COVER STORY
The facts about altitude training for athletes

OUR RIDE WITH CADEL EVANS

Building a stronger workforce through high standards of practice
The Future is Bright

Coinciding with the start of our new strategic plan, we are expecting big things for ESSA this year. Well, what a start it has been, with sports science and the issue of the need for sports science accreditation making headlines around the world! ESSA has been calling for uniform national accreditation of sports scientists for nearly a quarter of a century, and recent events serve to reinforce our ongoing concerns regarding the lack of regulation in this area. ESSA continues to advocate for a national, unified solution to protect clubs, athletes and sports scientists from future accusations of wrongdoing. One positive from the recent media attention is that there are now discussions happening about the definition of sports science, about who can call themselves ‘sports scientists’, do we need registration or accreditation, and what is ESSA’s role as the professional body. An additional positive has been some good discussions with Nick Brown, Deputy Director, Research and Applied Science, at the AIS. Over the next few months, ESSA will be embracing these opportunities and having further discussions with a number of stakeholders in relation to the questions being asked. I have to thank several ESSA people who have contributed immensely during this time — Prof. David Bishop, Assoc. Prof. Chris Askew and Dr Ian Gillam — as well as thanking other individuals and groups who have contributed to the articles being released: the Council for Heads of Exercise, Sport and Movement Sciences (CHESMS), Prof. Damian Farrow, Assoc. Prof. Dennis Hemphill, Prof. Kevin Thompson and Dr James Fell.

Anita Hobson-Powell
Executive Officer

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Professional Development with ESSA in 2013

ESSA 2013 Business Forum
(18-19 May 2013) Wollongong, NSW
Are you a business owner? Is your 2013 career goal to be a business owner? Could you benefit from learning business skills or further information on working in clinical practice? Yes! Then you need to be at the 2013 ESSA Business Forum.

Workplace Rehabilitation
Workplace Rehabilitation is a comprehensive, online professional development opportunity that provides learning for accredited exercise physiologists and other health professionals to develop competencies in workplace assessments, in functional assessments and in developing return to work plans. Please note that this is the only professional development course that WorkCover NSW and ESSA will be certifying with respect to the minimum AEP qualifications for WorkCover NSW. More information is available via the ESSA website
www.essa.org.au/professional-development

Be one of our presenters!
ESSA is looking for presenters! Do you have a topic that you wish to present? ESSA invites you to submit your expression of interest to become one of our presenters. Please contact Sarah Hall, Professional Development Officer, at education@essa.org.au or call 07 3862 4122 for more information.

More information
Keep up to date on all professional development on the ESSA website. For any direct queries you may have, please contact Sarah Hall, Professional Development Officer, on education@essa.org.au
www.essa.org.au/professional-development

Other Events

12th National Rural Health Conference
(7-10 April 2013) Adelaide
www nrha.org.au/12nrhc

18th Annual Congress of the European College of Sport Science
(26-29 June 2013) Barcelona, Spain
www.ecss-congress.eu/2013/13

2013 Primary Healthcare Research Conference
(10-12 July 2013) Hilton Sydney, Australia

The Annual Scientific Meeting of the Australian Diabetes Society & the Australian Diabetes Educators Association
(27-30 August 2013) Sydney Convention & Exhibition Centre, Australia
www.ods-odea.org.au

Australian & New Zealand Obesity Society Annual Scientific Meeting 2013
(17-19 October 2013) The Sebel, Albert Park, Melbourne, Australia
www.anzos2013.org

8th Interdisciplinary World Congress on Low Back & Pelvic Pain
(27-31 October 2013) Dubai
www.worldcongresslbp.com

Clinical Oncological Society of Australia 40th Annual Scientific Meeting
(11-14 November 2013) Adelaide Convention Centre, Australia
www.cosa.org.au

Facebook on our group
Join the following states’ Facebook groups for local updates. NSW, QLD, SA, TAS, VIC, WA, ACT
ESSA
Exercise & Sports Science Australia (ESSA) is pleased to announce our chairs and committees in place for the ESSA conference to be held in Adelaide in 2014.

The selected chairs and committee members are leading academics in their respective fields in Australia, and their outstanding research work is characterised by a focus on matters of practical relevance to ESSA practitioners.

**Conference Chairs:**
- Prof. Danny Green and Prof. Jeff Coombes

**Organising Committee:**
- Cardiopulmonary and metabolic (basic, applied and clinical): Prof. Danny Green and Prof. Jeff Coombes
- Musculoskeletal and neurological: Prof. Graham Kerr
- Applied Sports Science: Prof. Chris Gore
- Exercise science (physical activity, primary prevention, community sport): Prof. Roger Eston
- Clinical EP (AEP): Dr Brendan Joss

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**WINNER ANNOUNCEMENT:**
**Tom Penrose Research and Community Service Grant winner**

Congratulations to Ms Carolina Sandler, a PhD student at UNSW Lifestyle Clinic, the winner of the Tom Penrose Research and Community Service Grant for 2012.

The co-investigators: Mr Chris Tzar, Prof. Andrew Lloyd, Dr Benjamin Barry and Ms Sally Mildon.

Title of the winning grant: Development of an operations manual and training package for the optimised multi-disciplinary treatment program for patients with chronic fatigue syndrome (CFS).

The aim of this project is to facilitate dissemination of the optimised cognitive behavioural therapy (CBT) intervention throughout Australia by development of a standardised operations manual and training package for health professionals in other centres. This will enable reliable and reproducible programs to be established and increase the opportunity for Australian patients with CFS to access best practice treatments.
IN 2012, THE EXERCISE PHYSIOLOGY ADVISORY GROUP (EPAG) WAS FORMED TO BETTER USE OUR MEMBERS’ SKILLS, KNOWLEDGE AND EXPERTISE WITHIN THE MAJOR HEALTH AREAS AND EXERCISE PHYSIOLOGY EMPLOYMENT STREAMS. THE ADVISORY GROUP CONSISTS OF 10 ESSA MEMBERS WHO REPRESENT THE FOLLOWING AREAS:

- aged care
- mental health
- tertiary health
- private practice
- disability
- academia
- health-related
government departments
- occupational
rehabilitation

A primary reason given by EPAG members for volunteering their time was a desire to develop and promote the exercise physiology profession. In the short time since the group’s inception, they have enthusiastically embarked upon many projects aimed at meeting this goal. Furthermore, EPAG has also been vocal in its advice and guidance to the ESSA national office and industry development team on a range of issues that impact the exercise physiology profession.

For further information about applying for an HPI-I or completing the application form, please contact Louise Czosnek (louise.czosnek@essa.org.au)
A snapshot of some of the projects recently undertaken by EPAG:

UPDATE AND REVIEW THE ACCREDITED EXERCISE PHYSIOLOGIST (AEP) SCOPE OF PRACTICE (SOP)
Updating the SoP for AEPs stimulated a robust and passionate discussion within the group. EPAG members were keen to ensure that the scope was broad enough to encompass the various roles of an AEP while also providing details on the areas and settings in which exercise physiologists work. In 2013, EPAG plans to explore the development of a comprehensive clinical competency framework which would provide greater detail and information about the skills of an exercise physiologist.

NATIONAL AGED CARE ALLIANCE
Martin Bending, the aged care representative from EPAG, represents ESSA on the National Aged Care Alliance. Membership of this alliance provides ESSA with an opportunity to develop relationships with key organisations within the aged care sector and to influence government at the highest level. Furthermore, within this portfolio, ESSA has made a submission requesting that AEPs be recognised under the Aged Care Funding Instrument.

MEETING WITH PRIVATE HEALTH FUND CONSULTANT
Sebastian Buccheri (National Exercise Physiology Director) and Melanie Sharman (Industry Development Manager) met with a private health fund consultant to obtain information about how the recognition of AEP services could be increased within this space. This was a highly productive meeting, and subsequently contact has been made with related individual companies providing services to the health fund sector. Opportunities may exist for AEP/ES services within specific programs such as rehabilitation in the home, telephonic health and health coaching. ESSA will be continuing to explore these opportunities in 2013.

OTHER PROJECTS
In addition to the tasks outlined previously, other projects undertaken by EPAG include:
- Advising on the development of continued education modules for ESSA’s Medicare and DVA compliance project
- Meeting with Australian Medicare Local Alliance representatives to discuss the E-health initiative
- Meeting with representatives from the National Disability Insurance Scheme as part of the Allied Health Professionals Association
- Development of an ESSA mental health special interest group
- Reviewing ESSA’s exercise physiology awards

The direction and projects undertaken by EPAG are heavily influenced by the emerging trends and issues facing exercise physiology members. Thus, to ensure the committee members are reflecting the needs of the wider exercise physiology membership, ESSA encourages all members to contribute items or issues for discussion. EPAG currently meets on the last Tuesday of each month; please email any correspondence for the group to Louise Czosnek (louise.czosnek@essa.org.au).
Dementia is the leading cause of years lost to disability among older Australians and accounts for nearly 17% of their disability burden. Dementia will become the third largest source of health and residential aged care (RAC) spending within the next two decades. People with dementia who live in an RAC facility are often physically inactive. Among this population, physical inactivity is potentially the primary or associated precursor to multiple unmet needs, including social isolation, anxiety, depression and psychological distress. Moreover, greater levels of inactivity are associated with increased risk of all-cause mortality, sarcopenia and decline in activities of daily living, and may be a primary cause of cognitive decline. As a countermeasure, research suggests that, for those with dementia, exercise offers physical, mental and behavioural benefits. The Watermemories Swimming Club (WSC) is a population-specific, aquatic exercise program that has proven useful in inducing positive physical and psychological change in very old, low-functioning adults with dementia.

To date, and through the help of the original Department of Health and Ageing Community Grant and the ESSA 2011 Tom Penrose Research and Community Service Grant, the WSC is now in its third stage of delivery at Toowoomba’s Milne Bay Pool. Piloted in 2011 among a small group of RAC adults with advanced dementia (median age = 88.4 years), the twice weekly, 12-week program has continued to offer participants a fun and enjoyable way to exercise. In brief, the program is delivered by a trained aquatic exercise instructor and overseen by an accredited exercise physiologist (Vision Exercise Physiology, Toowoomba). All participants are assisted in the pool by a carer. A session lasts approximately 1 hour and incorporates a warm-up and cool-down, and balance, strengthening and aerobic components.

With the intention of the program being disseminated nationally, one outcome the project team has striven for is delivering a detailed program manual and DVD. These are near completion. In addition, discussions are underway to set up accredited training sessions for care facilities, organisations and allied health professionals who wish to deliver the program. In addition, the need for more rigorous research is also recognised. To facilitate this, most recently the project team was awarded a competitive Alzheimer’s Australia Dementia Research Grant to undertake a randomised controlled trial. Using the same WSC exercise program and delivery protocol, the project will recruit 60 [30 WSC, 30 control] very old participants with diagnosed dementia who reside in low-care or high-care RAC facilities within a 30-kilometre radius of Griffith University [Nathan Campus].

In addition to the measured physical and psychological benefits participants have received from being members of the WSC, the program has achieved national and international acknowledgement. In August 2012 the project team gave an invited symposium at the 8th World Congress on Active Ageing, Glasgow, Scotland, and in October 2012 presented an invited seminar at the National Dementia Training Centre’s Knowledge Transfer Conference, Brisbane. In addition, the WSC will be presented at this year’s forthcoming Geriatric Society of America Conference and Australian Association of Gerontology Conference. Conference dissemination has been accompanied by 12 media releases (television, magazine, radio and newspaper). One methodology paper has been accepted for publication by the Journal of Geriatric Nursing, and two further papers are in production. Those who have supported the program are always given open acknowledgment when the WSC is presented or published.

For further information about this program, please contact Dr Tim Henwood (t.henwood@uq.edu.au 07 3720 5303).
Standards and Compliance

Building a stronger workforce through high standards of practice

Whether you are newly accredited, well-versed in government-funded services or working non-clinically as an accredited exercise physiologist (AEP), ESSA’s 2013 self-paced learning package on government-funded services is designed to provide an important educational update for AEPs.

2012 saw Medicare Australia mobilise resources to conduct a compliance audit of allied health professionals (AHPs) who provide chronic disease management (CDM) services. As part of the audit preparation process, new health professional guidelines were released to better define compliance requirements [found on the Medicare Australia Health Professionals website under ‘Compliance’]. Also, the end-of-year Medical Benefit Scheme update saw major changes to the Department of Health and Ageing guidelines for the CDM initiative. Previous audits of health professionals have identified that service providers have not been meeting report-writing requirements and have been initiating services with incomplete or incorrect referrals. These errors result in financial penalty for the provider.

Furthermore, the Department of Veterans’ Affairs (DVA) has alerted ESSA to common errors made by AEPs, including incorrect advertising, attracting clients through incentives such as offering complimentary gym memberships or free partner attendance, and confusion about service provision guidelines (e.g. clinical need vs preventative or maintenance treatment, which results
Summary

Expected release date of Part 1:
The first half of 2013
Mode: Self-paced learning in your own setting
PD points for Part 1: Between 4–6
Category 2 points
Cost: Free
Completion date: AEPs must complete Part 1 of the package prior to renewing their accreditation for 2014

AEPs have experienced noticeable growth as an allied health profession, in both services being rendered by the profession and the total number of providers working within government-funded services. An example of this is reflected in DVA services over the last 3 years. AEP services have increased by 349% since 2009–10 (funding for in-clinic and in-home consultations). Last year, exercise physiology ranked as the fifth most-utilised health profession for in-clinic consultations (service amount of $18.9 million in 2011–12) behind dentistry, physiotherapy, podiatry and occupational therapy. Further, it is the fourth most-utilised health profession for in-home consultations (service amount of $2.8 million in 2011–12) behind physiotherapy, occupational therapy and podiatry. With the highest percentage of DVA services being provided by Queensland members. Medicare Australia services reflect similar growth. Provider percentile charts (per profession) released by Medicare Australia for the period of 1st October 2011 – 30 September 2012 indicate that AEPs who have claimed 92 services for Item 10953, are within the 50th percentile compared to their colleagues for that item. This means that 50 per cent of AEPs have rendered the same or fewer numbers of the specified item and 50 per cent of AEPs have claimed more. Five percent of AEPs have claimed more than 701 services for this period. This information represents higher claims per provider than previous years and is additionally useful as a benchmark for AEPs.

Whilst this growth demonstrates greater recognition of the profession within primary care and the community, we must ensure that our profession continues to provide best-practice treatment in line with government requirements. In this way, we will ensure availability of, and create further opportunities for, such programs and initiatives as areas of employment for our members.

in over-servicing). The DVA has prepared an article for readers in the next section that outlines common provider errors.

The serious consequences faced by providers who are noncompliant in such schemes (e.g. financial penalty and presentation of their case to the ESSA Ethics Committee), and the potential negative impact on the AEP profession, have highlighted the need for ESSA to implement compulsory, ongoing professional education in this area.

ESSA is releasing a three-part, self-paced learning package as part of a larger quality assurance and member compliance project. Part 1, to be released in the first half of 2013, provides education on government-funded services. It contains nine key learning areas on Medicare Australia services, six key learning areas on DVA services, and two case studies. The package includes an assessment process and will require a grade of 90% or higher. The learning areas have been identified by ESSA as essential knowledge for AEPs. The package will attract Category 2 professional development points.

It is compulsory that all AEPs complete Part 1 in 2013. Even if you do not provide services funded by Medicare Australia or the DVA, ESSA will require Part 1 to be completed prior to your membership renewal in 2014. This is because an AEP may move into this area of work at any time — ESSA needs to ensure our AEP workforce undergoes contemporaneous professional education on these schemes to prevent non-compliance and potential damage to our profession.

More information about the package will soon be available on the ESSA website. Parts 2 and 3 of the package focus on private health funds and occupational rehabilitation, respectively, and will be released during 2013–14.

Medicare Australia services reflect similar growth. Provider percentile charts (per profession) released by Medicare Australia for the period of 1st October 2011 – 30 September 2012 indicate that AEPs who have claimed 92 services for Item 10953, are within the 50th percentile compared to their colleagues for that item. This means that 50 per cent of AEPs have rendered the same or fewer numbers of the specified item and 50 per cent of AEPs have claimed more. Five percent of AEPs have claimed more than 701 services for this period. This information represents higher claims per provider than previous years and is additionally useful as a benchmark for AEPs.

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Common Error: Not Obtaining Approval for Changes to an Advertisement or Website

If you have obtained approval from DVA for your promotional resources and wish to update or change any of your promotional resources, you must submit a new request for approval.

- No misleading or false information is to be included in your promotional activity.

Common Error: Advertising That Services Are 100% Free and/or Bulk Billed

Treatment is not provided to veterans free. The Commission accepts financial responsibility as per the DVA schedule of fees for exercise physiologists.

False: Free Gym Memberships

Consultation fees for exercise physiology services do not include entry fees for gyms where this is required to access the EP.

Common Error: Advertising $5 Exercise Classes for a Veteran’s Spouse/Offering Free Pedometers

Offering $5 exercise classes for a veteran’s spouse and/or a free pedometer may be perceived as an enticement. DVA does not fund treatment or exercise classes for a veteran’s spouse. DVA does not provide exercise physiology services for generalised and ongoing exercise regimes.

False: Patients With a Gold Card Can Access Treatment by an AEP for Any Health Condition

DVA pays for clinically necessary treatment. Treatment must be based on the entitled person’s assessed clinical needs and be part of an agreed treatment plan which includes the anticipated type and frequency of the treatment and the expected goals. Care is delivered in consultation with the referring GP.

- The Australian Government logo must not be used in the advertisements.
- The advertisement or websites must not imply endorsement as DVA’s preferred health care provider, or imply the health care provider is an employee or agent of DVA. The advertisement may only advise that the health care provider will treat DVA-entitled persons.

What Can My Advertisement Say?

A simple statement such as ‘Entitled Department of Veterans’ Affairs (DVA) clients may be referred for clinically necessary exercise physiology treatment by their general practitioner on a valid D904 referral form.’

Who Do I Send My Request To?

Assistant Director — Provider Partnering
Department of Veterans’ Affairs
GPO Box 9998
MELBOURNE VIC 3001.
Email: providerpartnering@dva.gov.au
ESSA calls for regulation of the sports science industry

In the wake of the recent questions about the supplement program at the Essendon Football Club and the release of the Australian Crime Commission’s (ACC) report ‘Organised Crime and Drugs in Sport’, ESSA has been quick to call for greater regulation of the sports science industry in Australia. To date, ESSA representatives have conducted more than 50 interviews (for press, radio and TV) and have generated hundreds of media statements reinforcing that ESSA strongly supports, and is committed to, protecting the reputation of the sports science profession for the benefit of all.

ESSA is particularly concerned that individuals have been referred to in the media, and possibly in the ACC report, as ‘sports scientists’, despite not being members of ESSA, not having ESSA accreditation, or even being eligible for ESSA membership. This has resulted in significant damage to the reputations of many highly qualified and accredited sports scientists across Australia, and internationally. A key tenet of the work of accredited sports scientists with athletes is that the work must be based on sound scientific principles using evidence-based practice, in consultation with appropriate members of the high-performance team (e.g. medical and coaching staff), with the duty of care to the athlete being paramount at all times.

ESSA has highlighted through the media the need for greater regulation of the sports science industry by calling for the appointment of only ESSA-accredited sports scientists across all sporting codes. ESSA, as the peak professional body for exercise and sports scientists in Australia, would not only provide sporting organisations and clubs with the quality assurance associated with the accreditation of ESSA sports scientists, but would also provide the required regulatory mechanism to ensure the nationally consistent and independent guidelines that the government is calling for. Like all ESSA members, any accredited sports scientist who works outside our code of professional conduct and ethical practice would be subject to ESSA disciplinary procedures, which could result in suspension of their accreditation.

One of ESSA’s key messages within our media work has been our desire to work with sporting organisations and codes to implement a consistent, independent, national accreditation process for sport scientists. Subsequently, ESSA has been requesting meetings with national and state ministers of sport, the CEOs of national sports organisations, the Australian Athlete Alliance, the institute and academy of sports, peak sports medicine associations, and other key stakeholders in the sports industry to discuss how ESSA can assist them in ensuring better regulatory control of sports scientists to provide a safe and ethical environment for athletes and the conduct of sport.

It has been particularly disappointing that recent events have tarnished the reputation of sports science. What is currently being overlooked is that many of Australia’s leading sports scientists undertake groundbreaking research and practice in the areas of training and assessment, exercise physiology, biomechanics, and motor control and skill enhancement with a clear understanding of their ethical responsibilities to both the athletes and to sport. An important step is to educate the public about how accredited sports scientists, through their hard work and dedication to sport, not only assist athletes to produce outstanding performances across the many sports that we all enjoy, but also how their work with other sports medicine professionals contributes to the health and wellbeing of athletes who push themselves to the limit.

Professor David Bishop, Director of Sports Science, ESSA
Dr Ian Gillam, Industry Development Officer, ESSA

Additional Resources
Our ride with Cadel Evans

Cadel Evans, Tour de France GC winner in 2011, World Road Cycling Champion (elite) in 2010 and World Cup Cross Country Mountain Bike (MTB) Champion (overall) in 1998 and 1999, is Australia’s greatest and most successful cyclist. His two podium finishes at the Tour de France (second in 2007 and 2008) were a major factor precipitating the boom in Australian cycling across all levels of the sport in the past decade. Also, the live SBS coverage of the Tour de France has been responsible for many a bleary eye in Australian households in the month of July every year since.

But who is Cadel Evans outside his cycling achievements? After being the successful bidder at the Role Models fundraising event for the National Institute of Integrative Medicine (NIIM), where I have worked as an accredited exercise and sports physiologist for the past few years, I had the opportunity to meet and chat with Cadel over breakfast, and to go on a ride with him around his Australian home base in Barwon Heads on the surf coast of Victoria. It was a once-in-a-lifetime opportunity that I, two family members and a long-time friend who joined me on this experience will never forget.

In mid-December, we met Cadel’s Australian manager, Jason Bakker, for breakfast at a unique French-style deli and café in Barwon Heads called Annie’s Provedore. After muffins and coffee, Cadel wandered in from the back of the café and introduced himself nonchalantly with, ‘Hi I’m Cadel.’ He ordered his coffee and joined us, chatting away as if he had known us all for ages. Cadel was humble, generous with his time, and very friendly. He was more interested in talking to us about what we all did, rather than about him and his cycling.

According to his autobiography, Cadel Evans — Close to Flying, he was born 80 kilometres east of Katherine in a small Aboriginal community in the Northern Territory where his father worked for the local council. It was a tough living environment, with many of the social problems associated with such a community. Cadel, an only child, began riding his first bike when he was just four years old, and cycling became one of his greatest joys. These early childhood experiences have clearly shaped many of his beliefs and attitudes today, such as his love of cycling, that success comes from hard work, his understanding of disadvantage in the community, and his dedication to helping others. Some recent examples of this are how he and his Italian wife of 8 years, Chiara Passerini, recently adopted an Ethiopian baby who had been found on the side of a road and sent to a local orphanage; and how he recently took a young rising star of Australian cycling for a training ride to assist his professional development and to help him better understand what is required to make it to the top level. Cadel also supported a recent sponsorship event designed to promote sustainability in everyday life, in which 480 cyclists powered a generator to light up a Christmas tree in central Melbourne. Cadel has stated that he will only be involved with sponsors that are consistent with his personal beliefs and values.

'His training is his number one focus and he believes that hard training is the only formula for success.'
Cadel began his competitive cycling career when, at 17 years of age, he came second in the Junior World Championships in Vail, USA in 1994. He was identified as an outstanding junior talent in cross country MTB, and after MTB was added to the Los Angeles Olympics in 1996, the AIS decided to add MTB to the AIS cycling program in 1995. Cadel was one of the first cyclists selected into the new AIS MTB program, and senior sports physiologist with the cycling program at the AIS, Dr David Martin, undertook Cadel’s first cycling VO2max test. He was measured (in mL/kg/min) in the high 80s, one of the highest VO2max tests measured in a cyclist at the AIS, and clearly showing he had the aerobic motor to be competitive with the best cyclists in the world. During the years at the AIS, Cadel underwent numerous physiological tests, and clearly he learnt much about training, cycling physiology, biomechanics and blood testing during those years. After moving to set up his home base in Switzerland, Cadel sought out the Mapei Cycling Centre, based in Castellanza, Northern Italy. The Mapei Cycling Centre employs medical staff, sports scientists, cycling technicians and trainers, and provides services to numerous elite cyclists throughout the world, including Cadel. The Mapei Centre was under the direction of cycling coach and sports scientist Dr Aldo Sassi, who was to become Cadel’s coach and advisor until late 2010, when he passed away. To Cadel’s great disappointment, Dr Sassi did not see his career-defining Tour de France win in June 2011.

'Cadel, an only child, began riding his first bike when he was just four years old, and cycling became one of his greatest joys.'

Over the course of our breakfast with Cadel at Annie’s Provedore, we chatted about Exercise & Sports Science Australia (ESSA), the role of sports science in assisting athlete performance and the type of services our members provide across the spectrum of sports science and clinical physiology. As an athlete, Cadel is rigorous in monitoring and analysing the data from his cycle computer to provide him and his Italian-based coach with the information to fine-tune his training and optimise his performance. His training is his number one focus and he believes that hard training is the only formula for success. I presented him with an ESSA folder with brochures and some recent copies of Activate. Cadel was interested in my expertise in sports physiology and, in particular, my experience in overtraining and sports nutrition. We discussed at length the work I had done over the past few years in biochemical monitoring of the training and immune responses in elite cyclists and other athletes. These discussions continued throughout our ride.

Cadel’s cycling, training, the upcoming Tour and his goals for 2013 were briefly discussed, as we were now in our second hour of a breakfast that had been scheduled to last for 15–20 minutes! We learned that Cadel speaks five languages (English, Italian, French, Spanish and some German), which was very useful when listening to the discussions amongst other riders in the peloton. Cycling etiquette in the peloton is critical to the riders as they point out road hazards to other cyclists to avoid crashes, assist each other with the supply of fluids and food as they ride, and generally look after each other’s health and wellbeing. He spoke about his concern over the lack of consideration shown by some of the media and their intrusion into the finish area when riders are exhausted, thus increasing the potential for accidents. Cadel then graciously signed my two BMC jerseys and some posters of him on the Tour. Once framed, these items will find a prime place on my office wall at home to remind me of this experience.

Finally, after numerous coffees, we collected our bikes for the ride. A photo shoot was organised and we were on our bikes riding in the drizzling rain and down the Thirteenth Beach Road out of Barwon Heads towards Torquay. Cadel ensured that each of us had a chance to ride with him, have a chat and get some coaching points from him. Maryanne, my wife, was beside herself with excitement as she received her coaching points, but was also petrified that she might fall and knock him off his bike in the narrow cycle lane on a now-slippery road! No one seemed to notice that it was raining throughout our ride as we were all too excited!

After over an hour of cycling, we arrived back at Barwon Heads. Cadel waved goodbye with a casual comment that he needed to get home to wipe down his immaculate BMC bike before preparing for an appointment. It was clear the bike was his priority! As we returned home I thought that, if Cadel does it, I had better first wipe down my bike before I proceeded with my daily business. Needless to say, we have not stopped talking about the experience since arriving home. We will no doubt be up late in July to watch Cadel and to wish him all the best in the 2013 Tour de France.

Ian Gillam, PhD, AEP, ASP, ESSAF Industry Development Officer ESSA
Does hypoxic and thermal stress enhance the training response of athletes and AFL footballers?

Accredited sports physiologist, Dr. Ian Gillam, discusses the evidence for and best practice of hypoxic and thermal stress to enhance athlete training responses, and asks if the expense required is justified.
Another Australian Football League (AFL) pre-season training has been completed and the talking point in the AFL has again been the increasing exodus of AFL clubs travelling to high altitude training facilities in the American Rockies to undertake intensive early pre-season training camps. Many AFL clubs, coaches and sports science staff are asked their advice on whether to follow this trend and pressured to ensure that their club is not being ‘left behind’. But what, if any, AFL-specific conditioning or psychological benefits are being achieved by the time the season starts in March, some three to four months later? The goal of this article is to examine the evidence as to the potential benefit of altitude or ‘thermal stress’ training camps for AFL footballers, and to question if the expense involved in conducting overseas altitude training camps is justified. In addition, could the money spent on these training camps be better spent on other areas of a football department, such as developing football-related skills or coaches?

WHICH AFL CLUBS ARE USING ALTITUDE TRAINING DURING PRE-SEASON TRAINING?

Collingwood began the trend to include an early pre-season altitude camp in 1995. On the advice of Sports Science Coordinator, Dr David Buttifant and with the support of Head Coach, Michael Malthouse, the playing squad completed a two-week live-in training block at Flagstaff (2130 m) in Arizona, which included a trek up to Humphreys Peak some 3800 m above sea level. The players were thus adopting the live high and training high (LHTH) model at altitude. Other AFL coaches have since followed this trend, including those who had been involved in the Collingwood initiative and had taken head coaching positions at the Kangaroos and the Gold Coast Suns. Other AFL clubs including Carlton, Essendon, Brisbane and Richmond have also conducted pre-season altitude camps in Arizona or Park City (2100 m) in Utah1. In 2011 Carlton took a different approach using an ‘altitude house’ in Qatar, adopting a contemporary Live High-Train Low (LHTL) training model, combined with exercise in the heat. Players trained in the heat at sea level for one week, while in the second week, one group lived and trained in the altitude house for 12 hours/day at 2500 to 3000 m, while the remainder lived and trained at sea level2. However, at least one successful club, the Geelong Cats, have recently bucked the trend of overseas pre-season high altitude camps, preferring to hold a training camp at Falls Creek in the Victorian Alps, at the moderate altitude of 1700 m; an altitude that is too low to create the required hypoxic stress.

In recent years at least two AFL clubs (Collingwood and Carlton) have also developed purpose-built altitude houses as part of their training facilities. Geelong, despite its reservations about high altitude training camps is now planning to build its own altitude house as part of its new training facility. However, is the cost of conducting overseas pre-season altitude training camps justified? In addition, could the money spent on these training camps be better spent on other areas of a football department, such as developing football-related skills or coaches?

Mexico City, which is at an altitude of 2250 m above sea level. Following the Mexico Olympics, interest then turned to whether the haematological and cardio-respiratory adaptations induced by altitude hypoxia may enhance aerobic exercise performance at sea level. Altitude research in the 1970s and 1980s convinced sports physiologist and AIS distance running coach, Dr Richard Telford to conduct summer altitude training at Falls Creek or Perisher [1700 to 1800 m] in the Australian Alps for his squad of distance runners, including Rob de Castella, Steve Moneghetti and later Craig Mottram, in the belief it might assist their sea level running performance. Despite the lack of evidence that altitude training at this moderate altitude enhanced sea-level performance, Craig Mottram believed that these camps allowed him to undertake an uninterrupted block of quality training [The Age, June 24, 2012] while in a mildly hypoxic environment.

The Australian Swimming Team also began to utilise altitude training camps in either Flagstaff or the Sierra Nevadas (2300 m) in Spain in the 1980’s in the lead up to the World Championships and the Olympics. All of these altitude camps used the traditional Live High-Train High (LHTH) paradigm.

ALTITUDE INDUCED HYPOXIA AND THE PHYSIOLOGICAL ADAPTATIONS TO HIGH ALTITUDE

So what is the evidence and what are the potential mechanisms by which
alkalosis and a disturbance in the acid-base balance. This may cause some nausea, irritability and insomnia when first arriving at a higher altitude. The respiratory alkalosis increases the buffering capacity of the blood, which may provide a physical performance benefit. Within 24 to 48 hours, the hypoxic stimulus on ‘oxygen sensitive receptors’ in the renal tubules increases the synthesis of the hormone erythropoietin (EPO), increasing the production of red blood cells in the bone marrow over the next few weeks. The hypoxic environment, even after adaptation, reduces the exercise capacity and increases the perceived exertion to a given exercise intensity when compared to sea level. This means that the athlete is unable to train at the same speed or power output when compared to sea level. As training speeds must be decreased, a change in muscle recruitment patterns results in a loss in training specificity when translated back to physical performance at sea level.

THE DEVELOPMENT OF NEW MODELS OF ALTITUDE TRAINING: THE LIVE HIGH-TRAIN LOW (LHTL) PARADIGM

In 1997, Levine et al were the first to publish data on a new altitude training paradigm, termed ‘Live High-Train Low’ (LHTL), where athletes lived and slept at an altitude (2500 m), while only travelling down to 1250 m for brief periods of training. A goal of this protocol was to overcome the lack of training...
which was shown to be significantly correlated with the mean, nine per cent increase in red cell mass, both of which were attributed to the hypoxia-induced increase in erythropoietin or EPO. When the 5000 m running time at sea level was compared across the three groups, only the LHTL group improved significantly by 13.4 seconds (1.4 per cent) with no improvement in the LHTH group. The ventilatory threshold also only increased in the LHTL group. This provided some evidence that the decrease in training speed in the LHTH group meant that despite the observed increase in red cell mass in LHTL group, this physiological adaptation did not translate into improvements in running performance.

Research by Levine et al. has led to numerous altitude studies based on the LHTL paradigm, using either ‘terrestrial’ or ‘natural’ (a hypobaric and hypoxic environment) or using ‘altitude houses’ which provide a normobaric, hypoxic environment. Altitude houses are designed to vary the oxygen content of the air from between 17 per cent to 14 per cent, the latter of which is equivalent to a maximum altitude of 3500 m. Continuous monitoring of the pO2 and the elimination of carbon dioxide provides stable environment conditions.

National and state sports institutes, universities and AFL clubs are increasingly building altitude houses to conduct research and to allow athletes to live and sleep in a hypoxic environment while enabling them to train outside the chamber at lower altitudes. However, there is now considerable debate as to whether living in a normobaric altitude house provides different physiological adaptations and performance outcomes to terrestrial or hypobaric altitude conditions.

INDIVIDUAL VARIABILITY IN THE HAEMATOLOGICAL RESPONSE TO HYPOXIA

Subsequent studies by Levine’s group using the LHTL protocol showed that the mean increase in red cell mass was characterised by a wide inter-individual variability in the EPO response to hypoxia and the resultant increase in VO2max. Athletes were characterised as ‘responders’ or ‘non-responders’ based on their EPO response to hypoxia which was shown not to be dependent on an athlete’s iron status or the bone.

...the minimum altitude for haematological changes in LHTL studies was 2200 to 2500 m.
marrow’s responsiveness to EPO. Recent evidence however has also shown that other hormones, including testosterone, human growth hormone, IGF1, all of which may be altered by intense physical training, can affect EPO secretion as can any impairment by renal function\textsuperscript{13}. In addition, increases in interleukins and cytokines, as a result of inflammation or infection, may affect the vascular endothelial cells, which in the kidney are the ‘O2 sensors’, which increase EPO production. These factors may be involved in the variable response of EPO to altitude induced hypoxia and the physiological adaptations that occur in athletes. Wide inter-individuality has also been observed in response to altitude induced hypoxia in many studies including those with elite swimmers\textsuperscript{13,14} and cyclists\textsuperscript{15}. In contrast, Clark et al\textsuperscript{15} showed that despite an increase in Hbmass there was no corresponding increase in VO2max in their cyclists and that as Hbmass increased in VO2max or performance\textsuperscript{15,13}. The alternative view is that any aerobic performance benefit due to altitude training is primarily due to non-haematological adaptations\textsuperscript{12}. These adaptations include, improved muscle and mechanical efficiency, increased muscle buffering capacity and improved lactic acid clearance\textsuperscript{18}, including a placebo effect\textsuperscript{19} and ‘training-camp’ effects\textsuperscript{9}. WHAT ARE THE MINIMUM REQUIREMENTS TO ACHIEVE A PHYSIOLOGICAL ADAPTATION TO HYPOXIC STRESS AND WHAT IS THE ENDURANCE PERFORMANCE BENEFIT AT SEA LEVEL? Clark et al\textsuperscript{15} also attempted to quantify the parameters required to elicit the maximal increase in Hbmass. In a three week study in an elite group of road cyclists, Hbmass and serum EPO was assessed each week during a LHTL protocol in an altitude house, including one week post-intervention. The 12 elite cyclists ‘lived and slept’ at 3000 m simulated altitude (15.5 per cent O2), for 14 hours each day and trained at low altitude in Canberra (600 m). During the study, Hbmass increased by a mean 3.3 per cent and serum EPO increased by 46 per cent peaking at 48 hours on altitude exposure. EPO stayed elevated above pre-exposure levels for the three weeks. Hbmass increased by approximately one per cent per week over the three weeks, and with a minimum of 300 hours of continuous altitude exposure being proposed to elicit significant increases in Hbmass. A recent review of well conducted altitude studies concluded that to achieve an optimum altitude induced physiological adaptation, the minimum altitude for haematological changes in LHTL studies was 2200 to 2500 m, with a minimum exposure of three to four weeks for 12 to 14 hours/day\textsuperscript{10}. However, to attain other non-haematological adaptations, a shorter period (12 days) and a higher altitude (3100 m) may be sufficient to produce physiological adaptations\textsuperscript{10}. It is important to emphasise that athletes need to have adequate iron stores to provide for the increase in haemoglobin synthesis with a high dose iron supplement, containing vitamin C (Ferrograd C) being recommended prior to, and during an altitude exposure\textsuperscript{15,21}. While the mean increase in red cell mass and VO2max may vary from 3 to 8.6 per cent\textsuperscript{15,19} it is important to recognise that any endurance performance benefit from optimal LHTL protocols is likely to be limited to approximately one per cent\textsuperscript{13,20,22}. While there is considerable inter-individual variability in the increase in Hbmass, the response within individuals during repeated exposures is quite reproducible\textsuperscript{22}. MAINTENANCE OF THE PHYSIOLOGICAL ADAPTATIONS AND PERFORMANCE BENEFITS AFTER ALTITUDE TRAINING Few studies have investigated the time course of the physiological adaptations and any performance improvements following LHTL altitude training. Levine et al\textsuperscript{14} did not assess if the increase in red cell mass and VO2max observed with LHTL was maintained on return to low altitude. However, this group did show that the LHTL group maintained their improvement in 5000 m running performance at sea level for up to 21 days following altitude training. No improvement in 5000 m running performance was observed following altitude training in the LHTH group and this was unchanged on return to sea level. Others have shown that the mean increase Hbmass induced by LHTL was maintained for one week after returning to low altitude [600 m]\textsuperscript{15,22}, with the serum EPO decreasing immediately to below pre-altitude levels on return to low altitude. A recent pilot study, showed that a three week LHTL intervention, Hbmass increased by a mean 5.5 per cent, but after 9 days on return to low altitude, the mean Hbmass had decreased to 2.5 per cent above the pre-invention level\textsuperscript{23}. In contrast, to other findings, this study observed a mean increase in serum EPO levels...
on return to low altitude, although this was primarily due to an abnormally high EPO response in one of the five subjects in the study. The maintenance of any performance changes on return to low altitude was not assessed in these recent studies, and it is important that changes in sea level performance, as well as other parameters such as ability to undertake a heavy training load or psychological benefits in the weeks following LHTL is included in future studies. This data is critical to assess any benefit of any altitude training camp and to determine if such a camp can be justified.

Players were not randomised to each group and the paper does not specify why the 'control' group, was not selected to participate in the altitude camp and were thus 'denied' access to this intervention. Hbmass, 2000 m running performance at sea level, and a measurement of intramuscular carnitine (muscle buffering capacity) using an MRS technique, were measured in all players before, three days and 30 days after the altitude camp. No assessment was made of \( \text{V}^\text{O}_2\text{max} \) in this study. Both groups undertook similar four week endurance and strength training blocks before and during the altitude intervention, however, the training stress in the altitude group was higher than the control group. ‘Training stress’ was calculated as training time x perceived exertion with the altitude group recording higher levels of training stress due to the increase in perceived exertion, as a result of the altitude induced hypoxia.

Following the altitude training camp in this study, there was a modest increase in Hbmass of 3.6 per cent and a trivial increase in Hbmass of 0.5 per cent in the control group. However when the difference in training stress was accounted for, the increase in Hbmass in the pre-high altitude group was reduced to 2.2 per cent. There was marked inter-player variability in the change in Hbmass for both groups of players. The increase in Hbmass observed in the altitude group had returned to pre-altitude levels four weeks after the altitude camp. No change in intramuscular carnitine or muscle buffering capacity was observed. Running performance at sea level following the intervention improved by 1.5 per cent (or 19 seconds over 2000m) in the altitude group, with the control group also improving their 2000 m run time by 11 seconds. The inter-individual variation in 2000 m run time was assessed as being approximately half the performance improvement, with the improvement in 2000 m run performance due to altitude was statistically assessed as being ‘likely’. Interestingly, the improvement in 2000 m run time was maintained in the altitude group for four weeks after the altitude intervention. The reason for the ability of the altitude group to maintain their running performance time is unclear, although the authors stated that this was due to the players being able to complete ‘an improved quality of training post-altitude camp’. No evidence is presented in the current paper that might justify this statement, nor is evidence provided for this statement in the paper. This is clearly an area for future research.

The performance improvement in this LHTH study may have been compromised by the non-specificity of the running training in the altitude group and it is suggested that 2000 m performance may have been further enhanced by undertaking the running training at lower altitude, thus

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**Pre-season Altitude Training Camps for AFL Footballers. Is There Data to Justify Altitude Training to Enhance Football Performance?**

Until recently no data had been published on the effect of pre-season altitude training camps on performance in team sports such as AFL football, which involve repeated, intermittent bursts of running activity over 100 minutes of competition and over a 22 week winter season. AFL clubs are keen to protect their ‘intellectual property’ from their competitors and experimental studies, which include a control group, are difficult to conduct with professional athletes. This is because if there is a perceived benefit of a particular intervention, it is difficult to deny this intervention to any player, both on a potential performance benefit and ethical consideration.

McLean et al are the first to publish data on the effect of a high altitude training camp conducted with an elite AFL squad (Collingwood Football Club), where the players lived and trained for 19 days in Flagstaff, Arizona (2130 m). It is important to emphasise that this altitude camp was conducted using the traditional terrestrial, Live High-Train High (LHTH) model, rather than the Live High-Train Low (LHTL) seen in the more contemporary altitude studies. A group of 21 elite AFL players were selected to participate in the altitude camp, while nine players (who acted as the control group), stayed and trained in Melbourne (30 m).

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"Heat adaptation would also be extremely valuable when players are often required to play early season AFL games in hot and humid conditions."
become the major focus. Technical and tactical training football specific skills, and the use of an altitude house may reduce the number of players and the costs associated with undertaking altitude training, providing a unique environment to work in periods in altitude houses and opportunities where players could undertake live-in periods in altitude houses during the pre-season and in-season phase. Collingwood Football Club has used this approach sending two players to altitude training during the 2012 season. A potential benefit of a pre-season altitude training camp is that it not only provides an opportunity for eliciting ‘physiological benefits’ but also provides for team building and ‘mental gains’. This ‘training camp effect’ is important as it provides significant opportunities to induct new players into the playing group, providing a unique environment to work.

Additional hypoxic exposure using an altitude house could potentially be used to maintain the haematologic and performance benefits of the pre-season altitude camp. However, given the data from experimental studies outlined above, to achieve the 12 hours per day hypoxic exposure required over a period of three weeks is generally seen to be not practical, due to the significant time commitment required by the players. As outlined above shorter hypoxic exposures may result in non-haematologic and performance benefits, so the use of an altitude house should be considered in the late pre-season, during the competition season and in the build up to finals for players identified to achieve these benefits with prior exposures. However, no AFL club currently has an altitude house that could accommodate the 22 plus players within an AFL playing group.

One practical approach would be to identify the ‘responders’ to hypoxic stimuli and focus any supplementary hypoxic training on those players who show clear physiological and performance benefits. This may reduce the number of players and the costs associated with undertaking altitude training, and it might also identify players and opportunities where players could undertake live-in periods in altitude houses during the pre-season and in-season phase. Collingwood Football Club has used this approach sending two players to altitude training during the 2012 season. A potential benefit of a pre-season altitude training camp is that it not only provides an opportunity for eliciting ‘physiological benefits’ but also provides for team building and ‘mental gains’. This ‘training camp effect’ is important as it provides significant opportunities to induct new players into the playing group, providing a unique environment to work.

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Activating the LHTL model. While the improvement in running performance was maintained for four weeks post altitude, it is unknown if any physiological or running performance benefits were maintained two to three months later, when the AFL competition season began. If achieving the maximum performance benefit from altitude training was the major goal, then conducting the altitude training closer to the start of the AFL season might seem to be more desirable. However, it is acknowledged that as an AFL season draws closer, the altitude training closer and performance benefits, so hypoxic exposures may result in non-haematologic and performance benefits, so the use of an altitude house should be considered in the late pre-season, during the competition season and in the build up to finals for players identified to achieve these benefits with prior exposures. However, no AFL club currently has an altitude house that could accommodate the 22 plus players within an AFL playing group.

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This recent paper has shown that 10 days of sub-maximal exercise training (50 per cent VO2max) in 40°C of heat significantly increased VO2max, maximal cardiac output, plasma volume and maximal aerobic exercise performance of trained cyclists, in both cool (13°C, 30 per cent RH) and hot dry conditions (38°C, 30 per cent RH) of between five to six per cent in cool and 5 to 9.1 per cent respectively, when compared to a control group. This increase in cardiac capacity and performance was mediated mainly by a 6.5 per cent increase in the plasma volume. This increase in aerobic performance was maintained for one to two weeks post thermal intervention. This data suggested that thermal stress combined with the adaptations provided by altitude training, may provide another independent mechanism to potentiate the aerobic training effect in athletes which requires less time and logistical support.

Based on this hypothesis, Carlton Football Club, prior to the 2012 season, took 17 elite AFL players to the ASPIRE Academy of Sports Excellence in Qatar to participate in a two week ‘Live High-Train Low in the heat’ training camp. Over the two weeks all 17 players took part in 10 outdoor AFL skill-specific training sessions in the heat (32°C, 39 per cent RH) including eight indoor strength sessions (23°C, 57 per cent RH). One group (N=9) lived in a hypoxic, normobaric altitude house (2500-3000m) for 14 hrs/day, and completed an additional seven indoor interval cycling sessions (total duration 4.3 hours/week), while the other group (N=8) completed the interval training sessions in normobaric normoxic air at sea level. Physiological and performance testing (Yo-Yo intermittent recovery test) was conducted 23°C, RH 57 per cent), pre-, immediately after and then three weeks after the camp. Both groups showed significant and similar improvements in the Yo-Yo test performance (44 per cent) immediately after the camp, however only the LHTH group maintained a six per cent performance improvement three weeks after the camp. Hbmass increased by three per cent and six per cent immediately and then three weeks after the camp in the altitude group. Blood volume...
increased in both groups (4 to 5 per cent) immediately after the camp, however the increase blood volume (7 per cent) was only maintained in the altitude group. These results showed that a short two week exposure to a combination of heat and hypoxic stress produced significant, lasting [at least for three weeks], and independent physiological adaptations, providing an important environmental cocktail to enhance performance in AFL players.

Practical implications of the results that combine altitude and thermal adaptation for AFL footballers. What are the cost-benefit outcomes of these studies?

While Buchheit et al combined thermal and hypoxic stresses for maximal adaptation and performance benefits, the group that only underwent thermal stresses during training also demonstrated some immediate performance benefits. Based on previous studies, the effect of heat acclimatisation lasts for one to two weeks, however the maintenance of endurance performance benefits were not investigated by Lorenzo et al. This is important to examine in future investigations.

The use of progressive thermal stress during pre-season training, by itself, may provide a relevant, convenient and economical approach to enhance the training response of AFL footballers. Pre-season training during the summer months in Australia is often conducted in hot conditions and if progressively introduced to allow for thermal adaptation while avoiding any adverse consequences of heat induced injury, this could provide an important additional environmental stress to elicit endurance performance benefits. Heat adaptation would also be extremely valuable when players are often required to play early season AFL games in hot and humid conditions. Hot conditions may also be experienced in the northern states of Australia during winter. While altitude training may provide independent physiological and performance benefits, the cost of conducting terrestrial altitude camps overseas, or the use of altitude houses is significant, especially for those clubs with limited resources. Training in progressively hotter conditions may provide a cost-effective method to enhance the training response in AFL footballers and the money saved (estimated at $500,000) could be used for other purposes such as to employ additional coaching or support staff to improve the football performance of an AFL list and develop younger players. It is certainly worthy of consideration.

**References**


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Comment

ESSA Discussion Table

Topic: The only referrals an exercise and sports science business needs in order to succeed are referrals from GPs?

Exercise physiologists derive income from a variety of sources: government-funded bodies (Medicare, DVA), NGOs (WorkCover, health insurance companies) and private clientele. For a business to succeed, GP referrals are essential, as the sources mentioned usually require a GP’s input. The GP’s input can be through a patient- and condition-specific written referral or through a general verbal acknowledgement and approval of exercise physiology services. A GP’s acceptance and understanding of exercise physiology services greatly affect patient adherence to these services.

John Clark
Practice Principal, O Rehab
Southport, QLD

Although important for government-funded services such as Medicare, DVA or WorkCover/CTP, we don’t believe the only services your business needs to succeed should be driven solely by referrals from GPs. Networking and raising awareness of your services within your local community can often provide a steady flow of private clients and good word of mouth. We suggest businesses look to identify their core skills and services and map organisations, community groups and other stakeholders where your services could be of mutual benefit, for example, local health support groups, aged care facilities or grassroots sporting clubs — building a business that has services which are not reliant on referral is desirable.

ESSA Industry Development Team

South Western Sydney Medicare Local’s clinical team offers individual EP consultations as well as the HEAL™ group exercise and education program. Our services prioritise maintaining a good working relationship with GPs. The GPs offer a stable referral source and provide confirmation of suitability for exercise. Utilisation of Medicare referrals allows some patients a bulk-billing option and can allow referral to other allied health professionals as required. A GP is the care leader within an individual’s health care team and should be involved in developing the plan for ongoing health management.

Megan Forsyth & Jerrad Borodzicz
South Western Sydney Medicare Local
Macarthur, NSW

While GP referrals are our major source of clients, we would not want to rely on them alone. Forming relations with work injury case managers and attracting self-referred clients via website and advertising are other important avenues for our viability. GPs are usually very willing to trial our service, but the quality of the service will determine if they continue to use it. That’s why the maintenance of good, friendly service is paramount and is our highest priority for all referrals. Good word of mouth can’t be hurried and takes time, but will ultimately be the factor that determines long-term success.

Reuben Vanderzalm
Accredited Exercise Physiologist, Adelaide
Exercise Physiology
Adelaide, SA
Relying on GPs alone to provide your business with referrals is fraught with danger. A business dominated by GP-driven referrals will cause many a headache if these begin to dry up. A case in point is that the first 3 months of the year are my busiest, as it is the time that the EPC plans are up for review.

This then raises the question of EPC plans. While they are great when you have one or two services included for EP, they are not enough to make a meaningful difference to the patient. Broaden your scope, do a great job with the patients you have and then let them pass on what a champion AEP you are to their family and friends. Consider diversifying into other avenues within the health and fitness industry, such as athletic conditioning, etc.

Sebastian Buccheri
AEP, Symmetry Movement Medicine
Hillside, VIC

By seeking a diverse range of referrals, your business will not rely too heavily on any one source, which makes it more stable in the constantly changing business landscape. Imagine you rely on one or two GP clinics for 30% of your business, and then that clinic employs another health professional? The size of your ‘referrers’ database is the key.

Exercise and sports science businesses have such a broad range of skills and should seek opportunities in various workplaces (e.g., ergonomics, wellness, injury prevention), from allied health professionals to retirement homes, specialists and sporting clubs, to name a few.

Ash Gardner
Exercise Physiologist
& Director, PACE Health Management
Frankston South VIC

No, you still need referrals coming in from other health practitioners to be profitable, but strong GP connections are vital if an exercise science business is serious about realising its true financial potential. GPs should be targeted for referrals because [1] the majority of a GP’s caseload would be suited to a lifestyle intervention such as exercise, and [2] the tertiary system is not producing enough GPs to meet the growing demands of our aging population. A significant opportunity is available for AEPs to be utilised more as a primary referral source.

Adam Demirtel
Staff Manager and Accredited Exercise Physiologist, MD Health
Kew East, VIC

GP referrals can be an important source of referrals, but it is important NOT to focus on one source of clients and income. Medicare clients on referral may be more challenging, as they may be referred to address particular health concerns but may not be committed to these goals. Private clients, who may be recommended by word of mouth by others (friends, other AHPs), are often an important source of motivated clients, many of whom may see a longer-term health goal (and become regular clients) than will the Medicare client who may only be motivated by the ‘five-appointment CDM’ referral.

It is important to diversify your business income stream and ensure you work to have some medium- to long-term contractual work with businesses [e.g. a workplace health program or a contract with a sports team], as this not only provides a base income for your business but also provides a regular cash flow for times when your clinical load may be ‘slow’, such as over the holiday season. Always look out for these opportunities and act on any leads that might come your way.

Ian Gillam
IDO, ESSA

Although GP referrals are important to any allied health business, they are not the most important and essential factor for business growth. Maintaining and growing a large, privately paying customer base is the most important way of generating growth for an exercise or sports science company.

Utilising network groups is essential for developing referral pathways and relationships that will enable much greater growth to occur, with less work for you as the business owner. You need to ‘wow’ these clients, nurture the relationships and enable these people to help you build your business. This not only increases the lifetime value of every new customer you have, but also creates less reliance on continually requiring more referrals from GPs alone.

There are many benefits to this strategy, including greater ability to follow your own systems and not having to adhere to referral requirements from GPs (such as WorkCover or Medicare). This creates even greater leverage in your business to develop whatever long-term marketing, promotional and loyalty programs that you wish. Not solely relying on GP referrals as the most essential part of exercise and sports science business growth gives your company better long-term control of its direction, and the possibilities from there are endless.

Jason Pilgrim
Director, In2Motion
Richmond, NSW

Have your say and win! ESSA will choose one response per edition of Activate to win a double movie pass to Hoyts or Greater Union Cinemas. Please send your response (in 50 words or less) to the statement below to ESSA by 19 April for a chance to win.

Email discussiontable@essa.org.au

NEXT TOPIC: HOW DO YOU EXPLAIN THE DIFFERENCE BETWEEN YOUR PROFESSION AND A PERSONAL TRAINER TO A FRIEND?
The value of the chicken egg as a nutrient-rich food is now being fully recognised by leading health bodies in Australia and around the world.

A recent study, published in the British Medical Journal, found that eating up to 7 eggs a week does not increase the risk of coronary heart disease or stroke in a healthy person. These results support the Draft Australian Dietary Guidelines that recommend eggs can be incorporated into all healthy Australian diets, including people with type 2 diabetes and heart disease, as they have minimal effects on cholesterol levels.

The Heart Foundation also recommends Australians can eat up to six eggs a week as part of a healthy, balanced diet that is low in saturated fat. Professor Manny Noakes from the Commonwealth Scientific and Industrial Research Organisation (CSIRO)’s Animal, Food and Health Sciences believes that including eggs as a part of a healthy diet should be valued more highly because of their excellent nutritional profile, “eggs are nutritional powerhouses and provide a significant number of essential vitamins, minerals and protein,” Dr Noakes said.

“Eggs are rich in high quality protein and omega-3 fats. They also contain only moderate amounts of total fat, the majority of which is unsaturated.

“There is no doubt that due to the long-standing nutritional myths that have surrounded eggs for decades, many Australians have been missing out on essential nutrients by unnecessarily limiting eggs in their diet,” Professor Noakes said.

**BUSTING THE MYTHS AROUND EGGS AND NUTRITION**

**Eggs and Serum Cholesterol**

The myth: Eggs are bad for serum (blood) cholesterol and therefore bad for your heart.

The reality: The effects of foods that contain dietary cholesterol – including eggs – on serum cholesterol are small in the context of a healthy diet low in saturated fat.

The link between egg consumption and increased serum cholesterol is not as strong as previously believed and this is supported by numerous epidemiological and clinical studies.

**Eggs and Coronary Heart Disease**

The myth: The cholesterol in eggs can increase the risk of people developing coronary heart disease.

The reality: There is no consistent evidence that suggests reducing egg consumption results in a reduced risk of coronary heart disease and stroke in most people.

Dietary cholesterol can have a small effect on serum cholesterol in some people but there has been no consistent evidence that egg consumption increases the risk of heart disease.

**Eggs and Fat**

The myth: Eggs are high in fat.

The reality: Eggs are only a moderate source of dietary fat. They contain no trans fat, and the majority of fat in an egg is unsaturated.

The total fat in a serve of eggs (2 x 60g eggs) is about 10.3g, of which saturated fat is only 3.4g – the remainder is polyunsaturated and monounsaturated fat.

The National Nutrition Survey showed that egg products and dishes contributed just 2% of the average total fat intake and only 1.6% of the average total saturated fat intake in the Australian diet.

**REFERENCES**

HEAL™ update

New partnership leads to Aboriginal HEAL™ pilot program success

Through the ‘Healthy Darwin’ Healthy Communities Initiative project, the City of Darwin has recently been working closely with the Danila Dilba Health Service to develop and pilot a tailored, culturally relevant HEAL™ program for Aboriginal clients living in Darwin.

The partnership aims to not only deliver the HEAL™ program as part of the Healthy Communities Initiative, but also to build the capacity of the health service to continue to deliver HEAL™ internally in the future. An initial pilot of HEAL™ was trialled to give early insights into the program’s efficacy for this participant group, so that future services may be improved accordingly. The initial stage involved holding focus groups with staff and clients of the Danila Dilba Health Service to identify an appropriate delivery mode and to resolve any potential issues relating to the program. Clients identified activities and topics of interest and possible enablers and barriers to participation.

This information helped to shape the pilot program, which was delivered by the local exercise physiology team at Bodyfit NT. Healthy Darwin worked with Danila Dilba Health Service and Bodyfit NT to ensure that the program was flexible and that transport was provided. They also showcased a variety of different physical activities and provided culturally relevant, local information.

Five Aboriginal clients registered for, and have now completed, the pilot program. Despite some challenges to attendance due to other commitments and personal issues, feedback has been positive. HEAL™ education sessions were delivered via a question-and-answer discussion format using the Aboriginal HEAL™ flip chart resource. A key asset in delivery was having a Danila Dilba chronic disease family support worker on board to help answer questions and to be a familiar face at the sessions. The program offered at Danila Dilba Health Service also improved participants’ healthy cooking skills by the addition of ‘cook-ups’—cooking classes led by an Aboriginal nutrition worker.

Following analysis of the pilot program feedback, Healthy Darwin and the Danila Dilba Health Service will discuss the option of training Danila Dilba staff as HEAL™ facilitators to enable them to deliver the program in the future. Future prospects also involve including Aboriginal mentors to work alongside facilitators to increase levels of engagement with the Aboriginal community.

If you would like any information about the HEAL™ program, including access to facilitator training, resources or the location of a program near you, contact:

Jerrad Borodzicz  
(HEAL™ National Coordinator)  
jborodzicz@swsml.com.au

or

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(HEAL™ Project Officer)  
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Exercise is Medicine, so get moving!

Latin sedere — ‘to sit’ How much do you do?
Sedentary behaviour is the term used to describe activity for which energy expenditure is only marginally above resting levels and is typically characterised by sitting. This behaviour can occur at work, in transit, at home and during leisure time.

PHYSICAL INACTIVITY

- doubles the risk of heart disease, type 2 diabetes, and obesity
- increases the risk of stroke, some cancers, depression, anxiety and falls
- contributes to over 30,000 deaths annually in Australia.

The evidence is sufficiently strong that adults who sit less throughout the day have a lower risk of death — particularly from cardiovascular disease. Regardless of total sitting time, regular interruptions from sitting (even standing up) may assist in reducing risk factors for developing coronary artery disease and diabetes.

INCREASED PHYSICAL ACTIVITY CAN REVERSE THIS!

There is overwhelming evidence that regular physical activity has important and wide-ranging health benefits, ranging from reduced risk of chronic diseases to enhanced function and preservation of function with age. It’s not all about weight loss; physical activity is very beneficial to an individual’s health, whether or not they lose weight. Exercise is Medicine Australia (EIM) has a range of resources to get you moving, available at www.exerciseismedicine.org.au

30 MINUTES A DAY IS EASY:
10 minutes brisk walking to and from the coffee shop
+ 10 minutes of stretching
+ 10 minutes brisk walking to the car which was parked a little further away
= physical activity for the day

Stay in the loop
like us on Facebook, follow us on Twitter (@EIMAustralia), and sign up to the newsletter for regular news and updates.
ESSA Locker

Introducing the new and improved Tanita BC-545N Segmental Body Composition Monitor

This new stylish monitor features a high resolution colour display, easy-to-read analytical graphics, 10 segmental body measurements, auto-recognition and much more.

The Tanita BC-545N Body Composition Monitor has a recommended retail price of $499 and is available online from www.ibuys.com.au

For more information about the Tanita Range please go to www.tanitaustralia.com.au

Physio Toolkit

The ultimate self-treatment tools for myofacial tissue release and spinal mobility

ESSA Members save 30% when purchasing between 1–10 kits
ESSA Members save 40% when purchasing more than 10 kits
RRP $100+GST per kit, PPH

ESSA Members purchase via the Contact us page on the website.
Check out the Physio Toolkit at www.physiotoolkit.com

McGinnis’s third edition takes a unique approach to the presentation of mechanical concepts and introduces exercise and sport biomechanics in simple terms. Students will learn to appreciate the consequences of external forces, how the body generates internal forces to maintain position and how forces create movement in physical activities. The third edition also incorporates new features to facilitate learning, including Access to MaxTRAQ Educational 2D software and a web resource including 18 sample problems. Instructors will benefit from an updated ancillary package. An instructor guide outlines each chapter and offers solutions to the quantitative problems presented, as well as sample lecture topics, student activities and teaching tips.

humankinetics.com
Are you a business owner? Is your 2013 career goal to be a business owner? Could you benefit from learning business skills or further information on working in clinical practice? Yes! Then you need to be at the 2013 ESSA Business Forum.

ESSA BUSINESS FORUM 18-19 May, 2013
Wollongong, NSW
WORKPLACE HEALTH | BUSINESS MANAGEMENT | MARKETING | INSURANCE | NETWORKING

Held over two days, 18-19 May 2013, this is a short, sharp powerful opportunity for you to upgrade and enhance your business skills. You will earn valuable CPD points - 8 points for 1 day or 15 for the full forum.

Hosted at the award winning Novotel Wollongong Northbeach, on the water’s edge, just footsteps from the golden sands of North Wollongong Beach and minutes from cafes, restaurants and local attractions.

The ESSA 2013 Business Forum is bringing together experts with the knowledge and understanding of owning and working in an allied health business, and all that comes with it.

MEET THE PRESENTERS
Mr Brent Collier, Peak Health and Short Circuit Cancer
Brent Collier completed his study of Exercise Science and rehabilitation (2001) at the University of Wollongong, following diplomas in both health science and remedial massage therapy. Brent is the director of Peak Health one of Sydney’s leading Exercise Physiology practices; Brent’s unique approach has helped improve patient outcomes by applying evidence-based rehabilitation to all walks of life.

Dr Brendan Joss, Hollywood Functional Rehabilitation Clinic
Dr Brendan Joss, Managing Director and Clinical Exercise Physiologist at Hollywood Functional Rehabilitation Clinic (HFRC), Perth Western Australia, specialising in orthopaedic rehabilitation and cartilage repair. He obtained his PhD from the University of Western Australia in biomechanics of knee replacement, a post-doctoral research fellowship at Queens University, Canada and has over 12 years experience in Musculoskeletal rehabilitation.

Ms Kia Naylor, Bodyfit NT
Kia is the sole Director of company Bodyfit NT which she has built from the ground up since 2006. Now more than 6 years on and Bodyfit NT is highly regarded as one of the best Exercise Physiology company’s in Australia, winning the ESSA National Practice of the Year award 2 years in a row, 2010 & 2011. Kia has developed Bodyfit NT and its team into a multi-disciplinary and multi-faceted company that provides services to the whole of the Northern Territory.

Keep your eye on the monthly eBulletin and the forum website for information about all presenters and program details.

Don’t miss out on this fantastic opportunity. Registration is now available! www.essa.org.au/business-forum