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# **From teacher to friend: The evolving nature of the coach-athlete relationship**

## **从老师到朋友：教练员和运动员关系的发展及其特点**

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**OBJECTIVES:** The aim of the present study was to explore the nature and development of the coach-athlete relationship from the perspective of both an athlete and a coach.

**METHOD:** Two coaches (1 female and 1 male; aged 42 and 48, respectively) and eight elite level swimmers (competing at international level; 4 females and 4 males; Mage 18.6 years, SD = 3.1 years) from the Swiss National Swimming team were interviewed individually. Interviews ranged between 60 and 90 minutes and were audio-recorded. The athletes and their respective coaches had been working together for an average of 3.5 years.

**RESULTS:** Data analysis revealed that the coach-athlete relationship gradually evolved over time, and that three specific dimensions operated in the development of this relationship: (1) developing bonds; (2) developing co-operation; and, (3) power relation.

**CONCLUSIONS:** The coach-athlete relationship occurs naturally and evolves over time. This evolution in the relationship is beneficial to the athlete's personal growth, mental strength, and athletic development. The study enhances knowledge and has theoretical and practical implications for the coach-athlete dyad.

**目的:** 本研究旨在分别从运动员和教练员的视角探索教练员和运动员关系的发展及其特点。**方法:** 分别采访了来自瑞士国家游泳队的两名教练员（一男一女，分别为 42 岁和 48 岁）和八名优秀游泳队员（国家级水平，4 男 4 女，平均年龄 18.6 岁，SD=3.1 岁）。采访时间为 60-90 分钟，全程录音。运动员和他们各自的教练员在一起工作的平均年限为 3.5 年。**结果:** 数据分析的结果表明教练和运动员之间的关系是逐渐发展的，在关系的发展过程中有三个具体的维度在起作用：（1）发展纽带（2）发展合作（3）权利关系。**结论:** 教练员和运动员的关系是自然产生，随时间发展的。这种关系的发展对运动员的个人成长，心理能量和运动员生涯的发展都很有益处。本研究增进了对教练员和运动员二元关系的理解，有很好的理论和实践意义。

# **A case study of the emotional aspects of the coach-athlete relationship in tennis**

## **网球教练员和运动员关系中情感方面的个案研究**

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**OBJECTIVES:** The aim of this study is to investigate if the concept of transference developed by the psychodynamic approach is relevant to understand the emotional aspects of the coach-athlete relationship.

**METHOD:** Participant is a 23 years old female professional tennis player. Four interviews were carried out and interpretation was made through a case study analysis.

**RESULTS:** The case study gives an insight into her personal history of past relationships and how transference was central in her relationships with coaches. An examination of her past relationships and her current relationships with coaches demonstrated that transference operated in repetition of unsuccessful relationships.

**CONCLUSION:** It is important to analyze in depth the origins of the quality and development of coach-athlete relationship. The tennis player's stories illustrate the usefulness of taking a psychodynamic approach to understanding the lives of athletes.

**目的:** 本研究旨在探索心理动力学中移情的概念是否可以帮助理解教练员和运动员关系中有关情感的方面。**方法:** 被试是一名 23 岁的女性职业网球运动员。总共对她进行了 4 次采访,之后用个案分析的方法对采访结果进行阐释。**结果:** 个案研究深入地探讨了被试过去的个人关系以及移情在她与教练员关系中起的重要作用。对被试过去关系以及她现在与教练员关系的研究表明,移情在一段段失败的关系中反复地起作用。**结论:** 本研究表明对教练员和运动员关系质量的来源及其发展进行深入地分析显得尤为重要。本研究中网球运动员的经历表明在理解运动员生活时采用心理动力学的方法尤为有效。

# **Linking maintenance strategies to the quality of coach-athlete relationships**

## **关系维持策略与教练员和运动员关系质量的相关研究**

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This study investigated associations between the use of maintenance strategies and relationship quality within coach-athlete dyads. A total of 251 participants (146 athletes and 105 coaches) were administered the Coach-Athlete Relationship Maintenance Questionnaire (CARM-Q) to measure the use of conflict management, openness, motivational, preventative, assurance, support, and social network strategies and the Coach-Athlete Relationship Questionnaire (CART-Q) to measure closeness, commitment, and complementarity. The use of openness and social networks strategies were found to be associated with closeness. The use of motivational and support strategies were linked with commitment. Complementarity was associated with the use of the preventative strategy. Conflict management and assurance were found to play more significant roles for coaches than athletes. The implications of these findings are considered along with some suggestions for further research.

本研究探讨了关系维持策略与教练员和运动员关系质量之间的联系。本研究共有 251 名被试（146 为运动员和 105 位教练员），用《教练员和运动员关系维持问卷》以及《教练员和运动员关系问卷》对其进行施测，分别测量教练员和运动员对冲突管理，开放性，动机，预防性，可靠性，支持和社会关系 7 种关系维护策略的使用情况及其关系的亲密度，责任感和互补性。研究发现对开放性和社会关系两种关系维护策略的使用与关系的亲密度相联系，对动机和支持关系维护策略的使用与责任感相联系，而互补性与预防性策略的使用相联系。冲突管理和可靠性策略的使用对教练员更加有用。本文还根据上述研究结果对进一步的研究提出了一些建议。

# **An examination of the interpersonal relationships of the coach-athlete-peer triangle**

## **对教练员，运动员及其队长三者之间关系的探讨**

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There is less knowledge about the relationship dynamics between peer leaders with their coaches and their teammates. This paper will examine the triadic peer leader-coach-athlete relationship. The 3Cs model and its accompanied CART-Questionnaire were employed to assess the coach-athlete, coach-peer leader, athlete-coach and athlete-peer leader relationships. The sample comprised 460 athletes and 59 coaches who participated in soccer and volleyball. Repeated measures MANOVA was conducted to examine athletes' and coaches' perceptions of coach-athlete, coach-peer leader, athlete-coach and athlete-peer leader relationships. Independent sample t-tests were employed to reveal differences in perceptions between athletes and coaches. The results indicated that athletes and coaches exhibited interpersonal relationships to a different extent to coaches/athletes and peer leaders. Theoretical and practical issues of the results are discussed.

当前对队长，他们的教练和他们队友之间的动力学关系知之甚少，因此本文将对这三者之间的关系做相应的探讨。用3Cs模型及其相应的《教练员与运动员关系问卷》（CART-Q）评估教练员与运动员，教练员与运动队队长，运动员与教练员和运动员与其队长之间的关系。被试样本由460位运动员和59位教练员组成，他们从事的运动为足球或排球。用重复测量方差分析测量运动员和教练员对教练员与运动员，教练员与运动队队长，运动员与教练员和运动员与其队长之间的关系的知觉。用独立样本t检验检测运动员和教练员对关系知觉的差异。结果表明运动员和教练员对教练员，运动员，运动队队长之间关系的知觉有所不同。本文进一步探讨了这一结果的理论意义和相关实践问题。

## **Reflected appraisals of coaches, parents and teammates: A key component of athletes' self?**

### **教练员，父母和队友的反映评价对运动员自我的影响**

DAVID TROUILLOUD and CHARLOTTE AMIEL

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This study investigated some ideas of the reflected appraisal process (i.e., perception of how others see us) in a sport setting. The first purpose of this study was to evaluate if athletes differentiated the reflected appraisals of three significant others: coaches, parents and teammates. The second purpose of this study was to examine the relation between reflected appraisals of those three significant others and athletes' self-perceptions in terms of competence and future progress. Participants were 368 young adult athletes (Mage = 21.13). Preliminary analyses indicated that reflected appraisals of coaches and teammates were strongly related, supporting the existence of a "generalized sport-other" (Amorose, 2003). Multiple regression analyses revealed that athletes' self-perceptions of competence were positively predicted by reflected appraisals of sport-others and parents about competence. Moreover, athletes' self-perceptions of future progress were positively predicted by reflected appraisals of sport-others and parents about future progress and by reflected appraisals of parents about competence, but negatively predicted by reflected appraisals of sport-others about competence. Results are discussed in terms of contributions to the understanding of how coaches, teammates and parents specifically shape athletes' self-perceptions.

本研究对运动情境中的反映评价过程的相关观点进行了探讨（例如：对别人有关自己看法的知觉）。该研究的首要目的是评估运动员是否能区分来自教练，父母和队友这三个重要他人的反映评价。研究还旨在探讨这三个重要他人的反映评价与运动员在能力感和未来前景方面自我知觉之间的关系。一共有 368 位青年成年运动员（平均年龄为 21.13 岁）参与了本项研究。初步分析的结果表明教练和队友的反映评价高度相关，支持了“一般运动他人”这个概念的存在。多元回归分析的结果表明运动相关他人与父母有关能力的反映评价能正向预测运动员对能力感的自我知觉。此外，运动相关他人与父母有关未来前景的反映评价以及父母有关能力的反映评价可以正向预测运动员对未来前景的自我知觉，而运动相关他人有关能力的反映评价负向预测了对运动员对未来前景的自我知觉。这一结果对理解教练，队友，特别是父母如何对运动员自我知觉的影响起着重要的作用，本文对此作了相应的讨论。

# **Perceived coach-athlete and peer relationships of young athletes and self-determined motivation for sport**

## **年轻运动员与教练员及同伴关系的知觉与其自我决定运动动机的 相关研究**

ALLISON RILEY and ALAN L. SMITH

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Drawing from the extant sport and social relationships literatures as well as self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2007), the purpose of this study was to examine the association of perceived coach-athlete and peer relationships with self-determined motivation for sport in young athletes. Basketball players (N = 211), aged from 12 to 15 years, completed survey measures of social relationships, including perceived quality of both the coach-athlete relationship and a best friendship on the team as well as peer acceptance. Players also completed measures of psychological needs including perceived autonomy, competence, and relatedness, and a measure tapping self-determined motivation. All three psychological needs partially mediated the association of the perceived coach-athlete relationship and self-determined motivation. Competence also partially mediated the association of perceived friendship quality and self-determined motivation. Social relationship constructs did not moderate one another in predicting psychological need perceptions. The results highlight the importance of both coaches and peers to motivation-related outcomes in youth sport and point to valuable future directions for sport-based social relationships research.

本文以现存的有关运动和社会关系方面的文献以及自我决定理论为依据，旨在探讨年轻运动员对教练运动员关系和同伴关系的知觉与其自我决定运动动机之间的关系。有 211 位篮球运动员参与了本研究，他们的年龄在 12 到 15 岁之间。所有被试完成了一系列测量社会关系的测验，包括对教练运动员关系质量的知觉，对在运动队最好的一段友谊质量的知觉以及同伴认同感。运动员还完成了一系列测量心理需要的测验，包括自主感，能力感和归属感，以及一个测量自我决定动机的测验。三种心理需要都在对教练和运动员关系知觉与自我决定动机之间起部分中介作用。能力感还在友谊质量知觉和自我决定动机之间起部分中介作用。社会关系包含的各个方面之间没有起相互作用，并且不能对心理需要做出预测。结果表明了教练运动员和同伴关系对于自我决定动机相关的结果在青年运动中所起的重要作用，这一结果可以有效的指导未来有关运动情境中的社会关系的研究。

# Measuring Athlete Imagery Ability: The Sport Imagery Ability Questionnaire

## 运动想象能力问卷的编制以及信效度初步检验

JSEP Volume 33, Issue 3, June

Sarah E. Williams, Jennifer Cumming

This research aimed to develop and provide initial validation of the Sport Imagery Ability Questionnaire (SIAQ). The SIAQ assesses athletes' ease of imaging different types of imagery content. Following an extensive pilot study, 375 athletes completed a 20-item SIAQ in Study 1. Exploratory factor analysis revealed a 4-factor model assessing skill, strategy, goal, and affect imagery ability. Confirmatory factor analysis (CFA) established this 4-factor structure in Study 2 (N = 363 athletes). In Study 3 (N = 438 athletes), additional items were added to create a fifth mastery imagery subscale that was confirmed through CFA. Study 4 (N = 220 athletes) compared the SIAQ to the Movement Imagery Questionnaire-3. Significant bivariate correlations ( $p < .05$ ) confirmed the SIAQ's concurrent validity but demonstrated differences in imagery ability of different content. Overall, the SIAQ demonstrates good factorial validity, internal and temporal reliability, invariance across gender, and an ability to distinguish among athletes of different competitive levels. Findings highlight the importance of separately assessing imagery ability of different content.

本研究旨在编制运动想象能力问卷（SIAQ），并且对其做初步的信效度检验。SIAQ 评估了运动员想象不同种类的形象的能力。在预调查之后进行了研究一，该研究中 375 名运动员完成了包含 20 个题目的运动想象能力问卷。探索性因素分析的结果表明该问卷为 4 因素结构，分别测量技能，策略，目标和情感想象能力。在研究二中用探索性因素分析中对该 4 因素结构进行了确认，并且发现了第五个因素，即掌握想象力。在研究三中（N=438 名运动员），增加了问卷的题目构建该第五因素分量表。研究四（N=220）将 SIAQ 与运动想象问卷-3 进行了对比，结果表明两个问卷显著相关，表明 SIAQ 有良好的聚合效度，同时也表明有内容不同，相关的想象能力也不同。总的来说，SIAQ 有良好的结构效度，内部一致性信度和重测信度。该问卷的测量结果不存在性别差异，可以区分不同运动等级的运动员的想象能力。结果还表明了对不同内容的想象能力进行区别评估的重要性。

# Women's Sport Spectatorship: An Exploration of Men's Influence

JSM Volume 25, Issue 3, May 190 - 201

Authors: Annemarie Farrell, Janet S. Fink, Sarah Fields

## 女性体育的观众群体：探索男性对女子体育的影响

While women are increasingly becoming vested fans of men's football, baseball, hockey, and basketball, the perceived barriers—sociological, psychological and practical—to watching women's sports still appear formidable for many female fans. The purpose of this study was to investigate the lack of female consumption of women's sport through the voices and perspectives of female spectators of men's sport. Based on interviews with female season ticket holders of men's collegiate basketball who had not attended women's basketball games for at least 5 years, the most robust theme to emerge was the profound male influence in the spectator lives of women. This influence was a lifelong phenomenon spanning generations, beginning with grandfathers and brothers and continuing through husbands and sons. Other factors combined with this strong influence to block participants' consumption of women's sport. These include a lack of awareness and access to women's sport and the existence of socializing agents who emphasized and prioritized male leisure interests.

虽然已有越来越多的女性是男子足球、棒球、曲棍球和篮球等的忠实观众，但是社会、心理及现实方面的阻碍任然使得女子体育运动缺乏女性观众。本文的目的是通过对男子体育运动的女性观众的意见和观点进行研究，来探索女子体育缺少女性观众的原因。对大学男子校际篮球联赛的女性季票消费者进行了采访，研究对象都是至少5年没有观看过女子篮球联赛的女性观众。研究结果显示，最主要的原因是男性对女性惯观众影响。在女性观众的一生中，男性对她们的影响一直存在，从祖父到兄弟，一直延续到丈夫以及孩子。女子体育运动女性观众数量少还受到以下因素的影响，这些因素主要包括对女子体育运动关注不够，渠道不畅，以及大众机构对男性休闲的关注偏向等。

# **Expanding the Boundaries of Sport Media Research: Using Critical Theory to Explore Consumer Responses to Representations of Women's Sports**

JSM Volume 25, Issue 3, May 202 - 216

Authors: Mary Jo Kane, Heather D. Maxwell

**扩展体育媒介研究的界限：以批判理论探索消费者对女子体育运动表现的反应**

In 2005, the Journal of Sport Management printed Wendy Frisby's Earle F. Zeigler Lecture. The main thrust of Frisby's presentation was that critical social science is an underutilized framework for conducting research in sport management and that, as a result, we remain limited in our abilities to truly understand how institutions and organizations "are best viewed as operating in a wider cultural, economic, and political context characterized by asymmetrical power relations that are historically entrenched" (2005, p.1). Other scholars such as Cunningham and Fink (2006) reinforced the importance of doing this kind of critical work. In their review of key research findings in sport management literature related to issues of diversity they concluded that the vast majority of studies "operated from the paradigm of positivism" and thus our field "could benefit from an incorporation of different investigative paradigms" (p. 458). Finally, Shaw and Frisby (2006) called for an embrace of critical theoretical frameworks which empirically address the complexities of, for example, gender relations and (in) equalities found throughout the vast sport enterprise.

2005年，本杂志刊登了北美体育管理协会齐格勒奖得主 Wendy Frisby 的发言。他的演讲的主题是在体育管理领域的研究中，批判社会科学的理论框架没有得到充分的应用，因此，我们的研究依然局限在对传统的顽固问题的研究，例如如何正确认识体育管理机构及组织在不平等权利关系支配的文化、政治和经济背景下的作用（2005，p.1）。Cunningham 和 Fink (2006) 等学者也强调了这类批判研究的重要性。在对体育管理多样性相关方面关键研究发现的回顾中，他们指出其中的大多数研究是以实证研究范式出发的，因此，采用不同的调查研究范式更有利于该领域的研究(p. 458)。最终，Shaw 与 Frisby(2006)呼吁将批判理论框架应用于实证研究中，例如广大体育业中性别关系以及平等问题等。

# Experimental Design Methods in Sport Management Research: the Playoff Safety Bias

JSM Volume 25, Issue 3, May 218 - 228 Authors: Norman O'Reilly

## 体育管理研究中的实验设计方法：季后赛的保本打算

The Playoff Safety Bias occurs when playoff appearances matter more than championships in terms of an individual's decision-making process when choosing to consume major professional sport from a set of options, referred to as the Sequential Goal Heuristic. This paper (i) demonstrates the potential value of experimental design research in sport management and (ii) provides a consumer-based perspective of playoff structure. Adopting a consumer psychology approach, a 2 (Team performance: good team/bad team)  $\times$  3 (Goal: make playoffs every year/ win at least one championship/ maximize number of championships) design was administered via a scenario presented to 152 undergraduate students. The scenario controlled and manipulated the good team/bad team construct by varying the team's past six season standings. Results revealed that the subjects instructed to maximize the number of playoff appearances had similar estimations of the ideal number of playoff teams, whether fans of a good or bad team. Conversely, of the subjects instructed to either (i) maximize the number of championships won or (ii) maximize the probability of winning at least one championship, fans of good teams over-estimated the optimal number of playoff teams significantly more than fans of bad teams. Implications for future research, practitioner application, and support of similar methods in sport management research are provided.

当消费者在选择大型职业体育赛事时，如果消费者个体更看重季后赛表现而不是冠军时，就会出现季后赛保本选择，也被称为序列目标启示方式 (Sequential Goal Heuristic)。本文中：(1) 展示实验设计研究在体育管理中的潜在价值；(2) 陈述以观众角度出发对季后赛结构的认识。研究中运用一种消费者心理方法，采用一项 2 (球队表现：好/差)  $\times$  3 (目标：每年都进季后赛/至少一次夺冠/夺冠最多次数) 式的调查设计，研究对象是 152 名大学生。通过球队在以往 6 个赛季的状态来评判强队与弱队。结果表明，不管是强队还是弱队，球队季后赛出现的最大次数与预测的理想值相似。然而，在预测 (1) 夺冠最多次数和 (2) 至少一次夺冠的最大可能性时，相对于弱队的球迷，强队的球迷们得预测明显地过于乐观。研究中还提供了后续研究、实践应用的启示，以及体育管理研究中相似办法的支持。

# **The Frequency of Nonresponse Analyses in the Journal of Sport Management**

JSM Volume 25, Issue 3, May 229 – 239

Authors: Jeremy S. Jordan, Matthew Walker, Aubrey Kent, Yuhei Inoue

## **体育管理杂志中无回复分析频率**

The failure to adequately address nonresponse issues in survey research may lead to nonresponse bias in overall survey estimates, which can severely restrict researchers' ability to make inferences to a target population. This study was designed to assess the frequency of nonresponse analyses in articles published in the Journal of Sport Management (JSM). All articles from the years 1987 through 2008 published in JSM (N = 371) were content analyzed based on a previously established coding scheme as well as additional indicators. The results revealed that only a small number of articles reported the use of nonresponse analyses as a means to control for nonresponse error.

对调查问卷中的无回复问题如果不给予足够的重视,就可能对整体调查评估产生无回复偏差影响,将严重影响研究者对目标群体的判断。本文的目的是研究《体育管理杂志》上发表的文章的无回复分析频率。用已经建立的解码方案和其它指标对 1987 至 2008 年间在《体育管理杂志》上发表的所有文章进行分析。结果显示,只有少数文章中采用了无回复分析作为控制“无回复”误差的手段。

# **A Content Analysis of Environmental Sustainability Research in a Sport-Related Journal Sample**

JSM Volume 25, Issue 3, May 240 - 256

Authors: Cheryl Mallen, Julie Stevens, Lorne J. Adams

## **体育相关杂志中环境可持续研究的内容分析**

This study systematically examined the extent of environmental sustainability (ES) research within the sport-related journal sample of academic literature to identify areas of under-emphasis and recommend directions for future research. The data collection and analysis followed a content analysis framework. The investigation involved a total of 21 sport-related academic journals that included 4,639 peer-reviewed articles published from 1987 to 2008. Findings indicated a paucity of sport-ES research articles ( $n = 17$ ) during this time period. Further analysis compared the sport-ES studies within the sample to research in the broader management literature. A research agenda is suggested to advance sport-ES beyond the infancy stage.

本研究系统的对体育相关杂志的样本文献中的环境可持续研究的广度进行了分析,以确定没有给予足够关注的研究领域,并对今后研究的方向提供建议。数据收集与分析都遵循内容分析框架。研究对象是21种杂志1987至2008年间的4639篇文献。结果显示,这一时期内对与体育相关的环境可持续研究极少(17篇)。对与体育相关的环境可持续研究同更广管理范围的研究进行了进一步对比分析。建议将与体育相关的环境可持续研究建立研究课题,使研究水平从初级阶段提升到更高层次。

作者: Cheryl Mallen, Julie Stevens, Lorne J. Adams

# Understanding Sense of Community From the Athlete's Perspective

JSM Volume 25, Issue 3, May 257 - 271

Authors: Stacy Warner, Marlene A. Dixon

## 探究运动员对社区意识的理解

Sport programs are often charged with creating a sense of community (SOC), and it is thought that doing so will benefit participants on and off the field of play. Since SOC is specific to the setting (Hill, 1996) and most research has been conducted outside of sport, the literature has not yet fully demonstrated how and when SOC is created within a sport context. Utilizing a grounded theory and phenomenological approach, this study investigated the mechanisms for creating SOC within a sport setting. Twenty former US college athletes were interviewed regarding their sport experiences. The results revealed that Administrative Consideration, Leadership Opportunities, Equity in Administrative Decisions, Competition, and Social Spaces were the most salient factors that fostered SOC. The results contribute to community building theory, and provide practical solutions for enhancing the participant experience.

体育项目中通常会要求建立一种社区意识（SOC），人们认为建立社区意识有利于参与者在场上及场下的表现。因为社区意识对应用背景有具体要求(Hill, 1996)，在体育以外的领域中已有大量对社区意识的研究，但少有相关的研究文献涉及社区意识在体育领域中是怎么发挥作用的。研究采用基础理论和现象学研究法，对体育社区意识建立的机制进行研究。对20名前大学运动员的运动经历进行了采访。结果显示，行政因素、领导机遇、行政决策平等、竞争以及社会空间等是培养社区意识的关键因素。本研究完善了社区构建理论，对丰富参与者经历提出了实践性方案。

# **Nonprofit Sport Board Performance: A Review and Directions for Future Research**

JSM Volume 25, Issue 3, May 2012 – 285 Authors: Russell Hoye, Alison Doherty

## **非营利性体育董事会绩效研究：回顾与今后研究方向**

Given the growing body of research pertaining to nonprofit sport board performance, it is timely to review the focus and findings of this body of work, and to identify what might be priorities for further investigation. An integrated model of board performance that provides a framework for this review, and for the further discussion of current findings, gaps, and areas for future research, is presented. Relatively few studies have examined nonprofit sport board performance directly, with the majority of research focused on individual and group level board processes. The impact of environmental, organizational, or individual factors on board structure or processes, or on board performance, has received limited attention. Research questions that identify gaps in the literature and thus may guide future efforts are presented.

关于非营利性体育董事会绩效的研究不断增多，因此需要及时的回顾研究，以掌握目前的研究关注点及研究结果，并确定今后研究的重点。文中以董事会绩效整体研究模式为本回顾的框架结构，并探究了目前研究结果、研究空缺及今后研究领域。对非营利性体育董事会绩效的直接研究相对较少，多数研究的关注点是个体及组织董事会运作的研究。环境因素、组织因素及个体因素对董事会结构或运作以及董事会绩效的研究没有得到充分的关注。文中指出的研究空缺以及相关方面的后续研究方向。

## Imaging Sport at the Grosvenor School of Modern Art (1929-37)

### The International Journal of the History of Sport

[Volume 28, Issue 8 & 9](#), 2011, Pages 1105 – 1120 Author: Mike O'Mahony

#### 格罗夫纳现代艺术学院中的形象体育

The mass popularity of sport in Britain during the inter-war years was a source of fascination and inspiration for a group of artists working at the Grosvenor School of Modern Art in London. Although largely neglected by their contemporaries, sport was embraced by Grosvenor School artists as a means to engage with both modernity and tradition within contemporary British culture. This essay examines one work, Cyril Power's 1930 linocut print, 'The Eight', as a case study to investigate the interrelationship between two cultural activities frequently regarded as at opposing ends of the cultural spectrum: art and sport. By simultaneously drawing upon a rich heritage of visual culture conventions and deploying new media and methods to represent the excitement, dynamism and sheer energy of sport, Power's work offers an insight into how visual culture can engage with, and enhance, our understanding of contemporary debates and practices in both fields of activity.

**Keywords:** sport; modern art; Grosvenor School; rowing; art deco

战争时期英国大众流行体育曾是伦敦格罗夫纳现代艺术学院一群艺术家们得创作灵感的源泉。虽然被当时大部分同行所忽略，但格罗夫纳现代艺术学院的艺术家们却将体育作为沟通英国文化中现代与传统元素的媒介。本文中以 Cyril Power 1930 年出版的作品《八》（the eight）为例，来研究艺术与体育——通常被认为是文化范畴内两个极端的元素之间的联系。通过视觉文化的丰富沉淀，以及新媒体和方式的展现力，Cyril Power 的作品对视觉文化是如何溶入和强化我们对当代艺术和体育领域的讨论和实践的理解上做出了诠释。

关键词：体育，现代艺术，格罗夫纳学院

# Reading Photographic Portraits of Australian Women Cyclists in the 1890s: From Costume and Cycle Choices to Constructions of Feminine Identity

The International Journal of the History of Sport Volume 28, Issue 8 & 9, 2011, Pages 1121 - 1137  
Author: Fiona Kinsey

解读 19 世纪 80 年代澳大利亚女子自行车照片：从服饰与赛车的选择到女性形象的构建

During the 1890s, in Australia and around the world, there was a convergence of the cycle, the camera and women. With the advent of the revolutionary safety bicycle, cycling had become a craze. At the same time, photographic technology had undergone changes that meant photographs were cheaper and more accessible. Women became avid consumers of both these new technologies; they became cyclists in unprecedented numbers for the first time, and they also became the popular subjects, and proud owners, of photographic portraits. These two trends converged, resulting in a proliferation of photographic portraits of women cyclists, many of which were published in newspapers and magazines. These bicycle portraits have now become a rich source for historians. More than just visually interesting artefacts, these photographic depictions of the Australian woman cyclist are important windows into the history of Australian women's cycling in the last decade of the nineteenth century. Bicycle portraits provide significant insights into the study of Australian women cyclists, from historical detail ranging from costume, bicycle and cycling activity choices to more complex understandings of the expression of feminine identity among Australian women cyclists in the 1890s.

**Keywords:** cycling; photography; identity; gender; Australia; technology

19 世纪 80 年代，在澳大利亚乃至全球，自行车、相机与女性融合在了一起。随着自行车安全性能革命性的提高，自行车运动掀起了一片热潮。与此同时，摄影技术也进行着变革，这就意味着照片成为了廉价易得之物。女性成为了这两项新科技的热心消费者，首先女性自行车手的数量史无前例的增多，她们也成为了时尚的潮流，骄傲的成为了摄影形象的主角。则两种潮流的融合，便诞生了诸多的以女性自行车手为主题的摄影作品，且大多数都出现在报刊或杂志上。这些摄影作品现在成为了历史学家们丰富的资源。它们不仅仅是视觉感官的工艺品，更是了解 19 世纪末期澳大利亚女子自行车运动的一扇窗口。自行车摄影作品让人们对于澳大利亚女子自行车历史的研究有了更深入的了解，展现了众多历史细节，从服饰、自行车、赛车运动，到更加复杂的对 19 世纪 80 年代澳大利亚女性自行车手形象表现的理解。

关键词：自行车，摄影，特征，性别，澳大利亚，技术

# Enveloping the Past: Sport Stamps, Visuality and Museums

## The International Journal of the History of Sport

Volume 28, Issue 8 & 9, 2011, Pages 1138 – 1155 Authors: Gary Osmond; Murray G. Phillips

信封上的历史：体育邮票、视觉与博物馆

Postage stamps are a significant but largely overlooked item of visual culture. This article examines how sports stamps represent the past and the ways that museums package the sporting past through philatelic exhibitions. Using the concept of the historical 'story space', we focus on the textual representation of cricket stamps and an associated philatelic exhibition in Australia. These representations of the past will be examined through a combination of both semiotic theory and the 'new museology'. As case studies, we focus on three individual cricket stamps and the depiction of these and other stamps in an associated philatelic exhibition: 'A Summer of Cricket: An Exhibition of Art, Stamps and Stories' curated by the Post Master Gallery, Australia's national philatelic museum, in 2005-6. Via such exhibitions, stamps extend beyond their initial utilitarian purpose and become important representations of the sporting past. To critique how this is achieved, this article asks: How do stamps semiotically represent cricket history? How did the gallery curate an exhibition based around cricket stamps? What curatorial philosophies and approaches provided a particular logic of representation and plausible coherence for visitors? And what narratives were generated by exhibiting stamps in a broader context of the relationship between cricket and national identity? Through these questions, this article reflects on the nexus of stamps and museums in visually narrating sports history.

**Keywords:** cricket; museums; new museology; semiotics; stamps

邮票是一种重要的但却被忽视的视觉文化形式。本文探究了体育邮票是如何再现历史，以及博物馆以集邮展呈现体育史的方式。运用历史“素材库”的理念，文中重点对澳大利亚集邮展上的板球邮票进行了文本分析。通过符号语言学理论及新博物馆学的结合，分析了邮票对历史的再现。作为案例研究，本文中对2005年6月澳大利亚国家集邮博物馆后现代大师展厅“板球之夏——艺术、邮票与故事”邮票展上的三款不同的板球邮票进行研究。通过这类展览，邮票的价值超越了其原有的作用，成为了展现历史的重要媒介。为展开研究，本文中提出以下问题：邮票怎样以符号语言表现板球的历史？展馆如何以板球邮票为主题开展展览？采用何种策展理念以达到特定展示逻辑与参观者的一致性？邮票展在诠释更广层面的板球与国家形象之间关系上所传递的信息是什么？通过上述问题，本文探讨了邮票与博物馆在通过视觉手段展示体育历史上的联系。

关键词：板球，博物馆，新博物馆学，符号语言学，邮票

# Pedal-Powered Avant-Gardes: Cycling Paintings in 1912-13

## The International Journal of the History of Sport

Volume 28, Issue 8 & 9, 2011, Pages 1156 - 1173

Author: Bernard Vere

### 脚踏板推动的前卫艺术：自行车画作——1912-1913

This essay examines three paintings of sporting cyclists completed within 18 months of one another: the German Expressionist Lyonel Feininger's *The Bicycle Race*; the French Cubist Jean Metzinger's *At the Cycle-Race Track*; and the Italian Futurist Umberto Boccioni's *Dynamism of a Cyclist*. Although near-contemporaneous, the works are notable for their spread across Europe. Professional cycling developed as a distinct facet of modernity. Races were supported by the emerging sporting press in tandem with cycle manufacturers; they were a form of exhibition as much as a contest. But although the subject matter is identical, the paintings are not reducible to one another. Feininger focuses on the uniformity of a group of cyclists. Metzinger's work is linked to French nationalism. Boccioni painted as a response to rival efforts to depict movement as well as the adoption of sporting themes by Salon Cubism, which threatened Italian Futurism's identity as a separate movement.

**Keywords:** Lyonel Feininger (1871-1956); Jean Metzinger (1883-1956); Umberto Boccioni (1882-1916); professional cycling; avant-garde art

本文审视了 18 个月时间段中相继完成的 3 幅以自行车运动为主题的画作，分别是德国表现主义画家利奥尼·费宁格的《自行车赛》；法国立体派画家梅津杰的《在自行车赛道上》；意大利未来主义画家翁贝特·波丘尼的《自行车手的活力》。三幅作品近乎同时期完成，但都在欧洲广泛的流传。职业自行车运动成为了现代性的明显标志。自行车比赛通常由体育媒体和自行车制造商联合赞助，比赛是竞争的同时也是一种展示。三幅画作虽然都已同一事物为主题，但其中有各有千秋。费宁格强调一群自行车选手的统一性，梅津杰的作品与法国民族主义相关联。波丘尼的作品极力描绘运动，同时又包含沙龙立体派的运动风格，这一作品使意大利未来主义运动的独立性受到了质疑。

关键词：利奥尼·费宁格(1871-1956)，简·梅津杰(1883-1956)，翁贝特·波丘尼(1882-1916)，职业自行车运动，前卫艺术

# Stadiums: Architecture and the Iconography of the Beautiful

## Game

The International Journal of the History of Sport  
Volume 28, Issue 8 & 9, 2011, Pages 1174 - 1185  
Author: Benjamin Flowers

## 体育场馆：建筑与形象的华美游戏

For many, football is at its core a game about space. Indeed Johan Cruyff, one of the greatest players of the postwar era, was called 'Pythagoras in boots'. And yet, although analysts and observers have long commented on the use of space by the players on the pitch, far less critical attention has been paid to the nature of the designed space in which that activity takes place: the stadium. Likewise, many historians of sport and historians of architecture have neglected the architecture of stadiums as a site for inquiry. This article mines the intertwined social practices of sport and architecture in order to understand how the visual iconography of the stadiums are deployed to define urban, national, and sporting identity.

**Keywords:** football; stadiums; architecture; urban identity

对大多数人来说，足球本质上就是一场关于空间的游戏。的确，战后时期最伟大的球员之一克鲁伊夫就享有“穿着战靴的毕达哥拉斯”之称。虽然以往已有对球员利用边线空间的分析和观察，但却很少有研究关注进行这项运动所需场馆的空间设计的本质。同样，众多体育史学者及建筑史学家也忽略了体育场馆建筑的研究。本文将体育社会实践活动与建筑结合起来，以分析体育场馆的视觉形象在凸显城市、国家以及体育形象中的作用。

关键词：足球，体育场馆，建筑，城市特征

# Mapping America's Sporting Landscape: A Case Study of Three

## Statues

The International Journal of the History of Sport  
Volume 28, Issue 8 & 9, 2011, Pages 1252 - 1268  
Author: Maureen Margaret Smitha

## 勾勒美国的体育景象：对三尊雕像的案例分析

This article examines three sport statues in the United States: Pat Tillman, National Football League player and American soldier; Tommie Smith and John Carlos, 1968 Olympians; and Wilma Rudolph, the first American woman to win three gold medals in track and field at the 1960 Olympic Games. Each statue was analysed in material culture terms as a hegemonic representative of the dominant types of sport statue found in the USA and in terms of their role in American cultural sporting memory, heritage construction and myth-making. Key themes include their forms and functions, their processes of construction, the selection of the artist and the multiple readings of the statue by the public.

**Keywords:** sport statues; sporting landscapes; war memorials

作者: Maureen Margaret Smith

本文中对美国的三尊体育人物雕像进行了分析，分别是全美橄榄球联盟球员兼军人的帕特·蒂尔曼；1968年奥运会奖牌得主托米史密斯和约翰卡洛斯，以及1960年奥运会上美国历史上第一位获得田径冠军的女性，威尔玛鲁道夫。对每一尊雕像从物质文化角度进行分析，他们都代表着各自项目在美国的霸主地位，同时这些雕像在构成美国体育文化记忆、文化遗产构建以及塑造传奇等方面起到了一定的作用。讨论的关键主题包括：雕像的造型与功能、铸造过程、选择艺术家，还有大众对雕像的反应。

关键词：体育雕像，体育景象，战争记忆

# Sport for Grown Children': American Political Cartoons,

1790-1850

The International Journal of the History of Sport  
Volume 28, Issue 8 & 9, 2011, Pages 1301 - 1318  
Author: Kenneth Cohen

## “大孩子的体育”：美国政治漫画

This article explores the emergence of sporting-themed political cartoons in early nineteenth-century America. By using material culture and archaeological methodologies, rather than a traditional visual culture approach, it both explains the genre's development in terms of context (a changing electoral system) and also situates the cartoons within a wider range of sources revealing sport's broader function in that context. In the end, the 'sporting political cartoon' appears as an efficient and persuasive symbol, but just one part, of a larger project involving the application of a contentious white masculine sporting culture to party politics.

**Keywords:** sport; history; politics; method; political cartoons; early America

作者: Kenneth Cohen

摘要

本文探究了十九世纪初期美国出现的以体育为主题的政治漫画。本文没有采用传统的视觉文化方式，而是采用物质文化与考古学方法来诠释这一体裁在特定背景（选举制度发生变革）中的发展，并将漫画置于从更广的范围中以探索体育在当时背景下的更广泛的功能。最终，“体育政治漫画”被证明是一种有效地具有说服力的标志，但有又具有局限性，它只是党派政治利用备受争议的白人阳刚体育文化的更大项目中的一部分。

关键词：体育，历史，政治，方法，政治卡通，美国早期

# Effects of cigarette smoking on cardiac autonomic function during dynamic exercise

Journal of Sports Sciences

Volume 29, Issue 9, First published 2011, Pages 879 - 886

Authors: Goncalo V. Mendonca; Fernando D. Pereira; Bo Fernhall

## 吸烟对动力运动中心肌自主神经功能的影响

The purpose of this study was to investigate the acute effect of cigarette smoking on cardiac autonomic function in young adult smokers during dynamic exercise. Fourteen healthy young smokers ( $21.4 \pm 3.4$  years) performed peak and submaximal exercise protocols under control and smoking conditions. Resting and submaximal beat-to-beat R-R series were recorded and spectrally decomposed using the fast Fourier transformation. Smoking resulted in a significant decrease in work time,  $[\dot{V}O_{2peak}]$  and peak  $O_2$  pulse ( $P < 0.05$ ). Heart rate increased at rest and during submaximal exercise after smoking ( $P < 0.05$ ). The raw high frequency and low frequency power were significantly reduced by smoking, both at rest and during exercise ( $P < 0.05$ ). The low to high frequency ratio was higher after smoking ( $P < 0.05$ ). The normalised low frequency power was also significantly increased by smoking, but only at rest ( $P < 0.05$ ). These data demonstrate that the tachycardic effect elicited by smoking is accompanied by acute changes in heart rate spectral components both at rest and during exercise. Therefore, the cardiac autonomic control is altered by smoking not only at rest, but also during exercise, resulting in reduced vagal modulation and increased sympathetic dominance.

**Keywords:** Cardiac autonomic function; smoking; exercise

本文的目的是研究吸烟对动力运动中心肌自主神经功能的急性影响。研究对象是 14 名健康的青年吸烟者 ( $21.4 \pm 3.4$  岁), 在实验调控的吸烟情景下进行极量运动训练和亚极量运动训练。用快速傅立叶变换对休息时及亚极量运动时的每节的心率及图谱进行了记录和分析。吸烟明显导致了工作时间、最大摄氧量和峰值脉搏含氧量减少 ( $P < 0.05$ )。吸烟后处于休息状态和亚极量运动状态的心率都有所增高 ( $P < 0.05$ )。吸烟后处于休息状态和亚极量运动状态的原高频和低频力量都有明显减少 ( $P < 0.05$ )。吸烟后由低到高的频率增高 ( $P < 0.05$ )。只有在休息状态下, 常规低频力量在吸烟后会增加 ( $P < 0.05$ )。数据表明, 由吸烟引起的心律不齐伴随有心率图谱上的急剧变化, 不论是在休息状态还是运动过程中。因此, 吸烟引起的心肌自主神经控制不仅影响休息时的状态, 也影响运动时的状态, 会导致迷走神经活性下降, 交感神经作用加强。

关键词: 心肌自主神经功能, 吸烟, 训练

# Accelerometer-measured daily physical activity related to aerobic fitness in children and adolescents

## Journal of Sports Sciences

Volume 29, Issue 9, First published 2011, Pages 887 - 895

Authors: Magnus Dencker; Lars B. Andersen

### 日常体育运动加速度表测量数据与儿童和青少年的有氧运动

Maximum oxygen uptake ( $\dot{V}O_{2PEAK}$ ) is generally considered to be the best single marker for aerobic fitness. While a positive relationship between daily physical activity and aerobic fitness has been established in adults, the relationship appears less clear in children and adolescents. The purpose of this paper is to summarise recently published data on the relationship between daily physical activity, as measured by accelerometers, and  $\dot{V}O_{2PEAK}$  in children and adolescents. A PubMed search was performed on 29 October 2010 to identify relevant articles. Studies were considered relevant if they included measurement of daily physical activity by accelerometry and related to a  $\dot{V}O_{2PEAK}$  either measured directly at a maximal exercise test or estimated from maximal power output. A total of nine studies were identified, with a total number of 6116 children and adolescents investigated. Most studies reported a low-to-moderate relationship ( $r = 0.10-0.45$ ) between objectively measured daily physical activity and  $\dot{V}O_{2PEAK}$ . No conclusive evidence exists that physical activity of higher intensities are more closely related to  $\dot{V}O_{2PEAK}$ , than lower intensities.

**Keywords:** Maximum oxygen uptake; aerobic fitness; accelerometers; accelerometry; daily physical activity; children

最大摄氧量通常被认为是衡量有氧运动的唯一最佳标准。研究已经证明了成年人的日常体育运动与有氧运动间存在积极联系，然很少有研究分析儿童与青少年的日常体育活动与有氧运动间的联系。本文的目的是对近期出版的运用加速度测量表数据研究儿童和青少年日常体育运动中最大摄氧量的文献进行总结。于2010年10月29日在PubMed数据库中进行相关文献的搜寻。若文献涉及运用加速度测量表测量儿童及青少年的日常体育活动，并与最大摄氧量相关，不论是直接监测极量运动测试还是对最大能量消耗的预测，都被列入研究的对象。最终从6116名参与儿童和青少年中确定出9人。大多数研究指出客观测量的每日体育活动与最大摄氧量呈现中低水平的联系( $r = 0.10-0.45$ )。没有结论性的证据表明高密度体育活动与最大需氧量的联系比低密度体育活动与最大摄氧量的联系更加紧密。

关键词：最大摄氧量，有氧运动，加速度测量表，加速度测量技术，日常体育运动，儿童

# Initial hydration status, fluid balance, and psychological affect during recreational exercise in adults

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Authors: Oliver J. Peacock; Keith Stokes; Dylan Thompson

## 初始水化状态、体液平衡及心理反应对成年人娱乐体育运动的影响

There is little information on the impact of hydration status on the psychological response to exercise despite potential implications for adherence to an exercise programme and for overall health and fitness. We investigated initial hydration status, fluid balance, and psychological responses associated with a typical recreational exercise session in healthy adults. Fifty-two participants performed a freely chosen gymnasium-based exercise session at a fitness centre, with *ad libitum* access to fluids. Urine samples were collected on arrival for analysis of osmolality. Sweat loss was estimated from the change in body mass after correction for fluid intake and urinary losses. Subjective psychological ratings were recorded before and after exercise. Pre-exercise urine osmolality was above  $900 \text{ mOsmol} \cdot \text{kg}^{-1}$  (used as a threshold for hypohydration) in 37% of participants. Fluid intake during exercise was  $390 \pm 298 \text{ mL}$ , while estimated sweat loss was  $794 \pm 391 \text{ mL}$ . The percentage change from pre-exercise body mass was  $-0.62 \pm 0.20\%$ . Physically active adults who arrived to take part in exercise hypohydrated reported more negative changes in psychological affect in response to their subsequent freely chosen recreational exercise session than those classified as euhydrated prior to exercise ( $-0.2 \pm 0.7$  vs.  $0.8 \pm 0.7$ ;  $P < 0.005$ ).

**Keywords:** Dehydration; voluntary drinking; urine osmolality; subjective states

关于人体水化状态对运动时心理反应的影响的信息稀少，也没有水化状态在运动项目中如何使人达到全面健康的应用方面的研究。本文中研究了初始水化状态、体液平衡和心理反应在健康成年人娱乐体育运动过程中的作用。52名参与者在体操馆内自由选择运动项目，并可以随意饮水。对尿液样本进行尿渗摩尔浓度检测。通过体重以及摄入量与排尿量的误差校正，对汗液排量进行了估测。对受试者在运动前后的主观心理状态评定进行了记录。运动前，37%受试者的尿渗摩尔浓度是  $900 \text{ mOsmol} \cdot \text{kg}^{-1}$  (设为衡量缺水状态的分割线)。运动中饮水量为  $390 \pm 298 \text{ mL}$ ，汗液流失估测值为  $794 \pm 391 \text{ mL}$ 。运动后体重减轻的百分值为  $-0.62 \pm 0.20\%$ 。在娱乐锻炼过程中运动活跃的成年人群体里，出现脱水现象的人相比较水化状态正常的人而言，其运动后的心理反应变化呈负值 ( $-0.2 \pm 0.7$  vs.  $0.8 \pm 0.7$ ;  $P < 0.005$ )。

关键词：脱水，自发饮水，尿渗摩尔浓度，主观陈述

# Effects of optimal pacing strategies for 400-, 800-, and 1500-m races on the $\dot{V}O_2$ response

Journal of Sports Sciences

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Authors: Christine Hanon; Claire Thomas

## 400、800、1500 米赛跑最佳协调策略中的耗氧量状况

The aim of this study was to compare the evolution of oxygen uptake ( $\dot{V}O_2$ ) in specifically trained runners during running tests based on the 400-, 800-, and 1500-m pacing strategies adopted by elite runners to optimize performance. Final velocity decreased significantly for all three distances, with the slowest velocity in the last 100 m expressed relative to the peak velocity observed in the 400 m (77%), 800 m (88%), and 1500 m (96%). Relative to the previously determined  $\dot{V}O_{2max}$  values, the respective  $\dot{V}O_{2peak}$  corresponded to 94% (400 m) and 100% (800 and 1500 m). In the last 100 m, a decrease in  $\dot{V}O_2$  was observed in all participants for the 400-m ( $15.6 \pm 6.5\%$ ) and 800-m races ( $9.9 \pm 6.3\%$ ), whereas a non-systematic decrease ( $3.6 \pm 7.6\%$ ) was noted for the 1500 m. The amplitude of this decrease was correlated with the reduction in tidal volume recorded during the last 100 m of each distance ( $r = 0.85, P < 0.0001$ ) and with maximal blood lactate concentrations after the three races ( $r = 0.55, P < 0.005$ ). The present data demonstrate that the 800 m is similar to the 400 m in terms of decreases in velocity and  $\dot{V}O_2$ .

**Keywords:** Pacing strategy; oxygen uptake; running; performance

本文的目的是比较研究 400、800、1500 米赛跑中对竞技运动员采用最佳协调策略进行提高表现性能的特殊训练中的耗氧量情况。最后阶段的速度在三项不同距离的比赛中均有明显下降，各距离段最后 100 米的速度分别只有其最大速度的 77%（400 米）88%（800 米）96%（1500 米）。最后阶段的耗氧量分别是前期最大耗氧量的 94%（400 米）和 100%（800、1500 米）。在最后 100 米阶段，所有受试者中观测到耗氧量在 400 米赛跑中下降了  $15.6 \pm 6.5\%$ ，800 米比赛中下降了  $9.9 \pm 6.3\%$ ，但在 1500 米赛跑中耗氧量只出现非系统性下降 ( $3.6 \pm 7.6\%$ )。耗氧量变动幅度与各距离段最后 100 米时的速度变化 ( $r = 0.85, P < 0.0001$ ) 以及各距离段赛后最大血乳酸浓度 ( $r = 0.55, P < 0.005$ ) 相关。已有研究数据显示，400 米与 800 米赛跑中速度与耗氧量的变化相似。

关键词：协调策略，耗氧量，赛跑，性能

# Autonomic nervous system modulation during an archery competition in novice and experienced adolescent archers

## Journal of Sports Sciences

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Authors: Andres E. Carrillo; Vasilios X. Christodoulou; Yiannis Koutedakis; Andreas D. Flouris

### 新手与经验丰富的青年射手在射箭比赛中的自主神经系统调节

We assessed autonomic nervous system modulation through changes in heart rate variability during an archery competition as well as archery performance by comparing novice and experienced adolescent archers. Seven novice (age  $14.0 \pm 8.5$  years, body mass index  $22.9 \pm 4.3 \text{ kg} \cdot \text{m}^{-2}$ , training experience  $0.4 \pm 0.3$  years) and ten experienced archers (age  $16.5 \pm 10.3$  years, body mass index  $22.4 \pm 3.1 \text{ kg} \cdot \text{m}^{-2}$ , training experience  $4.1 \pm 0.9$  years) volunteered. Using beat-by-beat heart rate monitoring, heart rate variability was measured for 20 s before each arrow shot during two rounds of competition. We found that, compared with novices, experienced adolescent archers: (i) take more time per shot; (ii) have a higher low frequency band, square root of the mean of squared differences between successive R-R intervals (i.e. the time elapsing between two consecutive R waves in the electrocardiogram), and percentage of successive normal-to-normal intervals greater than 50 ms; and (iii) demonstrate an increase in parasympathetic nervous system activity compared with pre-competition values. We propose that these characteristics of experienced archers are appropriate for optimal performance during competition.

**Keywords:** Heart rate variability; performance; accuracy; sympathetic nervous system; parasympathetic nervous system

本文中对比新手和经验丰富的射手在射箭比赛中的表现并通过心率变化对自主神经系统调节进行研究。7名新手（年龄  $14.0 \pm 8.5$  岁；体重指数  $22.9 \pm 4.3 \text{ kg} \cdot \text{m}^{-2}$ ；训练年限  $0.4 \pm 0.3$  年）和10名经验丰富（年龄  $16.5 \pm 10.3$  岁；体重指数  $22.4 \pm 3.1 \text{ kg} \cdot \text{m}^{-2}$ ；训练年限  $4.1 \pm 0.9$  年）的射手为自愿受试者。对受试者进行逐节检测，记录两轮射箭比赛中每一次发箭前20秒的心率变化。研究发现，相对于新手，经验丰富的射手：（1）每次射击前准备时间长；（2）低频带较多，连续R-R间隔的均方根方差大【例如：心电图连续R波形间的时间】，每一连续常规间隔的时间大于50ms；（3）副交感神经系统活跃度相对比赛前状态有所提高。研究指出上述经验丰富运动员的特征有利于在比赛中达到最佳表现。

关键词：心率变化，表现，准确度，交感神经系统，副交感神经系

# Active recovery effects on local oxygenation level during intensive cycling bouts

Journal of Sports Sciences

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Authors: Keisuke Koizumi; Yukio Fujita; Shigeji Muramatsu; Motomu Manabe; Motoki Ito; Jun Nomura

## 当地充氧水平下积极恢复对高强度自行车赛的影响

We hypothesised that the oxygen supply to the fatigued muscles is improved after the recovery with exercise caused by aerobic metabolism in the slow twitch fibres during the recovery period. Ten males performed a 30 s maximum cycling (1st Exercise), followed by a 20 min rest interval (Interval Rest) in which participants were either sitting (No Exercise) or low intensive cycling (Active). Then they again underwent a 30 s bout of maximum cycling (2nd Exercise). The total work of the 2nd Exercise was higher in Active compared to No Exercise ( $297 \pm 14$  vs  $276 \pm 23$  J · kg<sup>-1</sup>,  $P < 0.01$ ). After Interval Rest, the muscle oxygenation level ( $P < 0.05$ ) and blood lactate concentration ( $P < 0.05$ ) were lower in Active compared to No Exercise. In Active, the total work was higher in the 2nd Exercise than the 1st Exercise ( $297 \pm 14$  vs  $277 \pm 23$  J · kg<sup>-1</sup>,  $P < 0.01$ ), and muscle oxygenation levels during the 2nd Exercise were also higher at 10 ( $P < 0.05$ ) and 15 ( $P < 0.01$ ) s after the beginning of the exercise. It was suggested that active recovery exercise would manage to increase the muscle oxygenation level, and improve the performance during the 2nd Exercise accompanied with blood lactate control.

**Keywords:** Near-infrared spectroscopy; Wingate test; recovery exercise; oxygen consumption

研究假设肌肉供氧能力在慢缩肌纤维有氧代谢运动恢复后会提高。10名男性运动员进行30秒（1阶段训练）极量骑车运动，之后有20分钟的休息阶段（Interval Rest），休息期间运动可以静坐（不运动）或进行低强度骑车运动（积极）。然后再进行30秒（2阶段）极量骑车运动。休息阶段采用积极恢复的运动员比静态恢复的运动员所做功要高（ $297 \pm 14$  vs  $276 \pm 23$  J · kg<sup>-1</sup>,  $P < 0.01$ ）。休息阶段过后，积极恢复的肌肉含氧水平（ $P < 0.05$ ）和血乳酸浓度（ $P < 0.05$ ）比静态恢复的低。在积极恢复训练下，第二阶段比第一阶段运动所作的总功要多（ $297 \pm 14$  vs  $277 \pm 23$  J · kg<sup>-1</sup>,  $P < 0.01$ ），在第二阶段运动后，肌肉含氧水平分别比运动前增加了10（ $P < 0.05$ ）和15（ $P < 0.01$ ）。结论建议积极恢复训练可增加肌肉氧合水平，改善第二阶段运动中的血乳酸控制，提高表现能力。

关键词：近红外光谱，Wingate测试，恢复训练，耗氧量

# The rating of perceived exertion predicts intermittent vertical jump demand and performance

## Journal of Sports Sciences

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### 运用先觉表现评定预测间歇垂直跳跃的心理需求和表现

The aims of this study were (a) to assess the ability of the rating of perceived exertion (RPE) to predict performance (i.e. number of vertical jumps performed to a fixed jump height) of an intermittent vertical jump exercise, and (b) to determine the ability of RPE to describe the physiological demand of such exercise. Eight healthy men performed intermittent vertical jumps with rest periods of 4, 5, and 6 s until fatigue. Heart rate and RPE were recorded every five jumps throughout the sessions. The number of vertical jumps performed was also recorded. Random coefficient growth curve analysis identified relationships between the number of vertical jumps and both RPE and heart rate for which there were similar slopes. In addition, there were no differences between individual slopes and the mean slope for either RPE or heart rate. Moreover, RPE and number of jumps were highly correlated throughout all sessions ( $r = 0.97-0.99$ ;  $P < 0.001$ ), as were RPE and heart rate ( $r = 0.93-0.97$ ;  $P < 0.001$ ). The findings suggest that RPE can both predict the performance of intermittent vertical jump exercise and describe the physiological demands of such exercise.

**Keywords:** Countermovement jump; blood lactate concentration; heart rate; fatigue; rest period

本研究的目的是 (a) 研究先觉表现评定预测间歇性垂直跳跃训练【例如：垂直跳跃指定高度】表现的能力；(b) 研究先觉表现评定在表述该项训练所需的心理需求的能力。8 名健康男性进行垂直跳跃训练，间歇时间为 4、5、6 秒，训练直到感到疲劳为止。在整个训练过程中，对受试者每五次跳跃的心率和先觉表现预测进行记录。随机系数增长曲线分析指出，跳跃次数与心率和先觉表现评定的关系的曲线相似。此外，个人的心率以及先觉表现评定的曲线与平均值曲线也没有差别。先觉表现评定与跳跃次数高度相关 ( $r = 0.97-0.99$ ;  $P < 0.001$ )，先觉表现评定与心率也高度相关 ( $r = 0.93-0.97$ ;  $P < 0.001$ )。研究结果建议：先觉表现评定可以预测间歇性垂直跳跃的表现以及训练所需的心理需求。

关键词：反向跳，血乳酸浓度，心率，疲劳，休息阶段