



A Model for Problem Based Learning in Clinical Science Studies



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Project Description

- HESC 310 Anatomy and Physiology was a new course that was required for exercise science majors beginning the 2004 academic year.
- HESC 310 was designed to expand upon the content of HESC 220, which is open to all students in the Department of Health, Nutrition, and Exercise Science.
- This course was developed specifically for exercise science majors who must have a greater understanding of anatomy and physiology because most plan to pursue careers in the health professions.
- Problem based learning was utilized in this class, as students worked in 5-6 member groups, exploring realistic medical cases while using a variety of learning tools including:

- virtual-lab simulations
- cadaveric models
- palpation
- anatomy texts
- the internet

Purpose

To utilize problem based learning for teaching anatomy and physiology to students pursuing clinical careers in the medical professions.

Assessment of Students' Activities

- Group – lab report and 10-minute presentation
- Individual – revised lab report completed in group

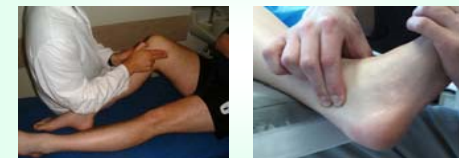
Methods of Teaching

- Case studies of patients that would typically be seen by a physician or physical therapist.
- Students (groups of 5-6) were provided with the patients' subjective report and objective findings from a physical exam (figure 1). Their job was to diagnose the condition, describe the rationale for what lead them to their conclusions, and provide a treatment plan.
- Resources:
 - world wide web
 - reference texts and software
 - "hands-on" labs
 - anatomical models (figure 2)

Assessment of Teaching Method

Comparison of five multiple choice questions and one short essay that asked students to describe the joint motion and muscle activity of a complex task (overhand throwing).

Hands-On Learning



Case Study: A 30-year-old male patient presents with a 2-week history of right shoulder pain. The pain is worse with overhead activities and is accompanied by a "catching" sensation. The patient reports a fall during a basketball game 4 months ago. Physical exam reveals tenderness over the acromioclavicular joint and a positive impingement test. X-rays show no acute abnormalities. The patient is unable to perform a 180-degree overhead throw.

System	Findings	Significance
General	Normal	No systemic disease
Cardiovascular	Normal	No cardiac disease
Respiratory	Normal	No pulmonary disease
Gastrointestinal	Normal	No abdominal disease
Genitourinary	Normal	No renal disease
Neurological	Normal	No neurological disease
Musculoskeletal	Right shoulder pain, tenderness over AC joint, positive impingement test, limited overhead motion	Acromioclavicular joint dysfunction

Figure 1
Subjective/objective
component of the
Physical exam



Figure 2
Anatomical specimens used
to enhance learning

Student Feedback

Students replied that HESC310 challenged them more than HESC220. They said they learned a lot and felt very prepared and excited to continue their studies of physical therapy in graduate school.