

REQUEST FOR APPROVAL TO USE W-DESIGNATION

LSC # 14-43
Action AP 9/14/14

COVER SHEET: Request for Approval to Use W-Designation

TYPE I. PROFESSOR COMMITMENT

- Professor _____
- Phone _____ Email _____
- Writing Workshop? (If not at IUP, where? when? _____)
- Proposal for one W-course (see instructions below)
- Agree to forward syllabi for subsequently offered W-courses?

TYPE II. DEPARTMENT COURSE

- Department Contact Person James Raochini
- Phone 724-357-2759 Email raochini@iup.edu
- Course Number/Title HPED 480 - Professional Issues in Athletic Training
- Statement concerning departmental responsibility
- Proposal for this W-course (see instructions below)

TYPE III. SPECIFIC COURSE AND SPECIFIC PROFESSOR(S)

- Professor(s) _____
- Phone _____ Email _____
- Course Number/Title _____
- Proposal for this W-course (see instructions below)

SIGNATURES:

Professor(s) [Signature]

Department Chairperson [Signature]

College Dean [Signature]

Director of Liberal Studies [Signature]

uwucc Gail S Sechmiat

COMPONENTS OF A PROPOSAL FOR A WRITING-INTENSIVE COURSE:

- I. "Writing Summary"--one or two pages explaining how writing is used in the course. First, explain any distinctive characteristics of the content or students which would help the Liberal Studies Committee understand your summary. Second, list and explain the types of writing activities; be especially careful to explain (1) what each writing activity is intended to accomplish as well as the (2) amount of writing, (3) frequency and number of assignments, and (4) whether there are opportunities for revision. If the activity is to be graded, indicate (5) evaluation standards and (6) percentage contribution to the student's final grade. (See Summary Chart of Writing Assignments.)
- II. Copy of the course syllabus.
- III. Provide samples of writing assignments that are given to students that include instructions and evaluation criteria. (Single copies of longer items, if essential to the proposal, may be submitted to be passed among LSC members and returned to you.)

Please number all pages. Provide one copy to Liberal Studies Committee.

Before you submit: Have you double-checked your proposal against "The Liberal Studies Committee's Most Frequently Asked Questions"?

1

Received

SEP 17 2014

Liberal Studies

Received

MAY 7 2014

Liberal Studies

Statement of Department Responsibility

This class is taught as a capstone course for the Athletic Training Education Program (ATEP). Although it is currently taught by Dr. Racchini, the chair will confirm that any other faculty who may be assigned to teach HPED 480 in the future will adhere to criteria for the course, as well as writing intensive guidelines. This confirmation is supported by the fact that at the end of each semester the class is taught, faculty responsible for teaching the course will submit copies of their syllabus to the departmental Undergraduate Curriculum Committee or the Athletic Training Sub-committee for review and discussion, if needed.

Furthermore, in addition to meeting the IUP writing intensive criteria, this course is designed to address student learning outcomes required for program accreditation by the Commission on Accreditation of Athletic Training Education (CAATE). This includes writing intensive assignments that require students to synthesize course content related to evidenced-based professional practice, as well as manuscript writing for entry-level systemic review in the discipline of Athletic Training.

This multifaceted strategy will be employed in the department to provide oversight and assurance that the course will be taught in the proposed manner.

Proposal for a Writing-Intensive Course HPED 480 – Professional Issues in Athletic Training

I. Writing Summary

HPED 480 is the senior capstone course for Athletic Training majors. Students in the course are engaged in activities that help prepare them for the professional careers in athletic training and other allied health professions. The writing assignments are designed to teach students the process of putting together the types of manuscripts that athletic trainers traditionally produce throughout their careers. Additionally, the final project requires students to synthesize the evidence based practice content taught throughout the curriculum and develop an entry-level systemic review manuscript.

The following is a list of writing assignments required for the course:

1. **Evidence Based Practice Project (60 points)** – This project requires the student to synthesize information regarding evidence based practice and successfully (1) develop a clinical question, (2) search for relevant randomized control trials and assess the quality of the RCTs utilizing the PEDro scale, (3) construct a systemic review manuscript designed to answer the clinical question, and (4) present findings to the class in a presentation. This four part project requires the student submit materials at set deadlines in order to emphasize the systemic nature of developing a research project. Students will have their systemic review reviewed by both peers and the instructor and will have an opportunity to make revisions before the final due date. A grading rubric is used to assess the paper and presentation. Completion of project satisfies five individual athletic training education competencies.
2. **Case Report (40 points)** - Students will utilize data collected during their clinical experiences and develop a manuscript in case report format. The purpose of this assignment is to introduce a realistic method for any practicing athletic trainer to produce a publishable manuscript. The structure of the paper will follow the Journal of Athletic Training's case report guidelines. . Students will have their systemic review reviewed by both peers and the instructor and will have an opportunity to make revisions before the final due date. A grading rubric is used to assess the paper.

3. **Workshop Development (30 pts)** – The student will develop a proposal for an athletic training-related workshop for a specific audience (athletes, coaches, parents, etc.). This project is another example of a common professional activity that many athletic trainers engage in. A grading rubric is used to assess the paper. Completion of project satisfies one athletic training education competency.
4. **Professional Development Plan (20 pts)** – Students will develop their own professional development plan that incorporates the various related topics discussed in class. In order to complete this assignment, students will reflect upon and develop an organized plan based on the following questions: (1) What are my short and long term career goals? (2) How does education beyond my undergraduate degree (graduate school, continuing education, personal development) impact my career goals? (3) Based on the practice testing in class, what are my strengths and weaknesses in professional preparation and how can I improve upon my weaknesses (be specific regarding content and or domains)? (4) How do the various codes of ethics impact my professional goals and philosophy (give specific examples)? A grading rubric is used to assess the paper. Completion of project satisfies one athletic training education competency.
5. **Resume and Mock Cover Letter (10 pts)** - Students will take their current resume and develop/modify it to a specific athletic training-related job/graduate position/etc. Additionally, students will develop a position-specific cover letter. A grading rubric is used to assess the paper.

Summary Chart for Writing Assignments*

A. Writing Assignments					
Assignment Title	# of Assignments	# of total pages	Graded (Yes/No)	Opportunity for Revision (Yes/No)	Written Assignment represents what % of final course grade
Journal Abstracts	1	5	Yes	No	6.8%
Evidence Based Practice/Systemic Review Paper	1	6	yes	yes	22.7%
Case Report	1	5	yes	yes	18.2%
Workshop Proposal	1	2	yes	no	13.6%
Totals	4	18	NA	NA	61.3%

II. Course Syllabus

INDIANA UNIVERSITY OF PENNSYLVANIA
DEPARTMENT OF HEALTH AND PHYSICAL EDUCATION

HPED 480.001 – Professional Issues in Athletic Training (3 credits)

Fall 2014

12:30pm – 1:45pm (Zink 111) Tuesdays & Thursdays

Instructor: Jim Racchini, EdD, ATC, LAT, CSCS

Office: 231 Zink Hall

Phone: 724-357-2759

E-mail: racchini@iup.edu

Office Hours: MW 9:00am-10:30am

TR 10:00am-11:00am

or by appointment

COURSE DESCRIPTION

Explores topics related to professional development and responsibility in athletic training. An application of current research findings in athletic training will be examined. Preparation for the Board of Certification (BOC) examination will be addressed.

COURSE OBJECTIVES

Students will be able to

1. Construct quality written manuscripts in athletic training-specific assignments and projects.
2. Develop successful preparation strategies for taking the Board of Certification examination.
3. Contrast the concepts of professionalism and professional ethics to personal philosophical beliefs.
4. Analyze typical sources of conflict in athletic training and utilize contemporary conflict resolution and clinical decision making techniques.
5. Develop a structured plan for an athletic training workshop.
6. Evaluate and criticize the various topics and techniques utilized in contemporary athletic training research.
7. Synthesize knowledge and skills learned throughout the athletic training education program through completion of a research project.

REQUIRED TEXTBOOK

Rozzi, S.L., et al. (2011). *Study Guide for the Board of Certification, Inc., Entry-Level Athletic Trainer Certification Examination* Philadelphia, PA: FA Davis.

OPTIONAL TEXTBOOKS

Long, B.H. & Hale, C.W. (2010). *Athletic training exam review*. Philadelphia, PA: Lippincott Williams & Williams.

Van Ost, L., Manfre, K. & Lew, K. (2010/2013). *Athletic training exam review: A student guide to success, 4th ed. or 5th ed.* Thorofare, NJ: Slack.

ATTENDANCE, TARDINESS & CLASS PARTICIPATION

Appropriate attendance is a necessity for success in this course. For that reason, an attendance policy will be used that may influence a student's success in the course. A large number of assignments and projects will take place during class meetings. Students are allowed three unexcused absences during the semester. Any absence beyond two will warrant a 10 point penalty/absence.

Exemption from this policy for atypical circumstances (severe illness, personal tragedy...) may be considered pending proper documentation.

GRADING SCALE & CRITERIA

Evidence Based Practice Project	80 pts	
Case Report	40 pts	
Workshop Activity Proposal	30 pts	
Exam Question Development	20 pts	A = 90 – 100%
Research Mini-Presentations	20 pts	B = 80 – 89.9%
Professional Development Plan	20 pts	C = 70 – 79.9%
Resume and Mock Cover Letter	10 pts	D = 60 – 69.9%
Class Activities	TBD	F = 0 – 59.9%

Evidence Based Practice Project (60 points) – 6 page minimum

Students will research and develop an evidence based practice research project on a contemporary athletic training topic. Outcomes will include a paper as well as a poster presentation.

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-9. Use standard criteria or developed scales (eg, Physiotherapy Evidence Database Scale [PEDro], Oxford Centre for Evidence Based Medicine Scale) to critically appraise the structure, rigor, and overall quality of research studies.

EBP-10. Determine the effectiveness and efficacy of an athletic training intervention utilizing evidence-based practice concepts.

Component	Points	Deadline
I. Developing Your Search Strategy Worksheet/Topic	5	Tuesday, October 16
II. Article Assessment	15	Thursday, November 20
<ul style="list-style-type: none"> • Copies of five RCT journal articles • Five completed PEDro sheets • One page abstract for each article 		
III. Paper (Upload to D2L)	50	Thursday, December 11 (Draft Due December 4)
<ul style="list-style-type: none"> • Minimum of five sources • State PICO and Rationale for Question • Discuss Current Research as Related to PICO • Clinical Implications • Conclusion • Use proper citations and Bibliography (AMA or APA) 		

<ul style="list-style-type: none"> • Minimum of 6 pages (excluding cover page and bibliography) 		
<p>IV. PowerPoint Presentation (Upload to D2L) & Discussion</p> <ul style="list-style-type: none"> • Summarize the key points from your research paper in a poster format • Present to class, discuss key points and answer questions 	10	Thursday, December 11

Case Report (40 points) – 5 page minimum

Students will utilize data collected during their clinical experiences and develop a manuscript in case report format.

Draft due October 30 and Final Paper upload to D2L by November 4

The body of a Case Report should include the following components:

- introduction and injury epidemiology
- personal data (age and sex and, when relevant, race, marital status, and occupation but not name or initials),
- chief complaint,
- history of present complaint (including symptoms);
- results of physical examination (example: “Physical findings relevant to the rehabilitation program were ...”);
- medical history (surgery, laboratory results, examination, etc);
- diagnosis, treatment and clinical course (rehabilitation until and after return to competition);
- criteria for return to competition;
- deviation from expectations (what makes this case unique).

Workshop Development (30 pts) – 2 full pages minimum

The student will develop a plan for an athletic training workshop for a defined audience.

Upload to D2L by November 20

PD-10. Develop healthcare educational programming specific to the target audience (eg, clients/patients, healthcare personnel, administrators, parents, general public).

Exam Question Development (5 x 4 pts for each domain)

Students will be assigned a specific area within the five domains of the Role Delineation Study and will write five questions. Questions must be referenced and follow a specific format. Format will be discussed in class. **To be submitted via D2L by 8am on September 11, 18, 25 and October 2, 9**

<p>Sample Required Format for Questions</p> <p>1. How many weeks prior to the athlete beginning his vigorous training for his sport should a PPE be conducted? (0102)</p> <p>@ Management Strategies in Athletic Training by Richard Ray; page 266</p> <p>a. 2 to 3 weeks</p> <p>*b. 6 to 8 weeks</p> <p>c. 10 to 12 weeks</p> <p>d. 15 to 18 weeks</p> <p>e. 20 to 22 weeks</p>

Research Mini-Presentations (4 x 5 pts each)

Each student will read and present four different athletic training research articles to the class. Presentations will be limited to 8-10 minutes in length. **Presented and upload to D2L on September 30 and October 21, 23, 28**

EBP-3. Describe and differentiate the types of quantitative and qualitative research, research components, and levels of research evidence.

EBP-8. Describe the differences between narrative reviews, systematic reviews, and meta-analyses.

Professional Development Plan (20 pts) – 2 page minimum

Students will develop their own professional development plan that incorporates the various related topics discussed in class. **Upload to D2L by October 16**

PD-7. Perform a self-assessment of professional competence and create a professional development plan to maintain necessary credentials and promote life-long learning strategies.

In order to complete this assignment, reflect upon and develop an organized plan based on the following questions:

- What are my short and long term career goals?
- How does education beyond my undergraduate degree (graduate school, continuing education, personal development) impact my career goals?
- Based on the practice testing in class, what are my strengths and weaknesses in professional preparation and how can I improve upon my weaknesses (be specific regarding content and or domains)?
- How do the various codes of ethics impact my professional goals and philosophy (give specific examples)?

Resume and Mock Cover Letter (10 pts)

Students will take their current resume and develop/modify it to a specific athletic training-related job/graduate position/etc. Additionally, students will develop a position-specific cover letter. **Upload to D2L by September 16**

Class Activities

There will be various in-class activities throughout the semester to help illustrate major concepts discussed in class.

ACADEMIC DISHONESTY

Representing someone else's work for your own, cheating, and/or plagiarism will not be tolerated and will result in an "F" grade for that assignment or examination. A second incident will result in an "F" grade for the entire course and possible Departmental, College, and/or University disciplinary action.

Bibliography

Ebel, R. G. (1999). *Far beyond the shoebox: Fifty years of the national athletic trainers' association*. New York: Forbes.

Hannam, S. E. (2000). *Professional behaviors in athletic training*. Thorofare, NJ: Slack.

Ingersoll, C. D. (2001). *Research in athletic training*. Thorofare, NJ: Slack.

Long, B. H. & Hale, C. W. (2010). *Athletic training exam review*. Baltimore, MD: Lippincott Williams & Wilkins.

Pitney, W. A. (2002). The professional socialization of certified athletic trainers in high school settings: A grounded theory investigation. *Journal of Athletic Training*, 37(3), 286-292.

Pitney, W. A. & Parker, J. (2001). Qualitative inquiry in athletic training: Principles, possibilities, and promises. *Journal of Athletic Training, 36*(2), 185-189.

Pitney, W. A. & Parker, J. (2002). Qualitative research applications in athletic training. *Journal of Athletic Training, 37*(4), S168-S173.

Schlabach, G. A. & Peer, K. S. (2008). *Professional ethics in athletic training*. St. Louis, MO: Mosby Elsevier.

Steves, R. & Hootman, J. M. (2004). Evidence-based medicine: What is it and how does it apply to athletic training? *Journal of Athletic Training, 39*(1), 83-87.

Turocy, P. S. (2002). Overview of athletic training education research publications. *Journal of Athletic Training, 37*(4), S162-S167.

Turocy, P. S. (2002). Survey research in athletic training: The scientific method of development and implementation. *Journal of Athletic Training, 37*(4), S174-S179.

Tentative Course Outline

Week of	Tuesdays	Thursdays
August 25	Introduction	BOC Candidate Timeline Role Delineation Study
September 1	Professional Development and CEUs State Licensure	Job Search/Grad School Resume & Cover Letter Bring Copy of Current Resume (Failure to bring draft = 10% deduction from assignment)
September 8	Professionalism & Professional Ethics NATA Code of Ethics <i>Assign Professional Development Plan</i>	Domain 1 Questions Due online by 8am Domain 1 Practice Assessment
September 15	Professional Roles/ Responsibilities Case Scenarios in Ethics Decision Making & Conflict Resolution Resume and Cover Letter Due	Domain 2 Questions Due online by 8am Domain 2 Practice Assessment
September 22	The Research Project Categories and Quality of Research	Domain 3 Questions Due online by 8am Domain 3 Practice Assessment
September 29	Case Report Article Mini-Presentation <i>Assign Case Report Paper</i>	Domain 4 Questions Due online by 8am Domain 4 Practice Assessment
October 6	Evidence Based Practice PICO	Domain 5 Questions Due online by 8am Domain 5 Practice Assessment
October 13	MOCK BOC EXAM EBP Worksheet/Topic Due	Mock Results Assessment/Review Professional Development Plan Due
October 20	RCT Article Mini-Presentation	Systemic Review Article Mini-Presentation
October 27	Qualitative Article Mini-Presentation	In Class Review Draft of Case Report (Failure to bring draft = 10% deduction from assignment)
November 3	Case Report Paper Due In Class Discussion	Developing a Workshop Proposal In Class Group Writing
November 10	No Class -- Individual Meetings with Instructor	No Class -- Individual Meetings with Instructor

	(Bring EBP sources to meeting)	(Bring EBP sources to meeting)
November 17	No Class – Individual Meetings with Instructor (Bring EBP sources to meeting)	Workshop Proposal Due In Class Discussion FIVE EBP Sources Deadline
November 24	NO CLASS – THANKSGIVING	NO CLASS – THANKSGIVING
December 1	No Class - Out of Class Writing	In Class Review of EBP Paper (Failure to bring draft = 10% deduction from assignment)
December 8	Final Meeting EBP Presentation & Paper Due Thursday, December 11 10:15 am	

III. Sample of Writing Assignments

1. **Evidence Based Practice Project (60 points) – 6 page minimum** - Students will research and develop an evidence based practice research project on a contemporary athletic training topic. Outcomes will include a paper as well as a poster presentation.
 - 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-9.** Use standard criteria or developed scales (eg, Physiotherapy Evidence Database Scale [PEDro], Oxford Centre for Evidence Based Medicine Scale) to critically appraise the structure, rigor, and overall quality of research studies.*
 - EBP-10.** Determine the effectiveness and efficacy of an athletic training intervention utilizing evidence-based practice concepts.*

Component	Points	Deadline
I. Developing Your Search Strategy Worksheet/Topic	5	Tuesday, October 16
II. Article Assessment <ul style="list-style-type: none"> • Copies of five RCT journal articles • Five completed PEDro sheets • One page abstract for each article 	15	Thursday, November 20
III. Paper (Upload to D2L) <ul style="list-style-type: none"> • Minimum of five sources • State PICO and Rationale for Question • Discuss Current Research as Related to PICO • Clinical Implications • Conclusion • Use proper citations and Bibliography (AMA or APA) • Minimum of 6 pages (excluding cover page and bibliography) 	50	Thursday, December 11 (Draft Due December 4)

IV. PowerPoint Presentation (Upload to D2L) & Discussion	10	Thursday, December 11
<ul style="list-style-type: none"> Summarize the key points from your research paper in a poster format Present to class, discuss key points and answer questions 		

Search Strategy Worksheet

DEVELOPING YOUR SEARCH STRATEGY

1. Briefly explain the basis of your clinical question.

2. Identify the FOUR components of a PICO Question.

Who is my patient or population? Do they have defining characteristics that influence the answer to my question? (e.g. gender, a specific sport, biomechanical considerations, etc.)

Patient/Problem: _____

What do I plan to do with this patient? (e.g. specific diagnostic test, treatment, medication)

Intervention: _____

*What am I specifically comparing (e.g. types of ACL grafts, 1 MHz vs. 3 MHz ultrasound treatments, etc.)? **A focused PICO Question focuses on ONE alternative treatment. This provides the most focused search.** OK if there is NO comparator.*

Comparator: _____

What is the outcome goal or outcome measurement? What are you trying to influence or affect? (e.g. ROM, temperature, pain, incidence of injury, etc.)

Outcome: _____

3. Plan Your Search

A. What are you looking for? (Check one.)

- Therapy/Prevention (POE)
- Diagnosis (DOE)
- Etiology (DOE)
- Prognosis (POE)

B. What will you include? (Check all that apply.)

- Meta-Analysis
- Systematic Review
- Randomized Controlled Trial
- Cohort Study
- Case Control Study
- Case series or Case Report
- Editorials, Letters, Opinions
- Animal Research
- In Vitro/Lab Research

C. What search terms will you use? Prioritize a list of 3 sets of terms.

First: _____

Second: _____

Third: _____

PEDro Scale

PEDro scale

-
- | | |
|---|---|
| 1. eligibility criteria were specified | no <input type="checkbox"/> yes <input type="checkbox"/> where: |
| 2. subjects were randomly allocated to groups (in a crossover study, subjects were randomly allocated an order in which treatments were received) | no <input type="checkbox"/> yes <input type="checkbox"/> where: |
| 3. allocation was concealed | no <input type="checkbox"/> yes <input type="checkbox"/> where: |
| 4. the groups were similar at baseline regarding the most important prognostic indicators | no <input type="checkbox"/> yes <input type="checkbox"/> where: |
| 5. there was blinding of all subjects | no <input type="checkbox"/> yes <input type="checkbox"/> where: |
| 6. there was blinding of all therapists who administered the therapy | no <input type="checkbox"/> yes <input type="checkbox"/> where: |
| 7. there was blinding of all assessors who measured at least one key outcome | no <input type="checkbox"/> yes <input type="checkbox"/> where: |
| 8. measures of at least one key outcome were obtained from more than 85% of the subjects initially allocated to groups | no <input type="checkbox"/> yes <input type="checkbox"/> where: |
| 9. all subjects for whom outcome measures were available received the treatment or control condition as allocated or, where this was not the case, data for at least one key outcome was analysed by "intention to treat" | no <input type="checkbox"/> yes <input type="checkbox"/> where: |
| 10. the results of between-group statistical comparisons are reported for at least one key outcome | no <input type="checkbox"/> yes <input type="checkbox"/> where: |
| 11. the study provides both point measures and measures of variability for at least one key outcome | no <input type="checkbox"/> yes <input type="checkbox"/> where: |
-

The PEDro scale is based on the Delphi list developed by Verhagen and colleagues at the Department of Epidemiology, University of Maastricht (Verhagen AP et al (1998). *The Delphi list, a criteria list for quality assessment of randomised clinical trials for conducting systematic reviews developed by Delphi consensus. Journal of Clinical Epidemiology*, 51(12):1235-41). The list is based on "expert consensus" not, for the most part, on empirical data. Two additional items not on the Delphi list (PEDro scale items 8 and 10) have been included in the PEDro scale. As more empirical data comes to hand it may become possible to "weight" scale items so that the PEDro score reflects the importance of individual scale items.










The purpose of the PEDro scale is to help the users of the PEDro database rapidly identify which of the known or suspected randomised clinical trials (ie RCTs or CCTs) archived on the PEDro database are likely to be internally valid (criteria 2-9), and could have sufficient statistical information to make their results interpretable (criteria 10-11). An additional criterion (criterion 1) that relates to the external validity (or "generalisability" or "applicability" of the trial) has been retained so that the Delphi list is complete, but this criterion will not be used to calculate the PEDro score reported on the PEDro web site.

The PEDro scale should not be used as a measure of the "validity" of a study's conclusions. In particular, we caution users of the PEDro scale that studies which show significant treatment effects and which score highly on the PEDro scale do not necessarily provide evidence that the treatment is clinically useful. Additional considerations include whether the treatment effect was big enough to be clinically worthwhile, whether the positive effects of the treatment outweigh its negative effects, and the cost-effectiveness of the treatment. The scale should not be used to compare the "quality" of trials performed in different areas of therapy, primarily because it is not possible to satisfy all scale items in some areas of physiotherapy practice.

Notes on administration of the PEDro scale:

- All criteria **Points are only awarded when a criterion is clearly satisfied.** If on a literal reading of the trial report it is possible that a criterion was not satisfied, a point should not be awarded for that criterion.
- Criterion 1 This criterion is satisfied if the report describes the source of subjects and a list of criteria used to determine who was eligible to participate in the study.
- Criterion 2 A study is considered to have used random allocation if the report states that allocation was random. The precise method of randomisation need not be specified. Procedures such as coin-tossing and dice-rolling should be considered random. Quasi-randomisation allocation procedures such as allocation by hospital record number or birth date, or alternation, do not satisfy this criterion.
- Criterion 3 *Concealed allocation* means that the person who determined if a subject was eligible for inclusion in the trial was unaware, when this decision was made, of which group the subject would be allocated to. A point is awarded for this criteria, even if it is not stated that allocation was concealed, when the report states that allocation was by sealed opaque envelopes or that allocation involved contacting the holder of the allocation schedule who was "off-site".
- Criterion 4 At a minimum, in studies of therapeutic interventions, the report must describe at least one measure of the severity of the condition being treated and at least one (different) key outcome measure at baseline. The rater must be satisfied that the groups' outcomes would not be expected to differ, on the basis of baseline differences in prognostic variables alone, by a clinically significant amount. This criterion is satisfied even if only baseline data of study completers are presented.
- Criteria 4, 7-11 *Key outcomes* are those outcomes which provide the primary measure of the effectiveness (or lack of effectiveness) of the therapy. In most studies, more than one variable is used as an outcome measure.
- Criterion 5-7 *Blinding* means the person in question (subject, therapist or assessor) did not know which group the subject had been allocated to. In addition, subjects and therapists are only considered to be "blind" if it could be expected that they would have been unable to distinguish between the treatments applied to different groups. In trials in which key outcomes are self-reported (eg, visual analogue scale, pain diary), the assessor is considered to be blind if the subject was blind.
- Criterion 8 This criterion is only satisfied if the report explicitly states *both* the number of subjects initially allocated to groups *and* the number of subjects from whom key outcome measures were obtained. In trials in which outcomes are measured at several points in time, a key outcome must have been measured in more than 85% of subjects at one of those points in time.
- Criterion 9 An *intention to treat* analysis means that, where subjects did not receive treatment (or the control condition) as allocated, and where measures of outcomes were available, the analysis was performed as if subjects received the treatment (or control condition) they were allocated to. This criterion is satisfied, even if there is no mention of analysis by intention to treat, if the report explicitly states that all subjects received treatment or control conditions as allocated.
- Criterion 10 A *between-group* statistical comparison involves statistical comparison of one group with another. Depending on the design of the study, this may involve comparison of two or more treatments, or comparison of treatment with a control condition. The analysis may be a simple comparison of outcomes measured after the treatment was administered, or a comparison of the change in one group with the change in another (when a factorial analysis of variance has been used to analyse the data, the latter is often reported as a group \times time interaction). The comparison may be in the form hypothesis testing (which provides a "p" value, describing the probability that the groups differed only by chance) or in the form of an estimate (for example, the mean or median difference, or a difference in proportions, or number needed to treat, or a relative risk, or hazard ratio) and its confidence interval.
- Criterion 11 A *point measure* is a measure of the size of the treatment effect. The treatment effect may be described as a difference in group outcomes, or as the outcome in (each of) all groups. *Measures of variability* include standard deviations, standard errors, confidence intervals, interquartile ranges (or other quartile ranges), and ranges. Point measures and/or measures of variability may be provided graphically (for example, SDs may be given as error bars in a Figure) as long as it is clear what is being graphed (for example, as long as it is clear whether error bars represent SDs or SEs). Where outcomes are categorical, this criterion is considered to have been met if the number of subjects in each category is given for each group.

Paper Rubric

Criteria	Excellent 5 points	Good 4 points	Average 3 points	Below Average 2 points	Poor 1 point	No Evidence 0 points	Score and Feedback
State PICO & Rationale for Question	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5 points 
Discuss Current Research as Related to PICO	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5 points 
Explain Clinical Implications	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3 points 
Conclusion	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	4 points 
Sources	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5 points 
	Five or more professional sources		Four professional sources	Two to three professional sources	One professional source	No sources	
In Paper Citations and Bibliography Format	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5 points 
	Used proper AMA or APA format in paper and bibliography	Minor errors in paper or bibliography	Minor errors in both paper and bibliography	Major errors in paper or bibliography	Major errors in both paper and bibliography	Did not use citations	
Spelling and Grammar	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5 points 
Page Count	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5 points 
	Four or more pages		Three to less than four full pages		Less than three pages		
Paper Requirements	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5 points 
	10-12 point font, double spaced, 1 inch margins, used headings before each section (Intro/PICO Rationale, Current Research Review, Clinical Implications, Conclusion)	Missing one of the required format items	Missing two of the required format items		Missing three of the format items	Missing all format items	

Sample EBP Paper

What is the Effectiveness of Protective Equipment in Reducing the Incidence of Concussion?

Introduction

The importance of having an active lifestyle is something we are all familiar with. Participating in sports has plenty of benefits whether it's for the competition, socialization, or even just to improve our overall fitness and health. Unfortunately, there is an inherent risk of injury that comes with participating in sports. An injury in terms of severity can range anywhere from moderate to catastrophic. Although sports injuries contribute to fatalities infrequently, one of the leading causes of death from sports-related injuries is traumatic brain injury (TBI). A concussion or TBI is caused by a blow to the head that temporarily affects the function of the brain. Sports-related brain injuries have been under the spot light for quite some time now and are reaching epidemic levels. The estimated incidence of concussions range from 1.6 to 3.8 million in the United States every year (Crisco & Greenwald, 2011). Out of the sport related concussions each year, a majority of them are sustained playing a contact sport.

There are many things that influence an athlete's chance of sustaining a concussion such as the nature of sport they play and playing experience. Rules have also been integrated into some sports to help reduce the likelihood of putting the athlete at risk of getting a head injury. Certain preventive strategies have been put into place to combat the risks of concussive head injuries. The most popular preventive strategy lies within protective equipment use such as mouth guards, helmets/head gear and face shields. Most sports have grown accustomed to using protective equipment, but just how effective is it in reducing the rate of concussions?

Current Research

The most popular concussion prevention strategy to date is the use of protective equipment including mouth guards, properly fitted helmets and face shields. These practices have yet to be implemented across the board due to a lack of scientific evidence to support and promote use amongst all sports. Mouth guards have been implemented in a few sports to reduce the incidence of dental injury as well as concussive head injuries. There has been empirical evidence to support the use of mouth guards for the protection of dental injury; however, the evidence on its protective use for concussive head injuries is limited to a few case studies as well as retrospective cross-sectional surveys. The articles used in this paper were obtained from Medline and SportsDiscus. The search terms used included “concussion”, “TBI”, and “protective equipment”. In Benson’s systemic review, there were two papers universally cited that supported the use of mouth guard use as a means of preventing concussions. A few of the authors of those papers have even taken it a step further and stated that the most important aspect of mouth guard use in sports is to prevent concussions.

There are four different types of mouth guards circulating in today’s sports, including: ready-made (type I), mouth-formed, or “boil-and-bite” (type II), custom-fitted (type III), and bimaxillary. Custom-fitted mouth guards have been reported to ensure retention of the mouth guard during collisions in contact sports. The simpler designs (type I and II) have not shown prevention of concussive head injuries, they tend to fit poorly and they have been reported to interfere with speech and breathing (Benson & Hamilton, 2009). In the systemic review, there were two analytical studies out of seven in which the studies were appropriately designed to adequately answer the question of the effectiveness of mouth guards in sport. However, in these two studies, one study looked at basketball in which impact forces are different and there were much fewer concussions than observed in collision sports, and the second study which fell victim

to a type II error. The type II error committed in the second study claimed that there was no difference in observed concussions experienced when in fact there was. There has been limited evidence to support the protective role of mouth guards in preventing concussions. The evidence that is available is the product of mixed results and therefore cannot be used conclusively to determine whether mouth guards are effective in preventing concussions amongst athletes.

In this systemic review, analytical studies have implicated the use of helmets in the reduction of head and brain injury risk in bicycling as well as head injury in skiing and snowboarding. Having said that, there have been no studies that solely focused on concussion risk associated with helmet use. There have been no analytical studies that have been conducted in soccer or rodeo that assessed the use of protective headgear in preventing concussions. The only observational descriptive study used in Benson's systemic review suggested a possible protective role of helmet use in soccer and rodeo, but there was no good evidence to support it. There was inconclusive evidence to support the notion that headgear use reduces the risk of concussions in rugby (Benson & Hamilton, 2009). The study also found that the role of helmet and headgear use in concussion prevention in ice hockey and football could not be determined because of strict rules put in place that mandates the use of helmets and head gear at all times among all levels of competition. The overall evidence for helmet use in preventing concussions is mixed at best with some sports unable to participate in studies due to the dangerousness of the sport and the set of rules put forth by those sports.

Prior to the 1990's, there were debates on whether adding protective shields to helmets would actually increase neck and overall injury rates due to the added weight of the shield, or whether they would be a source of protection from concussive head injuries. The evidence laid out in the system review conclusively support the protective effect of full face shields with

regard to dental injuries, facial injuries and eye injuries without increasing neck and overall injury rates (Benson & Hamilton, 2009). However, the clinical studies discussed suggest that there is no difference in concussion rates between ice hockey players who wear the full face shield and those who wear different types of facial protection or none at all. There is evidence to support that full face shields protect athletes from sustaining more severe concussions if injured. Although there is some evidence to suggest that wearing a protective face shield could help in the severity of concussive head injuries, many ice hockey players chose to not wear face shields or visors for reasons such as fogging during game play, reduction of peripheral vision and the illusion that not wearing facial protection is a sign of masculinity and toughness.

In a second review dated four years after the initial systemic review, Dr. Benson looks at whether there has been any new, conclusive evidence to support the role of protective equipment in reducing concussions. It was shown that there was no new, conclusive evidence to suggest that current headgear use in rugby reduces the risk of concussions. There was also a limited amount of new evidence to suggest that custom-fitted mouth guards protected football players from concussions. There is still evidence that supports the use of helmets to reduce brain injury among bicyclists and head/brain injury among snowboarders and skiers. There is no strong evidence of mouth guard use in all sports and face shields in ice hockey to reduce concussion rates (Benson, McIntosh & Maddocks, 2013).. All in all, the new study provided no new evidence to support or alter what was previously established in the first systemic review.

In Kelly Russel's meta-analysis, it was shown that the use of helmets had a substantial effect against head injuries among skiers and snowboarders. The analysis showed that the risk of head injury was reduced by 35 % with the use of a helmet and 2-5 of every 10 head injuries among helmet users could have been prevented (Russel & Christie, 2010). Two studies included

in the analysis reported significant protective effects of helmets against potentially severe head injuries. Although some of the other studies did not report the same effect, this could have been the result of different definitions used for severe injury or the difference in variables.

The last study used was by Professor Finch of the University of New South Wales. In this study, there were two groups of male rugby players who were instructed to use mouth guards. Those in the control group tended to wear standard mouth guards or boil-and-bite mouth guards. It is this reason that the evidence produced skewed and flawed results. The study showed a significant protective effect of custom-made mouth guards relative to usual mouth guards (Finch, Braham & McIntosh, 2005). However, control players wore mouth guards throughout the majority of the games as well as the test group which could have severely diluted the results. If one group were to wear the custom-fitted mouth guards and the control group were to wear none, we would have a better sense of the effectiveness of the custom-fitted mouth guards. I assessed the study and gave it a five out of ten on the PEDRO scale. This score represents the vast majority of random control trials on the subject. Systemic reviews deem to be a better source of research.

Clinical Implications

Protective equipment research gives us a better understanding of today's technological advances and in what way they help reduce the rate of concussions in sport. We need to look at the overall effectiveness of each study and use that to determine what new ways we can use protective equipment. Each study focused on what protective equipment worked or did not work for a hand full of sports. With this research, each sport can focus on what they can do to further protect their athletes which will hopefully lead to a lower rate of concussions in sport. All the

research conducted and examined shows no conclusive evidence to support the use of protective equipment. This research shows that no matter what type of protective equipment is used, concussions are going to happen. This in turn means Athletic Trainers are going to continue to see concussions and must know how to effectively treat and manage them.

Conclusion

Protective equipment use has become one of the most popular preventive strategies in reducing the rate of concussions. The question here is whether this form of preventive strategy is effective in reducing concussions or if there is a possible alternative that would suit the needs of injured athletes more. The findings that I have read have agreed across the board that the use of mouth guards, helmets and face shields all show no effect or inconclusive data to support the use of protective equipment. Different sports have slightly different findings but the overall picture concludes that protective equipment use has mixed results at best and therefore cannot conclusively be considered when looking at ways to reduce the rate of concussions.

References

- Benson, B. W., & Hamilton, G. M. (2009). Is protective equipment useful in preventing concussion? a systemic review of literature. *British Journal of Sports Medicine*, 43, 56-57.
- Benson, B. W., McIntosh, A. S., & Maddocks, D. (2013). What are the most effective risk-reduction strategies in sport concussion? *British Journal of Sports Medicine*, 47, 321-326.
- Crisco, J. J., & Greenwald, R. M. (2011). Lets get the head further out of the game: a proposal for reducing brain injuries in helmeted contact sports. *Current Sports Medicine Reports*,

10(1), 7-9.

Finch, C., Braham, R., & McIntosh, A. (2005). Should football players wear custom fitted mouthguards? results from a group randomised controlled trial. *Injury Prevention, 11*, 242-246.

Russel, K., & Christie, J. (2010). The effect of helmets on the risk of head and neck injuries among skiers and snowboarders: a meta-analysis. *Canadian Medical Association Journal, 182*(4), 333-340.