

First and Last Name: _____

PID (last 4 digits): _____

Section: _____

Lab 6 Muscles

Objective

- To test and learn how to use the hand dynamometer
- To test and learn how to use the Body Fat Analyzer
- To test and learn how to use the trunk flexibility tester
- To test muscular endurance through sit-ups and push ups
- To test muscular endurance through squat test

Hand Dynamometer

The subject to be tested holds the dynamometer in one hand in line with the forearm and hanging by the thigh. Maximum grip strength is then determined without swinging the arm.

Scoring

Gender	Fair	Average	Good	Excellent
Male	39-44	45-50	51-56	>56
Female	19-24	25-30	31-36	>36

(0.75 POINTS)

Trial	Dominant	Non Dominant
1		
2		
3		
AVG		

How did you do? _____ (0.25 POINTS)

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Body Fat Analyzer

Body Fat Percentage (%) = {Body fat mass (lbs.) / Body weight (lbs.)} X 100

BMI = 703 ((Weight in lbs) / ((height in inches)x(height in inches)))

	AGE	LOW (BMI <18.5)	Recommended (BMI <18.5-24.9)	High (BMI <25-29.9)	Very High (BMI <30)
Female	20-39	5-20	21-33	34-38	>38
	40-59	5-22	23-34	35-40	>40
	60-79	5-23	24-36	37-41	>41
Male	20-39	5-7	8-20	21-25	>25
	40-59	5-10	11-21	22-27	>27
	60-79	5-12	13-25	26-30	>30

Bases on NIH/WHO guidelines for BMI

Based on Gallagher et. al. American Journal of Clinical Nutrition, Vol. 72, Sept 2000

Body Fat		Low	On Target	High
	Age	%	%	%
Male	20-29	<13	13.1-23	23.1+
	30-39	<14	14.1-24	24.1+
	40-49	<15	15.1-25	25.1+
	50-59	<16	16.1-26	26.1+
	60-69	<17	17.1-27	27.1+
Female	20-29	<18	18.1-28	28.1+
	30-39	<19	19.1-29	29.1+
	40-49	<20	20.1-30	30.1+
	50-59	<21	21.1-31	31.1+
	60-69	<22	22.1-32	32.1+

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Procedure

Setting up Parameters on the Body Fate Analyzer

1. Push the On/Off Button
2. Select Guest. (then push set)
3. Select Normal Mode (then push set)
4. Set the Height
5. Set the weight
6. Set the Age
7. Set of Gender

Start the measurement

1. Stand with both feet slightly apart
2. Make sure to grip the electrodes firmly
3. Hold your arms straight out, at a 90 degree angle to your body. Do not move during the measurement.
4. Push the Start button
5. Write your body fat % in the table below
6. Push the ON/OFF button to turn the power off.

(1 POINT)

Body Fat %	
Weight	
Body fat mass (lbs)	
BMI	

Trunk Flexibility Tester “Sit and Reach”

GENDER	EXCELLENT	ABOVE AVERAGE	AVERAGE	BELOW AVERAGE	POOR
MALE	>14CM	11-14CM	7-10CM	4-6CM	<4CM
FEMALE	>15CM	12-15CM	7-11CM	4-6CM	<4CM

SPORTS COACH SIT AND REACH TABLE

Procedure

1. Position the Flex Tester against a wall.
2. Remove your shoes.
3. Reset the metal bar to the starting position.
4. Without bending your knees, push the metal bar as far as you can.
5. Repeat 3 times.

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Data (0.75 POINTS)

Trial	Reading in cm
1	
2	
3	
AVG	

How did you do? _____ (0.25 POINTS)

Abdominal Endurance: Modified Sit-ups

Procedure

1. Have your partner who will be doing the sit-ups lie down on a matted floor.
2. hold your partner's feet with either your hands or your feet.
3. Hands must be crossed and touching opposite shoulder.
4. Remember these are sit-ups not crunches.
5. Count and record how many sit-ups in one minute

Scoring

Source: adapted from Golding, et al. (1986). The Y's way to physical fitness (3rd ed.)

Age (Men)	18-25	26-35	36-45	46-55	56-65	65+
Excellent	>49	>45	>41	>35	>31	>28
Good	44-49	40-45	35-41	29-35	25-31	22-28
Above average	39-43	35-39	30-34	25-28	21-24	19-21
Average	35-38	31-34	27-29	22-24	17-20	15-18
Below Average	31-34	29-30	23-26	18-21	13-16	11-14
Poor	25-30	25-30	17-22	13-17	9-12	7-10
Very Poor	<25	<22	<17	<9	<9	<7

Age(women)	18-25	26-35	36-45	46-55	56-65	65+
Excellent	>43	>39	>33	>27	>24	>23
Good	37-43	33-39	27-33	22-27	18-24	17-23
Above average	33-36	29-32	23-26	18-21	13-17	14-16
Average	29-32	25-28	19-22	14-17	10-12	11-13
Below Average	25-28	21-24	15-18	10-13	7-9	5-10

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Poor	18-24	13-20	7-14	5-9	3-6	2-4
Very Poor	<18	<22	<7	<5	<3	<2

Data

How many did you do? _____ (0.25 POINTS)

How is that for your age group? _____ (0.25 POINTS)

Upper Body Strength /Endurance Test

The purpose of this exercise is to test shoulder as well as chest strength. Men must be in standard “military” push up form, women can have their knees bent during this exercise (they may also do the standard push up form).

Age (Men)	17-19	20-29	30-39	40-49	50-59	60-65
Excellent	>56	>47	>41	>34	>31	>30
Good	47-56	39-47	34-41	28-34	25-31	24-30
Above average	35-46	30-39	25-33	21-28	18-24	17-23
Average	19-34	17-29	13-24	11-20	9-17	6-16
Below Average	11-18	10-16	8-12	6-10	5-8	3-5

Age (Women)	17-19	20-29	30-39	40-49	50-59	60-65
Excellent	>35	>36	>37	>31	>25	>23
Good	27-35	30-36	30-37	25-31	21-25	19-23
Above average	21-27	23-29	22-30	18-24	15-20	13-18
Average	11-20	12-22	10-21	8-17	7-14	5-12
Below Average	6-10	7-11	5-9	4-7	3-6	2-4

Data

How many did you do? _____ (0.25 POINTS)

How is that for your age group? _____ (0.25 POINTS)

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Lower Body Endurance Test/ Squat Test

How many squats can you do? Stand in front of a chair or bench with your feet at shoulder's width apart, facing away from it. Place your hands on your hips. Squat down and lightly touch the chair before standing back up. A good-sized chair is one that makes your knees at right angles when you are sitting. Keep doing this until you're fatigued.

MEN	18-25	26-35	36-45
Excellent	>49	>49	>41
Good	44-49	40-45	35-41
Above Average	39-43	35-39	30-34
Average	25-38	31-34	27-29
Below Average	31-34	29-30	23-26
Poor	25-30	22-28	17-22

WOMEN	18-25	26-35	36-45
Excellent	>43	>39	>33
Good	37-43	33-39	27-33
Above Average	22-36	29-32	23-26
Average	29-32	25-28	19-22
Below Average	25-28	21-24	15-18
Poor	18-24	13-20	7-14
Very Poor	<18	<13	<7

Data

How many did you do? _____ (0.5 POINTS)

How is that for your age group? _____ (0.5 POINTS)