Department of Kinesiology

ATR 3088: Assessment of Head, Spine and Upper Extremity Pathology

Fall (MW 8:00-9:20)

Professor: Pami Young, MA, ATC
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Office Hours: By appointment
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Course Description

This course equips students to implement the S.O.A.P. method of orthopedic assessment to specific injuries of the axial skeleton, central nervous system, thorax, abdomen and upper extremity. Clinical role-playing in the lab setting will allow students to practice and master injury/illness examination through the use of the differential diagnosis process.

Course Aim

This course aims to provide you with in-depth study and eventual mastery of the knowledge and skills you will need as a health professional to differentially diagnose injuries to the:

- *Head, Brain, Face*
- *Thorax and Abdomen*
- *Spine (cervical, thoracic, lumbar and sacral), SI Joint, Pelvis*
- *Shoulder*
- *Elbow*
- *Wrist, Hand & Fingers*

In the process, you will develop an emerging mastery of the *Educational Competencies* of the NATA (See Appendix D for details on these Competencies in preparation for the Board of Certification Exam for Athletic Trainers)

Through class lectures, course readings and the textbook, you will be asked to engage in the critical process of differential diagnosis while conducting orthopedic assessments for the above joints. Most classes will be in a lecture format in order to enable us to cover the wide expanse of material represented by the *Educational Competencies*. Nevertheless, we will also use segments of class meetings to discuss issues raised in lectures and readings, to check for learning through online polling and 1-minute reflection papers, as well as to bring to life the assessment process through real and simulated case studies. We will utilize the lab setting to refine your clinical assessment skills using your colleagues as patients. This course is technology-enhanced in the sense that we will use *Canvas* extensively for lecture notes, peer-reviewed journal readings, group discussion boards, journaling, and for the creation of wikis. The aim is to promote more active engagement on your part with the course material. My goal in taking this approach is for you to take ownership of your learning, to actively seek knowledge and develop the "clinical mind", and to avoid the passivity that can often characterize students' behavior in a strictly lecture class. You are becoming health care professionals.

To be successful in this course, you should always take the mindset of actively synthesizing information presented in lecture and lab and applying it to the clinical setting. Specifically, this means that studying for quizzes and tests should involve reviewing and integrating the essential ideas by asking the "*Why?*" and "*So what does this mean?*" questions. Where possible, we will do activities in class or have study sessions to improve your retention. Graded assignments (e.g., tests, quizzes, assessment outlines and review of literature paper) will be used to help you identify, recall, synthesize and apply the key concepts in orthopedic assessment of the upper extremity.

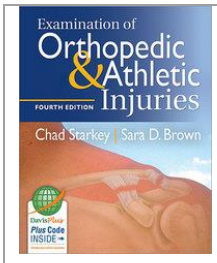
Course Learning Outcomes *(what you should be able to do after completing this course!)*

ATR 388 will prepare you to:

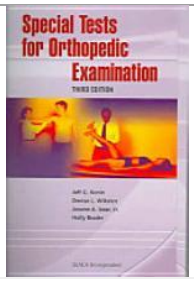
- Utilize and master the components of the *orthopedic examination process* (i.e., perform a thorough History, Inspect, Palpate, and utilize Special Tests) to determine the presence of physical problems in patients.
- Discover and execute the process of *differential diagnosis*, which involves determining which pathology—from among a variety of possible conditions—is the probable cause of an individual's symptoms.
    - Note: Students will create video tutorials and differential diagnosis algorithms to aid in learning the differential diagnosis process; you will edit and refine the work of your colleagues in this process.
- Describe and appraise the etiology, symptoms, signs and management of upper extremity injuries.
- Research, summarize and critique contemporary literature on the evaluation and management of potentially catastrophic injuries to the cervical spine and brain.
- Through laboratory sessions, practice and become proficient in the clinical evaluation of upper extremity posture, flexibility, neurological status and muscular strength.

Textbooks

Required:



Title	**Examination of Orthopedic and Athletic Injuries, 4th Ed.** (you may buy 3rd or 4th edition of this book)
Author	Chad Starkey; Sara D. Brown
ISBN	978-0-8036-3918-8
Publisher	F. A. Davis Company
Publication Date	2015
Price	$87.95, $43 online



Title	**Special Tests for Orthopedic Examination, 3rd edition**
Author	Jeff G. Konin; Holly Brader; Jerome A. Isear; Denise L. Wiksten
ISBN	ISBN 978-1-55642-741-1
Publisher	SLACK, Inc
Publication Date	January 28, 2006
Price	$47.95

Optional:

Hoppenfeld S. *Physical Examination of the Spine and Extremities*. Norwalk: Connecticut: Appleton & Lange.

Academic Accommodations

While all students are expected to meet the minimum academic standards for completion of this course as established by the instructor, students with disabilities may require academic accommodations. At Point Loma Nazarene University, students requesting academic accommodations must file documentation with the Disability Resource Center (DRC), located in the Bond Academic Center. Once the student files documentation, the Disability Resource Center will contact the student's instructors and provide written recommendations for reasonable and appropriate accommodations to meet the individual needs of the student. See Academic Policies in the undergrad student catalog.

*This policy assists the University in its commitment to full compliance with Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities (ADA) Act of 1990, and ADA Amendments Act of 2008, all of which prohibit discrimination against students with disabilities and guarantees all qualified students equal access to and benefits of PLNU programs and activities.

Course Requirements*

*Please Note: *The PLNU Catalog states that 1 semester unit represents an hour of class per week, and 2 hours of preparation are normal for each hour of class. Therefore, if you spend about 6 hrs per week outside of class in preparation for this class, you will significantly increase your chances of doing well! Your professor does not subscribe to the theories of learning by either diffusion or osmosis, or by "cranial dumping" from my brain to yours while in class ☺*

Discussion Board

We will utilize the Discussion Board feature of Canvas to expand upon topics raised in class and from your reading of the textbook and outside journals. You will have the opportunity, via the Discussion Boards, to interact with your fellow students and with me and to discuss topics of interest to you. You are invited to become engaged with others in this class as you debate issues raised in the questions, examine and analyze case studies related to the content, and respond to the comments of your classmates. In the process, my hope is that you will refine each other, acting as colleagues to improve learning.

For each Discussion Board topic, you will be required to post one response of your own and also at times to post a reply to a classmate's response (e.g. the tutorials). Thus, you must respond at least once and sometimes twice to each Discussion Board topic on Canvas. Your response to a classmate's post may include one or more of the following:

- Ask a probing question
- Share an insight from having read your classmate's post
- Offer and provide evidence to support an opinion
- Validate a classmate's idea with reference to your own experiences
- Make a suggestion for improvement
- Expand on your classmate's post.

To receive full credit for your participation, your posts must also be made in a timely way. Specifically, this means that you must post a response during the week after we first encounter a new topic and your colleagues have posted their tutorial assignment. So, for instance, if a colleague posts a tutorial on the Shoulder on November 1st , then you will need to make your posts on the Discussion Board topic by November 8th in order to receive full credit.

I will review the input that you have given to these Discussion Boards and will award up to 3 points for each Discussion Board posting that you have made, based on the quality of your post. The

maximum points available for Discussion Board participation is 30 points. I will also post these instructions with some ground rules on Canvas.

Clinical Examination Video Tutorials: *Manual muscle testing and special tests*

You will be asked to partner with two colleagues to produce a tutorial video on the Clinical Examination of a specific joint of your choosing. In your video tutorial, make sure to include an *Evidence-Based Approach*: this means you should choose to demonstrate the most clinically useful Manual Muscle Tests and Special Tests used to evaluate the joint. You will share your video tutorial with your colleagues via *YouTube* for their education and constructive feedback. You will each also comment on the other tutorials created by your colleagues via Discussion Board on Canvas.

Your tutorial should include and discuss:

- At least 10 of the most commonly used special tests to evaluate the joint that you select.
- Demonstration of specific direction on patient positioning, direction of testing, S/S of a positive test, and pathology that each test rules in/out
- Wherever possible, comment on the reliability, sensitivity, specificity and predictive ability of the special tests that you choose (*It is critical that your colleagues have a sense about which are the most clinically useful and valuable tests to choose when conducting a differential evaluation*)
    - Indicate if a cluster of special tests might be used to increase your ability to diagnose a condition (e.g. SI joint tests)

This is a helpful YouTube channel for your review: http://www.youtube.com/user/bigesor

Please choose 1 anatomical region below for your tutorial. Remember, you will each also comment on the other tutorials via Discussion Board on Canvas.

- *Lumbar Spine*
- *Sacroliac Joint*
- *Head & Cervical Spine*
- *Shoulder & Scapula*
    - *Instability*
    - *Impingement, Scapula, TOS*
- *Elbow & Wrist*

Quizzes

Quizzes will be accomplished through various forms: (partner quiz, online quiz, etc) and through take-home assignments. Please review your course outline for the scheduled on-line quizzes and their due dates.

Public Service Announcement:

"Best Practices in Managing Concussions in Sports"

MTBI is the most publicized injury in sports today. The classification, etiology, assessment and treatment of concussion in sports is currently being studied at an extremely rapid pace, with various organizations either changing their rules or considering such changes. It is essential that Athletic Trainers stay at the forefront of the most current evidence. This assignment is intended for you to create a public service announcement that effectively summarizes and communicates to a target audience the *evaluation, classification,* and *treatment* guidelines for MTBI. *Return to play criteria* that will insure patient safety should also be discussed. You may use powerpoint, narrated PPT (screencast-o-matic), video, or other media to produce and communicate your PSA. You may work in groups of 4 on this assignment. Your time limit is 6 minutes for the finished product!

***In preparation for this assignment, please review the following links (there are many more that will be given in class or in the course reader on Canvas)

http://www.nata.org/jat/readers/archives/40.3/i1062-6050-40-3-153.pdf
http://www.nata.org/jat/readers/archives/41.2/i1062-6050-41-2-137.pdf
http://www.nata.org/statements/position/concussion.pdf

Lab Practicals

Lab practicals will occur at the completion of each anatomically specific unit to evaluate student mastery of the psychomotor skills required of the allied health care professional. I will allow you to take one of the exams with a partner. The expectation is that you will refine the work of your partner during the exam and each of you will receive the same grade.

Lecture Exams

We will have unit examinations to measure your mastery of the material. The final exam will be comprehensive and will require that you have a firm grasp of the orthopedic evaluation process for all joints of the upper extremity that we cover in class. It benefits you to speak with me early about if you will be traveling with a team, or if a family emergency has come up. There are no provisions for early or make-up examinations if you do not communicate clearly in advance.
Examinations should be regarded as an assessment of your readiness to progress toward your given allied health care profession. They will also serve as a learning experience because I will provide detailed feedback for you. Finally, they are an opportunity to be accountable for your learning.

Differential Diagnosis Injury Assessment Outlines (IAO):

These outlines require you to demonstrate the *differential diagnosis* process for various joints. The process refines your ability to determine ("rule in") an injury from which a patient is suffering while excluding ("ruling out") conditions that the examination findings do not support.

1. Utilizing an outline format, outline the History, Inspection, Palpation, and Special Tests (including Functional, Ligamentous, and Neurological tests) used to assess pathologies in the following regions:
    - Face/Eye/Ears/Nose/Throat
    - Head/Neck (C spine)
    - Lumbar Spine/SI Joint
    - Shoulder/Scapula
    - Elbow/Wrist/Hand
2. Outlines are due at the completion of each of the anatomically specific units.
    - Utilize and reference at least two sources in addition to your textbook.
    - For the *History section:* after listing a specific question, p*rovide specific rationale for asking that question* (i.e., When you ask what a patient ate for breakfast, what specific symptom are you evaluating?)
    - For *Special Tests* section: *provide the specific pathology* ruled-out with each test (e.g., When you perform the Halo test, what specific pathology are you attempting to rule out? Straight Leg Raise?).

Current Concepts Critique/NATA Position Statement Review:

To supplement the textbook and our in-class discussions, you will be asked to read 2 "current concepts" articles published recently in sports medicine journals and write a 1-page synthesis paper. The topics of the articles will be of your choosing and must coincide with topics covered in class lecture. The intent of this assignment is for you to be exposed to recent advances in the assessment, surgical repair, and prevention of particular upper extremity injuries. **You will be asked to share key findings with the class via Discussion Board while we cover the material in lecture. *It will benefit you to choose articles for this assignment that coincide with your technical writing paper or the Public Service Announcement MTBI.*

Format: each critique should be no longer than 2 double-spaced pages, 12pt font
Specific contents: the four components required for each critique are:

- Bibliographic information (e.g., author, title, journal, volume, pages, year)
- Key points of article (focus on new information/new perspective learned)
- Critique: Strengths & Weaknesses of the article
- Synthesis: Practical applications of the information presented (cite the "take-home" lesson)

Executive Summary: Review of Current Literature

An Experience in Scientific Writing

***Students should review NATA EBP Modules: Developing a Research Question and Conducting a Literature Review*

Requirements:

A formal paper is required based upon a thorough review and critical analysis of the current literature on one of the topics below. While a traditional research paper requires extensive analysis and writing, an **executive summary** summarizes or reviews the main points of a current topic for an audience that may not have time to read the literature on that topic. An effective executive summary **analyzes and summarizes** the most important points of the topic, and will often make a **recommendation** based on the analysis. Executive summaries are "stand alone" documents that give an audience the best current advice on a topic.

Expectations are high for this paper; the finished product should be of such quality as to be eligible for submission to a peer-reviewed journal or to a student-writing contest (such as the NATA, APTA, or other foundation). You may select one of the following topics on which to write your executive summary (your title does not have to match these exactly. Be innovative, but please have your professor review your working title if it deviates from those below.) I will have you turn in your Abstract, Introduction and Sources on a separate occasion before the final paper.

Topics:

1. Evidence-based diagnosis and treatment of the Sacroiliac Joint
2. Assessment of the Cervical Spine: pathomechanics, injuries and management strategies
3. Classification systems for lumbar spine pathology: which classification system is best?
4. Evidence based treatment and return to play guidelines for Mild Traumatic Brain Injury.
5. "Differential Diagnosis of Glenohumeral Impingement Syndromes"
6. "Differential Diagnosis of Glenohumeral Instability" or "Surgical options for treating anterior glenohumeral instability".
7. Another topic which has been approved by Professor Young.

Format:

AMA Style (Consult American Medical Association *Manual of Style.*)
Minimum length: at least 8 pages, double-spaced
Title page-see Appendix C
Include **Abstract on a separate leaf following title page-see example on Canvas

*********Abstracts and references will be submitted prior to 1st draft*********

References page-see example on Canvas

At least 8 references minimum.

- References must be from peer-reviewed medical and/or allied health journals (i.e., Am J Sports Med, JAMA, Arch. Phys. Med. Rehab, JAT, Sport Health, JSR, JOSPT, PT, etc).

All references must be published within the past 10 years. Professor has resources if needed.

Grading

You can keep track and determine your grade on Canvas.

ACADEMIC DISHONESTY

Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. As stated in the university catalog, "Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. Such acts include plagiarism, copying of class assignments, and copying or other fraudulent behavior on examinations. A faculty member who believes a situation involving academic dishonesty has been detected may assign a failing grade for a) that particular assignment or examination, and/or b) the course." *See Academic Policies for full text*.

NOTE: It is your responsibility to maintain your class schedule. Should the need arise to drop this course (personal emergencies, poor performance, etc.), you have the responsibility to follow through (provided the drop date meets the stated calendar deadline established by the university), not the instructor. Simply ceasing to attend this course or failing to follow through to arrange for a change of registration (drop/add) may result in a grade of F on the official transcript.

COURSE SCHEDULE *(**assignment and topic dates will change in class as we work together)*

Week	Day	Topic	Reading *Starkey / Articles*	Assignment Due	Activity
1	Wed 9/4	Intro to Orthopedic Examination & the Differential Diagnosis Process	Review Ch 1, 3 Review ATR 3087 EBP PPT	Review syllabus, course schedule, Canvas Quiz: EBP	Sign up for Clinical Exam Tutorials
2	Mon 9/9	Injuries to the Face and Eye	Ch19, 20	Prior to Class: *Watch Face Mini-Lecture* Quiz: Face Visit: https://www.youtube.com/user/bigesor/videos	
	Wed 9/11	Eye/Face Lab		Due: IAO: Face/EENT *Due Friday:* Quiz: Eye	
3	Mon 9/16	Differential Dx of Thoracic, Abdominal and Cardiopulmonary Pathologies	Ch 14	DB post: Commotio Cordis	
	Wed 9/18	Thoracic and Lumbar Spine Pathologies	Ch13	***Due: Face-EENT-Thorax 'Super Quiz'*** *Read and React to one of these by Creating Outline for discussion*: 1. ***Classification System for Low Back Pain (LBP)*** 2. **Clinical Prediction Rule for LBP Using Manipulation** 3. **Subgrouping Patients with LBP: a classification approach to Therapy** DB post: LBP	Share outline in class discussion
4	Mon 9/23	T & L Spine Neurology	"Cost of LBP" Ch 13	Clinical Exam Tutorial: L Spine Current Concepts Critique #1	
	Wed 9/25	Wrap up T & L Spine Neuro Sacroiliac Joint/Diff Dx of LBP		Clinical Exam Tutorial: SI Joint IAO: L Spine	
5	Mon 9/30	***LAB:*** Clinical Exam of the Spine and Sacroiliac JT Lab practical review		DB post: L Spine Due: Outline, references for Executive Summary	
	Wed 10/2	Lumbar Spine and SI Joint Case Studies	Review 13	DB post: SI joint	L Spine Case Studies in Lab
6	Mon 10/7	**Exam 1 (2 parts online)** **Lab Practical 1**			
	Wed 10/9	Differential Dx of the Cervical Spine	Ch14	Clinical Exam Tutorial: Cervical Spine *Sign up for your PSA groups*	
7	Mon 10/14	Differential Dx of C Spine and Head	Ch14, 20	Abstract/Intro/Refs for Executive Summary	
	Wed 10/16	Concussions & Traumatic Brain Injury	Ch20	Clinical Exam Tutorial: Concussion/TBI	
8	Mon 10/21	Concussions continued	Ch20 ATC in Every High School	Current Concepts Critique #2 DB posts: Cervical Spine	
	Wed 10/23	**LAB**: Concussions & C Spine	Ch 15	Public Service Announcements DB posts: Concussion/TBI	
9	Mon 10/28	**LAB**: Concussions & C Spine (cont)	Ch 15	IAO: Head & Cervical Spine	Share PSAs in class
	Wed 10/30	Shoulder Differential Dx	Ch 15	*Prior to class:* Watch Online Lecture Shoulder Anatomy	

				Clinical Exam Tutorial: Shoulder Instability	
10	Mon 11/4	Shoulder cont.		DUE: Executive Summary (Rough Draft) Clinical Exam Tutorial: GH Joint & Scapula	
	Wed 11/6	Shoulder cont.	Ch 15	DB Posts: Shoulder Instability	
11	Mon 11/11	**LAB:** Clinical Exam of Shoulder and Upper Arm		DB Posts: GH Joint, Scapula, TOS	
	Wed 11/13	**LAB:** Shoulder Case Studies, Differential Dx		IAO: Shoulder and Scapula	
12	Mon 11/18	**Lab Practical #2**: Shld/C spine/Head			
	Wed 11/20	**Exam #2:** Head/Neck/Shoulder			
13	Mon 11/25	Elbow & Forearm Diff Dx	Ch 16	Clinical Exam Tutorial: Elbow & Wrist	
	Wed 11/27	THANKSGIVING BREAK: No Class			
14	Mon 12/2	Elbow & Forearm Diff Dx	Ch. 16	DB posts: Elbow & Wrist	
	Wed 12/4	**Lab:** Elbow Forearm	Ch 17	DUE: Executive Summary (Final Draft)	
15	Mon 12/9	Wrist & Hand Diff Dx	Ch 17		
	Wed 12/11	Wrist & Hand Diff Dx		IAO: Elbow, Wrist, Hand	
	Fri 12/13	FRIDAY: Review		**Due: Exam 3** (online): Elbow, Wrist, Hand.	
16	**Wed 12/18**	**FINAL EXAM DAY: 7:30-10:00**			

Discussion Board Considerations and Requirements

For each Discussion Board topic, you will be required to provide feedback for your peers with regard to the content. Remember to offer constructive feedback which may include the following:

- Ask a probing question
- Share an insight from having read your classmate's post
- Offer and provide evidence to support an opinion
- Validate a classmate's idea with reference to your own experiences
- Make a suggestion for improvement
- Expand on your classmate's post.
- **Be sure your insights/suggestions/comments are based on current evidence! Include the citation (AMA format) of any article, textbook, etc you utilize.

Your secondary responses to your colleagues' questions must be posted on the discussion board within one week following the initial submission.

When writing DB post on a specific reading, consider the following:

What are the most important points of the reading? If you could teach a freshman one thing from this reading, what would it be? How was your perspective enhanced by the reading?

APPENDIX C

Research Paper
entitled

XXXXXXXXX XXXXX XXXXX
XXXXX
XXXXX XXXX XXXXX

By
Your Name

Submitted as
partial fulfillment of the requirements for
ATR 388
Assessment of Head, Spine, and Upper Extremity Pathology

Point Loma Nazarene University
November, 2018

APPENDIX D: NATA Athletic Training Educational Competencies (5th ed.)

Code	Description
1 ATR 388	**Assessment of Spine & Upper Ext Pathology**
AC-35	Demonstrate the use of an auto-injectable epinephrine in the management of allergic anaphylaxis. Decide when auto-injectable epinephrine use is warranted based on a patient's condition.
AC-36	Identify the signs, symptoms, interventions and, when appropriate, the return-to-participation criteria for:
AC-36b	brain injury including concussion, subdural and epidural hematomas, second impact syndrome and skull fracture
AC-36c	cervical, thoracic, and lumbar spine trauma
AC-36g	internal hemorrhage
CE-11	Explain the creation of clinical prediction rules in the diagnosis and prognosis of various clinical conditions.
CE-13	Obtain a thorough medical history that includes the pertinent past medical history, underlying systemic disease, use of medications, the patient's perceived pain, and the history and course of the present condition.
CE-14	Differentiate between an initial injury evaluation and follow-up/reassessment as a means to evaluate the efficacy of the patient's treatment/rehabilitation program, and make modifications to the patient's program as needed.
CE-17	Use clinical reasoning skills to formulate an appropriate clinical diagnosis for common illness/disease and orthopedic injuries/conditions.
CE-18	Incorporate the concept of differential diagnosis into the examination process.
CE-20	Use standard techniques and procedures for the clinical examination of common injuries, conditions, illnesses, and diseases including, but not limited to:
CE-20b	inspection/observation
CE-20c	palpation
CE-20e	selective tissue testing techniques / special tests
CE-20f	neurological assessments (sensory, motor, reflexes, balance, cognitive function)
CE-21	Assess and interpret findings from a physical examination that is based on the patient's clinical presentation. This exam can include:
CE-21b	Palpation
CE-21c	Muscle function assessment
CE-21e	Capsular and ligamentous stress testing
CE-21g	Selective tissue examination techniques / special tests
CE-21h	Neurologic function (sensory, motor, reflexes, balance, cognition)
CE-21n	Function of the ear, nose, and throat (including otoscopic evaluation)
CE-22	Determine when the findings of an examination warrant referral of the patient.

CIP-4	Perform a comprehensive clinical examination of a patient with an upper extremity, lower extremity,head, neck, thorax, and/or spine injury or condition. This exam should incorporate clinical reasoning in the selection of assessment procedures and interpretation of findings in order to formulate a differential diagnosis and/or diagnosis, determine underlying impairments, and identify activity limitations and participation restrictions. Based on the assessment data and consideration of the patient's goals, provide the appropriate initial care and establish overall treatment goals. Create and implement a therapeutic intervention that targets these treatment goals to include, as appropriate, therapeutic modalities, medications (with physician involvement as necessary), and rehabilitative techniques and procedures. Integrate and interpret various forms of standardized documentation including both patient-oriented and clinician-oriented outcomes measures to recommend activity level, make return to play decisions, and maximize patient outcomes and progress in the treatment plan.
CIP-4a	upper extremity
CIP-4c	head
CIP-4d	neck
CIP-4e	thorax
CIP-4f	spine
EBP-5	Develop a relevant clinical question using a pre-defined question format (eg, PICO= Patients, Intervention, Comparison, Outcomes; PIO = Patients, Intervention, Outcomes)
EBP-6	Describe and contrast research and literature resources including databases and online critical appraisal libraries that can be used for conducting clinically-relevant searches.
EBP-7	Conduct a literature search using a clinical question relevant to athletic training practice using search techniques (eg, Boolean search, Medical Subject Headings) and resources appropriate for a specific clinical question.
EBP-11	Explain the theoretical foundation of clinical outcomes assessment (eg, disablement, health-related quality of life) and describe common methods of outcomes assessment in athletic training clinical practice (generic, disease-specific, region-specific, and dimension-specific outcomes instruments).
EBP-12	Describe the types of outcomes measures for clinical practice (patient-based and clinician-based) as well as types of evidence that are gathered through outcomes assessment (patient-oriented evidence versus disease-oriented evidence).
EBP-13	Understand the methods of assessing patient status and progress (eg, global rating of change, minimal clinically important difference, minimal detectable difference) with clinical outcomes assessments.
EBP-14	Apply and interpret clinical outcomes to assess patient status, progress, and change using psychometrically sound outcome instruments.
PHP-4	Explain how the effectiveness of a prevention strategy can be assessed using clinical outcomes, surveillance, or evaluation data.
PHP-17	Explain the etiology and prevention guidelines associated with the leading causes of sudden death during physical activity, including but not limited to:
PHP-17c	Traumatic brain injury
PHP-17h	Cervical spine injury