

Systems in Motion: Muscles at Work.

February 3rd, 2009



Name _____

Second Anchor Assignment

This is a group project but you will also be responsible for an individual component. **It is the Individual Project that will be rated for the Anchor.** The rest of the assignment will be also assessed as class work at your instructor's discretion. Some work will begin in the classroom but you should be prepared to complete a majority of the assignment on your own outside of class. **You will be responsible to complete a particular section and exercise.**

There are **three** main sections to be completed: 1) A 3-D model; 2) a researched report and Data Table with bibliography and citations; 3) and an oral presentation with handouts. The **handout is the Anchor to be up-loaded.**

3-D Model



Students will replicate the bones and then build the layers of muscles that include a major joint or articulation of the body. Groups of bones for the model could include the arm and forearm—the elbow would be the joint in this case. Each group will have a unique set of bones and articulation.

Bones will be made using a type of clay that can harden. Use a heavy gauge florist wire to connect the bones. The group will choose a flexion or extension position that will be held in position and later be described in the oral presentation.

After the bones have hardened into the correct position build up the muscles layers using the images and clay provided. Muscles' **Origin** and **Insertion** will be correct: Use your text book or Internet sources to assist you. Record

your progress with the model using hand-drawn images until the superficial muscles can be seen.

REPORT

Students will choose a profession that requires physical activity and research how muscles are used in this profession (**Action**). The character in your story will then suffer an injury to the body that requires medical treatment as well as occupational and/or physical therapy. Medical treatment can encompass medical *and* dietary changes. Injuries (and diseases) chosen should be typical of that profession. Duration of treatment will be included: most physical therapies occur over a lengthy period of time.

All therapies described will be beneficial and enable the worker to return to work healthy and with full physical capability.

This will be a **researched report** with introduction, body and conclusion.

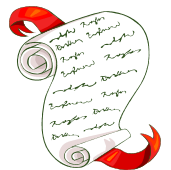
MLA Citations will be included in the report.

A Data table of all muscles created for the model will be included, with each member contributing their part.

The Data table will include the correct **Name** of the muscles, and their **Origin**, **Insertion** and **Action**.

The bibliography and hardcopy of sources will be attached to the back of the report and handed in together, to ensure originality and accuracy of the written report. Reports that arrive in separate sections or are otherwise incomplete will be penalized.

Reports **without citations AND sources** will be given a **failing grade.**



Every one contributes →Model;....researched report;

Anchor: The individual treatment plans (with images, treatment and exercises, recovery time and references)

Presentation




During the presentation each person will provide a handout that will describe what muscle/muscle group was/were injured, and then describe and **demonstrate** some of the physical therapies mentioned in the report.

The entire class will also participate in this activity so sufficient handouts will be provided by **each presenter**. The handout will include a review of the injuries to the body and muscular-skeletal system, and the medical interventions offered so far.

Images and instructions for each exercise will be provided on the handout.

The exercise directions will enable the students to perform the exercises safely and correctly. Each group will provide enough exercises to help strengthen **all** injured muscles.

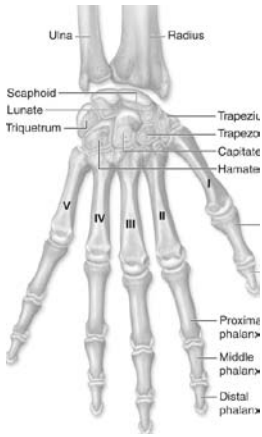
*******CLASS HANDOUT Rubric (Anchor Assignment) Expectation #1*******

	Proficient w distinction	Proficient	Approaching proficiency	Not proficient
Injured muscles listed (anatomical names) 25 pts.	All injured muscles are provided with correct anatomical names	<u>Missing only one</u> anatomical name	Missing one anatomical name or one injured muscle	More than one injured muscle , or more than one anatomical name
Exercise images: 25 pts.	Specific images of Muscles and Exercises are provided.	Missing only one muscle image	Missing one muscle image; or exercise image is general area of body	Missing more than one muscle image and exercise images are general area
Description and benefits of exercise: 25 pts.	Clear Explanation of benefits of exercise also includes the origin and insertion of the muscles that benefit.	Origin or insertion is missing from one muscle that is exercised.	Origin or insertion is missing from more than one muscle that is exercised.	Origin and insertion is missing from more than one muscle that is exercised.
Duration and repetitions of exercise : 25 pts.	Instructions are clear, complete and easy to follow. Repetition Sequence is provided to gradually and safely increase strength.	Instructions are incomplete for any exercise.	Instructions are incomplete or editing errors create confusion.	Instructions are incomplete and editing errors create confusion.

Let's review the idea behind this part of the project: YOU are the occupational therapist and your patient needs your help.

The information you give the patient should be easy to understand and do, just as you would like it if YOU were injured.

There should be pictures on the handout so the patient can learn what muscle group is specifically being targeted. Your patient should see the references to help them understand that your recommended therapy comes from *legitimate sources*.



3-D model rubric

The goal of this project is to create realistic models of the bones with correct proportional dimensions. In other words, the bones of a hand or foot would move as a real hand or foot and look real (minus the flesh and ligaments). Then, you will be choosing a position for the bones and their joint (articulation) and adding the muscles. You class may decide to start with the deep muscles and build up to the superficial muscles. Once the muscles are added the model will not be able to move









If your section of the model includes the patella then it should include the ligaments as well since the patella “floats” above the leg bones attached by ligaments & tendons. Because this joint requires more work, the patella has a greater point value.

All models need correct **keys and labels** that can be seen on the model and match a paper key handout. (Obviously, after the muscles are added these initial labels may be covered by the clay or paper muscle). Labels should be neat: either numbers or letters on paper-hole punches and then glued to the model. Do not draw directly onto the bones---the clay may smear the ink or pencil.



Points are *potential scores*---your instructor may choose other options as well as require *additional* labels such as projections and depressions, etc.

3-D Model	superior	good	fair	Below standards	No work, no key
Labels 20 pts	All labels are complete , neat and accurate	One label is incorrectly placed	2-3 labels are incorrectly placed	Four or more Are incorrectly placed	0
Proportion 20 pts	Bones are in the same proportion as models	One bone is not in proportion	Two bones are not in proportion	Three or more bones are not in proportion	0
Location 20 pts	All bones are correctly placed	One bones is out of place	Two or three	More than three	0
Flexibility 20 pts	Movement is possible without breaking the model	One part is glued or rigid, breaks when moved	Two or three parts are glued or rigid, or break when moved	More than three	0
Appearance 20 pts	Smooth surface, realistic color, rounded, not rectangular	Some random bumps are present,	Random Bumps are frequent throughout model.	Excessive bumps, General messy appearance. Work looks rushed.	0

Report rubric	Superior	Good	Fair	Poor	No Work
					
Occupation & Physical Expectations	Your Treatment will successfully return the patient back to the job	Your Treatment is good but treatment schedule is overly demanding or rushed, instructions not entirely clear	Some consideration of patient is seen but treatment cannot succeed w/o extraordinary means, either \$ or effort	Treatment is beyond the scope of most /all patients, or, will not return patient safely back to work	
Scenario of injury	Realistic; common injury for that profession	Seems a little extreme or unusual	Very contrived circumstances	Virtually impossible	No effort
Muscles name OIA Muscles that are injured	All muscles that were injured, both deep and superficial, are listed w correct info	Most of the injured muscles both deep and superficial are listed w correct info	Some of the injured muscles both deep and superficial are listed w correct info	Missing either the superficial or deep muscles, &/or numerous OIA are incorrect	No effort
Treatments- Described	Visual and text are clear, direct and easy to do	Either visual or text instructions are unclear or difficult for beginners	Both visual and text instructions are unclear or difficult/harmful for the beginner	Instruction is confusing or completely misguided; visual info is missing or are so poor in quality as to misdirect.	No effort
Treatments- To Be Demonstrated	Instructions are clear; we can easily see AND DO the recommended exercises. You explain WHY we need to do them.	Instructions are good. We don't completely understand what we need to do. You don't completely explain WHY we need to do them	Instructions are not clear. We don't understand what we need to do. You don't explain WHY we need to do them	Your instructions are so vague that we don't have a clue what to do. Your rationale for this exercise does not motivate us at all.	No effort
Sources 12 pts	MLA, min Of 4 sources	MLA; 3 sources	MLA; 2 sources	MLA; 1 source	No copies of sources
Citations 12	Min. of 5 citations	4 citations	3 citations	2 citations	No effort

THE report combines the efforts of everyone in the group.

The report includes all of the handouts (with the images and instructions) and all of the data tables.

Let's review the idea behind this real-life assignment: People can be injured on the job and occupational therapy can restore them to good health.

Scenario: realistic based upon that profession and its typical injuries.

Injury: Real and possible, not so unusual or limited; occurs near a joint or articulation.

Recovery: May or may not include surgery, or dietary changes, but must include physical and/or occupation practices and exercises which enable the patient to return to work healthy and with full-function.

Each person provides his/her therapy and exercise particular to that group of muscles being retrained and strengthened.

Each person provides instructions and illustrations to class for that particular exercise/ strength building.

Each person contributes to the overall report in that they are to create a data table that provides the name, origin, insertion and action of their muscle group.

Exercise is realistic, practical and beneficial. Information is provided to the class that lets them know just how long the patient will need to practice these exercises. For example: the number of reps for each weight bearing/strength training exercise; what to expect for the first training session and the number of sessions expected until typical injuries heal. (Some physical therapies HURT!!! You need to explain what is 'normal' hurt!!!!)

You all contribute to the report, just like a team of medical professionals, but the **oral presentation and the uploaded handouts are graded separately.**

Report CHECKLIST

1. Occupation & its Physical expectations; their duration and intensity.(If you are a postal worker you lift and carry ALL DAY)
2. Scenario
3. Injury
4. Muscles that were *injured*.
6. Muscles' Name & OIA that encompass the area injured, from deep to superficial. The articulation/joint is described; bones in this area are named.
7. Treatments needed to bring the patient back to normal.
8. Treatments to be demonstrated
9. Sources, in MLA format, attached to the back of the report
10. Sources are cited within the report.



Each person:

- 1) Provides a muscle data table for the Report: the injured muscles', their names & OIA that will be rehabilitated by their particular exercise. Sources are included



Each person:

- 2) Provides an instruction guide with purpose and description of exercise, and appropriate images to accompany their presentation. Sources are included!

ANCHOR→



- Each Person: 3) Will contribute to the building of the model, adding 3-D muscles from deep to superficial; Progress will be recorded and confirmed before the model and its muscles will be handed over to the next person. I will provide you with Source material.