

UNIVERSITY OF LOUISIANA AT LAFAYETTE

STEP Committee

Technology Fee Application

**Improving Lower Extremity Assessments
with Advanced Training Mannequins**

Title

Aimee Gros, EdD, LAT, ATC

Name of Submitter
(Faculty or Staff Only)

School of Kinesiology

Organization

Title: Improving Lower Extremity Assessments with Advanced Training Mannequins Date: 7.9.2024

Name (Contact Person): Aimee Gros, EdD, LAT, ATC

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Department/College/Org: Athletic Training / Kinesiology / Education & Human Development

ABSTRACT (250 words or less):

Athletic training education is a competency based medical program that utilizes didactic learning and clinical experiences (Edler et al., 2017). While clinical experiences allow students to demonstrate their competence with patients, one issue that arises is a student's inability in transitioning their classroom knowledge to clinical practice (Edler et al., 2017). One cause of this is not having consistent patient encounters that allows them to practice (Edler et al., 2017).

Simulation is a solution to this issue as it allows healthcare programs to create sustainable experiences for all students. This realistic learning experience allows students to master skills through consistent patient encounters while in a safe environment. Simulations provide students the ability to practice skills needed for a live patient evaluation without having to harm an actual patient (Cuchna et al., 2019).

Orthopedic clinical skills are a foundational concept for the Master of Science in Athletic Training (MSAT) program. While MSAT students didactically learn how to evaluate a patient's knee and ankle, some students are not afforded experiences while at their clinical sites to complete these evaluations due to the inconsistencies of injuries. The purpose of this grant would be to purchase a knee and ankle sports injury assessment trainer.

1. Purpose of grant and impact to student body as a whole

- a. Athletic training education programs are competency based medical programs that offer didactic learning and clinical experiences (Edler et al., 2017). Clinical experiences allow students to take knowledge and skills learned in a classroom and practice their competence in a real-world environment. One issue that arises is a student's inability to transition their classroom knowledge to clinical practice (Edler et al., 2017). While many factors can contribute to this issue, the main cause is due to students having inconsistent patient encounters with what they are learning in the classroom (Edler et al., 2017). If students are not able to have meaningful experiences in the clinical setting that allow them to practice, then they will not develop the skills or confidence to deal with future injuries.

One way that healthcare programs combat this lack of inconsistent experiences is by incorporating simulations into a student's curriculum. Simulation is defined as "the encouragement of learners in lifelike experiences which mimic real clinical encounters, and that are associated with varying levels of realism" (Cuchna et al., 2019). This learning experience allows students to master skills through continuous encounters while in a safe, realistic environment. Simulations give students the ability to practice skills needed in an evaluation without having to harm an actual patient (Cuchna et al., 2019). Benefits of simulations include acquiring clinical skills, increased didactic and practical knowledge, improved communication skills, critical thinking, decision making, acquired skills practice, and better transition to autonomous clinical practice (Bates & Moore, 2023; Brewer, 2011; Cant & Cooper, 2010, 2016; Cuchna et al., 2019; Fluharty et al., 2012; Hart et al., 2014; Ko & Kim, 2014). Simulations permit student to progress from a novice to an expert thanks to consistent patient encounters and a debriefing process post-experience (Benner, 1984).

Orthopedic evaluation is a benchmark standard for the students in the Master of Science in Athletic Training (MSAT) Program. These clinical skills are the foundation for providing quality patient-centered care for individuals in the surrounding community, as they complete clinical experiences at UL athletics, high schools, clinics, and local races. While they didactically learn how to evaluate a patient's knee and ankle, some students are not afforded experiences while at their clinical sites to complete these types of evaluations due to the inconsistencies of injuries. The purpose of this grant would be to purchase a knee and ankle sports injury assessment trainer. This trainer has seven different injuries that could be simulated so that students could hone their ankle and knee orthopedic evaluation process without having to wait for patients to injure themselves. This trainer would allow students to feel different grades of injuries while also allowing for a better debriefing process with a faculty member as the simulator can be controlled. The feedback can enhance student knowledge and skill set that would help them to transition to higher quality, patient-centered care.

2. Projected lifetime of enhancement

- a. This assessment trainer would improve the effectiveness of teaching, performing, and assessing lower extremity clinical skills due to real time feedback. As faculty would be in charge of creating the injury with the assessment tool, they will be able to debrief students of their clinical skills in real time, rather than waiting for an injured patient to

return from the physician to see if the diagnosis was correct. This real time feedback can increase student's skills set (as they are able to make modifications quicker), confidence levels, and communication skills. In addition, this assessment tool will allow faculty to be in compliance with the Commission on Accreditation in Athletic Training Education's (CAATE) Standards 63 (use systems of quality assurance and quality improvement to enhance client/patient care), 70 (evaluate and manage patients with acute conditions including musculoskeletal injuries), and 71 (perform an examination to formulate a diagnosis and plan of care for patients with musculoskeletal system health conditions) (CAATE, 2020).

- b. The injury assessment tool will directly impact the MSAT program students to provide better quality, patient-centered healthcare for patients with lower extremity orthopedic injuries. This model will allow the faculty to better integrate three Institute of Medicine core competencies into their curricula: provide better patient-centered care, employ evidence-based practice into skill sets, and apply quality improvement. By proxy, as the students can provide improved healthcare for lower extremity orthopedic injuries, patients in the local area that the students are evaluating will receive better care when injured.
- c. This equipment will also, indirectly, be utilized for continuing education units for other athletic trainers as well as can be used for research purposes. Athletic trainers must complete annual continuing education units (CEUs) to improve their skillset and knowledge. This model could be used for educational topics that the faculty could produce for athletic training CEU purposes. As this model can also give real time feedback, it could be used for research purposes in effectiveness of teaching clinical skills, quality of student outcomes, and clinical simulations.

3. Person(s) responsible for

- a. *Implementation:* The person responsible for this teaching implementation would be the MSAT Program faculty. The Program Director will integrate this into related athletic training courses once faculty have trained on the instrument. This instrument can also be utilized for continuing education units that the athletic training faculty may teach for other athletic trainers.
- b. *Installation:* This assessment trainer will be integrated into multiple athletic training courses (KNES 576: Examination and Care of Lower Extremities and Spine Pathologies, KNES 551: Athletic Training Clinical I, KNES 552: Athletic Training Clinical II, KNES 553: Athletic Training Clinical III) as well as student's objective standardized clinical evaluations (OSCE's) that are performed each semester. In addition, this instrument may be beneficial in continuing education courses that the athletic training faculty may conduct for other athletic trainers.
- c. *Maintenance:* Maintenance of this assessment trainer will be performed by the Athletic Training Program Director (Aimee Gros) as well as the Clinical Education Coordinator (Sarah Myers).
- d. *Operation:* All MSAT faculty that teach the previously mentioned courses will utilize this training tool. These faculty members are all national Board of Certification and Louisiana licensed athletic trainers that are qualified to teach these skills.
- e. *Training (with qualifications):* All MSAT faculty that teach the previously mentioned courses will utilize this training tool. These faculty members are all national Board of

- Certification and Louisiana licensed athletic trainers that are qualified to teach these skills. In order for faculty to feel comfortable with this new assessment trainer, the Program Director will meet with them prior to the semester. At this time, the faculty can practice using this new equipment.
- f. *STEP Plan Alignment:* This assessment equipment will assist the MSAT students in applying their ankle and knee pathology didactic knowledge into practical, hand-on clinical skills. This equipment fits into the STEP Program's SLO-4 objective. This assessment trainer will be housed in the MSAT Program's Learning Lab with other trauma and injury assessment equipment (e.g. CPR mannequins, trauma mannequins, etc.). This ankle and knee injury assessment equipment is compliant with our Commission on Accreditation in Athletic Training Education standards by allowing students to complete simulated acute orthopedic injury evaluations. Prior to this training tool, there was no way to properly show students "normal" and "abnormal" feels of ligamentous injuries without hurting a patient. This tool allows faculty to teach quality assessment techniques while giving real time feedback on clinical skills with this technology upgrade.
4. The narrative of the proposal must include the purpose and justification for each of the items listed in the Budget Proposal.
 - a. *Line 1 Equipment:* The equipment listed is for one knee and ankle sports injury assessment trainer. As this equipment can show four different ankle injuries and three knee injuries, only one trainer is needed. This equipment will allow our students to practice their clinical skills on a model that has these injuries prior to observing them at their clinical site.
 - b. *Line 6 Other:* The company that created this equipment has a shipping fee for larger items.

References

- Bates, D. & Moore, J. (2023). High-fidelity simulation for graduate athletic training students and impact on student's learning experience. *Research & Practice in Technology Enhanced Learning*, 18(15).
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- Cant, R. & Cooper, S. (2010). Simulation-based learning in nurse education: Systemic review. *Journal of Advanced Nursing*, 66(1): 3-15.
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- Ko, E. & Kim, H. (2014). Effects of multi-mode simulation learning on nursing students' critical thinking disposition, problem solving process, and clinical competence. *Korean Journal of Adult Nursing*, 26(1): 107-116.

Budget Proposal

1.	Equipment	\$ 4,499.00
2.	Software	\$0
3.	Supplies	\$0
4.	Maintenance	\$0
5.	Personnel	\$0
6.	Other	\$75.00 (shipping)
TOTAL:		\$4,574.00



2709 Mondovi Road, Eau Claire, WI 54701 USA
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Quote

160712

7/10/2024

Expires: 9/8/2024

Prepared For	Bill To	Ship To
Aimee M Gros (337) 482-6279	Univ of Louisiana-Lafayette PO Box 44090 Lafayette LA 70504-0001 United States	Univ of Louisiana-Lafayette PO Box 44090 Lafayette LA 70504-0001 United States

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Item #	Description	Price	Quantity	Extended
35020302	Knee and Ankle Sports Injury Assessment Trainer	\$4,499.00	1	\$4,499.00

Subtotal	\$4,499.00
Shipping and Handling	\$75.00
Tax	\$0.00
Total	\$4,574.00
Terms	Net 30

Home / CTE / Best Sellers / Knee and Ankle Sports Injury Assessment Trainer



Knee and Ankle Sports Injury Assessment Trainer

Use this one-of-a-kind Knee and Ankle Sports Injury Assessment Trainer to help students learn how to diagnose and test common sports injuries when real-life examples are not available. Its articulating joints and muscles allow students to get hands-on practice assessing a variety of common ligament and tendon tears, including ACL, MCL, anterior talofibular and more. Additionally, a dial enables users to customize the degree of impact for added realism. The included standards-based curriculum provides 2-3 hours of classroom instruction.

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Joint	Injury	Description	Test
Knee	ACL	Grades 1-3 of ACL ligament tears	Lachman and Anterior Drawer Tests
Knee	MCL	Grades 1-3 of MCL ligament tears	Valgus Stress Test
Knee	LCL	Grades 1-3 of LCL ligament tears	Varus Stress Test
Ankle	ATFL	Sprain to anterior talofibular ligament	Anterior Drawer of the Ankle
Ankle	CFL	Sprain to the calcaneofibular ligament	Talar Tilt Test
Ankle	Deltoid Ligament	Normal and complete disruption	Eversion Stress Test
Ankle	Achilles Tendon	Nominal and full rupture	Calf Squeeze Test and Palpation

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Sports Medicine Scenario Cards

The Sports Medicine Scenario Cards feature 19 different employability skills each highlighted in a real-world scenario written by sports medicine subject matter experts. Students read the scenario and then they must problem solve, answering the key questions on the card as well as seeing the scenario from multiple points of view. Critical thinking is required as students participate in scenario-based learning, applying their knowledge focusing on soft skills. Various sports medicine professions are included in each scenario.

Alignment to NATA: 13.2 Investigate the role of various rehabilitation professionals.

Rehabilitation and Modalities Scenario Kit

The Rehabilitation and Modalities Scenario Kit was developed based on an alignment to NATA section 13: Introduction to Rehabilitation and Modalities.

Lessons and Objectives	NATA Alignment	Kit Component/Activity
Lesson One – Understanding Rehabilitation Modalities <ul style="list-style-type: none"> • Understand what a modality is and the general purposes of modalities • List the basic types of modalities 	Vocabulary terms are covered in the flashcards. 13.1 Safety procedures for each type of modality are also covered in the flashcards and lesson content.	Therapeutic Modalities Flashcards – These flashcards cover eight different therapeutic modalities featuring safety procedures and definitions for students to learn and identify. Lecture and slide presentations cover content.
Lesson Two – Safety Procedures for Modalities <ul style="list-style-type: none"> • Understand the clinical indications for the use of cryotherapy and experience each stage of cryotherapy • Understand the general guidelines and safety procedures for each modality • Demonstrate cause and effect of improper treatment prep when using modalities 	13.1 Safety procedures for each type of modality are also covered in the flashcards and lesson content.	Cryotherapy lab with hands-on practice. Flashcards cover safety procedures for modalities. Lecture and slide presentations cover content with extension activities.
Lesson Three – Five Phases of Rehabilitation <ul style="list-style-type: none"> • Understand the clinical indications and demonstrate the ability to apply moist heat pack treatments safely • Understand and be able to describe the phases of rehabilitation • Create a rehab program based on the phases of rehabilitation 	13.3 Understand the five phases of rehabilitation.	Thermotherapy Modality Lab with hands-on activities. Lesson lecture and slide presentations cover content with extension activities. Students will learn how to use the five phases of rehabilitation.

<p>Lesson Four – Creating First Aid Treatment Plans for Acute Injuries</p> <ul style="list-style-type: none"> • Understand the basic setup for EMS/TENS • Understand the basics of acute injury treatment • Create a treatment plan for the acute phase of a specific injury 	<p>Create a first aid treatment plan for an acute injury.</p>	<p>EMS/TENS unit demonstration is integrated. Acute Injury Scenarios Student Workbooks, lecture, and slide presentation cover content. A first aid treatment plan for an acute injury is completed in the workbook.</p>
<p>Lesson Five – Career Exploration: The Roles of Various Rehabilitation Professionals</p> <ul style="list-style-type: none"> • Understand and explain the individuals who make up an athlete’s circle of care • Identify different careers within the field of rehabilitation • Explain a rehabilitation career that they are personally interested in working in 	<p>13.2 Investigate the role of various rehabilitation professionals.</p>	<p>Lecture and slide presentation cover content with extension activities provided. Career exploration into the circle of care is included and research projects. Rubrics are provided.</p>
<p>Lesson Six – Assessment and Application: Acute Injury Scenarios</p> <ul style="list-style-type: none"> • Identify the appropriate modality to use based on the scenario • Create a treatment plan for a sports injury based on knowledge of modalities 	<p>Create a first aid treatment plan for an acute injury</p>	<p>Students will review the basics of treatment plans as they prepare to develop a series of 25 different plans based on sports injury scenarios using the Acute Injury Scenarios Student Workbook</p>

Knee and Ankle Sports Injury Assessment Trainer

Lessons and Objectives	NATA Alignment	Kit Component/Activity
<p>Lesson One – Ankle Injuries</p> <ul style="list-style-type: none"> • Understand the anatomy of ankle ligament and tendons injured in sports • Explain the types and classifications of ankle injuries • Demonstrate the ability to perform orthopedic special tests of the ankle 	<p>Sections 6.2 and 6.6 discuss skeletal and muscular anatomy.</p> <p>Section 9.3 requires learners to differentiate between different degrees of injury.</p>	<p>The Knee and Ankle Sports Injury Assessment Trainer allows learners to practice commonly used diagnostic tests to assess healthy ATFL, CFL, deltoid, and Achilles tendons and ligaments. The trainer can be adjusted to demonstrate various degrees of injury for each.</p>
<p>Lesson Two – Knee Injuries</p> <ul style="list-style-type: none"> • Understand the anatomy of the ligaments of the knee • Explain the different grades of injury and the care of those injuries • Demonstrate the ability to perform orthopedic special tests to determine the nature of a knee injury 	<p>Sections 6.2 and 6.6 discuss skeletal and muscular anatomy.</p> <p>Section 9.3 requires learners to differentiate between different degrees of injury</p>	<p>The Knee and Ankle Sports Injury Assessment Trainer allows learners to practice commonly used diagnostic tests to assess healthy ACL, MCL, and LCL ligaments. The trainer can be adjusted to demonstrate various degrees of injury for each.</p>