

BULLETIN

August 2010

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Current Membership: 639

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click on 
at bottom left of your screen.

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More info.....

www.nzsopa.org.nz/advertising.html

Links

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[Physiotherapy New Zealand](#)

[International Federation of Sports Physiotherapy](#)

[Sports Physiotherapy Australia](#)

[Sports Physiotherapy For All](#)

[Journal of Orthopaedic & Sports Physical Therapy](#)

[NZ Sports Medicine Research Reviews](#)

[ACC SportSmart](#)

[Sport & Exercise Science NZ](#)

[Sports Physiotherapy—Chartered Society of Physiotherapists UK](#)

[Sports Physiotherapy Canada](#)



Foot Science Journal, June 2010

[click here](#)

- ◆ Plantar fasciitis—trial
- ◆ Why ‘heel-first’ is better for walking
- ◆ Research: Barefoot running is better

NZSOPA Member Survey—WINNER of the APPLE IPOD TOUCH



Congratulation to Rebecca Crabb from Puhoi—winner of the iPod Touch.

Thank you to everyone who took the time to complete the survey.

We had 358 responses and the NZSOPA Executive will use the results to shape future direction, services and initiatives. Some of the results are summarised on page 8. Other results are available on request.

New Position ** EDITORIAL ASSISTANT NEEDED ** New Position

NZSOPA are looking for an enthusiastic member to provide assistance to the NZSOPA Bulletin editor.

In order to continue to improve the quality and content of the NZSOPA Bulletin as suggested by members in the recent NZSOPA membership survey, we are looking to co-opt an editorial assistant to the NZSOPA team. This will not be an office-bearing position, rather a position to provide assistance to the NZSOPA Bulletin editor.

Time requirement: approx 2-3 hours per month

Main tasks: assisting with sourcing and formatting articles and content for the bi-monthly NZSOPA Bulletin.

Position would suit:

- Enthusiastic and reliable member who would like to contribute to NZSOPA without the commitment of an official position on the executive.
- Would be ideal for a student (undergrad or post-grad) or anyone with access to literary databases (Ovid, EBSCO etc) but this is not essential.
- Access to the Microsoft Publisher programme would be advantageous but not essential.

Term: 12 month position with the option of continuing in the role if desired.

Benefits:

- Free attendance at any NZSOPA educational courses/symposium
- Travel and accommodation to attend meetings if required (1-2 per year) which often coincide with Sports Medicine conferences/symposiums.
- Fill up the “professional activities” section of your CPD portfolio

Your chance to make a contribution to one of the largest PNZ Special Interest Groups in NZ.

Interested?

Or want more information?

Contact Angela Cadogan ph 021 150 3731, or email acadogan@vodafone.co.nz

Please register your interest in this position by **31st August 2010**, or as soon as possible.

McGRAW-HILL & NZSOPA HAVE REIGNITED THEIR RELATIONSHIP = 25% Member Discount!!

After a period of inactivity a new New Zealand McGraw-Hill representative means that we will again be presenting to our members reviews of all relevant new release books as well as time honoured older texts that will be particularly relevant to new members.



"McGraw-Hill is delighted to announce that it has renewed its relationship with NZSOPA which now allows NZSOPA members to purchase its fine range of sports medicine references at an attractive 25% discount.

McGraw-Hill has published some of the leading references in the field of sports medicine such as Brukner & Khan's Clinical Sports Medicine 3 Ed book and DVD; Jock Anderson's Atlas of Imaging in Sports Medicine 2 Ed and Burke & Deakin Clinical Sports Nutrition, now in its 4th edition."

Bob McLeod
Business Development Manager

NZSOPA is very appreciative with this increase of the discount to 25% offered to our members and I would strongly encourage members to take advantage of this offer.


Title view and ordering procedure

To view titles please use the following link and instructions:

<http://www.mcgraw-hill.com.au/medical/index.html>

1. Click on "**Medical**" under "**Browse our catalogue**" on the left hand side of the screen
2. Click on either Physical therapy or Physical/Sports Medicine & Rehabilitation and all the relevant books will appear

Clicking on individual titles will bring up the relevant books and on these individual book webpages you will find all necessary information in order to complete the **NZSOPA Order Form** (ISBN number (use the **ISBN13** number), title and NZ price)

NZSOPA Order Form: in the Members Only section of the NZSOPA website http://www.nzsopa.org.nz/order_form.html or click on the paperclip  at the bottom left of your pdf screen to open the attachment.

Postage and Handling: NZ\$13.00 for orders with net value less than \$NZ140.00.
Orders with a net value over \$NZ140.00 are postage and handling free

...it would be wise to see if any NZSOPA colleagues are interested in ordering books at the same time to save on this if your order doesn't reach this amount.

Payment: via credit card (Mastercard or Visa)

IMPORTANT: SEND COMPLETED ORDER FORMS TO mborich@ihug.co.nz

If you have any further questions regarding this process please do not hesitate to contact Michael at the email address above.

Michael Borich
NZSOPA Secretary
mborich@ihug.co.nz
mob 021717303

After viewing the extensive range of titles available on the McGraw-Hill website, if there are any particular titles that you feel would be appropriate for review please let me know mborich@ihug.co.nz

Atlas of Imaging in Sports Medicine

Dr Jock Anderson and Dr John W Read

Second edition

Hardcover

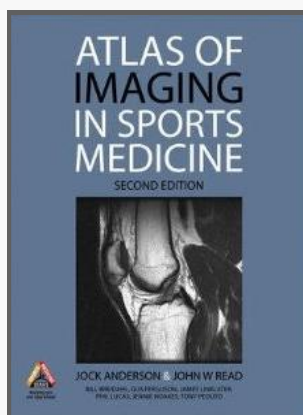
Publisher: McGraw–Hill Australia Pty

ISBN13 number: 9780074715840

Number of pages: 928

Publication Date: Dec 2007

Price: NZD \$325 (incl GST).



Book review by Mark Cartman
Sports Physiotherapist
Capital & Coast DHB
Wellington

Atlas of Imaging in Sports Medicine is an invaluable reference containing outstanding images of both common and unusual sporting injuries. The second edition has been fully revised reflecting current evidence-based research. It retains relevant information on anatomy and biomechanics of injury for the physiotherapists, general practitioner and sports physician managing athletes.

Overview

If you're looking for a comprehensive text that covers imaging in sports medicine, uses phrases and terminology that you're familiar with then look no further than this comprehensive volume written by associate Prof Jock Anderson and Dr John Reid. Both gentlemen are radiologists who have had long careers in sports medicine imaging and musculoskeletal radiology. The second edition follows on from the highly successful first edition and builds on the current state of diagnostic imaging and sports medicine. With the ever-changing capability of diagnostic imaging, it is important that the practitioner maintains his or her current best practice knowledge base.

How the book could be used

Physiotherapists are often using information from radiological scanning and imaging to help confirm diagnosis, aid in development of treatment protocols and ascertain tissue recovery stages during rehabilitation. It is beneficial for the treating practitioner to have a good understanding when relating the report to the image. All imaging ordered by health professionals in New Zealand is read by a specialist radiologist. The findings are interpreted in conjunction with the clinical history given on the referral. With current methods of computerisation many private radiology clinics provide the facility for clinicians to view scans online. This atlas of imaging of sports medicine will give the practitioner an

extensive reference text when reviewing and discussing radiological findings and ultrasound scans with patients.

What the book covers

As the title suggests this is an atlas of imaging in sports medicine. All the parts of the body that are affected by both bony and soft tissue injury are explained and shown in detail. Pathologies that ranged from subtle soft tissue swelling (various shades of grey are seen in plain x-ray around a swollen joint), to the bone marrow signal changes seen in MRI with bone bruising. The 3D surface-rendered images used when assessing complex fractures look like something out of the Weta design studio.

Interpretation of various imaging techniques

The subtleties of ultrasound scans when imaging tendons and bursa are extensive and are discussed for just about every body part. There are many plain x-rays that have been used for decades when assessing fractures in bone. If you work in a learning rich environment where this technology and imaging is readily available and you can discuss the results with other members of the orthopaedic or sports medicine team, then this text will help consolidate your knowledge base. If you work in a small team or in isolation this textbook will assist with your clinical practice and information gathering.

NZSOPA Bulletin, August 2010

Easy to follow chapters

The text is divided into 10 chapters they are grouped as follows;

- ◆ Basic principles,
- ◆ Hand and wrist
- ◆ Elbow and forearm,
- ◆ Shoulder, shoulder–girdle & thoracic cage
- ◆ Pelvis, hip and thigh
- ◆ Knee and leg
- ◆ Foot and ankle
- ◆ Spine
- ◆ Face, jaw and larynx
- ◆ Intervention

Arranging the text into anatomical segments allows for quick and easy access to the relevant section within the textbook. Each area receives detailed and comprehensive coverage. It describes in detail how the pathology is imaged, where the pathology is situated in the image (plain x-ray, ultrasound scan, MRI, bone scan, CT scan, 3-D CT, MRI, or schematic diagrams to help with the explanation) and will always have a marker detailing the area of interest.

World renowned authors

Both authors are respected experts in their fields, there is also the additional input from six associate authors, again each of them specialising in different areas of musculoskeletal radiology. The reader can assure that the information presented in this text is current and up to date following every chapter there is a competence of reference list. Again the text makes extensive use of pictures collected from colleagues of the various pathologies described in the text.

Great pictures!

An Atlas by its very nature is going to be pictorial. This Atlas has pictures on every page, all images have references and are referred to in the main text. The quality of the printing (printed in China on 105g matt paper) ensures extremely accurate reproduction of scan and images. Interpretation of x-rays has always been said to be

the interpretation of shades of grey and with such high-quality printing and reproduction interpreting the images is made easier. The Author's style typically reflects the classic style to which Jock Anderson is well known for, simple and straight to the point. Because of the extensive use of images taken from "real cases" every picture relates to a real patient. X-rays and imaging have not been doctored or altered to reproduce the pathology, they are all real cases as they presented at the time. The combination of extensive imaging, labelling and detailing of imaging and the text ensures that the reader has the best possible chance to understand the information.

In summary

I can easily see this reference texts sitting next to your other favourite reference text in your practice. It will sit on your

desk or in your bookshelf close at hand for easy access, as you will be retrieving it often. You will be using it to confirm your knowledge, build on your present knowledge base, and will truly enlighten yourself when considering and discussing musculoskeletal trauma commonly seen in the sports medicine practice. If time permits you can discuss with your patients radiological findings and compare their case to the case that will be outlined in this text.

"The combination of extensive imaging, labelling, detailing of imaging and the text ensures that the reader has the best possible chance to understand the information."

I work with a large orthopaedic team in a tertiary level hospital where all radiology is digital and can be viewed online using high-resolution monitors. This resource of imaging used in combination with the resource of knowledge from practitioners working in the area ensures that this is a learning rich environment. I have every expectation that this textbook will help the practitioner achieve a learning rich environment when viewing imaging or reading reports

Mark Cartman
Sports Physiotherapist
Capital & Coast DHB
Wellington
28/07/2010

For a link to this book on the McGraw-Hill website:

[click here](#)

Clinical Sports Medicine

Peter Bruckner & Karim Khan

Book review by Michael Borich
Physiotherapist

3rd Edition

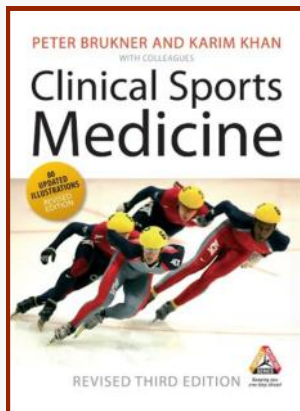
ISBN13: 9780070278998

Division: Professional

Pub Date: FEB 2010

Publish Status: In Print

Price: NZ\$ 180(Incl. GST)



Bestselling Title

Clinical Sports Medicine, edited by Peter Bruckner and Karim Khan, is one of McGraw-Hill Australia's bestselling titles and it is easy to understand how.

The first two editions (1993 and 2001) were extremely successful in their own right but the 3rd edition published in 2006 set the new benchmark in texts of this nature winning the "Highly Commended" prize in the Orthopaedics and Rheumatology category of the 2007 British Medical Association Medical Books Awards.

Revised Third Edition

This revised 3rd edition is really just a facelift of the 2006 edition with the update of a further 80 illustrations, either to full colour or completely revised in order to present a clearer or more professional approach in the delivery.

For those unfamiliar with the text, with permission I present firstly extracts from our previous published (NZSOPA Bulletin 2007) review by Tania Pizzari of the 2006 3rd Edition - as was also published in the APA Sports Physio magazine 2007.

Review of Previous "Third Edition"

"The third edition of Clinical Sports Medicine edited by Peter Bruckner and Karim Khan follows the hugely successful previous versions of the text. The first two editions combined have sold over 40 000 copies and this version is sure to continue the trend.

I would be surprised if all physiotherapists in the sports injury field do not own, or at least have access to, one of the earlier editions of this book. I should state from the outset that I recommend that even if you do have an earlier version, it would be worthwhile updating your bookshelf with the third edition.

Addition of New Chapters

This edition contains six new chapters regarding recovery, diagnosis using investigations, core stability, longstanding groin pain, the use of supplements, and preparticipation evaluation.

As well, all of the previous chapters have been re-written by a greater number of international and national contributors. The re-development of chapters has ensured that the current scientific evidence has been incorporated and this is a highlight of the third edition.

Each chapter concludes with recommended reading and references supporting the writing. Websites for further information are also provided where appropriate. The strong research component is predominant in chapters where a physiotherapist has contributed to the writing.

Physiotherapy Contribution

Physiotherapist authors provide a substantial amount of research and clinical knowledge to this text and like the previous editions the text will appeal to a wide range of disciplines.

The clinical wisdom enjoyed in the first edition has not been lost in this edition and the authors have continued to provide expert tips that are sure to assist all readers. In fact 'practice pearls' are highlighted in the text to identify pertinent tips to the reader.

Illustrations

Of note in this book are the colour anatomical illustrations provided by Vicky Earle. The illustrations, along with the updated colour photographs, supply the reader with an excellent depiction of the information in the text.

NZSOPA Bulletin, August 2010

Multidisciplinary Sports Medicine Content

For the physiotherapist in the injury management arena, this book is the best sports medicine resource available. It can be used as a quick reference guide when assessing or treating a particular condition, or to understand more about a whole regional area by reading a chapter, or to read from cover to cover to learn more about all aspects of sports medicine.

The fact that it is written for many disciplines allows the physiotherapist reader an awareness of other treatment options available for sporting injuries that are provided by other sports medicine professionals. An understanding of the multidisciplinary approach to injury management is beneficial to the physiotherapist and the athlete.

Bonus CD

This edition comes with a bonus CD that contains 189 pages of patient information sheets in portable document format (PDF). The sheets cover many of the injuries identified in the book and provide written information for patients regarding what the injury is, how it happens, how it feels, what should be done, what shouldn't be done, long term-effects, and management.

The management information is quite general and always refers the patient to their 'sports medicine professional' in keeping with the multidisciplinary nature of the book. This could be seen as a disadvantage depending on who a patient identifies as a sports medicine professional. For this reason, the patient information sheets may not be useful to many physiotherapists."

Contents

For those who are totally unaware of the book a full table of contents is available on the McGraw-Hill website www.mcgraw-hill.com.au/html/9780070278998.html

Part A: Fundamental Principles

This section provides essential background about diagnosis and treatment methods and is particularly relevant for those relatively new to the field. It covers both medical and physiotherapy assessment and treatment. These basic principles form the foundation that the following chapters build on

Part B: Regional Problems

One of the most popular section of Clinical Sports Medicine – utilising the author's "pearls of treatment" according to where symptoms arise - from the head to the toes. Regions are organised by 'Clinical overview', 'Clinical Assessment' (illustrated) and then investigation. Conditions ranked according to 'Common', 'Less Com-

mon' and 'Not to be missed' allow the reader to benefit from the authors years' of experience. Specific treatments are clearly listed and illustrated. Appropriate and clear cross referencing to relevant sections within this book is what I feel is an added strength to this text

Part C: Enhancing Sport Performance

Here sports nutrition is explained and broken down in a practical problem-based way - eating for weight gain, weight loss, competition, and training. Frequently asked questions about iron, creatine, and other supplements are answered. Sports psychology without what the authors call "the mumbo-jumbo".

Part D: Special Groups of Participants

This section covers the younger and the older athlete as well as the disabled athlete, interestingly "Women and Activity – related issues across the lifespan" seems to fit into this "special groups" section

Part E: Management of Medical Problems

Emergency medicine care and management of athletes with common conditions such as diabetes and epilepsy as well as respiratory conditions, gastrointestinal issues and cardiovascular conditions

Physiotherapists who travel as sole medical advisors with teams will greatly benefit from this section with advice also on travel, heat, cold and the "tired" athlete

Part F: Practical Sports Medicine

The author's use their "side-line-experience" to cover "Preparticipation Physical Evaluation", screening, providing team care, travel advice, medical coverage of endurance events, comment and advice on "drugs and the athlete" as well as a timely chapter on "Ethics and Sports Medicine"

Quite simply as a reference book to have in the clinic for sports physiotherapists this is the one.

Michael Borich.
Physiotherapist

25% Discount on "Clinical Sports Medicine" & "Atlas of Imaging in Sports Medicine" or ANY other McGraw-Hill title.

ONLY for NZSOPA members.

See [page 3](#) for details on how to order.

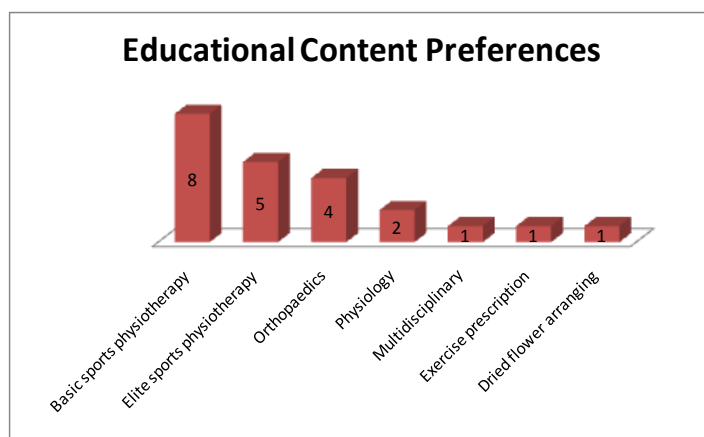
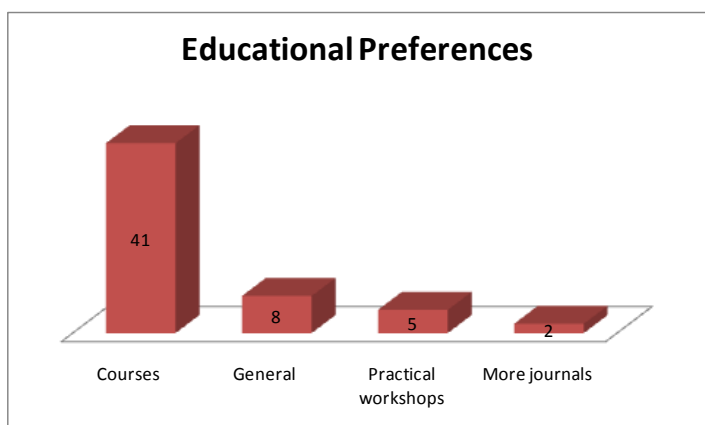
Results of 2010 Membership Survey

Thank you to everyone who took the time to complete this survey.

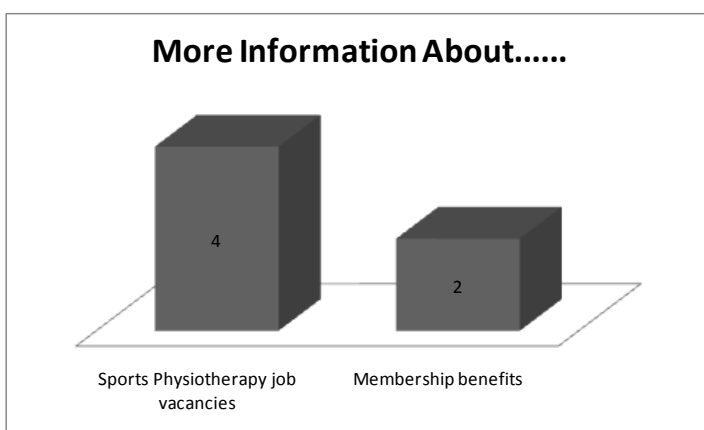
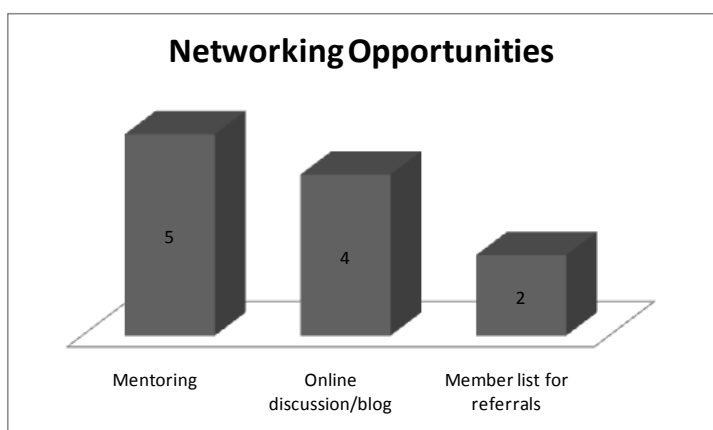
We had 358 responses and the NZSOPA Executive will use the results to shape future direction, services and initiatives. A summary of some of the results are presented below.

NZSOPA Membership Value & Services:

96% of respondents thought the NZSOPA membership represented value for money and 90% thought that enough services were being offered. When asked "what other services do you wish to see offered", the majority of respondents stated educational services. Some specific requests for services are summarised below (not all respondents provided specific requests):



Other requests for services included:



Professional Pathway for Sports Physiotherapy:

93% of members believe this is relevant for sports physiotherapists, with 96% believing this should be available in NZ. Opinion was divided as to whether this should be run through a University or external modules (46% & 54% respectively).

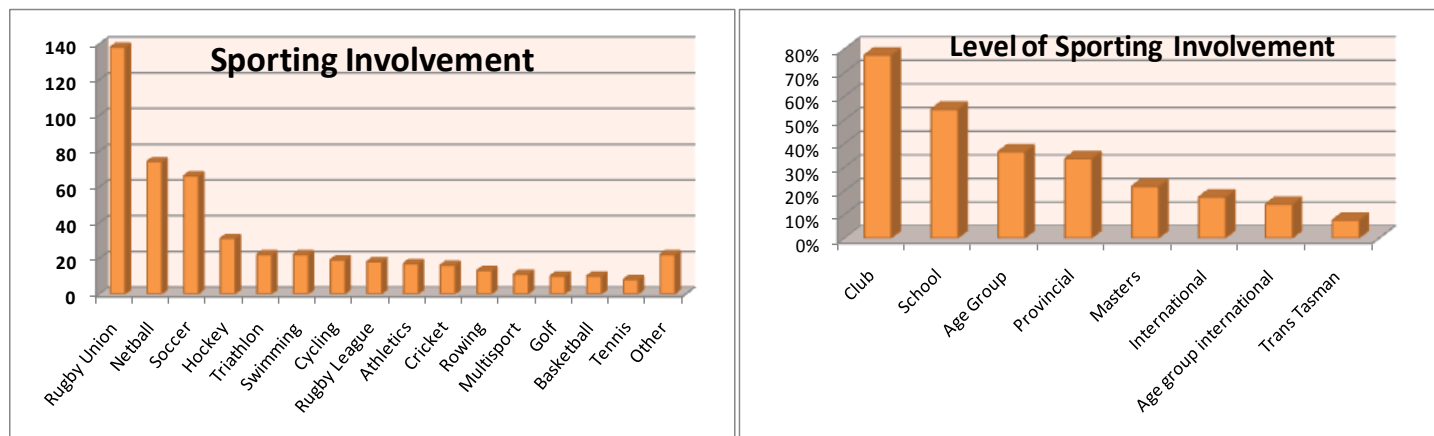
Sports Physiotherapy Specialisation:

84% of members believe specialisation is important for sports physiotherapists, and 95% believe it is of value to be recognised as a "sports physiotherapist".

Results of 2010 Membership Survey continued.....

Sports Team Involvement:

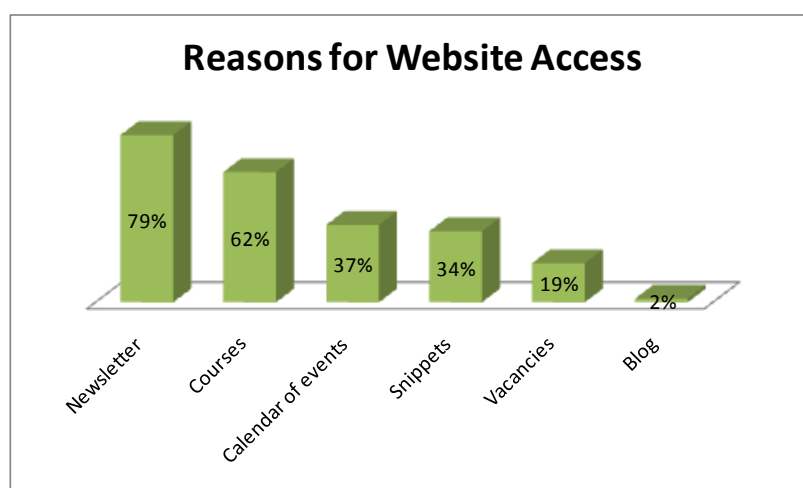
77% of members currently work with a sports team, and 14% reported being an accredited NZ Academy of Sport Provider.



NZSOPA Website & Bulletin:

The most common reasons for accessing the NZSOPA website included:

- 86% of respondents indicated they would like a section on the website where they could ask 'clinical questions' anonymously.
- 94% of members read the bi-monthly Bulletin. The majority indicated they primarily read the articles, news and job advertisements.



Thanks once again to all those who completed the survey. The NZSOPA Executive will take on board all your suggestions.

Many of the requests are for more educational opportunities and forums and with all Executive members being volunteers, **we always welcome and appreciate receiving relevant contributions from members (articles, case studies, biographies etc)!!**

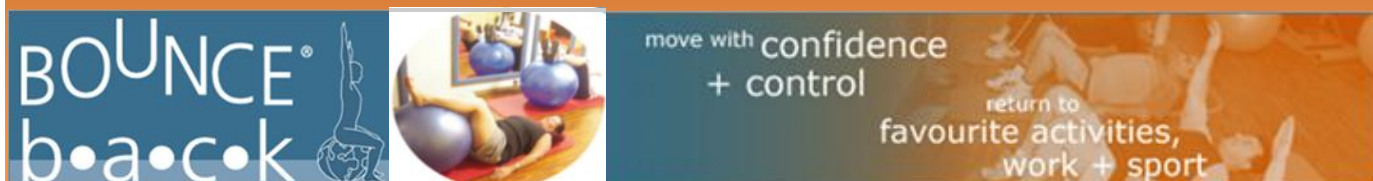
Workshop Review

NZSOPA Bulletin, August 2010

Designing a Spinal Stability Program to Break the Recurrent Pain Cycle

By Trish Wisbey-Roth

Australian Olympic Physiotherapist, Masters of Sports Physio, Manipulative Physio,
Director: Bounce Back Active Rehabilitation Systems, Australia.



This successful workshop, co-hosted by NZSOPA, was held at AUT on the evening of 1 July with approx 200 attendees.

The aim of the workshop, based on latest research, was to introduce the concepts of an exercise-based strategy to break what Trish calls, the recurrent pain cycle in the lumbo/pelvic and hip regions affected by spinal instability. This involved specific, graded and functional exercises (which were demonstrated) to optimise both stabiliser muscle endurance and dynamic function. This involves retraining the CNS via retraining the complex proprioceptive and motor planning components of dynamic movement to overcome dysfunctional movement patterns which can continue long after the initial pain has settled. e.g. proprioception - sitting on a gymnic ball and "finding" an upright posture via sitting on ischial tuberosities then "imagine" sucking yr hips into sockets (Iliacus) – this is a proprioceptive cue telling us where the hips are in space, move left and right on ball whilst maintaining this posture.....

We have also seen these dysfunctional movement patterns in peripheral joints eg ankle and such patterns predispose the individual to recurrent pain and suboptimal performance.

In essence, pain changes our physical (muscle eg TAB, Multifidus, Gluteus medius including recruitment patterns) and physiological systems (motor cortex- proprioception/balance, motor planning) and rehabilitation must be aimed to break the estab-

lished motor responses as a result of such pain to produce a dynamic functional outcome.



For a copy of Trish's powerpoint slide presentation from this workshop, [click here](#)

Other Resources on Trish's website:

www.bbclasses.com.au

- Optimising Bike Set Up to Maximise Cycling Performance and Minimise Overuse Injuries [click here](#)
- The Importance of Core Strength In Cycling [click here](#)
- Cycling Biomechanics—minimize injury [click here](#)
- The lumbo/pelvic/hip complex. Optimising intervention to maximize dynamic function [click here](#)
- Does muscle over recruitment as a spinal stability strategy increase the incidence of groin and hamstring injuries? [click here](#)
- Bounce Back Research [click here](#)

Each edition of the NZSOPA Bulletin will profile one of the many membership benefits. For a full list of membership benefits go to the NZSOPA website www.nzsopa.org.nz

Asics Education Fund

**** next deadline 31st August 2010 ****

Need financial assistance for research or conference expenses?

Do you know about the NZSOPA Asics Education Fund?

The NZSOPA Education Fund was established in 2007, with the aim of assisting its' members to conduct research, or attend a conference related to Sports & Orthopaedic Physiotherapy.

The Education Fund is now sponsored by ASICS.

Who Can Apply?	Any current financial member of NZSOPA who has been a member for the previous consecutive 2 years.
What You Can Apply For:	Research expenses, OR Conference-related expenses including <ul style="list-style-type: none">- travel/airfares- accommodation- conference registration
How Much is Available?	Up to \$1,000 (offered twice per year)
Application Dates:	31st March & 31st August each year.
How to Apply?	Download the guidelines & application form from http://www.nzsopa.org.nz/education.html and send in with your CV to the NZSOPA Secretary by the due dates.

Next Application Date: 31st August 2010

Past Recipients have used the funds to:

- **Attend courses:**
 - **Pilates in the treatment of athletic injury**
- **Attend conferences:**
 - **Sports Physiotherapy Australia Conference (2009)**
 - **Asics Conference of Science & Medicine in Sport (2010)**

Recipients are required to provide receipts, and a full report of the activity for which the grant is awarded. This report will be published (in full or in part) in future editions of the NZSOPA Bulletin.

Upcoming Sports Physiotherapy Conferences

NZSOPA Bulletin, August 2010

NZSOPA Calendar

More continuing education at...

<http://www.nzsopa.org.nz/calendar.html>

See the NZSOPA website "[Calendar](#)" page for more courses and conference information.

19-21 August, 2010

International Sports Science & Sports Medicine Conference 2010

Location: Newcastle Upon Tyne, England

Website: <http://www.issmc.com/>

3-9 October, 2010

Ironman Sports Medicine Conference

Location: Royal Kona Resort, Hawaii.

Website: <http://ironman.com/events/ironman/worldchampionship/chrissie-wellington-to-speak-at-this-years-ironman-sports-medicine-conference>

4-6 November, 2010

Asics Conference of Science & Medicine in Sport

Location: Mirage Resort, Port Douglas, Australia

Website: <http://sma.org.au/asics-conference/>

12-14 November, 2010

International Conference on Applied Strength and Conditioning

Location: Gold Coast, Australia

Website: <http://www.strengthandconditioning.org/>

18-20 November, 2010

NZ Sports Medicine & Science Conference 2010

Location: Duxton Hotel, Wellington, NZ

Website: <http://www.sportsmedicine.co.nz/conference/index.htm>

25-26 November, 2010

NZ Strength & Conditioning Conference

Location: AUT University, Auckland, NZ

Website: http://www.getnzactive.co.nz/wp-content/uploads/2010/08/SPRINZ_Strength_Conditioning_Conference2.pdf

Interested in attending one of these conferences? Apply to the Asics Education Fund for financial assistance. [Click here](#) or see details on page 11.

ASICS Shoe Report:

Trail Attack 6



www.asics.co.nz

This shoe is a fairly new edition to the Asics trail series and is well suited to New Zealand's combination of mud, gravel and slippery rock tracks.

I encourage many runners to discover off road running as I believe the risk of overuse injury (knee, shin, calf and heel) may be reduced. Most city runner's train on concrete footpaths which forces greater stress on muscles and joints. It also attracts a repetitious stride which endangers the limbs from fatigue.

Because the off road training surface is irregular, there is less repeat loading on key muscle groups. This style of running may also have a positive effect on proprioception systems as the body is forced to negotiate each running stride.

The shoe's outsole has reversed lugs which grip slippery surfaces on climbing or descending rocks and mud.

The outsole has been reduced in bulk to keep the shoes weight low. A trusstic arch system reinforces the mid-shank and replaces the need to retain heavy outsole rubber in this non-weight bearing area.

Rear and forefoot cushioning is placed in the midsole to protect the runner who travels on gravel for long periods. There is a rock protection plate in the forefoot that reduces metatarsal head bruising for those climbing or hopping over rocks.

The upper is constructed from a more flexible fabric than other Asics trail shoes. I believe this to be a key component to its positive performance. The foot often lands heavily inverted or everted on a sloped surface and this flexible shoe allows the foot to adapt to the appropriate angle without interference.

The tongue is gusseted to prevent debris falling down the sides of the shoe. Without this feature, it is common for the gravel based runner to stop and remove small stones from within the shoe.

The upper is water resistant so the foot won't feel heavy after running in long wet grass or in a light shower.

The Attack protects the foot from unforgiving rocks underfoot, gives firm grip to reduce slipping on mud or wet surfaces, and is flexible to allow the foot to mould with the natural terrain angle.

New Zealand bush often attracts damp, undulated conditions and this shoe design is complimentary to this.

Footnote:

The Attack may be difficult for the retailer to assess as it is not designed for running on conventional flat surfaces ie treadmill or running track.

The retailer should focus more on fitting the shoe perfectly, and clearly understanding the runners needs, ie the exact make of the trails commonly used, average time spent on each surface (gravel, mud, rocks, water). The Attack shoe will generally suit more undulated and irregular trails than groomed city running paths. It will suit Coast to Coast and X terra events well.

**Monique Ujdur
April 2010**



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Breathing Pattern Disorders and the Athlete

Tania CliftonSmith,

MNZSP, DipPhys, NZMTA,



Breathing Works and Brad-Cliff® Method
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‘If breathing is not normalised no other movement pattern can be’¹

Breathing is one of our most vital functions and a disordered breathing pattern can be the first sign that all is not well, whether it be biomechanically, physiologically or psychologically.

Little attention has been paid to the breathing pattern of the athlete that is until recently. Historically this area of research has been dominated by sports physiologists who have focused on ventilation and the delivery of oxygen. Research is now beyond the capacity of ventilation and starting to look at the muscles of respiration and even breathing patterns.^{2,3,4}

Breathing Pattern disorders.

Breathing pattern disorders appear to be simple yet they are complex not only by historical definition but also in aetiology and treatment regimen. The orthodox medical literature has attempted to define breathing pattern disorders and hyperventilation. In the view of the author both exist as separate but also as co-existing disorders. A current working definition has been postulated within the physiotherapy literature. ; ‘Inappropriate breathing which is persistent enough to cause symptoms, with no apparent organic cause’.⁵ This is the favoured definition of the author from the view point that it encompasses hyperventilation and breathing pattern disorders and can encompass acute and chronic episodes. For example - if an athlete has an inefficient breathing pattern when partaking in their activity/ sport this may cause premature breathlessness or lower limb fatigue that is non reflective of cardiovascular fitness Or any organic pathology. Alternatively if they have a breathing pattern disorder at rest this to may well impair their performance.

What triggers a disorder?

The cause is believed to be compensation for biomechanical,

physiological and psychological triggers. There is an extensive list of factors thought to trigger disordered breathing. However once the pattern is established the breathing pattern disorder becomes an entity of its own.⁶

Biomechanically

The diaphragm has the ability to perform the dual role of respiration plus postural stability during movement.^{7,8} When all systems are challenged breathing will remain as the final driving force.⁹ In other words,

“Breathing always wins”.¹⁰

For example, picture the local jogging group out on a sunny morning talking, jogging and breathing. They reach a set of 200 steps -- as the ventilatory demand increases so does the work of breathing. It will become harder to converse, and as the demand further increases breathlessness (dyspnoea) may occur. Dyspnoea alerts the system that it is under pressure, and as a result we respond by either decreasing the load, i.e ease up our pace, or by stopping and regulating our breathing pattern. The goal of the system is to preserve and re-

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come harder to converse, and as the demand further increases breathlessness (dyspnoea) may occur. Dyspnoea alerts the system that it is under pressure, and as a result we respond by either decreasing the load, i.e ease up our pace, or by stopping and regulating our breathing pattern. The goal of the system is to preserve and re-regulate respiration. This alarm system or warning system applies to the individual with COPD, through to our most elite athletes. It is a complex system, however research in breathing pattern disorders has shown the benefits that good efficient breathing patterns can play in the desensitising of this 'alarm'.^{4,11} In the case of the athlete improve performance.

Pressure Control: muscle length tension relationship

The muscles which control core stability, that is, the diaphragm, transversus abdominus, multifidus and the pelvic floor muscles, work together to in unison protecting predominantly the lumbar spine plus also creating ideal intra abdominal pressures.¹² These muscle groups plus respiration assist with optimum pressure control within the body, not only playing a major role in spinal support but also contributing to motility of fluid based systems within the body, i.e gastrointestinal, lymphatic drainage, arterial and venous circulation.¹⁰ These functions must all be considered in our assessment protocols. Structurally at the top of this system regulating pressure control are the vocal folds and the surrounding musculature. The diaphragm sitting in the middle plays a key role in pressure generation. Pressure determines length-tension relationship. If an apical breathing pattern disorder is present respiratory accessory muscles shorten, the diaphragm is unable return to its optimal resting position, pressure generation of diaphragm is altered dynamic hyperinflation can occur, gas exchange is altered, often towards arterial hypocapnia.¹³ Shortened muscles create less force: muscle length tension relationship is altered, work of breathing increases. Many athletes including elite athletes present with breathing pattern disorders at rest. So even prior to engaging in sport they are starting from a disadvantaged position. Authors observations.

Muscle recruitment/ motor patterns

Muscle recruitment and motor patterns are important to preserve this internal pressure. Should there be a deviation away from this recruitment pattern i.e the oblique muscles firing

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first then pressure, ventilation volumes and ultimately work of breathing is affected.

On ultrasound imaging athletes who have been identified with a breathing pattern disorder often display increased resting tone of the oblique muscles (clinical observations). If these muscles are over active at rest they can act as an abdominal corset, preventing diaphragm descent creating an upper chest dominant pattern. In upper chest breathing, the sternocleidomastoid muscles the scalene muscles and the upper trapezii muscles are activated.^{14,15} Patients with neck pain commonly have faulty breathing patterns.¹⁶ Breathing problems also predict the development of low back.¹⁷ People with back pain brace with their superficial abdominal muscles and diaphragm, and have poor core muscle activation.¹⁸ An awareness of faulty breathing patterns coupled with breathing re-education can provide health professionals valuable, additional tools to help patients with their musculoskeletal disorders.¹⁹

Dynamic Hyperinflation

An end result of an upper chest breathing pattern can be dynamic hyperinflation. Body mechanics and motor patterns alter and physiologically changes may occur. The body can acclimatise to this “new” pattern in a short a time as 24 hours.^{6We} frequently see clients present with dynamic hyperinflation, increased resting tone of the oblique and abdominal muscles, and contraction of the abdomen so tightly it creates a self-induced corset, so that literally one cannot breathe. Unbeknown to the fashion conscious or fab ab seeker there are a host of serious physiological and mechanical not to mention psychological changes taking place. Hence the mere mention of the return of the corset is enough to trigger fear and create a sense of breathlessness. Dynamic hyperinflation during exercise certainly means an individual starts from a disadvantaged position and this may lead to a concept called breath stacking. This is when inhalation exceeds the exhalation phase of the breath cycle and airflow can become limited, oxygen reaching the alveoli is decreased as dead space volume increases.²⁰

Physiologically

Physiologically every cell in the body requires oxygen to survive yet the body needs to rid itself of carbon dioxide (CO₂). Carbon dioxide is the most important stimulus for breathing in a healthy person, and the most potent chemical affecting respiration. Altered respiratory patterns can acutely and chronically lead to a state known as hyperventilation.²¹

Hyperventilation

Hyperventilation is defined as breathing in excess of metabolic demands, resulting in hypocapnia. Arterial pCO₂ is lowered, body pH increases and a state of respiratory alkalosis results.⁶ A lowering of CO₂ levels in the blood creates many physiological changes but of particular relevance to the musculoskeletal system is a) threshold alteration to sensory and motor axons which causes depolarisation or excitation of the nerve motor unit b) smooth muscle constriction and c) altered Oxygen (O₂) uptake via the Bohr Effect.²² The depolarisation or excitation of the nerve motor unit contributes to an increased central nervous system arousal. The increase in pH improves muscle function as seen in short duration cycle sprints.²³ If prolonged, however, over stimulation, fatigue and ultimately increased sensitisation can become a problem. When pH increases smooth muscles in vessels in the gut and bronchi constrict.²⁴ Tissue oxygenation is reduced due to vasoconstriction and due to inhibition of oxygen transfer from haemoglobin, i.e respiratory alkalosis increases the affinity of haemoglobin (Bohr Effect), so that haemoglobin binds tightly to oxygen reducing oxygen to tissue cells. This can explain the concept of muscle aching at low levels of effort.²⁴

Upon the discovery of smooth muscle cells in collagen this potentially can explain the presentation of increased muscular and fascial tension amongst individuals with breathing pattern disorders. This implies breathing disorders will play a part in fascial/connective tissue sites- ligaments, menisci, and spinal discs.^{25,26} It has even been suggested that perhaps in the hypermobile individual the altered breathing pattern exists as a means to increase tone and stability via the effect of respiratory alkalosis on contractile smooth muscle cells?²⁷

Did you know that the muscles of respiration steal oxygen rich blood from the lower limbs during intensive exercise?

It has been identified that the work of breathing during maximal exercise results in marked changes in locomotor muscle blood flow, cardiac output and both whole-body and active limb oxygen uptake.²⁸ It is believed the compromised locomotor blood flow is associated with noradrenaline (norepinephrine) suggesting enhanced sympathetic vasoconstriction.²⁹ Evidence exists of a metaboreflex, with its origin in the respiratory muscles.³⁰ It is believed this reflex can modulate limb perfusion via stimulation of sympathetic nervous system vasoconstrictor neurones.³¹ The fundamental goal is the protection of oxygen delivery to the respiratory muscles, thus ensuring the ability to maintain pulmonary ventilation, proper regulation of arterial blood gases and pH and overall homeostasis.

This concept has been referred to as blood stealing.³² A novel idea that literally the muscles of respiration steal oxygen rich blood from the lower limbs to maintain efficient respiration.

Psychologically

Any athlete, particularly the elite athlete, is exposed to many internal and external pressures. Performance anxiety has been shown to have close associations with breathing pattern disorders.^{33,34} Similar changes are seen with anticipatory anxiety.³⁵ For example, the fear of the dyspnoea that plays a major factor in panic attacks and anxiety.³⁶ It is often the sensation of dyspnoea or muscle discomfort that will limit performance.

In the case of the athlete, it is not only the anxiety that surrounds potential symptoms such as breathlessness, but also the anxiety surrounding the performance itself can affect or be affected by a breathing pattern disorder. It is important to note, however, that the factors surrounding anxiety are too complex and interrelated to suggest there can be a simple causal effect. Conditioned respiratory responses have also been shown to occur prior to starting a computer task – a seemingly unrelated aspect of the athlete's lifestyle.^{37,38} The connec-

tion between psychological state and respiration is bidirectional, suggesting breathing should be examined as an independent variable affecting the psychological process.

In summary

What happens when an athlete presents to their sports physiotherapist for a recurring shoulder injury? The athlete who is coughing and spluttering with a highly productive cough, and sinuses that are so clogged that mouth breathing is the only reprieve. Does the sports therapist pass a box of tissues or use their clinical skills of observation and clear the excessive secretions, educate on nasal hygiene and breathing pattern disorders. Mouth breathing leads to increased respiratory accessory muscle activation, increased work of breathing all of which can add to musculo-skeletal issues, such as a shoulder problem. Physiological disturbances can also occur, for example sleep disturbance due to mouth breathing can result in fatigue adding recovery.

Research is gaining momentum to support the significance of implementing efficient breathing patterns. Results showing delayed respiratory fatigue reduced perceptions of dyspnoea leading to improved endurance, power outputs, mental state and ultimately improved performance.

Athletes and in particular the elite athlete needs to be assessed and treated with all three categories in mind: biomechanics, physiology and psychologically.

Physiotherapy and the treatment of breathing pattern disorders are historically firmly placed in treatment of the cardiopulmonary system - both in the acute and chronic setting. It is evident from emerging research that it must now be considered in all areas.

This area of research opens new doors to physiotherapists working in the field of breathing pattern disorders. A network of physiotherapists who have trained and are highly skilled in the area of breathing pattern disorders and the athlete exists. I urge you to work in with them and to use them as they are an invaluable resource or to take the plunge and upskill in this area of emerging physiotherapy.

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More Research Needed to Verify Effectiveness of ACL and Knee Injury Prevention Programs, Study Says...

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The jury is still out on the effectiveness of prevention programs for knee injuries in young athletes, according to a study presented today at the American Orthopaedic Society for Sports Medicine Annual Meeting.

“ At this time, we do not have the highest quality research designs showing us that preventive training programs can reduce knee/ACL injuries ”

Providence, R.I. (Vocus) July 17, 2010

The jury is still out on the effectiveness of prevention programs for knee injuries in young athletes, according to a study presented today at the American Orthopaedic Society for Sports Medicine Annual Meeting. Better designed research studies are needed before it can be determined that ACL and knee injuries can be prevented with specialized training programs, the study noted.

“There is evidence that injury prevention programs may reduce the risk of some knee injuries, but additional research is necessary,” said Kevin G. Shea, M.D., Intermountain Orthopaedics, Boise, Idaho. “Questions about the efficacy of some programs exist and additional well-designed research studies need to be conducted before we can definitively prove the value of these programs for ACL and other knee injury.”

An estimated 200,000 ACL injuries occur annually in the U.S, according to the American Journal of Sports Medicine. Approximately, 15 percent of all sports injuries involve the knee. Fifty percent of those injuries result in a doctor or hospital visit.

In the study, the authors searched for ACL/Knee injury prevention program studies in three medical databases. Then, using a “quality of evidence” ranking algorithm, the authors evaluated the studies. Fifteen studies were found that met the authors’ research criteria. Of the 15 studies, nine demonstrated a reduction of knee or ACL injury. Of the 13 studies that looked at ACL injury specifically, five studies demonstrated a reduction of ACL injury. Careful review of these studies, however, showed that many contained design flaws. These design flaws introduce bias into the results, which raises questions about the effectiveness of some injury prevention programs, the study noted.

“At this time, we do not have the highest quality research designs showing us that preventive training programs can reduce knee/ACL injuries,” said Shea. “That doesn’t mean that these training programs do not help – I encourage my own children and my patients to be do these exercises, as the existing evidence suggests some benefit to these training programs. But, we need better research evidence that confirms the effectiveness of injury prevention programs. These types of studies are difficult to conduct, and require significant resources to produce the research. The sports medicine community should continue research in this area, including NIH funded studies to conduct the high quality clinical trials.”

The American Orthopaedic Society for Sports Medicine (AOSSM) is a world leader in sports medicine education, research, communication and fellowship, and includes national and international orthopaedic sports medicine leaders. The Society works closely with many other sports medicine specialists, including athletic trainers, physical therapists, family physicians, and others to improve the identification, prevention, treatment, and rehabilitation of sports injuries. AOSSM is also a founding partner of the STOP Sports Injuries campaign to prevent overuse and traumatic injuries in kids. For more information on AOSSM or the [STOP Sports Injuries](#) campaign, contact Lisa Weisenberger at [lisa\(at\)aossm\(dot\)org](mailto:lisa(at)aossm(dot)org) or 847-292-4900.

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