.
- I use the wall for strength training because weight lifting is repetitive and boring
- In addition to the good facilities in the Union and WRC, help with the equipment in the dorms
- Offer incentives (x2)
- Maybe intramural sports that involve them
- Strength training isn't very important to me when it comes to exercise and I don't know if I would be influenced to start doing it.
- We can have a get-fit month or something like that

WRC/Health Beat Comments

- Better WRC hours like more hours during the day time.
- Get better hours at the WRC so students can use it during the afternoon.
- Get more machines/equipment at the health beat
- Open 24 hour WRC
- More time for pool use! Longer hours during day for WRC
- Make a better rock climbing gym.
- The WRC could be open more in the mornings
- WRC needs to have time from 1-5 to work out
- WRC should be open all day
- Open another facility – “Health Beat” is always full when the WRC is closed for classes!
- Increase hours of availability and locations on campus to workout
- Open training hours at WRC

Sex Differences

In our results, significant differences were found between males and females in the following areas:

- ✓ Number of times exercised per week
 - 76.2% of males exercise at least once per week compared to 69.8% of females

- ✓ Important exercise outcomes:
 - Muscle strength
 - 85.4% of males and 77.8% of females felt this was important or very important
 - Muscle endurance
 - 81% of males and 68.6% of females felt this was important or very important
 - Weight gain
 - 63.5% of females felt this was unimportant or extremely unimportant vs. 54.4% of males perceive weight gain as unimportant or extremely unimportant
 - 25.3% of males felt weight gain was important or extremely important vs. 16.6% of females who felt that weight gain was important or extremely important
 - Stress reduction
 - 82% of females and 67% of males felt that this was an important or extremely important outcome
- ✓ Familiarity with free weight room in WRC
 - 68.2% of females compared to 40.1% of males felt were unfamiliar with and/or have never used it.
- ✓ Benefits of strength training:
 - Helps one to lose weight
 - 78.4% of females marked weight loss as a extremely important or important to them vs. 51.8% of males perceiving weight loss as a strength training benefit
 - 48.1% of males felt that weight loss was neither important/unimportant, unimportant, or extremely unimportant to them vs. 15.7% of females perceiving weight loss as a neither important/unimportant, unimportant, or extremely unimportant benefit of strength training
 - Helps one maintain proper body weight
 - 84.6% of females perceive the benefit of strength training is to maintain body weight
 - 72.7% of males perceive the benefit of strength training is to maintain body weight
 - Helps one to relax
 - Females are more likely to exercise to relax than males
 - 78.1% of females vs. 66.3% of males
 - Improves strength
 - 83.2% of females and 86.7% of males feel that improving one's strength is a benefit of strength training
 - Improves flexibility
 - Women marked improved flexibility as a benefit more often than men (78.1% of females vs. 63.1% of males)
- ✓ Barriers to strength training:
 - It is too much work
 - 42.0% of females reported that it was too much work
 - 26.5% reported that this was a barrier to them
 - It takes too much discipline
 - 41.8% of females said this was a barrier for them vs. 28.6% of male students

- 20% of males reported that the perception of too much discipline was “never” a barrier for them vs. 8.2% of females
- It is too boring
 - 32.4% of females marked that this was a barrier for them vs. 20% of males
 - 60.6% of males marked this was not a barrier vs. 46.1% of females
- I am too busy
 - Females reported that being too busy was a barrier for them more than males (73.9% of females vs. 54.8% of males)
- I am too lazy
 - Females also reported more often than males that they were “too lazy” to strength train (41.8% of females vs. 31.2% of males)
- The current environment is uncomfortable
 - Women found the uncomfortableness of the environment to be more of a barrier than men
 - 36.3% of females reported it was a barrier to them vs. 20% of males; 57.9% of males reported it was not a barrier for them vs. 40.2% of females
- I am uncomfortable with weight lifting
 - 31.6% of women found this to be a barrier for them vs. 12.5% of males
 - 70.8% of men reported this was not a barrier for them vs. 48.9% of females
- I don't like to exercise alone
 - 28.2% of females reported exercising alone was a barrier to them vs. 17.3% of males
- I might get 'too muscular'
 - 13.5% of females and 6.5% of males found this to be a barrier
- The hours of the weight room don't fit my schedule
 - 25.4% of females said this was a barrier to them
 - 38.5% of males stated that weight room hours were a barrier
- ✓ “Male only” or “female only” workout hours
 - 60.0% of females said they would be somewhat likely/likely to attend
 - 61.8% of males said they were indifferent to “women only” or “men only” hours

Conclusions:

The goals of this study were specifically to determine the current usage of the WRC, perceived barriers of strength training, and the perceived benefits of strength training

Of those surveyed, 58.0% regularly chose the WRC as their workout location. Two-thirds of survey respondents (300 students) workout 1-7 times per week. These students could be considered frequent users of the WRC facility.

When filling out the survey regarding one's perceived benefits of strength training, participants were asked to mark the importance of 14 factors that were relevant to their own exercise program. The top five reasons were: a) Helps one feel better in general; b) Improves one's appearance; c) Improves strength; d) Helps to

improve one's self-image; and e) Gives one confidence. Females found weight loss to be of more importance than males did; and also that improved flexibility was of greater importance.

It is important to note that psychological, body image, and health were the perceived benefit of strength training for all respondents. Social benefits were not considered as an important benefit for this particular type of exercise.

There are barriers and perceived barriers of strength training at the WRC weight room for students. These include: students familiarity with the weight room and its hours, their comfort level with weightlifting, and a few that are specific to females. Before beginning this study, our class made comments about why we thought females specifically did not participate in strength training. Two of these were that we thought females felt uncomfortable weight lifting or had a preconceived belief that they would become 'too muscular' by participating in this form of exercise. The results show that 36.3% of women found the current environment of the weight room to be uncomfortable. This result was expected, as we discussed the state the current room was in, and as a class agreed that there was room for improvement. The results also show that only 13.5% of females believed "I might get too muscular" to be a barrier or somewhat of a barrier to them. This was a surprising result. Our class anticipated this to be a barrier for most women, not wanting to stray from the idealistic female body, however only a small percentage responded that it was a barrier for them.

Of the four barriers categories defined by Myers and Roth (Time-effort; Physical; Social; Specific) "Time-effort" is most likely to be perceived a barrier to participating in strength training. These specific barriers included "too busy," "too lazy," "takes too much discipline," "too much work," and "too boring."

Almost half (47.5%) of respondents know about the free weight room, but have never used it and 8.8% did not know the WRC had a specific weight room. Dividing the results up based on sex, we find that 68.2% of females and 40.1% of males were unfamiliar with and/or have never used the free weight room.

Many of the opened ended question responses mentioned having "better hours" for the free weight room and WRC in general. A few made note that they thought the athletes should have their own free weight room, and others wanted access to the weight room all day or whenever the WRC was open for student use.

Sixty percent of females showed interest in "female only" times in the weight room; where as 61.8% of males were indifferent to the idea of "male only" or "female only" times.

Recommendations:

Recommendations that can be drawn from these survey results include: a) Offering strength training courses as a fitness classes; and b) Clean up the environment of the weight room. It is also important to note that of

those who responded to the survey, only 43.7% use or have used the free weight room in the WRC in the past. Though comments are appreciated, those coming from current users should have more weight to them.

Regarding benefits of strength training, an important question to ask is whether or not people's perceptions of strength training are accurate? The question we asked was to find out how important the proposed "benefits" of strength training were in the individual's life. There were many comments that referred to classes to teach those interested how to properly strength train. Perhaps the information that should be made available to students is the proven benefits of weight lifting. If this survey were done again, perhaps it would behoove the researcher to reword the question as to find out if responses meant "yes, I know it is a benefit, but I still don't participate" or if it were to be more along the lines of "yes, I know this is a benefit and that's why I do so."

Recommendations regarding professional practice:

- 1) Direct marketing/promotional materials toward the most important outcomes
 - a. General conditioning= 90.1% very important/important
 - b. Cardiovascular conditioning= 85.9% very important/important
 - c. Muscle strength= 80.9% very important/important
 - d. Stress reduction= 75.6% very important/important
- 2) Increase marketing of hours of operation
 - a. 47.5% have never used the FWR, 8.8% didn't know UNI had FWR, but 78% has strength training in the past five (5) years. Demonstrating a need to be fulfilled.
 - b. Fliers/informational packets at prospective student visit days
 - c. Posting in residence halls, Maucker Union, etc. (not just on FWR door)
- 3) Offer/promote the offering of strength training courses
 - a. 14.5% of respondents were highly interested
 - b. 46.6% of respondents were somewhat interested
- 4) Establish specific "women only" and "men only" hours of operation
 - a. 17.9% of respondents are very likely to participate
 - b. 25.6% of respondents are somewhat likely to participate
 - c. By establishing these specific hours, the barrier of feeling uncomfortable may be reduced.
 - d. Develop FWR hours of operation from 3pm-11pm.
- 5) Purchase equipment based on the needs of each gender
 - a. Females Top 3: Machines, dumbbells, resistance bands
 - b. Males Top 3: Benches, dumbbells, plate-loaded free weights

Recommendations for future research:

- 1) Draft a study and conduct only to women
 - a. Women are the hindered the most in participation rates at the FWR. To fully understand those barriers we must not include data from the collection of male respondents.
- 2) Include questions/topics covering level of satisfaction of staff
 - a. Are staff members meeting their needs and expectations
- 3) Include questions/topics covering level of cleanliness and atmosphere of current facility.
 - a. These topics could also be barriers to participation
- 4) Instead of asking have you strength training in the past five years, ask how likely are you to strength train in a college setting? Why do you currently feel you should be strength trained?
- 5) Include an open-ended specifically on what hours are most convenient for the user. Do not include a question stating the current hours and ask of those hours, what works best. Maybe these hours don't specifically work the best and better hours can be developed with collaboration between WRS, Athletics, etc.

For future researchers who choose to take on this project, I recommend initially focusing more on how to get people into the weight room in the first place, and then worry about the specific types of equipment later. This can be done through education and raising the awareness of the benefits of weight lifting. If people truly believe in it, the look of the room will not be as important to them.

To further this research from where we have left off, knowing what I know now from the study, I would recommend taking a strong approach to raising students' awareness of the weight room on campus and provide opportunities for people to get their feet wet if this is an activity they have not recently participated in. I am a member of the Women's Rugby team, and until last semester I had not lifted since I played basketball in high school. In three years time I had forgotten the specifics of strength training, and would not have continued without the support of my fellow teammates who were willing to teach me and work with me. Sports are not for everyone, but there are many forms of strength training that do not involve "bulking up" or doing so to get stronger. These more relaxed versions of strength training are the ones I think will be more appealing to especially our female students.

The design of our study was adequate for the information we were trying to obtain. My only recommendations for changing this design would be to take out some of the perceived benefits and barriers to strength training, because there were a few that I did not feel were essential to the knowledge to be obtained. In place of these I would add items like "I feel intimidated by the weight room environment". Language is essential in surveys, and intimidation was a word that should have been included.

References:

Goodnough, A. (2007, March 17). Florida girls learn to lift weights, and gold medals.

New York Times. Retrieved February 4, 2008, from <http://www.nytimes.com>

Harne, A., & Bixby, W. (2005). The benefits of and barriers to strength training among college-age women.

Journal of Sport Behavior, 28(2), 151-166.

Mealey, L. (1997). Bulking up: The roles of sex and sexual orientation on attempts to manipulate physical attractiveness. *Journal of Sex Research*, 34(2), 223-228.

UNI 2007-2008 Fact Book: http://www.uni.edu/instrsch/pdf/facts/factbook_0708.pdf