Journal of Athletic Training

http://www.natajournals.org

Volume 50, Number 5, May 2015

Editor-in-Chief

Craig R. Denegar, PhD, PT, ATC, FNATA University of Connecticut

Associate Editors

David C. Berry, PhD, AT, ATC Saginaw Valley State University

Paul A. Borsa, PhD, ATC, FACSM

University of Florida

Steven P. Broglio, PhD, ATC University of Michigan

Douglas J. Casa, PhD, ATC, FNATA, FACSM

University of Connecticut

Mitchell L. Cordova, PhD, ATC, FNATA, FACSM

Florida Gulf Coast University

Joseph M. Hart, PhD, ATC

University of Virginia

J. Ty Hopkins, PhD, ATC, FNATA, FACSM

Brigham Young University

Kristin L. Kucera, PhD, MSPH, ATC

University of North Carolina at Chapel Hill

Stephanie M. Mazerolle, PhD, LAT, ATC

University of Connecticut

Patrick O. McKeon, PhD, ATC, CSCS

Ithaca College

Mark A. Merrick, PhD, ATC, FNATA

The Ohio State University

James A. Oñate, PhD, ATC, FNATA

The Ohio State University

Darin A. Padua, PhD, ATC

University of North Carolina at Chapel Hill

Susan A. Saliba, PhD, PT, ATC, FNATA

University of Virginia

Tamara C. Valovich McLeod, PhD, ATC, FNATA

Arizona School of Health Sciences

Stacy E. Walker, PhD, ATC

Ball State University

Official publication of the following associations

National Athletic Trainers' Association Taiwan Athletic Trainers' Society Japan Athletic Trainers' Organization Athletic Rehabilitation Therapy Ireland

Senior Associate Editors

Jay Hertel, PhD, ATC, FNATA, FACSM University of Virginia

Jennifer M. Hootman, PhD, ATC, FNATA, FACSM Centers for Disease Control and Prevention

Sandra J. Shultz, PhD, ATC, FNATA, FACSM University of North Carolina at Greensboro

Clinical Applications Editor

Marjorie A. King, PhD, PT, ATC Plymouth State University

Statistical Consultants

R. Curtis Bay, PhD A.T. Still University

Heather Bush, PhD

University of Kentucky

Bruce M. Gansneder, PhD

University of Virginia

Stephen W. Marshall, PhD

University of North Carolina at Chapel Hill

Bryan L. Riemann, PhD, ATC, FNATA Armstrong Atlantic State University

Consulting Editors

Christopher D. Ingersoll, PhD, ATC, FNATA, FACSM

The University of Toledo

Kenneth L. Knight, PhD, ATC, FNATA, FACSM

Brigham Young University

David H. Perrin, PhD, ATC, FNATA, FACSM

University of Utah

Clint Thompson, MA, ATC

Seattle, WA

Managing Editor

Leslie E. Neistadt, ELS

Editor

Kevin P. Clear

Indexes: Currently indexed in MEDLINE, PubMed Central, Focus on Sports Science & Medicine (ISI: Institute for Scientific Information), Research AlertTH (ISI: Institute for Scientific Information), Physical Education Index, SPORT Discus (SIRC: Sport Information Resource Centre, Canada), CINAHL (Cumulative Index to Nursing & Allied Health Literature), AMED (Allied and Alternative Medicine Database), PsycINFO (American Psychological Association), EMBASE (Elsevier Science), Science Citation Index, Current Contents/Clinical Medicine, Science Citation Index Expanded (SciSearch), Journal Citation Reports/Science Edition, Biological Abstracts, and BIOSIS Previews.

The Journal of Athletic Training (ISSN 1062-6050) is published monthly (\$267 for 1-year institutional subscription; \$303 foreign) by the National Athletic Trainers' Association, Inc, 1620 Valwood Parkway, Ste. 115, Carrollton, TX 75006. Periodicals postage paid at Carrollton, TX, and at additional mailing offices. Claims for copies lost in the mail must be received within 90 days (180 days foreign) of the issue date to ensure replacement at no charge.

POSTMASTER: Send address changes to Journal of Athletic Training, c/o NATA, 1620 Valwood Parkway, Ste. 115, Carrollton, TX 75006. CHANGE OF ADDRESS: Request for address change must be received 30 days prior to date of issue with which it is to take effect. Duplicate copies cannot be sent to replace those undelivered as a result of failure to send advance notice. ADVERTISING: Although advertising is screened, acceptance of the advertisement does not imply NATA endorsement of the product or the views expressed. Rates available upon request. The views and opinions in the *Journal of Athletic Training* are those of the authors and are not necessarily of the National Athletic Trainers' Association, Inc.

Copyright 2015 by the National Athletic Trainers' Association, Inc. All rights reserved. Printed in the United States. The Journal of Athletic Training is printed on paper that meets the requirements of ANSI/NISO Z39.48-1992 (Permanence of Paper).



Editorial Board

Jatin P. Ambegaonkar, PhD, ATC, OT, CSCS

George Mason University

Lawrence E. Armstrong, PhD, FACSM University of Connecticut

Christopher M. Bailey, PhD Case Medical Center

Michael F. Bergeron, PhD Sanford USD Medical Center

David R. Black, PhD, MPH, CHES Purdue University

J. Troy Blackburn, PhD, ATC University of North Carolina at Chapel Hill

Michelle C. Boling, PhD, LAT, ATC University of North Florida

Thomas G. Bowman, PhD, ATC Lynchburg College

Robert C. Cantu, MD Emerson Hospital, Concord, MA

Thomas A. Cappaert, PhD, ATC, CSCS, CES

Indiana University-Purdue University Indianapolis

Christopher R. Carcia, PhD, PT Duquesne University

Shane V. Caswell, PhD, ATC George Mason University

Michael W. Collins, PhD University of Pittsburgh

R. Dawn Comstock, PhD Colorado School of Public Health

Tracey Covassin, PhD, ATC Michigan State University

Kevin M. Cross, PhD, PT, ATC University of Virginia

Gianluca Del Rossi, PhD, ATC University of South Florida

Eamonn Delahunt, PhD, BSc (Physiotherapy) University College Dublin

Lindsay J. DiStefano, PhD, ATC University of Connecticut

Carrie L. Docherty, PhD, ATC, FNATA Indiana University

Michael G. Dolan, MA, ATC, CSCS Canisius College

Thomas P. Dompier, PhD, ATC Datalys Center for Sports Injury Research and Prevention, Inc

Zeevi Dvir, PhD Tel Aviv University, Israel

Jennifer E. Earl-Boehm, PhD, ATC University of Wisconsin-Milwaukee

Kyle Ebersole, PhD, ATC University of Wisconsin-Milwaukee

Ruben Echemendia, PhD PANBA, Inc

Todd A. Evans, PhD, ATC University of Northern Iowa

Reed Ferber, PhD, ATC, CAT(C) University of Calgary, Canada

Sandra Fowkes Godek, PhD, ATC West Chester University

Matthew S. Ganio, PhD University of Arkansas

Phillip A. Gribble, PhD, ATC, FNATA The University of Toledo

Kevin M. Guskiewicz, PhD, ATC, FNATA, FACSM

University of North Carolina at Chapel Hill

Jolene M. Henning, EdD, ATC High Point University

Lee Herrington, PhD, MSc, MCSP University of Salford, United Kingdom

Mark Hoffman, PhD, ATC, FNATA Oregon State University

Tricia J. Hubbard-Turner, PhD, ATC University of North Carolina at Charlotte

Lennart D. Johns, PhD, ATC Quinnipiac University

Daniel A. Judelson, PhD Nike Sport Research Lab

Thomas W. Kaminski, PhD, ATC, FNATA, FACSM University of Delaware

Sarah B. Knowles, PhD, MPH
Palo Alto Medical Foundation Research
Institute

Michael C. Koester, MD, ATC Slocum Center for Orthopedics and Sports Medicine, Eugene, OR

John E. Kovaleski, PhD, ATC University of South Alabama

Carl G. Mattacola, PhD, ATC, FNATA University of Kentucky

Edward G. McFarland, MD Johns Hopkins University

Timothy A. McGuine, PhD, ATC University of Wisconsin, Madison

Jennifer M. Medina McKeon, PhD, ATC, CSCS Ithaca College Jason P. Mihalik, PhD, CAT(C), ATC University of North Carolina at Chapel Hill

Joseph B. Myers, PhD, ATC University of North Carolina at Chapel Hill

John Nyland, EdD, PT, SCS, ATC, CSCS

Spalding University

Riann M. Palmieri-Smith, PhD, ATC University of Michigan

Brian G. Pietrosimone, PhD, ATC University of North Carolina at Chapel Hill

Scott G. Piland, PhD, ATC The University of Southern Mississippi

William A. Pitney, EdD, ATC, FNATA Northern Illinois University

Scott E. Ross, PhD, ATC University of North Carolina at Greensboro

Eric L. Sauers, PhD, ATC, CSCS, FNATA

Arizona School of Health Sciences

Randy J. Schmitz, PhD, ATC University of North Carolina at Greensboro

JoEllen Sefton, PhD, ATC, CMT Auburn University

Susan M. Sigward, PhD, PT, ATC University of Southern California

Michael R. Sitler, EdD, ATC, FNATA Temple University

Chad Starkey, PhD, ATC, FNATA Ohio University

Erik E. Swartz, PhD, ATC, FNATA University of New Hampshire

Paula Sammarone Turocy, EdD, ATC Duquesne University

Evert Verhagen, PhD EMGO Institute for Health and Care Research, The Netherlands

Cailee E. Welch, PhD, ATC A.T. Still University

Erik A. Wikstrom, PhD, ATC, FACSM University of North Carolina at Charlotte

Gary B. Wilkerson, EdD, ATC, FNATA

University of Tennessee, Chattanooga

Jonathan E. Wingo, PhD University of Alabama

Susan W. Yeargin, PhD, ATC University of South Carolina