NSCA™
NATIONAL STRENGTH AND
CONDITIONING ASSOCIATION

2015 NSCA National Conference Research Abstract Submission & Presentation Guidelines

General Information

The National Strength and Conditioning Association (NSCA) is pleased to make a call for research abstract submissions for presentation at the 2015 National Conference. Research abstract presentations are an opportunity to present current research findings to researchers and strength and conditioning professionals at the NSCA National Conference. The research abstracts are the largest portion of the scientific programs presented every year at the National Conference. The NSCA encourages all researchers and NSCA students to submit their abstracts for consideration to the 2015 NSCA National Conference. More information and registration for the National Conference can be found online at:
www.ConferenceAbstracts.com/NSCA2015.htm

Submission Deadline

The abstract submission deadline is **Monday, March 2, 2015**.

Notification

Submitting authors will receive notification of acceptance or rejection of their research abstract by **May 1, 2015**.

Cost

Abstract submission fee is waived this year thanks to a grant from MusclePharm.

Presentation Format

Research abstracts can be presented in either a poster or a podium format. Due to a limited number of available podium presentations, all requests for podium presentations cannot be accommodated.

Presentation Dates

Podium and poster presentations occur on all three days of the conference (Thursday, July 9th; Friday, July 10th; and Saturday, July 11th). Podium presentations typically occur in the morning with poster presentations occurring over lunch.

Publication of Abstracts

All accepted abstracts will be published in the full conference program book. The abstracts will not appear in the conference notebook. If you require a copy of your abstract for proof of presentation, you must purchase the full conference program book.

Accepted abstracts, that are presented, will be published as an electronic supplement to the *Journal of Strength and Conditioning Research*. The NSCA encourages all research abstract presenters to submit the completed manuscript of their presented research for consideration in the *Journal of Strength and Conditioning Research*.

Research Abstract Submission Guidelines

- Abstracts may only be submitted online.
- Do not submit abstracts containing data currently in press. In the event that data contained in an accepted abstract is published (paper, electronic, or other format) prior to the National Conference, the abstract will be withdrawn.
- The first author of the research abstract is considered the *primary author* and must present the abstract. However, all authors must approve the abstract prior to submission.
- The *submitting author* is the author who submits the abstract. All correspondence regarding abstract presentation status and presentation type and time will be with the submitting author.
- One person may be the primary author on a maximum of two abstracts (only one may be submitted as a podium presentation).
- All abstract presenters must pay for their conference registration and all other fees associated with travel. Conference registration fee is separate from abstract submission fee.
- For questions, please e-mail the NSCA at abstracts@nsca.com.

Subject Categories

There are ten (10) available categories for research abstracts:

1. Biochemistry / Endocrinology
2. Biomechanics / Neuromuscular
3. Body Composition
4. Endurance Training / Cardiorespiratory
5. Fitness / Health
6. Flexibility / Stretching
7. Nutrition / Ergogenic Aids
8. Resistance Training / Periodization
9. Special Populations
10. Speed / Power Development
11. Tactical Strength and Conditioning

Use of Human and Animal Subjects

All research studies that include data recorded from human participants must comply with the Declaration of Helsinki and the US Department of Health and Human Services Policy for the Protection of Human Research Subjects (US Code, Title 45, Part 46 Protection of Human Subjects). All animal studies must comply with the Public Health Service Policy on Humane Care and Use of Laboratory Animals.

Abstract Formatting Specifications

- All abstract submissions must be formatted correctly (see examples below) and include original research-based data to allow for a thorough review. Abstracts that do not meet these criteria will not be accepted.
- The body of the abstract cannot exceed 3,500 characters (including spaces) when there is no figure or table included. When there is a figure or table associated with the abstract, the text cannot exceed 3,000 characters (including spaces).

Figures and Tables

- Abstracts can contain either one figure or one table, but not both. Abstracts submitted with more than one figure or table will have both images removed.
- Any figure or table must pertain to the abstract for the purpose of visualizing data and must be referred to in the text of the abstract. Graphs or tables that do not pertain to the abstract will be removed.
- Figures or tables must be concise. It is at the discretion of the NSCA if a graph or table is too big, and if so, it will be removed. Additional text that should be in the abstract may not be substituted in the graph or table.
- The resolution of the figure or table must be adequate for reprinting (i.e., = 150 dpi).
- Including a figure or table does not replace any of the required sections (i.e., Purpose, Methods, Results, etc.).
- No photos or pictures are allowed – only a graph or a table.
- The graph or table must be an image file (.jpg, .gif, .png are accepted). PDF and PowerPoint are not acceptable.

Required Information

- Abstracts/submissions must contain the following:
  - Title (typed in ALL CAPS) cannot exceed 150 characters (including spaces).
  - Purpose, methods, results, conclusions, and practical applications. Acknowledgements should be included to denote funding sources or conflicts of interest when applicable.
- Abstracts/submissions cannot contain the following:
  - Brand names.
  - Advertising. Research abstracts should be non-biased, free from solicitations, and should not contain demonstrations of products for the purpose of sales.
  - Author(s) degrees (MS, PhD, etc) or credentials (CSCS, FNSCA, etc).
- The following information will be asked during the submission process:
  - All authors' names.
    - If the primary/ presenting author is submitting for award consideration, they must be an NSCA Member (professional or student).
  - All authors' primary institutions/ laboratories (institution/ laboratory name, city, state).
  - All authors' professional mailing address, e-mail address, and phone number.
  - Desired presentation format (i.e., podium, poster, or indifferent).
  - Abstract subject category.
  - If an NSCA Fellow was involved with the research study.
    - If so, the Fellow's NSCA Member number must be provided.
  - If the abstract is being considered for a Student Research Award (see below).

Example Abstract with Graph or Table
(2014 Undergraduate Student Outstanding Poster Presentation)

BARBELL DEADLIFT TRAINING INCREASES THE RATE OF TORQUE DEVELOPMENT AND VERTICAL JUMP PERFORMANCE IN NOVICES

J. Mota, B. Thompson, K. Olinghouse, E. Carrillo, I. Munayer, M. Luera, J. Shields, A. Drusch, M. Stock
Texas Tech University, Lubbock, TX.

The barbell deadlift is a multi-joint exercise that requires balance, strength, and the coordination of dozens of muscles. No previous studies have examined the effectiveness of barbell deadlift training when performed in the absence of other exercises. **PURPOSE:** The primary purpose of this investigation was to examine the effects of 10 weeks of barbell deadlift training on rapid torque characteristics for the leg extensors and flexors. A secondary aim was to analyze the relationships between training-induced changes in rapid torque and vertical jump performance. **METHODS:** Fifty-four previously untrained subjects (mean ± SD age = 23 ± 3 years) participated in this investigation, and were randomly assigned to a training (males, n = 17; females, n = 17) or control (males, n = 9; females, n = 11) group. The subjects in the training group were taught how to deadlift, and performed five sets of five repetitions twice per week. Each training session was closely supervised, and 0.45-2.2 kg was added to the barbell during each visit to the laboratory. All subjects performed maximal isometric strength testing of the left leg extensors and flexors, as well as maximal countermovement vertical jumps, before and following the intervention. Torque -time curves were used to calculate rate of torque development (RTD) values at peak and 50 and 200ms from torque onset. **RESULTS:** Barbell deadlift training induced significant pre to post increases of 18.8-49.0% for all rapid torque variables (Table 1). For the subjects in the training group, the largest effect size shown was for RTD at 50ms for the leg flexors (pre = 199.6 ± 94.6, post = 297.5 ± 98.8 Nm·s-1 [Cohen's d = 1.01]). Vertical jump height increased from 46.0 ± 11.3 to 49.4 ± 11.3 cm (Cohen's d = 0.30) for the subjects in the training group, and these changes were correlated to improvements in RTD for the leg flexors (r = 0.30-0.37). **CONCLUSIONS:** When performed in the absence of other exercises, 10 weeks of barbell deadlift training enhanced the rapid torque characteristics for both the leg extensors and flexors. Changes in rapid torque were associated with improvements in vertical jump height, suggesting a transfer of adaptations from deadlift training to an explosive, performance-based task. **PRACTICAL APPLICATION:** Since many activities of daily living require the legs, hips, and low back to function together in a coordinated manner during the act of picking up an object from the ground, the functionality of the barbell deadlift has implications for a variety of populations. Strength and conditioning professionals are encouraged to emphasize the barbell deadlift exercise when attempting to design training programs with the intent to develop explosive strength and/or jumping performance in novices.

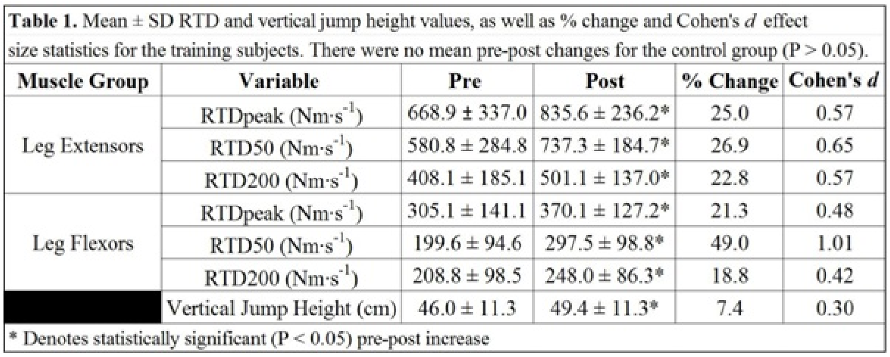


Table 1. Mean ± SD RTD and vertical jump height values, as well as % change and Cohen's *d* effect size statistics for the training subjects. There were no mean pre-post changes for the control group ($P > 0.05$).

Muscle Group	Variable	Pre	Post	% Change	Cohen's *d*
Leg Extensors	RTDpeak ($Nm{\cdot}s^{-1}$)	668.9 ± 337.0	835.6 ± 236.2*	25.0	0.57
	RTD50 ($Nm{\cdot}s^{-1}$)	580.8 ± 284.8	737.3 ± 184.7*	26.9	0.65
	RTD200 ($Nm{\cdot}s^{-1}$)	408.1 ± 185.1	501.1 ± 137.0*	22.8	0.57
Leg Flexors	RTDpeak ($Nm{\cdot}s^{-1}$)	305.1 ± 141.1	370.1 ± 127.2*	21.3	0.48
	RTD50 ($Nm{\cdot}s^{-1}$)	199.6 ± 94.6	297.5 ± 98.8*	49.0	1.01
	RTD200 ($Nm{\cdot}s^{-1}$)	208.8 ± 98.5	248.0 ± 86.3*	18.8	0.42
	Vertical Jump Height (cm)	46.0 ± 11.3	49.4 ± 11.3*	7.4	0.30

* Denotes statistically significant ($P < 0.05$) pre-post increase

Podium Abstract Presentation Guidelines

- All podium abstract presentations must be prepared in Microsoft PowerPoint.
- All presenters are asked to bring their presentation (.ppt or .pptx) to the conference on a USB flash/jump drive, CD, or their own personal laptop.
- Presenters are asked to load their presentations onto the laptop (provided by the NSCA) and ensure the presentation displays properly **before 8:30 AM on the day of the presentation**
- All presenters should check in with their session's moderator prior to presenting
    - Moderators are assigned in 1-hour blocks (i.e., 9:00-10:00 AM, 10:00-11:00 AM, and 11:00-12:00 PM). So, for example, those who are scheduled to present between 10:00-11:00 AM should check-in with their moderator before 10:00 AM.
- Podium abstract presentations must be consistent with the contents of the accepted abstract: including an introduction, methods, results, conclusion, and practical applications section.
- Podium presentations are 10-12 minutes in duration with 3-5 minutes of questions from the audience and responses from the presenter.

Example Podium Presentation (Selected Slides)*
2014 Doctoral Student Outstanding Podium Presentation

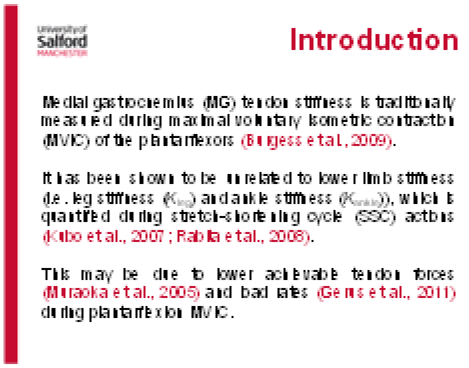
University of Salford MANCHESTER

NSCA

RELATIONSHIPS BETWEEN MEDIAL GASTROCNEMIUS TENDON STIFFNESS AND LOWER LIMB STIFFNESS DURING UNILATERAL HOPPING

John J. McMahon, CSCS, ASCC
Paul Comfort, CSCS*D, ASCC
Stephen Pearson, PhD

NSCA National Conference
Thursday 10th July 2014

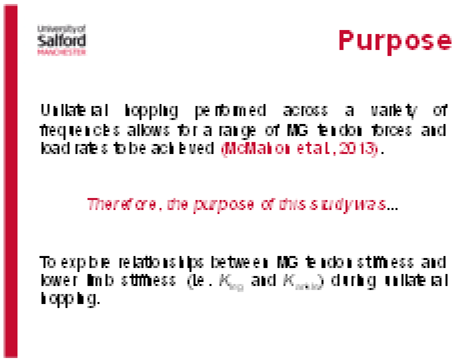


Introduction

Medial gastrocnemius (MG) tendon stiffness is traditionally measured during maximal voluntary isometric contraction (MVIC) of the plantarflexors (Burgess et al., 2009).

It has been shown to be unrelated to lower limb stiffness (i.e. leg stiffness (K_{leg}) and ankle stiffness (K_{ankle})), which is quantified during stretch-shortening cycle (SSC) actions (Kubo et al., 2007; Rabita et al., 2008).

This may be due to lower achievable tendon forces (Muraoka et al., 2005) and load rates (Geremia et al., 2011) during plantarflexion MVIC.

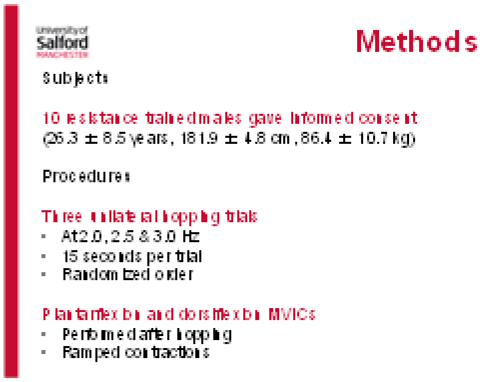


Purpose

Unilateral hopping performed across a variety of frequencies allows for a range of MG tendon forces and load rates to be achieved (McMahon et al., 2013).

Therefore, the purpose of this study was...

To explore relationships between MG tendon stiffness and lower limb stiffness (i.e. K_{leg} and K_{ankle}) during unilateral hopping.



Methods

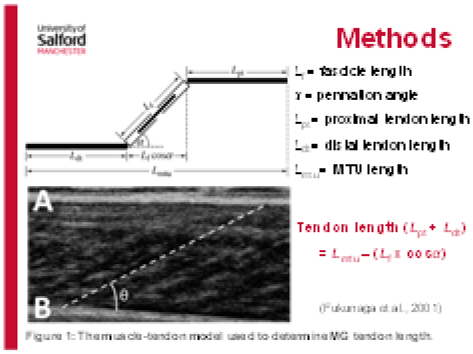
Subjects

10 resistance trained males gave informed consent
(26.3 ± 8.5 years, 181.9 ± 4.8 cm, 86.4 ± 10.7 kg)

Procedures

Three unilateral hopping trials
- At 2.0, 2.5 & 3.0 Hz
- 15 seconds per trial
- Randomized order

Plantarflexion and dorsiflexion MVICs
- Performed after hopping
- Ramped contractions



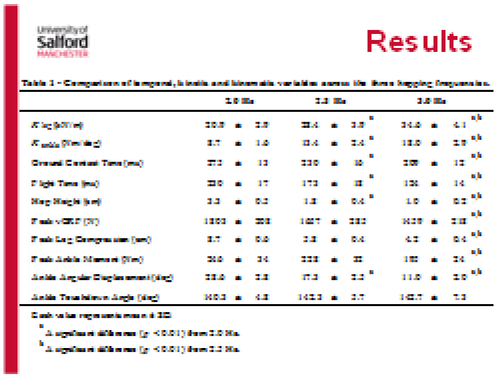
Methods

L_f = fascicle length
γ = pennation angle
L_{pt} = proximal tendon length
L_{dt} = distal tendon length
L_{mtu} = MTU length

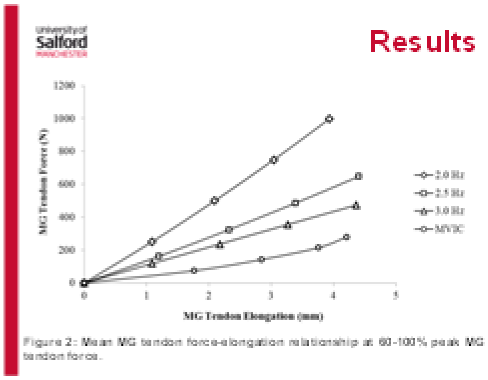
Tendon length (L_{pt} + L_{dt})
= L_{mtu} – ($L_f \times \cos\alpha$)

(Fukunaga et al., 2001)

Figure 1: The muscle-tendon model used to determine MG tendon length.

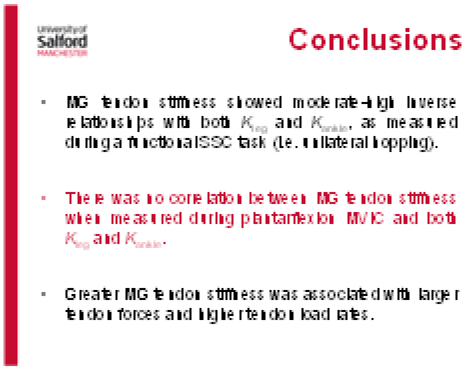


Results



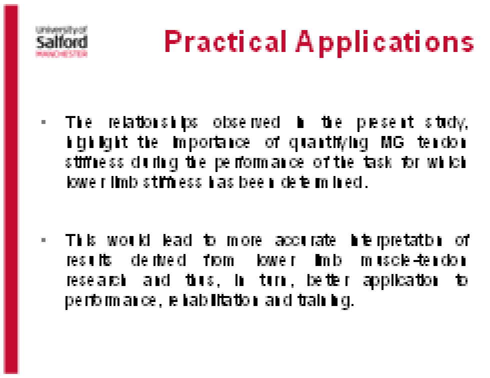
Results

Figure 2: Mean MG tendon force-elongation relationship at 60-100% peak MG tendon force.



Conclusions

- MG tendon stiffness showed moderate-high inverse relationships with both K_{leg} and K_{ankle}, as measured during a functional SSC task (i.e. unilateral hopping).
- There was no correlation between MG tendon stiffness when measured during plantarflexion MVIC and both K_{leg} and K_{ankle}.
- Greater MG tendon stiffness was associated with larger tendon forces and higher tendon load rates.



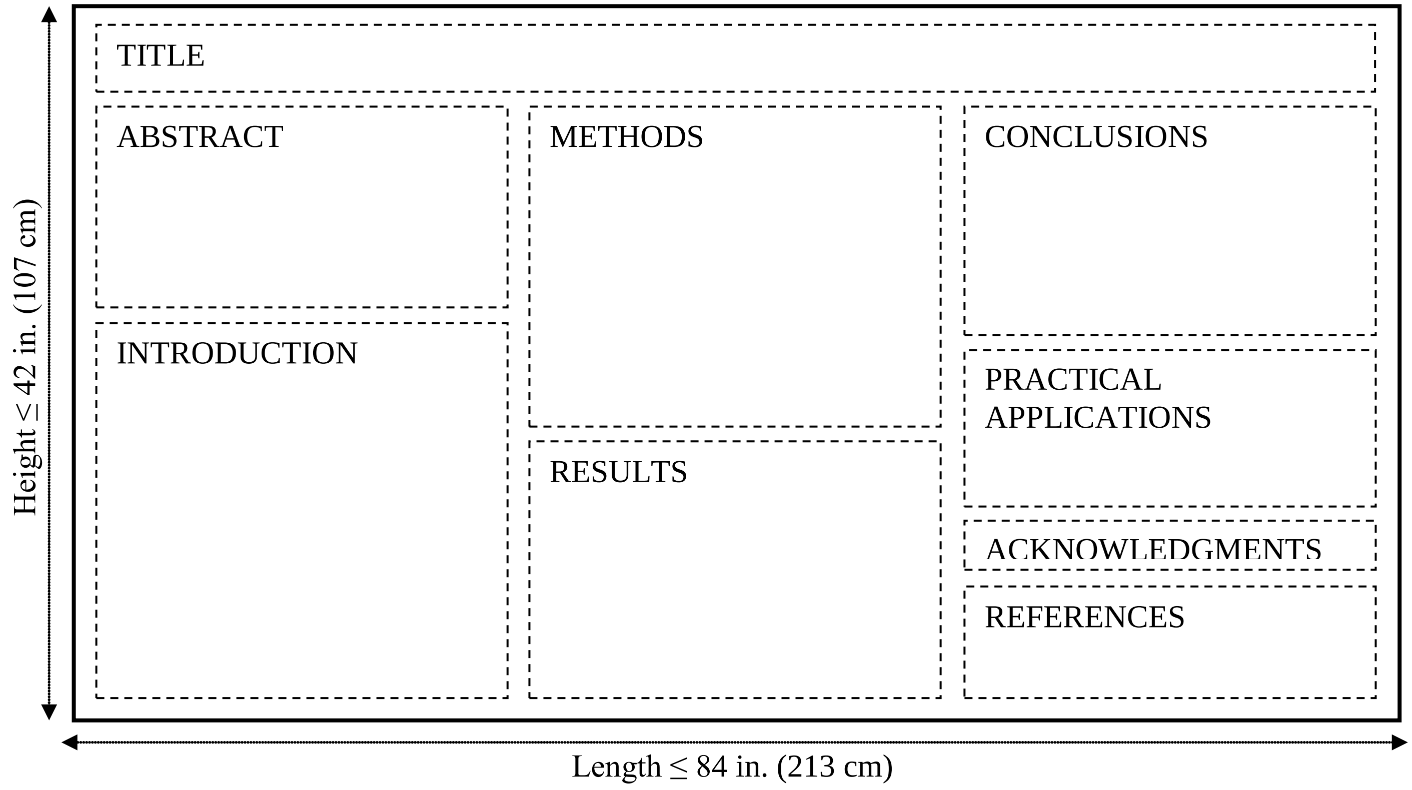
Practical Applications

- The relationships observed in the present study, highlight the importance of quantifying MG tendon stiffness during the performance of the task for which lower limb stiffness has been determined.
- This would lead to more accurate interpretation of results derived from lower limb muscle-tendon research and thus, in turn, better application to performance, rehabilitation and training.

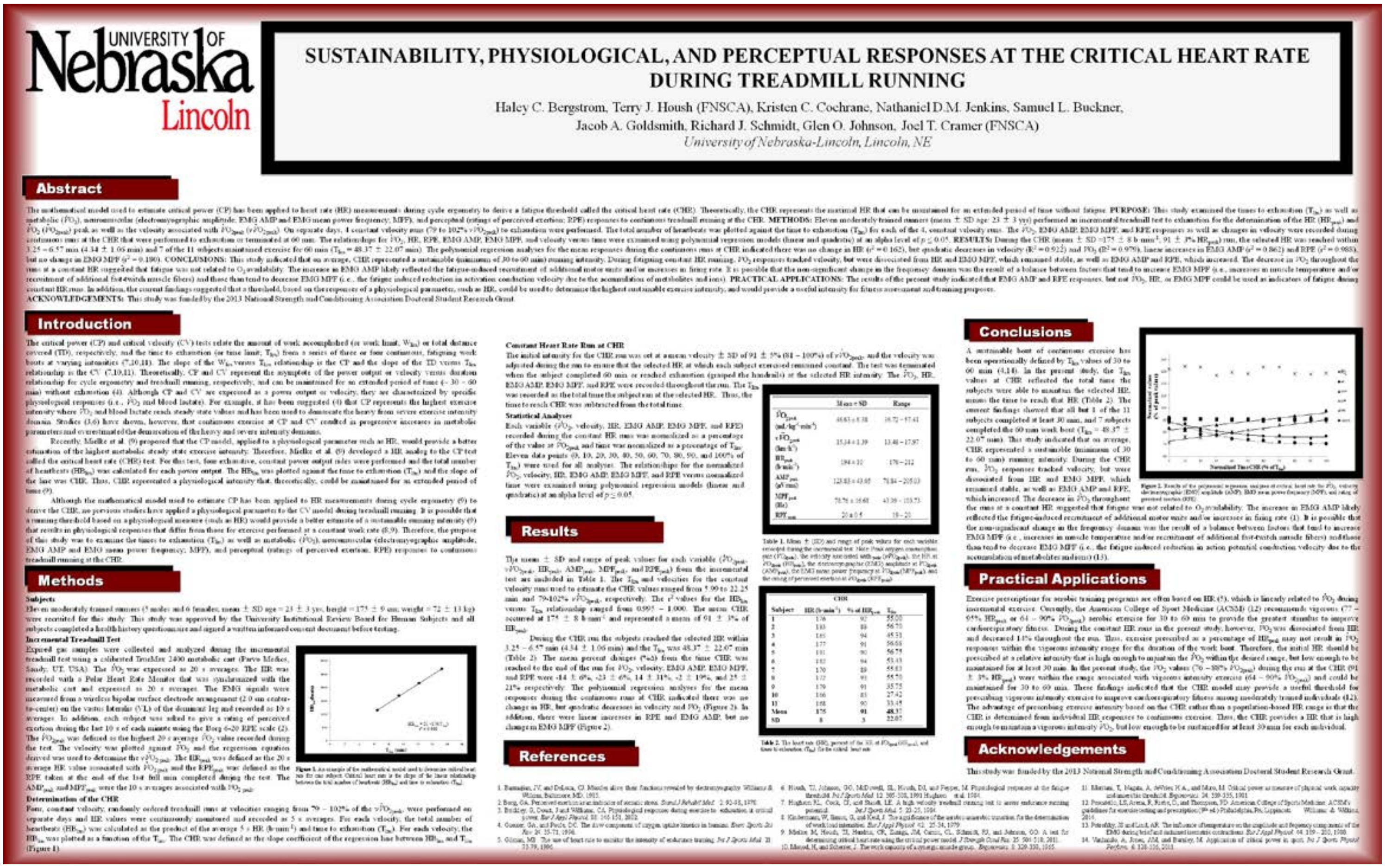
*Due to space limitations, this example contains selected slides from a larger presentation.

Poster Abstract Presentation Guidelines

- All poster presentations should be printed on one uniform poster sheet with dimensions not exceeding 42 × 84 in. (107 × 213 cm). Unless otherwise noted, the poster boards on which the posters are hung are 48 × 96 in. (122 × 244 cm).
- Presenters are required to supply their own thumb tacks by which to hang their posters.
- Poster abstract presentations must be consistent with the contents of the accepted abstract: including an introduction, methods, results, conclusion, and practical applications section.
- The Research Committee recommends the following layout as a general guideline for all poster presentations:



Example Poster Presentation
(2014 Doctoral Student Outstanding Poster Presentation)


University of Nebraska Lincoln

SUSTAINABILITY, PHYSIOLOGICAL, AND PERCEPTUAL RESPONSES AT THE CRITICAL HEART RATE DURING TREADMILL RUNNING

Haley C. Bergstrom, Terry J. Housh (FNSCA), Kristen C. Cochrane, Nathaniel D.M. Jenkins, Samuel L. Buckner,
Jacob A. Goldsmith, Richard J. Schmidt, Glen O. Johnson, Joel T. Cramer (FNSCA)
University of Nebraska-Lincoln, Lincoln, NE

Abstract

Introduction

Methods

Results

References

Conclusions

Practical Applications

Acknowledgements

Abstract Review Process

The Scientific Programs Subcommittee is responsible for reviewing the NSCA Research Abstracts to assure that the correct formatting has been applied and to solicit blinded external review(s) for scientific content. Abstracts that do not meet the previously stated formatting criteria will be rejected. The Scientific Programs Subcommittee may solicit a blinded external review. The abstract may be externally reviewed by two reviewers for scientific content, appropriate methodology, correct statistical analysis, proper interpretation of results, and contribution to the field of strength and conditioning. In cases when both reviewers suggest an abstract be rejected or the reviewers do not agree on rejecting or accepting, the Scientific Programs Subcommittee will independently re-review the abstract in question. The Scientific Program Subcommittee will have final authority in this case to accept or reject the abstract.

Abstracts that have a Fellow of the NSCA as an author (primary or secondary) will go through an expedited review process. Those abstracts will randomly be chosen to be reviewed by the Scientific Programs Subcommittee only, and a decision on rejection or acceptance will be made by the committee. Abstracts not randomly chosen for review that have a Fellow of the NSCA as an author will be automatically accepted.

Student Award Consideration

Any author who wishes to submit a research abstract for award consideration must be a student or Professional Member of the NSCA. Associate Members are not eligible for award consideration.

Student Research Award Description and Judging Criteria

The NSCA awards outstanding research efforts by students through the NSCA Student Research Awards. Five awards are given each year:

1. Doctoral Student Research Award for outstanding *podium* abstract presentation
2. Doctoral Student Research Award for outstanding *poster* abstract presentation
3. Master's Student Research Award for outstanding *podium* abstract presentation
4. Master's Student Research Award for outstanding *poster* abstract presentation
5. Undergraduate Student Research Award for outstanding *poster* abstract presentation

Student Research Award Criteria:

- Each student award applicant must be a current Student or Professional NSCA Member at the time the abstract is submitted.
- The candidate must be enrolled as a full-time student at the time of abstract submission *or* have completed his/her degree no more than 1-year prior to the NSCA National Conference.
- The abstract and the online NSCA abstract form must be completed according to the required specifications (*see above*) and the "Student Award" option box must be checked.
- The presentation guidelines (either podium or poster) must be met as stated in this document.
- A student can be the primary author on a maximum of 2 abstracts; however, only 1 abstract can be eligible for the student award.
- Student award candidates must attend the NSCA National Conference to present their research.
- Winners will be announced at the NSCA Awards Banquet on the Friday evening of the conference.

Important Note for Student Award Candidates

Due to a large number of podium and poster presentations each year, all student award candidates are required to submit their slide presentations (PowerPoint, .ppt, .pptx, or .pdf formats) and posters (.ppt, .pptx, .jpeg, .gif, .tiff, or .pdf formats) **by Thursday, June 25, 2015** for preliminary judging.

Student Award Judging Criteria

Below are five (5) basic questions and additional sub-questions that are used by the judges to evaluate the student award candidates. Each question is answered with a Likert scale response on evaluation sheets, with spaces for judges' comments. The points are tallied and the comments are considered, narrowing the candidates for consideration. After all of the presentations are delivered, the judges meet to make their selection prior to the NSCA Awards Banquet.

1. Was the presentation knowledgeable and professional?
    a. For podium presentations – were the slides readable?
    b. For poster presentations – was the poster readable?
    c. How involved was the student with this project?
        i. Did the student provide well-informed responses to the questions?
        ii. How knowledgeable was the student about this project?
    d. How well did the authors follow the guidelines for abstract presentations (component parts)?
2. Was the introduction / literature review sufficient and relevant?
3. Was the study well designed?
    a. Was the purpose clearly stated?
    b. Did the methodology address the research question?
    c. Were the statistical procedures appropriate?
    d. Were the conclusions valid based on the results of the study?
4. What was the scientific impact of the research?
5. How well did the student *bridge the gap* with the practical application section?