PostScript

RESEARCH LETTERS

Rapid responses

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The editors will decide, as before, whether to also publish it in a future paper issue.

Significant association between fluctuations in serum urate and high density lipoprotein cholesterol during exhaustive training

Physical activity is generally accepted as a widely accepted means to increase serum high density lipoprotein cholesterol (HDL-C) levels. However, how exhaustive training influences serum HDL-C levels remains unknown. Intense exercise increases oxygen consumption and free radical formation, and induces oxidation of low density lipoprotein (LDL). HDL plays an important protective role in LDL oxidation. An imbalance between free radical production and antioxidants is considered to lead to oxidation of LDL and subsequent alterations in serum HDL metabolism. This study investigates changes in serum urate, which is the most important intrinsic antioxidant, and serum lipids in male athletes after three weeks of exhaustive training.

We measured fasting serum lipids and urate in 11 male athletes (mean SD) age 21.2 (2.2) years; height 168.3 (4.2) cm; body weight 65.4 (3.7) kg before and after three weeks of exhaustive training. All the subjects performed the same intensity exercise, which consisted of a 20 (3) km run and isometric training for two hours every day for three weeks. The daily diet provided 9802 (209) KJ and consisted of about 12–15% protein, 55–65% carbohydrate, and 25–30% fat over the study period. None were taking drugs known to affect lipid and lipoprotein metabolism. Special care was taken to exclude athletes using anabolic drugs, vitamins, or other antioxidants or who were smokers. Serum lipids were measured by automated enzymatic means using Determiner TC (Kyowa Medex Co, Tokyo, Japan) for total cholesterol, AutoSera S TG-N (Daichii Pure Chemicals, Tokyo, Japan) for triglycerides, Determiner HDL-C (Kyowa Medex) for HDL-C, and Cholestest LDL (Daichii Pure Chemicals) for LDL-C. Serum urate was measured using the uricase calorimetric method (Fuji Co, Tokyo, Japan).

After three weeks of training, serum HDL-C levels increased in six subjects, and decreased in five (fig 1A). As expected, the changes in serum LDL-C levels were inversely associated with the change in serum HDL-C levels (data not shown). However, serum triglyceride levels were not significantly different after training in all participants (data not shown). Unexpectedly, serum urate levels decreased in all subjects with increased HDL-C levels, but increased in all with decreased HDL-C levels (fig 1B). The change in serum urate levels correlated significantly and inversely with the change in serum HDL-C levels (fig 2).

Physical activity is a widely accepted means of increasing serum HDL-C levels, and it represents a metabolic adaptation that contributes to a reduced risk of coronary heart disease. However, the influence of exhaustive training on serum HDL-C levels remains obscure. Our data show that the effect of the same conditioned exhaustive training on serum HDL-C levels varies greatly among individuals.

Furthermore, we identified a significant inverse correlation between the changes in serum urate, which is the most important intrinsic antioxidant, and HDL-C levels, indicating the close association between urate and HDL metabolism during exhaustive training. However, we should mention that the number of participants was limited and the detailed mechanisms underlying this phenomenon remain to be elucidated.

H Yanai
Department of Medicine, Sapporo Self–Defense Force Hospital, Sapporo, Japan
M Morimoto
College of Medical Technology, Hokkaido University, North 12, West S, Sapporo 060-8612, Japan; mie@cmte.hokudai.ac.jp
Correspondence to: Assistant Professor Morimoto

References


Are Reliable Change (RC) calculations appropriate for determining the extent of cognitive change in concussed athletes?

Reliable Change (RC) indices are a group of statistical techniques used in many areas of
Step 3: Calculate the RC score

Step 2: Calculate the sum of the squared differences (SUMS)

Step 1: Calculate the difference (SDiff) for inclusion in the RC calculation.

RC analyses have the potential to inform return to play decision making in cases of sports related concussion, when applied to serially acquired neuropsychological test data. However, to be applied appropriately, such calculations should endeavour to assess the magnitude of change in an individual's test score relative to change in a control group assessed at similar test-retest intervals. Previously described RC calculations do not meet this basic criterion, despite such control data being available.

Clinicians, neuropsychologists, and statisticians working with RC techniques soon realised that “true” changes in test scores could be obscured by performance changes due to practice—that is, prior exposure to a test leads to improved performance on a subsequent assessment—and also by statistical phenomena such as the reliability of the test itself and the related regression to the mean. This has led to the description and application of various basic statistical indices to be used in the calculation of the difference score, which is the basis of the RC equation. The SDiff for each participant is calculated by subtracting their baseline score from their follow-up score. The sum of the squared differences (SUMS) and the standard deviation of the difference scores (SDiff) are then calculated. The RC score is calculated as the difference score divided by the standard deviation of the difference scores.

RC analyses provide the best means for guiding decisions about whether or not true change in cognitive function has occurred after a concussion, and can therefore assist the return to play decision making process. Although we support the use of RC techniques to guide decision making about concussion, we have concerns about the statistical computation and interpretation of various RC indices.

Step 3: Calculate the RC score

Step 2: Calculate the standard error of difference (SEp)

Step 1: Calculate the standard error of measurement (Sd)

References


www.bjpsychmed.com
Patient evaluation entails electrodiagnostic studies in addition to the clinical findings. EMG often showing an increase in polyphasic waves and decreased recruitment. Ultra-sonography has recently been proposed as an adjunct in the diagnosis. Because of un-ward consequences in chronic cases, surgery is recommended if patients fail to improve after one year of conservative treatment. 1,2 We consider this case to be noteworthy in certain aspects. Firstly, the patient did not present with a trapezius palsy; it was a late silent physical finding that we uncovered. Secondly, as in a few of the cases in the above series, only the upper trapezius atrophy was present which did not preclude a shoulder function. This is usually because there are other innervation sources or because of the presence of a divided accessory nerve. 3 —Thirdly, we believe that our case implies the likelihood of a relatively benign course in younger patients. Lastly, together with another case report of a wrestler, the possibility of this type of injury occurring during sporting activity is highlighted. We therefore alert sports physicians and patients to this clinical scenario, for which prompt evaluation and management should always be the prerequi-site.

L Özkärar, Ö Erol, M Kara, B Kaymak
Department of Physical Medicine and Rehabilitation, Hacettepe University Medical School, Ankara 06100, Turkey
Correspondence to: Dr Özkärar; lzoekkar@yahoo.com

References

Applying elite research to the general population
We are writing in response to the letter by Dr Webborn about our circadian research on competition swimmers. 1 His first comment, namely that the media may wrongly slant a “take home message”, is understandable. Had he read our message more carefully, he would have seen that we noted that our observation—that there is a morning lowering of lA and an increase in cortisol—“might not be acceptable to elite competitors” and that we strongly qualified it by considering the very valid point that trivial risks of illness, as might be investigated in elite athletes, should not deflect exercise for the vastly greater public benefit. However, our work was concerned with well trained competition swimmers, a point that we emphasised to the media. A major thrust of sports medicine is that it sometimes looks at clinically trivial conditions—for example, ankle or wrist sprains—which may be anything but trivial to the sports competitor. More specifically, moderate levels of weekly exercise may be immuno-enhancing, whereas there is much evidence that elite levels of endurance training may be immunosuppressive, 2 so one always has to be careful which message applies to which scenario, for which prompt evaluation and management should always be the prerequisite.

N C S Sharp, L Dimitriou, M Doherty
Sports Sciences, Brunel University, Uxbridge UB8 3PH, UK
Correspondence to: Professor Sharp; craig.sharp@brunel.ac.uk

Editor’s response
The role of the Journal’s “take home message” had been under review for some time before this correspondence. It has already been decided that it will be changed to a high-lighted box encapsulating “what is known about the topic” and “what this paper adds to the body of knowledge”. This will be similar to the recent layout in the British Medical Journal, and our technical editors have been developing a format to suit the Journal style. This correspondence has simply highlighted an important consideration of the Journal, namely how we deal with the media in a clear, concise, and appropriate way.

Response to “Berger in retrospect: effect of varied weight training programmes on strength”
I would not have believed in 1962 that my study would have created such a brouhaha in
the 21st century. Dr Carpinelli’s paper credits my study as “the genesis of the unsubstantiated belief that multiple sets are required for optimal gains in strength”. His opinion is complimentary in one respect, but I cannot take full credit for it. Most professionals in the field of classical training would agree that Dr Carpinelli has added credence and support to these words by employing multiple sets in their practice and research. In my opinion, most professionals training in multiple sets because they have experientially discovered that multiple sets are more effective than one set. Some early research studies have compared different weight training programmes, but in practical terms, multiple sets were used in training. I am hardly the “genesis” of an “unsubstantiated belief”. Historically, the medical applications of strength training for therapy involve multiple sets. One set is the exception. So Berger is not as one “crying in the desert”. There are many more therapists and coaches flinging down the gauntlet in support of multiple sets.

The probability level of 0.05, which academics hold so sacred in decision making, does not always supersede in importance common sense when considering the difficulties in attempting to control numerous factors in strength research. One research problem is finding subjects who have had, preferably, no experience in weight training and who are able to train for long periods of time. Such a group was used in studies 12 weeks, under controlled conditions. If I had concluded in my study in 1962 that one set was as good as multiple sets, I would have had more than just Dr Carpinelli voicing criticism of my paper. The practitioner in the field would have conjectured a few years ago to express their disagreement and would not have waited 40 years to do so.

A person who comes to my mind as one having a personal influence on single sets in past years is Arthur Jones, the developer of the Nautilus machine. To my knowledge, he has never presented any acceptable scientific evidence supporting his belief. Furthermore, he has few adherents today of his training views, although one adherent is obvious. Of the 85 references in Dr Carpinelli’s paper, Mr Jones authored not one. Certainly his contribution to the body of knowledge in strength training should be acknowledged, if deserving.

I decided to deal with a limited amount of “evidence” in defence of my study. But I must preface my remarks by assuring the readers that my paper was reviewed by several researchers at the time of acceptance and approved by them for publication. The conclusions I drew were substantiated and accepted by them. For Dr Carpinelli to refer to my study as the “genesis of the unsubstantiated belief…” is counter to the opinions of these reviewers.

The data in tables 1, 2, and 3 of Dr Carpinelli’s paper, which were used to critique my study, were improperly used according to an acceptable statistical protocol. Comparisons between subgroups I-2, III-6, etc. were not valid for critiquing my study. When a factorial design is used, as in my study, and no significant factors were found between faces of sets and repetitions, then the only legitimate analysis to make is on main effects—that is, comparisons among sets 1, 2, and 3 across all levels of sets and repetitions. However, as a neophyte in 1962 I accept the blame. Being wiser today than 40 years ago, and even considering Dr Carpinelli’s critique, I unequivocally support multiple sets over single sets for optimising strength. I would suggest to Dr Carpinelli that he conduct research of his own in the hope of gaining support for his position. If his zealously, which is commendable, were redirected to research rather than to critiquing old studies, his academic contributions would be more fruitful.

R A Berger
1649 Whitehouse Rd, Maple Glen, PA 19002, USA; rab@temple.edu

References

Complementary therapies for physical therapists

Public interest in complementary therapies has increased dramatically in the last few decades, with many of the new treatment methods of potential interest to physical therapists and their patients. This is therefore a timely volume. It comprises some 23 chapters complemented by 11 extra chapters available via the internet. The authors are not well known to me, but they clearly each have a special interest in their chosen topic.

After an initial and intellectually challenging chapter on “Energy medicine”, which a physician would have difficulty accepting, the authors present a primarily theoretical approach to a wide range of alternative therapies. Some, such as acupuncture, Feldenkrais, and myofascial release, have gained some acceptance among physiotherapists, whereas others, including therapies involving the Chakra system, reflexology, flower essences, and electro-crystal therapy, remain firmly on the fringe of modern practice.

In the foreword, we are asked to read critically and consider the evidence for the various approaches presented. An excellent suggestion but very difficult to do from the material presented! The authors cover the theory behind the techniques in some detail, but there is little to support their assertions. Those looking for an evidence based text will be disappointed. While reading each chapter, I spent much of my time perusing at the reference lists. Most of the references were to...
books, unpublished reports, or publications in obscure journals. This was disappointing. In fact in chapter 4, “Healing by intention: a research-based overview”, any references to trials of this form of healing were in other than mainstream medical journals. This form of referencing makes a fair assessment of the evidence frustratingly difficult.

This book is useful mainly as an introduction to the very theoretical but generally very poorly researched field of complementary therapies in physical therapy. The basic problem is that it is heavy on theory, mainly unsubstantiated, and light on evidence of efficacy. It did not convince me to recommend the majority of the therapies to my patients.

More positively, this book is well written and easy to read. I clearly learned much about the subject matter, the validity of much of which I found questionable. However, it would be useful in educating physical therapists about treatments that they may be asked about or choose to trial. As it appears to be the only book of its kind, it should be held as a reference text at institutions involved in the teaching of physical therapies.

### Analysis

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K Fallon
Sports Medicine, Australian Institute of Sport, PO Box 176, Belconnen, Canberra, ACT 2616, Australia; fal@ausport.gov.au

### CALENDAR OF EVENTS

**The Cutting Edge: Joint Conference of The British Association of Sport and Exercise Sciences and The British Association of Sport and Exercise Medicine in association with the National Sports Medicine Institute**

3–7 September 2003, Sheffield
Further details: R.M. Bartlett. Email: t.m.bartlett@shu.ac.uk

**Football Australasia Conference**

23–25 September 2003, Melbourne, Australia
Further details: Football Australasia Conference, PO. Box 235, North Balwyn, Victoria 3104, Australia

**Congress for Science and Medicine in Cricket**

25–26 September 2003, Loughborough, UK
Further details: Julie Page, ECB. Tel: +44 (0)207 432 1261; email: julie.page@ecb.co.uk

**17th Congress of the European Society for the Shoulder and the Elbow (ESSSE)**

24–27 September 2003 at the Convention Hall “Stadtthalle” Heidelberg, Germany
Congress Chairman: Professor Dr med. habil. Peter Habermeyer; President of the Society: University-Professor Dr. Herbert Resch. Abstract deadline: 31 March 2003
Further details: INTERCONGRESS GmbH. Tel: +49 611 97716-35; fax: +49 611 97716-16; email: katriin.volkland@intercongress.de; website: www.intercongress.de

**The 5th British Musculoskeletal ultrasound course**

1–3 October 2003, Leeds, UK
Musculoskeletal sonologists from the UK and mainland Europe will cover all aspects of musculoskeletal ultrasound in lectures and tutorials. The course is open to radiologists, radiographers, and clinicians with a US imaging interest.
Further details: Gill Bliss, MR Department, Clarendon Wing, Leeds General Infirmary, Great George Street, Leeds LS1 3EX. Tel: +44 (0)113 392 3768; fax: +44 (0)113 392 8241; email: gillian.bliss@leedsth.nhs.uk

**Back Pain Prevention and Rehabilitation**

5 October 2003, Glasgow, UK
A study day with Professor Stuart McGill.
Further details: Yvonne Gilbert, BASEM Secretary, Royal College of Surgeons of Edinburgh, Nicolson Street, Edinburgh EH8 9DW. Tel: +44 (0)131 527 3409; email: y.gilbert@rcsed.ac.uk. Organised by BASEM Scotland.

**Congress of Sports Medicine of the AZ Sint-Jan AV**

24–25 October 2003, Bruges, Belgium
Further details: Congress Centre, OUD SINT-JIN, Mariastraat 38, B-8000, Brugge, Belgium; email: brucosport@azbrugge.be; website: www.brucosport.be

**International Conference on the Science and Practice of Rugby**

5–7 November 2003, Brisbane, Australia
Further details: Kerry Williams, Conference Organiser, QUT, GPO Box 2434, Brisbane, QLD 4001, Australia. Tel: +61 7 3864 2220; fax: +61 7 3864 5160; website: www.rugbystudies.com/conference

**The Fifth International Conference on Sport, Leisure and Ergonomics**

19–21 November 2003, Burton, Cheshire, UK
A three day conference in affiliation with the Ergonomics Society.
Further details: Congress Secretariat, Sport, Leisure and Ergonomics, Research Institute for Sport and Exercise Sciences, Liverpool John Moores University, Henry Cotton Campus, 15–21 Webster Street, Liverpool L3 2ET, UK. Tel: +44 (0)151 231 4088; email: K.George@livjm.ac.uk

**Medicare India**

6–8 April 2004, New Delhi, India
This exhibition and conference will be held at the first time, following India’s ambitious “health for all” programme launched in 2002. Further details: Rob Grant, Kinex Log, 5 New Quebec Street, London W1H 7DD, UK. Tel: +44 (0)207 723 8020; fax: +44 (0)207 723 8060; email: rob.grant@kinexlog.com; website: www.medicare-expo.com and www.kinexlog.com
NOTES AND NEWS

The 6th STMS World Congress on Medicine and Science in Tennis in conjunction with the LTA 2004 Sports Science, Sports Medicine and Performance Coaching Conference
Keynote speakers include Professor Per Renstrom (SWE), Professor Peter Jokl (USA), Professor Savio Woo (USA), Dr Carol Otis (USA), Dr Mark Safran (USA), Dr Ben Klber (USA), Prof Bruce Elliott (AUS), and Professor Ron Maughan (UK).
Further details: Dr Michael Turner, The Lawn Tennis Association, The Queen's Club, London W14 9EG, UK. Email: michael.turner@lta.org.uk

Intercollegiate Academic Board of Sport and Exercise Medicine Diploma Exam
The following were successful diplomates in the Intercollegiate Academic Board of Sport and Exercise Medicine Diploma Exam, the two exams held in 2001 and 2002:
- Dr Andrew J Adair
- Dr Abimola Afolabi
- Dr Sinead M Armstrong
- Dr Terence J R Babwah
- Dr Catriona E L Boyle
- Dr Susan J Brick
- Dr Lawrence J Conway
- Dr Alan J Dawson
- Mr Patrick D Dissmann
- Dr Niall WA Elliott
- Dr Christopher J Ellis
- Dr Roger K Goulds
- Dr Niall A Hogan
- Dr James R Hopkinson
- Mr Ananta K Jayanti
- Dr Michelle Jeffrey
- Mr S P Kale
- Dr Arun Kumar
- Dr Robert M MacFarlane
- Dr Kaushal C Malhan
- Dr Martin D McConaghy
- Dr Lisa A McConnell
- Dr Fergal T E McCourt
- Dr Ronan M McKeown
- Dr Michael G McMullan
- Dr Steven R McNally
- Dr Paul J Moroney
- Dr Leonard D M Nokes
- Dr Nanda K G Pillai
- Dr Jonathan D Rees
- Dr Duncal A Reid
- Dr Cristyn G Ghys-Dillon
- Dr Martin O Rochford
- Dr Hungerford A T Rowley
- Dr Shaun A Sexton
- Dr Jason E Smith
- Dr Aravindhath Suppliah
- Dr James A Thomas
For further information contact: Mrs Yvonne Gilbert, Intercollegiate Academic Board for Sport and Exercise Medicine, Royal College of Surgeons of Edinburgh, Nicolson Street, Edinburgh EH8 9DW, UK; tel: +44 (0)131 527 3409; email: y.gilbert@rcsed.ac.uk

The Paul West Memorial Grant for Sport and Exercise Medicine Research in Scotland
BASEM and the family of Paul West are pleased to announce the above grant which will be awarded annually. The award will be approximately £350. The research must be carried out in Scotland and concern the physically active population. Applications must be submitted to the Award Committee by 31 October 2003 for the inaugural award in January. Further details: Yvonne Gilbert, BASEM - Scotland Administrator, Royal College of Surgeons of Edinburgh, Nicolson Street, Edinburgh EH8 9DW, UK. Tel: +44 (0)131 527 3409; fax: +44 (0)131 527 3408; email: y.gilbert@rcsed.ac.uk

Intercollegiate Academic Board of Sport and Exercise Medicine
Professor Donald Macleod has completed his four year term as Chairman of the Intercollegiate Academic Board of Sport and Exercise Medicine. Professor Charles Galasko has been elected by the IABSEM Board to replace him. Professor Macleod has also been replaced as the representative of the Royal College of Surgeons of Edinburgh on IABSEM by Professor Angus Wallace.

Winners of the annual BASEM Prizes
Dr Eileen Mackie (Clodigodrel inhibits platelet activation and exercise induced ischaemia in stable coronary artery disease) and Mrs Eleanor Curry (Role of exercise in multiple sclerosis) (joint winners).
The poster prize was won by Dr Stuart Reid (Injury patterns and injury prevention strategies in the winter sports population attending the English medical centre in Val D’Isere).

Diploma in Sport and Exercise Medicine for Great Britain and Ireland
Details for the above exam can be found on the Royal College of Surgeons of Edinburgh Website at http://www.rcsed.ac.uk alternative applicants can write to: The Royal College of Surgeons of Edinburgh, Eligibilities Section, Careers Information Services, 3 Hill Place, Edinburgh, UK; tel: +44 (0)131 668 9222 or Mrs Yvonne Gilbert, Intercollegiate Academic Board for Sport and Exercise Medicine, Royal College of Surgeons of Edinburgh, Nicolson Street, Edinburgh EH8 9DW, UK; tel: +44 (0)131 527 3409; email: y.gilbert@rcsed.ac.uk

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Web site: www.med.unsw.edu.au/sportsmed

NCPAD NEWS
A monthly publication of the National Center on Physical Activity and Disability. NCPAD is the leading source for information about organizations, programmes, and facilities nationwide providing accessible physical activity and recreation. NCPAD also has a large and growing online library of fact sheets, monographs, and contact information on physical activity and recreation for people with disabilities. Sign up for this free monthly electronic newsletter by sending an email to: Listerw@listerw.uc.edu, with this message in the body of the e-mail: SUBSCRIBE NCPAD-NEWS yourfirstname yourlastname. If you have any difficulty, you can also sign up for the newsletter by going to http://www.ncpad.org/signup

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or the Postgraduate Certificate in Physiotherapy (Sports Physiotherapy of the Spine, Shoulder and Upper Limb).

The School of Physiotherapy at the University of Melbourne now has approval for these courses and applications are open to international students for full time study.

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- Postgraduate Certificate in Physiotherapy (Sports Physiotherapy of the Spine, Pelvis and Lower Limb) NOW CLOSED.

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