

Practice-Based Research in Athletic Training

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Conflict of Interest

We are both editors of Clinical Practice in Athletic Training: A Journal of Practice-Based Outcomes and Action Research.

No other conflicts of interest to disclose.

Objectives

Describe Evidence-Based Practice

Explain the Process of Translating Research to Practice

Discuss the Continuum of Research: Traditional to Practice-Based Research

Describe Types of Practice-Based Research

Explore Practical Applications of Practice-Based Research

What is Research...

What is research?

Poll Everywhere

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Traditional Research

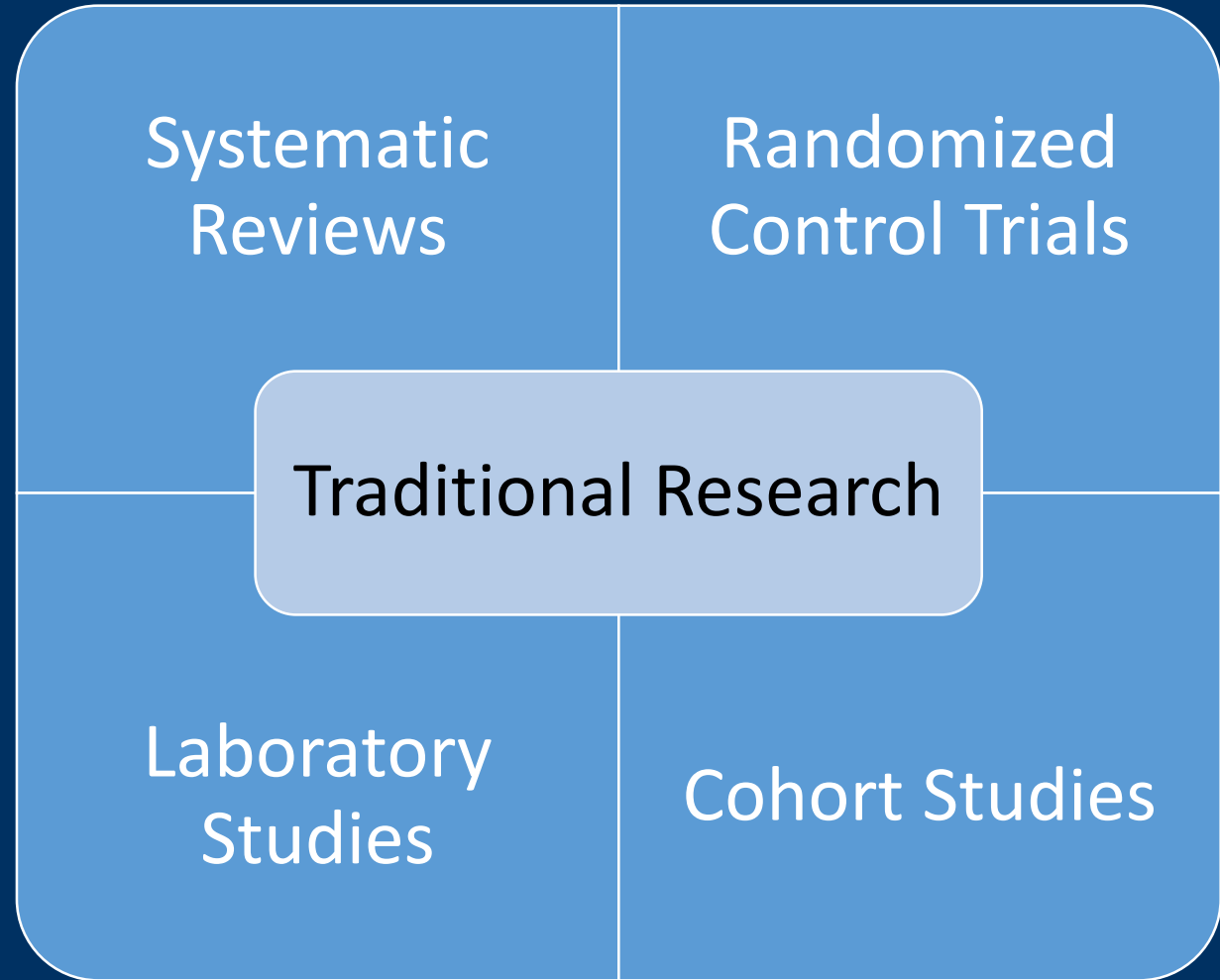
Associated with Academic Centers

Controlled Conditions

Laboratory Measurements

Small Samples

Basic/Bench Research



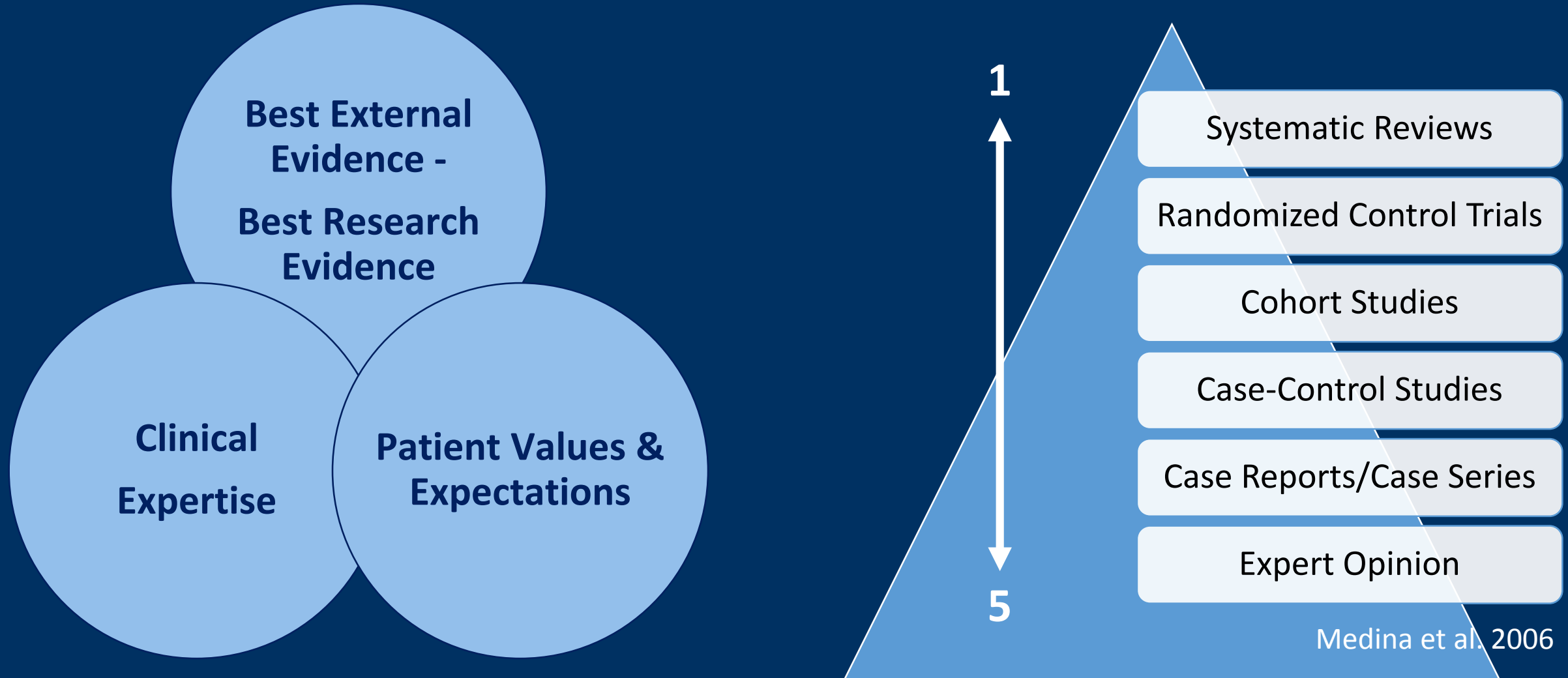
What do you use to make clinical decisions....

What do you use to make clinical decision?

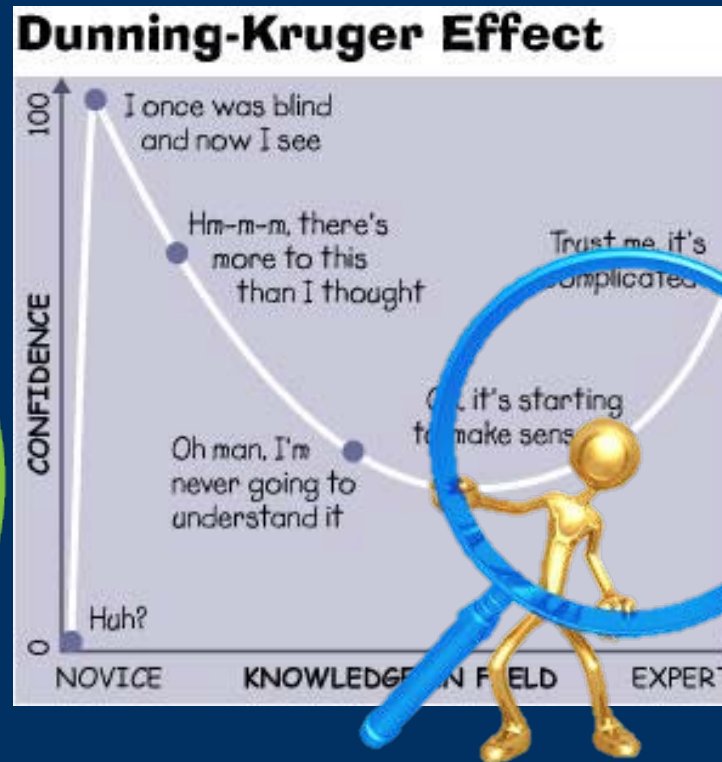
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Evidence-Based Practice



Clinician Barriers to EBP

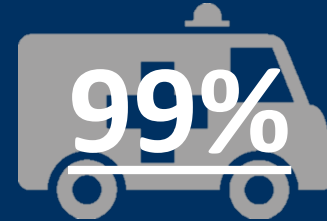
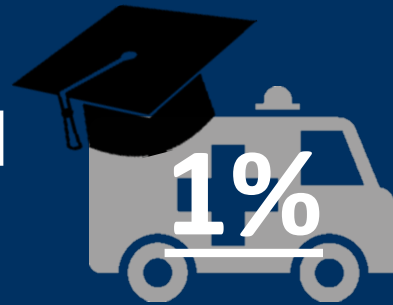


McCarty et al. 2013

Research to Practice

Disconnect between research and clinical practice:

- Research is not translated quickly into clinical practice.
- Fails to address the patient care problems encountered in common clinical practice.
 - Tierney et al. 2007

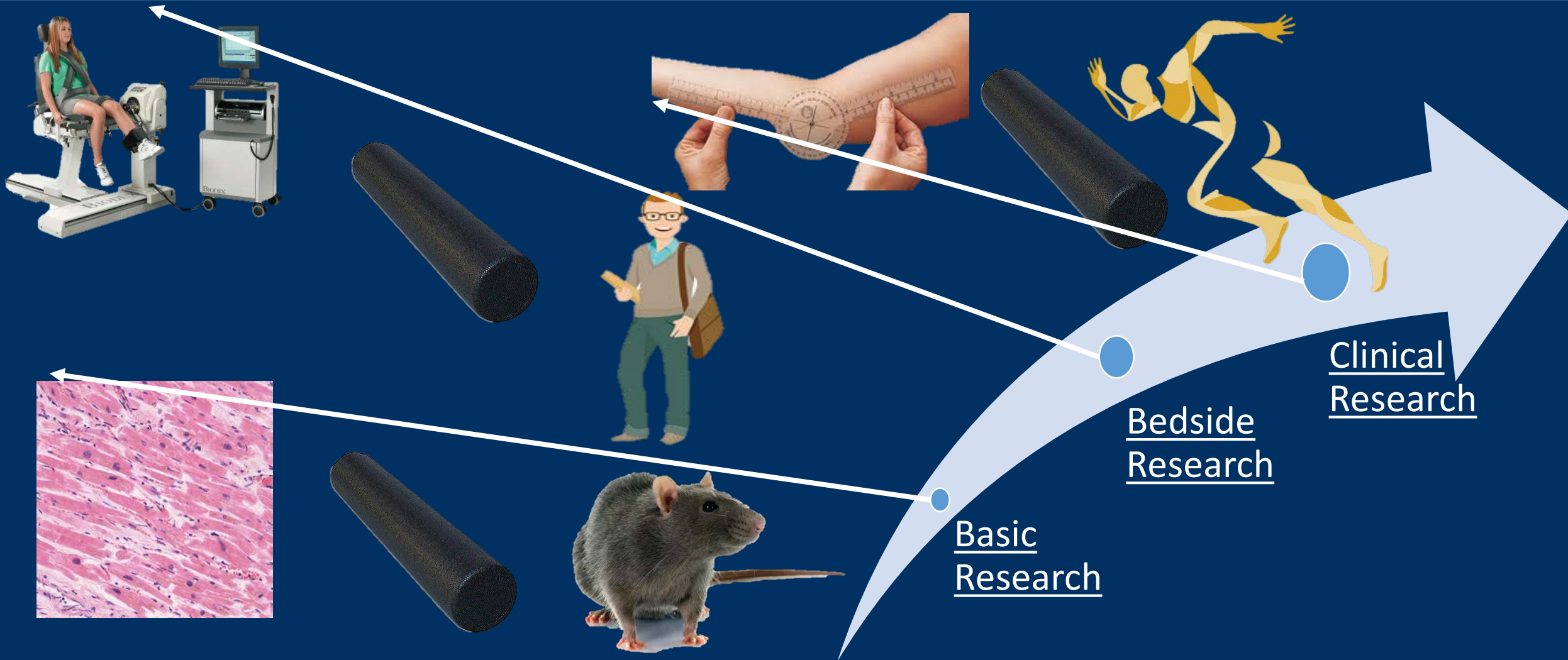


17 Years



14%

Continuum of Research



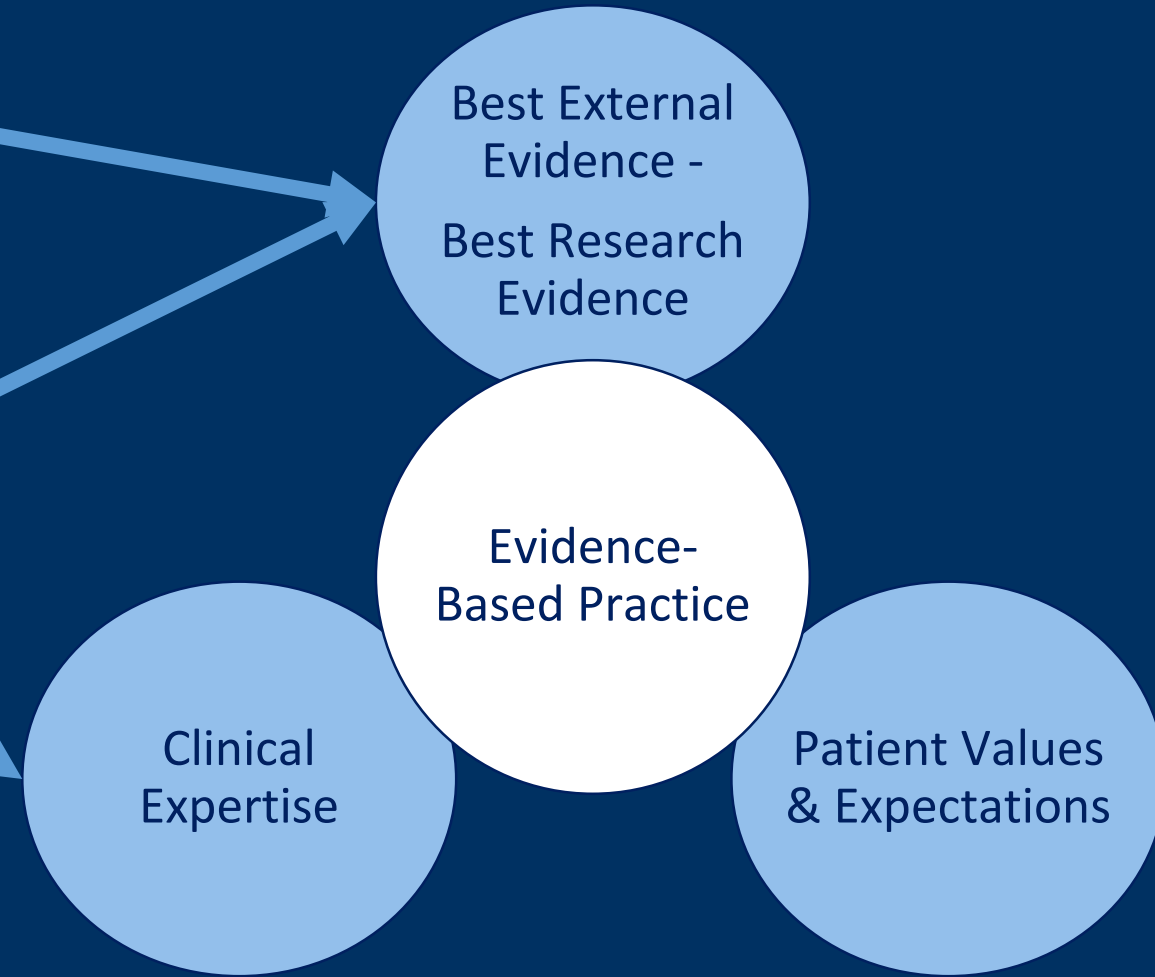
Bridging the Gap

Traditional Research

Basic and Bedside:
Laboratory experiments

Practice-Based Research

Clinical:
Actual patients receiving health
care interventions from their own
clinicians in real-world settings



What is Practice-Based Research?

Final step in research translation

- Clinical trials, observational studies, documentation reviews

Typically occur in individual or small group practices

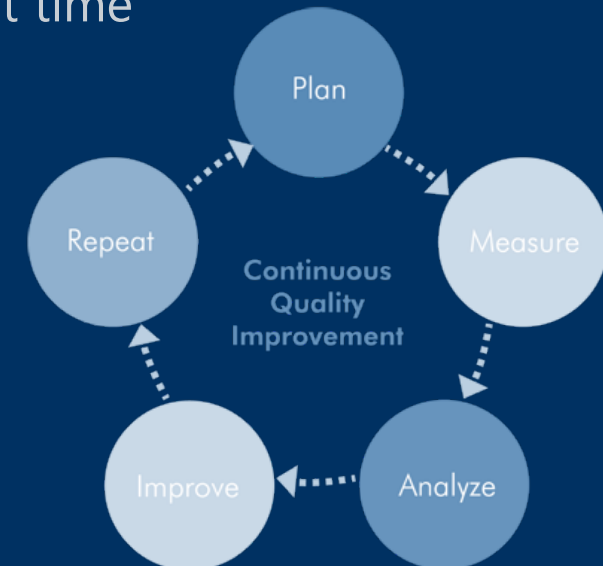
Goals:

- "Overcome problems providers face implementing research findings into clinical practice"
- "Delivery of recommended care to the right patient at the right time"
- "Identification of new clinical questions and gaps in care"
 - Westfall et al. 2007

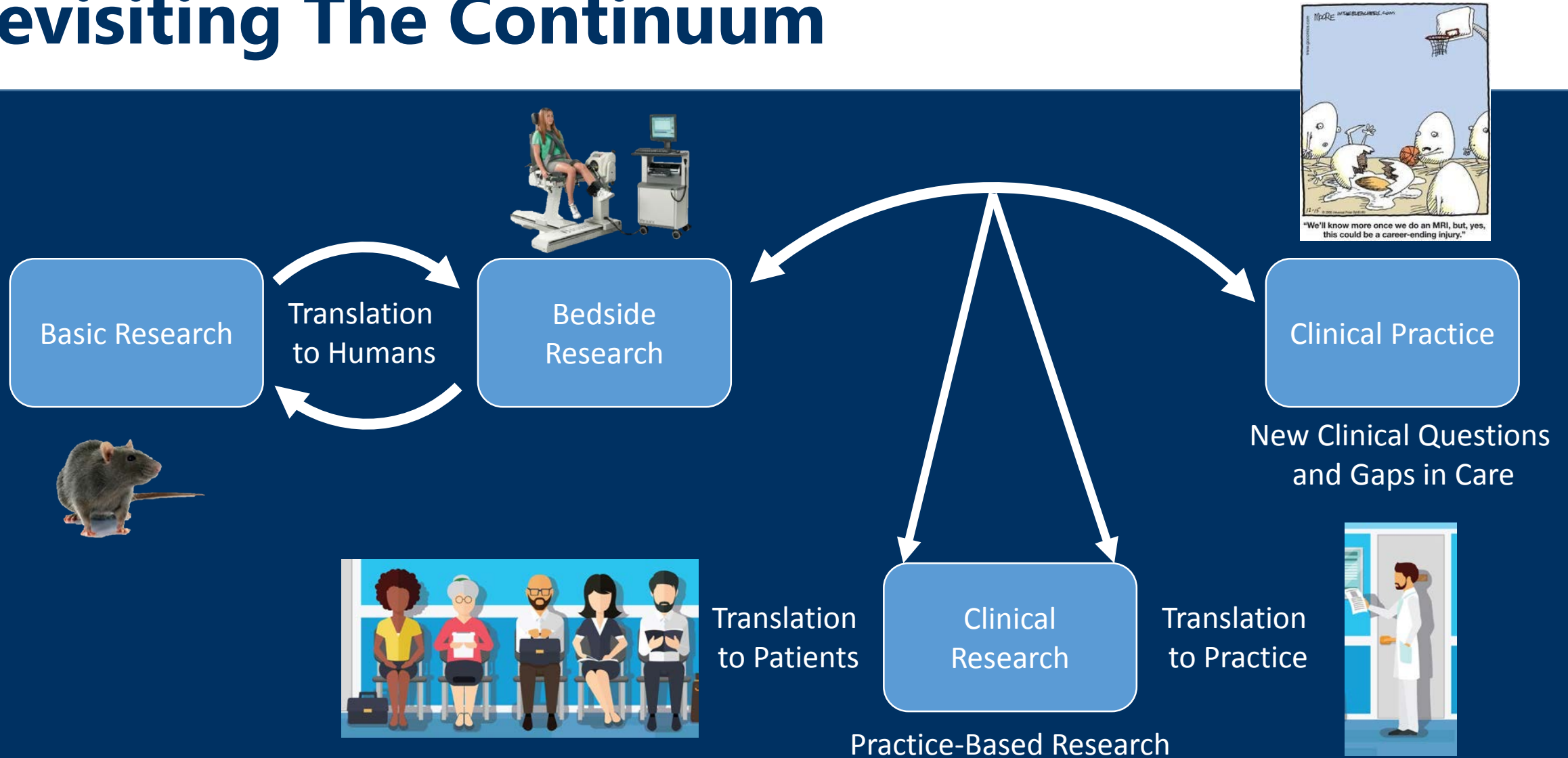
Limitations

- Limited Samples and dissemination scope

Practice-Based Research Networks



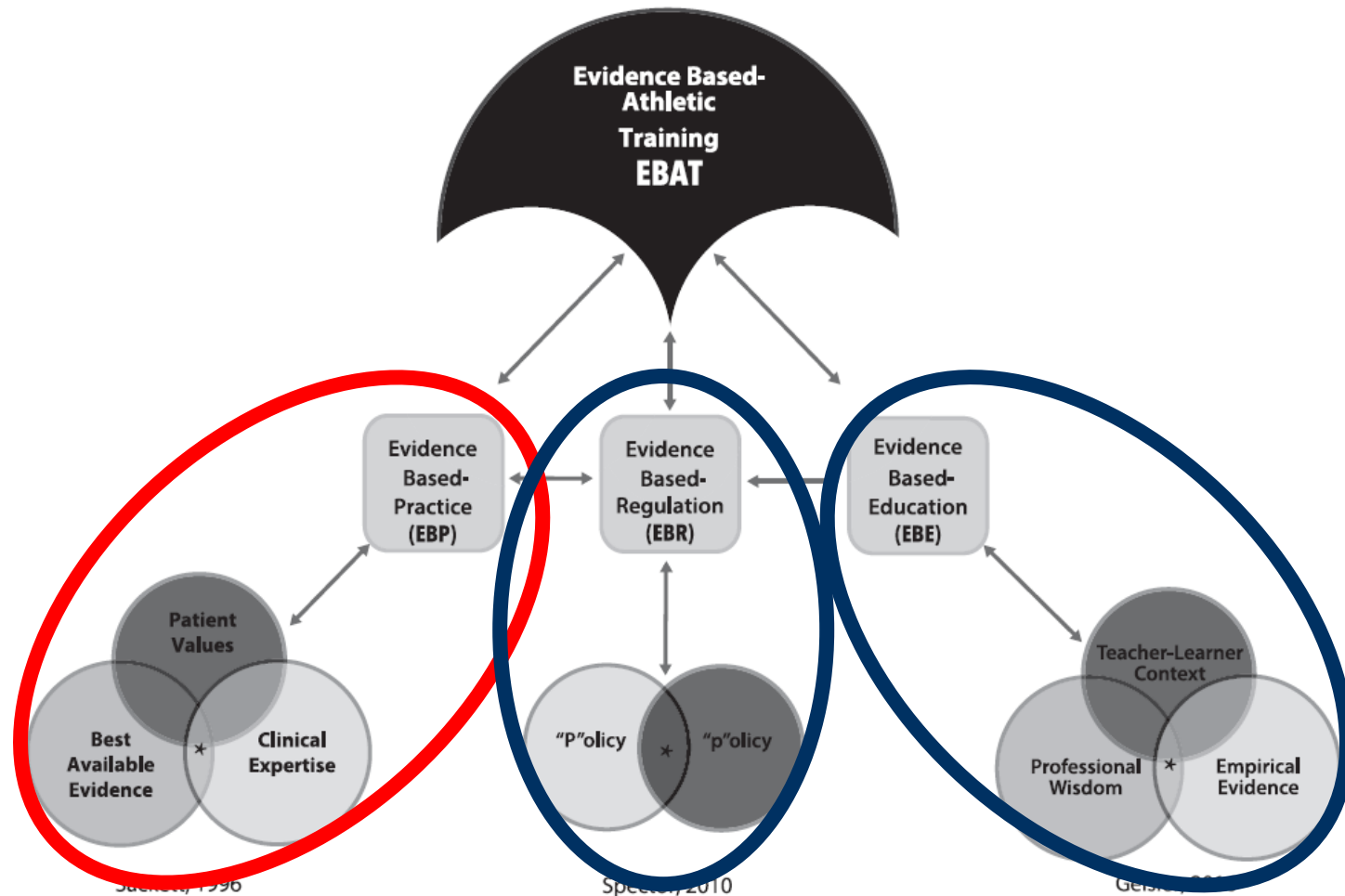
Revisiting The Continuum



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EBP is More Than Just Research

Evidence-based athletic training. Adapted from Spector.⁴





Forms of PBR in Athletic Training

Current Forms of PBR in AT

Case Studies/Case Series

- Unique patient cases
- New interventions
- CROMs

How can we address all aspects of EBP?



Where are we going?

How can clinicians help bridge the gap between traditional research and PBR?

- Analyze your clinical practice
- Compare interventions
- Policy development

Quality
Improvement
Reports

Validation
Case Study

Clinical
Outcomes
Research

Point-of-Care
Research

Clinical Outcomes Assessment

Systematic tracking and evaluation of outcomes in clinical practice to answer a question or guide practice

Clinical Question

Understand needs of clinical practice

What question do you need answered?

Outcomes Selection

CROs or PROs

What will answer the question or need?

Assessment

Systematic implementation and tracking

Analyze findings

Clinical Outcomes Assessment

CLINICAL OUTCOMES RESEARCH

Assessing Lower Extremity Injury Risk in a Mid-Atlantic Drum Corps Using the Weight Bearing Lunge Test

Nicolás C Merritt, DAT, SCAT, ATC, NS¹ and Cameron J Powden PhD, LAT, ATC²

¹Furman University, Greenville, SC; ²Indiana State University, Terre Haute, IN

ABSTRACT

With athletic training's expansion into non-traditional settings, it is important to assess if screening tools can provide value in range of settings. Currently, there is a dearth of information regarding specific models for injury risk assessment in drum corps patients. The Weight Bearing Lunge Test (WBLT) has been used to evaluate those at risk for suffering a lower extremity injury (LEI) in a traditional athletic population. This practice-based research is an attempt to apply current evidence of injury risk assessment use in the traditional settings to performing arts. The purpose of our investigation was to determine the effect of WBLT motion on LEI in Drum Corps. All participating Drum Corps members were measured using the WBLT during the preseason screening process. Injury record keeping was completed through electronic medical records (EMR) and all LEI were recorded over two consecutive, 85-day seasons. The average of the maximal distance in centimeters of the great toe from the wall indicated the WBLT Average (WBLTAvg). WBLT Asymmetry (WBLTAsv) was the absolute difference between

Full Citation

Merritt NC, Powden CJ. Assessing Lower Extremity Injury Risk in a Mid-Atlantic Drum Corps Using the Weight Bearing Lunge Test. *Clin Pract Athl Train*. 2018;1(2):37-41. <https://doi.org/10.31622/2018/0002.6>

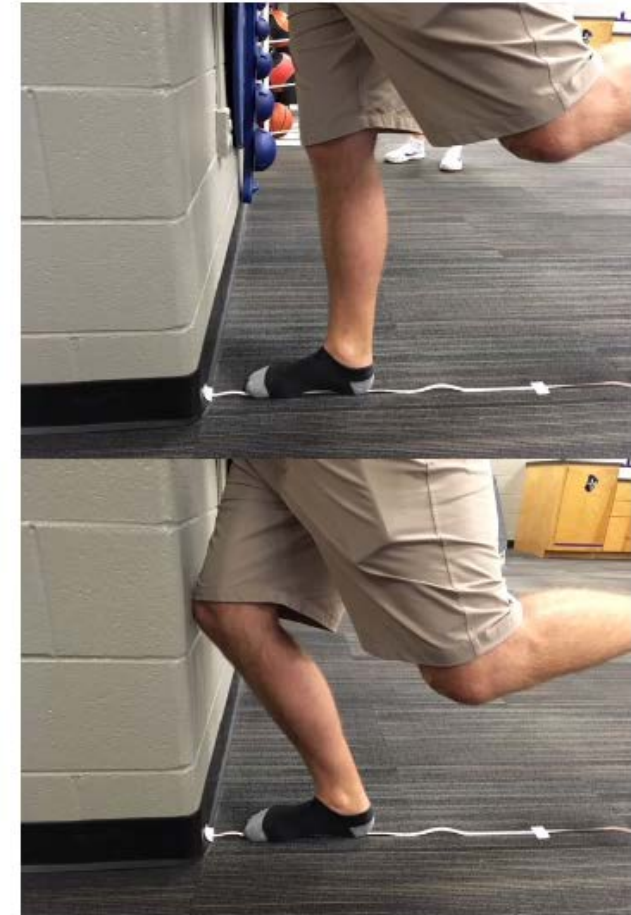
Submitted: September 13, 2018 **Accepted:** October 15, 2018

INTRODUCTION

A modern drum and bugle corps is a musical marching ensemble consisting of brass instruments, percussion instruments, synthesizers, and color guard. Drum and bugle corps are considered marching music's major league. These groups practice for over 10 hours a day, on their feet, and have high incidence of lower extremity injury (LEI). LEI is more common to occur in marching ensembles than injury to the upper extremity.¹ The

analysis. WBLT measurements were completed by four individuals, two athletic trainers with 1-2

Figure 1. Weight Bearing Lunge Test (WBLT).



2

Point-of-Care Research

Explore the practice of clinicians at the point-of-care as evidence through document review.



Point-of-Care Research

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Athletic Training Service Characteristics for Patients With Ankle Sprains Sustained During High School Athletics

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Context: Limited information exists on the amount and type of care provided by athletic trainers (ATs) treating athletes who sustained ankle sprains in the high school setting.

Objective: To describe AT services provided for patients with ankle sprains injured in high school athletics.

Design: Descriptive epidemiology study.

Setting: Athletic training facility (ATF) visits and AT services collected from 147 high schools in 26 states.

Patients or Other Participants: High school student-athletes participating in 13 boys' and 14 girls' sports who sustained a diagnosed ankle sprain during the 2011–2012 through 2013–2014 academic years. The ATs documented 3213 ankle sprains.

Main Outcome Measure(s): Number of ATF visits and individual AT services and mean ATF visits (per injury) and AT services (per injury) were calculated by sport and for time-loss injuries (participation-restriction time of at least 24 hours) and non-time-loss injuries (participation-restriction time <24 hours).

Results: During the 3-year period, 19 925 ATF visits were reported, with an average of 6 (interquartile range = 1–7) ATF

visits per ankle sprain. Most ATF visits were for non-time-loss injuries (65.1%). Football accounted for the largest proportions of ankle sprains (27.3%) and ATF visits (35.0%). In total, 71 404 AT services were provided for ankle sprains. Therapeutic activities or exercise were the most common AT services (47.4%), followed by neuromuscular reeducation (16.6%), strapping (14.2%), and modalities (11.5%). An average of 22 (interquartile range = 4–28) AT services were reported per ankle sprain. The average number of AT services per injury was higher among patients with time-loss than non-time-loss injuries (35 versus 19; $P < .001$).

Conclusions: The ATs provided a variety of services to treat high school athletes who had sustained ankle sprains, including therapeutic exercises and neuromuscular reeducation, which were supported by research. However, ATs should consider using manual therapy (use supported by grade B evidence) and therapeutic exercise more (use supported by grade A evidence).

Key Words: NATION, injury surveillance, medical care

Key Points

- Athletic trainers provided a variety of services to treat ankle sprains that reduced health care costs by limiting the number of referrals to other health care providers.

ORIGINAL RESEARCH

Evaluation and Assessment Patterns of Sport-Related Knee Sprains at the Point-of-Care: A Report from the Athletic Training Practice-Based Research Network

Kenneth C. Lam, ScD, ATC; Christine P. Nelson, MS, ATC; Kellie C. Huxel Bliven, PhD, ATC; Alison R. Snyder Valier, PhD, ATC, FNATA

ABSTRACT

Purpose: To determine which provocative tests athletic trainers use during the evaluation of knee sprain injuries.

Methods: A retrospective study of 263 athletic trainer evaluations of knee sprains (anterior/posterior cruciate ligaments = 103, medial collateral ligament = 120, lateral collateral ligament = 40) was conducted.

Results: Athletic trainers reported using the Lachman (93.2%, $n = 96$), valgus stress (76.7%, $n = 79$), and anterior drawer (73.8%, $n = 73.8$) tests when assessing anterior/posterior cruciate ligament injuries. For the assessment of medial collateral ligament injuries, athletic trainers reported using the valgus stress (97.5%, $n = 117$), Lachman (80.0%, $n = 96$), and varus stress (73.3%, $n = 88$) tests most frequently. For the assessment of lateral collateral ligament injuries, the varus stress (85.0%, $n = 34$), valgus stress (85.0%, $n = 34$), and anterior drawer (72.5%, $n = 29$) tests were reported.

Conclusions: The most frequently reported provocative tests for

Knee injuries are common in sport, with sprains accounting for half of all athletic-related injuries requiring surgical intervention.¹ Although most individuals who suffer a knee sprain will return to full sport participation, knee injuries are often associated with short- and long-term consequences including pain, functional limitations, disability, and decreased health-related quality of life.^{2–4} A key aspect of the proper management and treatment of acute knee sprains is a comprehensive and efficient evaluation process.^{5–7} As guided by best practices, the comprehensive evaluation of sport-related injuries includes taking a thorough history and performing a battery of clinical assessments such as orthopedic provocative (also known as special) tests to determine an appropriate diagnosis.^{5–7}

Following the history portion of a patient examination, clinicians typically identify differential diagnoses to guide the clinical examination, which includes the selection of orthopedic provocative tests.^{5–7} Although this global process is relatively straightforward, the high num-

Quality Improvement

Assess current practices; compare them with relevant better practices; identifying opportunities for improvement.

Develop better value, health, and care through the designing and testing interventions to change the process of care; identify errors and hazards in care; and improvement of one's own performance through self-assessment and personal change.

Quality Improvement – PDSA Cycle

- Practice or systems analysis
- What is the question or system being examined?
- What are solutions or changes necessary

PLAN



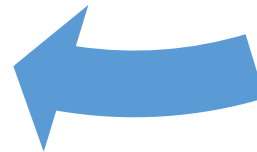
DO

- Execute changes, interventions or tests
- Record data and processes
- Start small



STUDY

- Analyze the results and the overall implementation
- Compare to previous processes and literature



ACT

- Refine the changes or interventions being used
- Possible improvements
- Implement



Quality Improvement

QUALITY IMPROVEMENT (PDSA CYCLE) REPORT

Implementing a Behavior Health Policy in the Secondary School

Jamie Nikander, DAT, LAT, ATC¹; Lindsey E. Eberman, PhD, LAT, ATC²

¹West Olympia Sports Medicine, Olympia, WA; ²Indiana State University, Terre Haute, IN

ABSTRACT

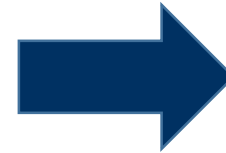
Site-specific policies and procedures outlining the available services and emergency action plan (EAP) is vital to any athletic training clinic. The purpose of the following document is to provide athletic trainers with a framework for the development and successful implementation of evidence-based policies and procedures to improve athletic training services at secondary schools. Using a behavioral health policy as an example, the challenges and barriers to the development and implementation of new policies at a secondary school will be discussed. Policy development was largely influenced by each of the individual stakeholders involved in the approval process including school administration, school nurses and counselors, as well as community organizations. As in any setting, challenges to implementation of the behavioral health policy in these schools did occur. Each secondary school or school district will have a different model for medical services that will inherently change the policy at each location. Athletic trainers must know the resources available to them on and off-campus, and develop policies and procedures dependent on these resources. For clinicians in any athletic training setting, it is important to review your current policy and procedure manual to determine where improvements can be made. These documents help ensure patients are being provided the best possible care and help protect athletic trainers legally.

CURRENT MODEL

In 2011, The Commission on Accreditation of Athletic Training Education (CAATE) published the 5th edition of the competencies required to be taught and evaluated in entry-level athletic training education.¹ “Psychosocial Strategies and Referrals”¹ remains to be a stand-alone competency vital to the minimum education for athletic trainers.² Identification, referral, and support for patients with behavioral health conditions will also be included in the updated competencies that will apply in 2020 as minimum athletic training education advances to a Master’s degree.² Athletic trainers must have the ability to recognize when a patient is experiencing a social, emotional, or psychological concern.^{1,3} In addition to simple recognition, the Role Delineation Study,⁴ which guides practicing athletic trainers⁴, states that athletic trainers must understand the steps for intervention which includes emergency management, emergency action planning, and

Evidence To Practice Reviews

Examine current evidence and provide a clinical bottom line that can be implemented by practicing clinicians



Evidence To Practice Reviews

EVIDENCE TO PRACTICE REVIEW

Best Practices in Patellar Tendinopathy Management: An Evidence to Practice Review

Christopher J Burcal, PhD, ATC*; Adam B Rosen PhD, ATC*; Tony Taylor, MS, ATC; and Mike Nicola, MS, ATC

University of Nebraska at Omaha, Omaha, NE

*These authors contributed equally to this work

ABSTRACT

Patellar tendinopathy (PT) is a degenerative condition that is common in sporting populations due to the loads placed on the tendon during dynamic activity. PT often occurs in overtraining situations; however, it may also occur in conjunction with and/or worsen through poor biomechanics, persistent inflammation, and altered movement patterns. Although sports medicine practitioners have evidence to support the prevalence of this injury, we do not have a strong base of evidence surrounding the contributing factors and pathophysiology that lead the pain and disability reported in patients with PT. The purpose of this evidence to practice review was to summarize a systematic review on interventions to treat PT. The authors aimed to include any randomized controlled trial that treated patients with PT and used the Victorian Institute of Sport Assessment Patellar Tendon Questionnaire (VISA-P) as an outcome measure. Seven different PT interventions were described and summarized by the authors in this review. On the

Full Citation

Burcal CJ*, Rosen AB*, Taylor T, Nicola M. Best practices in patellar tendinopathy management: An evidence to practice review. *Clin Pract Athl Train*. 2019;2(1):4-10.

<https://doi.org/10.31622/2019/0001.2>.

[Click Here for Supplemental Videos](#)

Submitted: February 14, 2019 Accepted: February 25, 2019

ORIGINAL REFERENCE AND SUMMARY

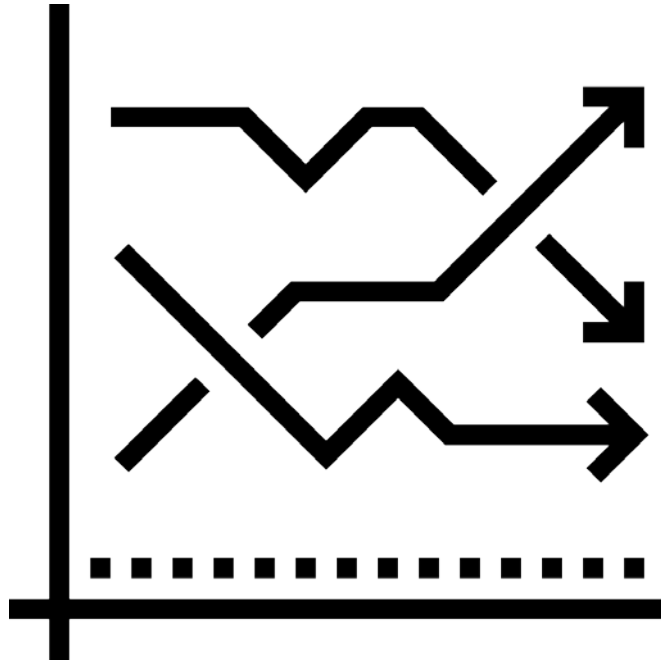
Everhart JS, Cole D, Sojka JH, Higgins JD, Magnussen RA, Schmitt LC, Flanigan DC.

Treatment options for patellar tendinopathy: A systematic review. Arthroscopy. 2017;33(4):861-872.

SUMMARY

Validation Case Report

Clinical Question



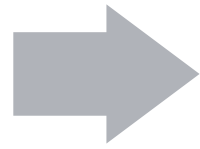
Literature Search



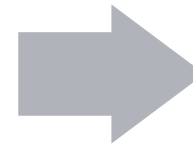
THE PROFESSIONAL JOURNAL
OF CERTIFIED ATHLETIC TRAINERS
AND ATHLETIC THERAPISTS

Validation Case Report

Implement
Evidence



Track
Outcomes



Analyze
Data



Case Validation Report

VALIDATION CASE REPORT

Ankle Proprioception Training Program for Preventing Lateral Ankle Sprains in Adolescent Basketball Players: A Case Validation Study

Matthew J. Rivera, DAT, LAT, ATC; Cameron J. Powden, PhD, LAT, ATC; Kenneth E. Games, PhD, LAT, ATC
Indiana State University, Terre Haute, IN

ABSTRACT

The purpose of this case validation study was to examine the effects of a previously established proprioception training program on the number of lateral ankle sprains in secondary school basketball players. The patient population consisted of 22 patients (5 females, 17 males, age = 16 ± 1 years old, height = 181.8 ± 8.9 cm, weight = 74.8 ± 12.8 kg) from a small rural high school in Illinois. The team completed the proprioceptive training program as part of a warm-up supervised by the athletic trainer and took approximately five minutes to complete. The program was completed every day for five weeks with one additional week of maintenance exercises. The main outcomes assessed were the number of lateral ankle sprains, anterior reach distance from the Y-Balance Test, and Foot and Ankle Ability Measure (FAAM) Sport Scale scores. Data collection occurred at baseline (prior to starting the program), week 6, week 12, and follow-up. There were a total of 9 lateral ankle sprains and 3 re-injury throughout the course of the previous season without using the proprioceptive training program. There were 6 lateral ankle sprains and only 1 re-injury during this competition season.

ARTICLE CITATION AND SUMMARY

Schiffman GS, Ross LA, Hahne AJ. The effectiveness of proprioceptive training in preventing ankle sprains in sporting populations: A systematic review and meta-analysis. J Sci Med Sport. 2015;18:238-244

We selected a guiding systematic review¹ that examined the evidence regarding the use of ankle proprioceptive training programs and its influence on ankle sprain rates. The authors completed a comprehensive literature search of MEDLINE, CINAHL, SPORTDiscus, and PEDro through October 2013. Studies were evaluated using the following criteria: (1) study design was a moderate-to-high level randomized controlled trial (4/10 on the PEDro scale) (2) participants

How to be successful



Thank You!

Question?

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