

AuPS News

December 2014

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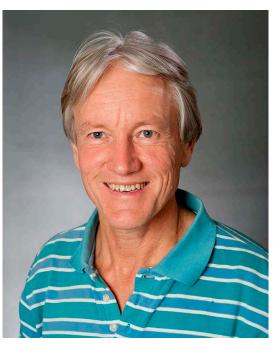
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President's report 2014



This is my first report as AuPS president, having worked for the last year with Matt Watt, the new National Secretary. previous President, David Allen, has stayed on Council as Editor, which is a further great help to the Society. Council also recently co-opted Robyn Murphy, the previous National Secretary, to help on a working group examining the feasibility of having some or all of the AuPS website operate using a Content Management System, and we are grateful to still have her contributing in this way. Andrew Hoy resigned as IT manager in September but we were fortunate that Dave Davey once again stepped into that role, maintaining the website and carrying out all the registration and other website tasks required for the recent scientific meeting in Brisbane.

I would also like to thank the two outgoing Councillors, David Saint and Nicole Beard, who finished their terms at the AGM this year. Both made valuable contributions to Council, in particular with David helping coordinate the Society's workshops and speakers on tertiary teaching of physiology, and with Nikki's great efforts in facilitating our sponsor support. I welcome our two new Councillors, Aaron Russell and Lea Delbridge, who are keen to contribute to the Society. Thanks too to Glenn Wadley who has played a vital role as Assistant Editor/Webmaster this year, and Deanne Skelly who as Membership Officer put great effort into improving our membership records and contact procedures. Council now also has two Student Representatives, Tahnee Kennedy, and Nicole Vargas, who have both been active on Council and in instituting new ways of contacting and involving Student members. It was decided that when the elected Student Representative finishes their term they would be co-opted onto Council for a further year to help ensure continuity of input from the Student Membership, which Council feels is very important. We encourage new Student members to consider nominating as a Student Representative when the position is advertised later in the year.

I want also to thank Brad Launikonis, not only for his work as Treasurer again this year, but also as Local Secretary for our annual scientific meeting just finished at the University of Queensland. Brad and the local organising committee put together a first class meeting that ran extremely efficiently with the help of many students from the home department. There were three outstanding plenary lectures, given by the AuPS Invited Lecturer and medal winner for 2014, Jamie Vandenberg (Victor Chang Cardiac Research Institute), who presented his work on the molecular basis of cardiac arrhythmias, by Don Bers (UC Davis) who gave a definitive description of CaM kinase activation and calcium movements in the heart,

and by Rob Parton (University of Queensland) who presented some of his extensive findings on the role of caveolae in cell structure and signalling. There were also thirteen symposia, most involving invited international and national speakers who joined senior and early career AuPS members to showcase the latest work on a large range of topics covering the interests of the members. The Council has continued its policy of the last 6 or 7 years of providing substantial financial support to bring in high quality international and national speakers so as to encourage discussions and new collaborations and to ensure that the annual meeting remains a major drawcard to members. In doing this, Council has been careful to make sure that the annual meeting still provides a platform for both oral and poster presentations from the whole membership, with particular encouragement to Student members to present their work. I noted at the AGM that Council plans to continue this policy, with calls to the membership a year in advance for symposia for the following meeting. Council is currently considering symposia suggestions for the meeting in Hobart next year.

The Brisbane meeting also included a joint symposium with the Physiological Society of Japan (PSJ), with the tentative plan being for such a symposium to be held on an annual basis alternately in Australia and Japan. The PSJ is a very active society with almost 3000 members, and their executive is keen to foster a closer relationship with AuPS to better facilitate scientific exchange. The symposium this year was on 'Frontiers of molecular mechanisms of ligand recognition and activation of receptor channels', with presentations by Yoshiro Sohma (Keio University) and Yoshihiro Kubo (National Institute of Physiological Sciences), joining AuPS members Trevor Lewis and Brett Cromer. After presenting his unpublished data incorporating extraordinary technical advances in atomic force microscopy to image individual ion channels, Professor Sohma rightly quipped about the return of Japanese innovation, and I and the audience could only heartily agree. A further important aspect of the meeting was the plenary lecture by Kay Colthorpe (University of Queensland), the winner of the AuPS Michael Roberts Education Prize in 2013, who gave a presentation entitled 'From active learning to self-regulated learning'. Council firmly feels that an important role of the Society is to support high quality teaching and learning of Physiology, and this was also reflected by inclusion of a teaching symposium at meeting on 'Teaching and learning within undergraduate research experiences in physiology'.

A further highlight of the meeting was the conference dinner at the Customs House by the river on a beautiful Brisbane evening. It was a great pleasure for me that night to present the primary awards of the Society to very deserving members. The 2014 winner of the Michael Roberts Excellence in Physiology Education Award (supported by Wiley-Blackwell) was Deanne Skelly, and we look forward to her lecture at the meeting next year. The other prizes were sponsored by SDR Scientific, a long-time supporter of the AuPS. I am sad to have to say that Dr Peter Kenny of SDR Scientific, who was present at many of our meetings over the years, passed away recently, and I wish to express my condolences to his family. We remain grateful to SDR Scientific for its continuing support of these prizes. The AuPS PhD Publication prize went to Michaela Yuen, and the Postdoctoral Publication prize to Tanya Cully, who also contributed greatly to the meeting organisation and student functions. Finally, the AK McIntyre Prize, which is awarded periodically to members of the Society who are judged to have made significant contributions to Australian physiological science over their pre-doctoral and early post-doctoral years went to Derik Steyn of the University of Queensland, whose track record of publications and presentations and enthusiasm for science made him a very deserving winner.

As Matt Watt noted in his report to members earlier this year, last March I attended 'Science meets Parliament' as an AuPS representative. I believe this event, which is organised by Science & Technology Australia, is an important means by which researchers and scientific societies can communicate directly with politicians to help highlight the importance of science to the community and Australia as a whole. Council intends having AuPS representatives at the SmP event again this coming March. Recently, Council also adopted a Gender Equity Policy, which included publishing a Gender Equity Statement on the website, accompanied by tables showing the percentage of females and males in the different membership categories, on Council, and giving symposia talks and plenary presentations at the annual meeting.

The low success rate for NHMRC Project grants and Fellowships this year is a great concern for AuPS members and all medical researchers across the country, and it is difficult to see that there will be any improvement in the next few years even if a Medical Research Future Fund were to be established. In

my view the NHMRC policy of shifting to a default position of five year funding for project grants had unpublicised consequences, because even though it may reduce the burden of preparing and reviewing grants, it had the consequence of substantially reducing the grant success rate, because all of the funding for the whole duration of the successful grants has to be budgeted in the allocation available in the first year. This was by no means the only cause of the decrease in the success rate for NHMRC project grants, but it is a concern to have any exacerbation in the decline in grant success, because this has such large ramifications for so many researchers and support staff. The NHMRC currently has a call out for comments on elements of the Project Grants scheme, including on the Not Consideration (NFFC) process and the duration of fundina (http://consultations.nhmrc.gov.au/public consultations/project-grants-scheme). One brighter note this year was the appreciable success of AuPS members and other physiologists in the ARC Discovery Project scheme, highlighting the importance of physiology as a key area of basic as well as applied research.

Finally, I want to say that I look forward to seeing members at the scientific meeting to be held in Hobart next year (Nov 29th to Dec 2nd), which is already shaping up to be an exciting and interesting meeting, with an additional highlight being the all-inclusive ferry trip and conference dinner at the Museum of Old and New Art (MONA).

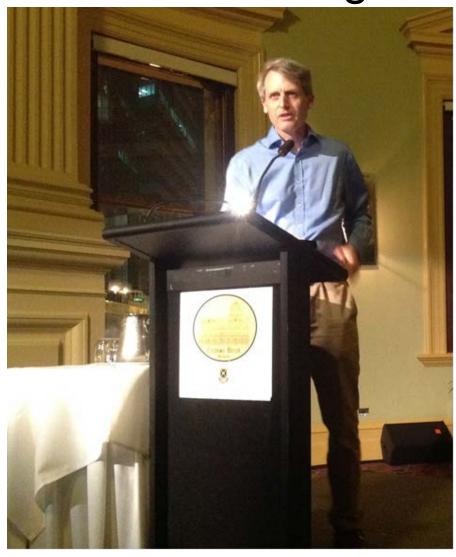
Graham Lamb



Prof Yoshihiro Kubo, Dr Brett Cromer, Prof Graham Lamb and A/Prof Yoshiro Sohma at the AuPS conference dinner on December 2, 2014.

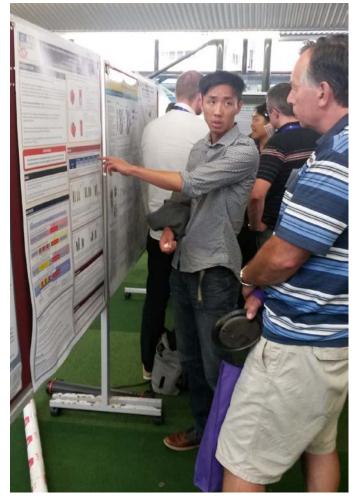


Great meeting!!



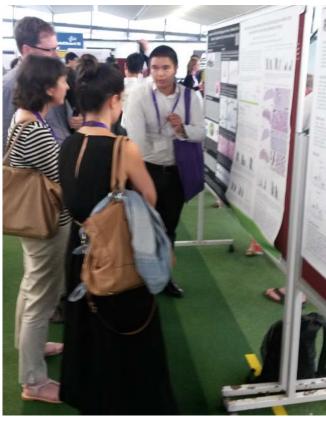
The 2014 AuPS scientific meeting officially began on Sunday night with the AuPS invited lecture by Dr Jamie Vandenberg

Well attended posters, with plenty of opportunity for discussion











and busy trade displays



Amazing venue for the conference dinner



Stately Customs House

Congratulations!!!



Prof Allan Bretag being awarded AuPS Honorary membership by President Graham Lamb.



Dr Deanne Skelly (nee Hryciw), winner of the Michael Roberts Excellence in Physiology Education Award. This award, sponsored by Wiley-Blackwell, in addition to \$1000, includes a medal and an invitation to make a symposium presentation at next year's meeting.



Dr Derik Steyn (right) was awarded the **AK McIntyre Prize** (donated by SDR Scientific). The prize consists of a medal, certificate and the sum of \$1000. Thanks SDR.

A school of Roberts winners?



From left: A/Prof David Saint (2012), A/Prof Yvonne Hodgson (2011), Dr Kay Colthorpe (2013) and Deanne Skelly (nee Hryciw; 2014).

The Postdoctoral publication prize



Awarded to **Dr Tanya Cully** (University of Queensland) and donated by SDR Scientific. This annual \$500 award is for the best original paper published by an AuPS member during their first 4 postdoctoral years.

Current and previous McIntyre winners



From left: Prof Gordon Lynch (1995), Dr Kate Murphy (2011), Dr James Bell (2012), Dr Karen Gibson (1997 - joint), Prof Mark Hargreaves (1994), Dr Derik Steyn (2014), Dr James Ryall (2008), A/Prof Robyn Murphy (2010 - joint), Prof Matthew Watt (2004), Dr Paul Gregorevic (2006) and Dr Bradley Launikonis (2005).

The PhD publication prize

The prize was awarded to **Ms Michaela Yuen** (The Children's Hospital at Westmead). This annual, \$500 award is for the best original paper published by an AuPS member during the course of their PhD studies and is sponsored by SDR Scientific.

Best poster presentation prizes

Enyuan Cao (Monash University, pictured left) was awarded best poster. The prize is sponsored by SDR and consists of a certificate and the sum of \$250. The second prize worth \$100 and sponsored by Wiley Blackwell went to **Richard Schlegel** (University of Queensland, pictured right).



Best student oral presentation prizes



C.H. Ly (pictured) from The University of Melbourne - being awarded second prize for his oral presentation by **Prof Graham Lamb** for his outstanding presentation titled, "Despecification of myogenic C2C12 cells *via* metabolic reprogramming". Sponsored by Wiley Blackwell and was worth \$100.

First prize was sponsored by SDR Scientific and consists of a certificate and the sum of \$250 and was awarded to **Sean Notley** from the University of Wollongong, "An interaction of morphology in the modulation of evaporative heat loss during exercise".



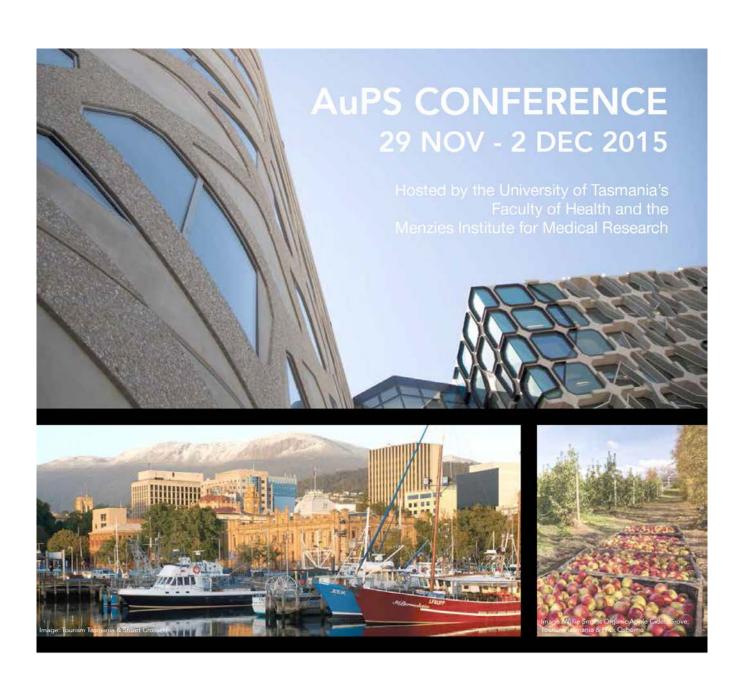
The University of Queensland, 30 November to 3 December 2014
Was proudly sponsored by:



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WORK +PLAY INSPIRED



Dear Student Members,

We are excited to connect with you through social media!! A new student and early career researchers member page has been developed on Facebook! The page is titled: Australian Physiological Society - Students and Early Career Researchers. The aim of this page is to provide another means to inform our student members and



ECR's about upcoming events and awards/scholarships that are available. We will also aim to post new information about jobs and postdoc positions that are circulated to members, as well as highlight our student member of the month with some information about their area of research and accomplishments!

Privacy: It is important to note that, as Facebook is a social media page, your profile will be accessible to the page administrators, Tahnee Kennedy and Nicole Vargas (your current student representatives). The page will, in no way, be used for determining awards/scholarships, council positions and the like. Also, note that while your profile will be open to page administrators, other individuals who like the page will not have access to your page, unless your privacy settings allow it.

At this time, we would love to ask you to 'like' our Facebook page if you are a student member or early career researcher!! We are very excited to open these lines of communication and hope that they will keep everyone in the loop!

Thanks for your support and we'll see you on Facebook!!

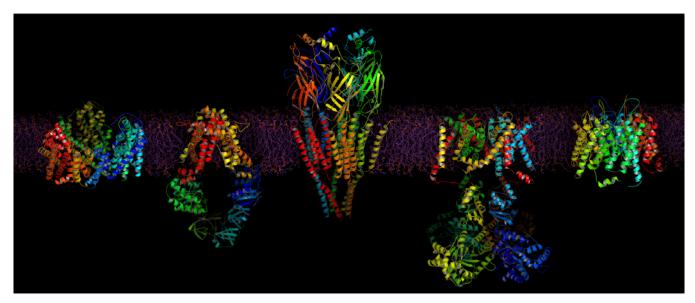
Kind Regards, Tahnee Kennedy and Nicole Vargas AuPS student representatives



ATS 2015: Pulmonary, Critical Care, and Sleep Medicine; May 15-20, Denver, USA.

<u>The American Thoracic Society's International Conference</u> features the latest scientific and medical advances in pulmonary, critical care, and sleep medicine. With more than 400 sessions, 800 speakers and, 5,700 research abstracts and case studies in 2014, the conference is recognized as the leader in the field.

Learn more at: http://conference.thoracic.org/2015/.



The Gage Conference on Ion Channels and Transporters

Canberra Boys Grammar School, ACT 15 - 17th April 2015

This is a biennial meeting, continuing the earlier series of Curtin Conferences organised by Peter Gage. It encompasses all aspects of the biology of ion channels and transporters - including molecular mechanisms, regulation, physiology, neurophysiology, pharmacology and pathology.

We will invite registration and abstract submission in early 2015.

Confirmed speakers:

Gage Lecturer: Prof. Pankaj Sah, University of Queensland
Prof. Steve Siegelbaum, Columbia University, NY
Prof. Paul Slesinger, Icahn School of Medicine at Mount Sinai, NY

Organising Committee
Brett Cromer, Angela Dulhunty, Stefan Broer, Andrea Yool,
Mary Collins, Pankaj Sah, Glenn King & David Adams

For further information: http://gageconf.org.au/ email: brett.cromer@rmit.edu.au



Obituary
Prof. Bengt Saltin (1935-2014)

It was with deep sadness that we learnt of the passing of Professor Bengt Saltin in Stockholm on September 12th, 2014. Bengt succumbed after a brave fight against illness. Professor Bengt Saltin was, and will remain, a world leading human physiologist. Arguably, no single scientist in modern times has had more of a significant impact on human, integrative physiology than Bengt Saltin. He authored several hundred peer-reviewed papers (Web of Science: 319 papers; 26112 citations; h-index 87) and was the recipient of countless awards and honours. However, those of us lucky enough to know him and call him a friend will tell you that his most endearing quality was his personality. Bengt was modest, generous, humble, and respected all of those with whom he worked. He was a gentleman above all else. He will be sadly missed.

Bengt Saltin was born in Sweden on June 3rd 1935. Growing up from a boy into adolescence and then adulthood, Bengt was always interested in sport and was a very successful runner and orienteer. His love of the outdoors led to an interest in a career as a forester – in fact, Bengt enrolled in the relevant post-secondary course and spent nearly a year working in the forests of Sweden. He was quite proud of his ability to collect and cut the firewood needed for a long Scandinavian winter. However, his mother insisted on Bengt undertaking medical studies and he completed his MD at the Karolinska Institute in Stockholm in 1961. During his medical studies, Bengt served as a student instructor in physiology at the request of his physiology teacher Prof. Ulf von Euler, who won the Nobel Prize for Physiology or Medicine in 1970 for his work on neurotransmitters. Even before Bengt was born, Scandinavia had a rich history in the field of physiology. This was recognised in 1920 when August Krogh was awarded the Nobel Prize in Physiology or Medicine for discovering the mechanism that controlled capillary blood flow in resting and active skeletal muscle. Together with Johannes

Lindhard, Krogh also described the central nervous system control of the cardiorespiratory responses to exercise and the relative value of fat and carbohydrate as sources of muscular energy. Krogh mentored three students he named the "three musketeers": Erik-Hohwü Chistensen, Marius Nielsen and Erling Asmussen, who all went on to have distinguished careers in their own right. Erik-Hohwü Chistensen continued work in Denmark until 1941, when he became the first Professor at the Royal Central Institute of Gymnastics [renamed Gymnastik-och idrottshögskolan (GIH) in 1966 and now The Swedish School of Sport and Health Sciences] in Stockholm. It was during the summers of 1959 and 1960, when Bengt was still studying medicine, that he worked with Christensen on questions in exercise physiology and Bengt's first paper was published in 1960. As was customary at the time, the paper included description of the physiological responses to intermittent exercise in a 24 yr old subject "BS". Upon completion of his medical studies, Bengt continued his doctoral research work under the supervision of Christensen and the famous Swedish exercise physiologist Per-Olof Astrand. Bengt's PhD 'Aerobic Work Capacity and Circulation at Exercise in Man' was passed in 1964. During the 1960s, Astrand and Bengt performed a series of seminal studies on oxygen uptake and cardiovascular responses during exercise that established appropriate protocols and physiological indicators for the measurement of maximal oxygen consumption (VO_{2max}). Data from these studies showed a clear relationship between high-level endurance performance and high VO_{2max} across a range of sports.

During the spring of 1966 Bengt was involved in one of the most important and influential studies in human, exercise physiology. In a study spearheaded by Professors Carleton Chapman and Jere Mitchell, a group of eminent scientists, including Bengt, recruited five college students at Southwestern Medical School in Dallas for an interesting summer job. They were asked to participate in a summer-long study of the effects of bed rest and training on cardiovascular and pulmonary function during exercise. The study was seminal and changed clinical practice because it proved how deleterious bed rest was and how beneficial exercise training was. The study showed that bed rest after a heart attack is not a good therapy, since prolonged bed rest had a negative impact on cardiac function and fitness. The study also showed that sedentary subjects could greatly increase their cardiovascular fitness with physical training and prevent cardiovascular disease. Thirty and 40-year follow up studies on the subjects were published in 2001 and 2009, respectively.

Bengt continued his work as a physiologist and Associate Professor in Stockholm. He pursued his interests in the oxygen transport system and cardiovascular responses to exercise, but also undertook seminal studies on muscle metabolism, muscle fibre types and training adaptations utilising the percutaneous muscle biopsy technique. In 1973, Bengt

moved to the University of Copenhagen, Denmark to take up the chair in human exercise physiology where he remained until his retirement, apart from a brief return to Stockholm as professor of physiology at the Karolinska Institute, with close ties to GIH, from 1990 until 1993. While in Copenhagen, he continued his outstanding research productivity across a range of topics in exercise physiology. With colleagues in the mid 1980s, he designed the single-leg, knee extensor exercise model which has since been employed extensively on studies of oxygen uptake and blood flow regulation, muscle metabolism, hormone function and training adaptations. In 1993, Bengt led the successful application to the Danish Research Foundation for significant funding to establish the Copenhagen Muscle Research Centre (CMRC), of which he was the Foundation Director. The CMRC would become the premier centre world-wide for skeletal muscle research over the next 10-15 years. It's legacy comprises outstanding scientific publications and the development of numerous researchers into full professors. Bengt was one of the first exercise physiologists to embrace the new field of molecular biology and apply its techniques to questions in exercise physiology. Most importantly, he extended our fundamental scientific knowledge of human physiology by clarifying the importance of the environment for optimizing gene expression.

Bengt served as Dean of the Faculty of Natural Sciences at the University of Copenhagen, directed multiple national and international governmental health and medical organizations, served on the scientific board of the World Anti-Doping Agency (WADA) and was President of the International Orienteering Federation 1982-1988. In 1999 he was awarded the Novo Nordisk Prize and in 2002 he was awarded the IOC Prize, an Olympic Gold Medal, for having made the greatest contribution to our understanding of exercise for health and performance. By consensus of his peers, at the World Scientific Congress in Athens in 2004, he was introduced for his keynote address as the "Aristotle of Human Physiology". He was one of the pioneers in determining the scientific practices for the detection of the use of performance-enhancing drugs. Until his death he was active in spearheading anti-doping Denmark.

Bengt enjoyed visiting Australia and interacted with numerous Australian scientists over the years. He spent several months at Cumberland College of Health Sciences (now part of The University of Sydney) with Perce Russo in 1985. Bengt and Prof. Simon Gandevia (Neuroscience Research Australia, University of New South Wales) would regularly discuss the neurophysiology of fatigue and Bengt always appreciated Simon's insights on the role of central nervous system. Together they were foundation members of the IUPS Commission on Human Work and Exercise Physiology. Later, Bengt and Simon were asked to act as Section Heads in Physiology: Muscle in the Faculty of 1000. Bengt enjoyed a productive

research collaboration with Prof. Rueben Rose (The University of Sydney) on the physiological and metabolic characteristics of racing camels. Australian scientists who worked for extended periods with Bengt in Copenhagen included Prof. Shi Zhou (Southern Cross University), Assoc. Prof. Simon Green (University of Western Sydney) and Assoc. Prof. Luke Haseler (Griffith University).

Our own involvement with Bengt began in the 1987 when one of us (Hargreaves) spent 6 months in Copenhagen as a visiting scholar during his PhD. This was followed by a 3 month sabbatical in 1995, working in the CMRC with Erik Richter, and a short 2 week visit for experiments with Bengt in the summer of 2003, the final year of Danish Research Foundation funding for the CMRC. In 2000-2001, the other (Febbraio) would travel to and subsequently live in Copenhagen during a sabattical funded by Bengt and the CMRC. During this time, he worked in Professor Bente Pedersen's laboratory.



Studies defining muscle as an endocrine organ. L-R: Takada Osada, volunteer subject, Bengt Saltin, Bente Klarlund Pedersen, Adam Steensberg and Mark Febbraio. CMRC, 2000.

Studies on muscle glycogen availability and exercise-induced, skeletal muscle gene expression. L-R: Bengt Saltin, Henriette Pilegaard and Mark Hargreaves. CMRC, 2003.



Together with Bengt, the group discovered that skeletal muscle was an endocrine organ capable of secreting bioactive subtances and the group coined the term "myokines". Without Bengt's generosity, encouragement and enthusiasm, it is unlikely that this discovery by the group would have been possible. Both of us have enjoyed regular visits to Copenhagen

over the years to participate in conferences, workshops, summer schools and short research

studies.

Right up until the time of his death, Bengt maintained strong links with his students and

professional colleagues. Although no longer active in the lab, he remained an important

mentor and co-author. His contributions to human exercise physiology over 4 decades were

prodigious and his legacy is enormous. One of his last scientific lectures was delivered at

the pre-Olympic conference on the biomedical bases of elite performance in London in

March, 2012. It is available online (http://www.youtube.com/watch?v=hAZ8KbS40SA) if one

is interested in Bengt's reflections on his 40 years of involvement in human, exercise

physiology research.

Above all, however, Bengt was a person of outstanding character. He was extraordinarily

humble for a man of his achievements and a somewhat shy person, who felt uncomfortable

in the limelight. However, he was never aloof. Amongst friends, he was an incredible story

teller and would mesmerise his audience with tales about the "old days". He was a wonderful

father to Osa, Ole and Anna and in his latter years enjoyed his time as a grandfather. He

loved sharing a beer or glass of wine with his friends and never lost his appetite for physical

activity.

We will miss our colleague and dear friend. Rest in peace Bengt.

Mark Febbraio & Mark Hargreaves

Melbourne, October, 2014

Editors note: the hyperlink to Bengt's pre-Olympic conference lecture mentioned above can

also be accessed here: https://www.youtube.com/watch?v=hAZ8KbS40SA

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This issue of AuPS News was compiled by Glenn Wadley and with many thanks to the generous contributors.

The next issue of AuPS News will be distributed to members in March 2015. All contributions for AuPS News should be sent to: newsletter@aups.org.au before the end of February.