

Newsletter of the Physiology Society of Southern Africa (PSSA)

Highlights:

- *Focus on:* Physiology at Stellenbosch.

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Editors' words

The editors would like to wish you all a very productive and

prosperous new year. We look forward to your submissions in the new year.

Alta, Andrea & Kennedy

FOCUS ON: Physiology at Stellenbosch

The Department of Physiological Sciences at Stellenbosch University is one of ten departments within the Faculty of Science. The department has 17 staff members (both academic and support), and teaches around 600 students per year.

The department, headed by Prof Kathy Myburgh, offers two modules (2nd & 3rd year level) in physiology and one module of nutrition (3rd year level) for undergraduate degrees in Biological Sciences in two main streams, namely Molecular & Cellular Biology and Human Life Sciences. Students in Biodiversity and Ecology and Biotechnology also have the option to take physiology. The Department teaches an introductory physiology module (1st year level) for students in Sport Science at the Faculty of Education.

Research within the department focuses on two main areas, namely: Muscle and Stem Cell Biology (including skeletal, cardiovascular and smooth muscle and muscle repair) and Human Life Science (including Nutrigenomics, Stress and Exercise Physiology). Favoured research directions (focus areas) at present include: muscle plasticity (hybrid fibres, satellite cells), growth factors (muscle regeneration, tendon repair, stem cells), cytokines (cardiac muscle, exercise immunology) apoptosis (muscle atrophy and cardiac ischemia), cell signaling (fatigue, ischemia, cardioprotection with fatty acids), and nutrigenomics (obesity, anti-oxidant status).

The research within the department is supported from numerous sources, including the Medical Research Council (MRC; Dr's Niesler and Smith are part of the MRC Inter-

University Cape Heart Group; Prof Myburgh has 2 MRC grants), the National Research Foundation (NRF, from the Focus Area Program; Thuthuka & THRIP), South African Sugar Association and Stellenbosch University. We currently have an official international collaboration, sponsored by the Swedish International Development Agency and the NRF. The department is home to about 20 postgraduate students and three staff members within the department have NRF ratings, Prof Myburgh (C1), Dr Smith (Y) and Dr Niesler (Y).

Prof Myburgh has recently been elected to chair the Physiology Society of Southern Africa, and Dr Jacques van Rooyen has been elected Secretary and Treasurer.

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Physiologists in the news

PROMOTIONS/RECENT APPOINTMENTS

Dr Joseph Chamunorwa has recently joined the Faculty of Vet Science at Onderstepoort as a senior lecturer in Physiology.

Dr Willie Daniels of the University of Stellenbosch, has been promoted ad hominem Associate Professor in Medical Physiology and Biochemistry.

Dr Elmarie Terblanche has been promoted to Associate Professor in Sports Science at the University of Stellenbosch.

The PSSA salutes Prof Tim Noakes and Prof Angela Woodiwiss on receiving outstanding NRF ratings. Prof Noakes achieved an A1 rating by the NRF. Prof Angela Woodiwiss has achieved a B rating on her initial application to the NRF. Congratulations. We at the PSSA are very proud of you.

Dr Andrea Fuller & Dr Kennedy Erlwanger of Wits University have achieved Y ratings from NRF.

POSTGRADUATE STUDENT NEWS

From North-West university: Ms Susan Jordaan received a prize for being the best Physiology Hons student.

Ms Annerine deJager was awarded a prize for being the best student in occupational Hygiene in physiology.

Mr Derrick van Vuuren was awarded the prize for being the best 3rd year student in the programme.

RESEARCH

From Stellenbosch (Dept of medical Physiology: Dr Babara Huisamen was awarded a prize by the Society of Endocrinology, Metabolism and Diabetes of SA for the best article in Basic sciences in Diabetes Research.

Prof Johan Koeslag serves on the editorial board of the American Physiological Society's flagship journal, "Physiological Reviews". (impact factor 36.831 and ranked no. 3 of ALL science journals).

Professors Amanda Lochner, Johan Moolman, Johan Koeslag and Drs Barbara Huisamen, and Joss du Toit, under the chairmanship of Dr Jacques van Rooyen were invited by the president of the International Society for Heart Research (ISHR) to organize the satellite Meeting on Cellular Injury in Ischaemia of the XVII World congress of the ISHR in 2004. The conference was a resounding success, resulting in the request for the same team to head the next ISHR World Congress.

Prof Johan Koeslag was invited together with a Nobel Laureate to deliver the Inaugural lectures for the opening of the new medical School building in Bergen, Norway. His lecture entitled 3D:Daisies, Dextrose & Diabetes is now in print. See

Koeslag JH & Saunders PT 2004. Hot topics issue of Current Medicinal Chemistry: Immunology, Endocrinology & Metabolic Agents. 4: 235-249.

Dr Hans Strijdom has pioneered an entirely new technique of isolating cardiomyocytes in suspension, thereby opening new avenues of heart research. This effort was rewarded, amongst others, by a land mark publication in Cardiovascular Drugs and Therapy (2004, 18:99-112), which the editors deemed important enough to warrant an extensive and dedicated editorial article, praising Hans for his thoroughness, his science, innovative thinking and thought-provoking results. Dr Strijdom's article ranked as the fourth most read article in that Journal during 2004.

Prof Willie Daniels was awarded the Commonwealth Fellowship for 6 months, which he is spending in Prof Seth Grant's lab at the Wellcome Sanger Institute in Cambridge, England.

From UNITRA: Dr Ekabaram Umopathy has been appointed by the NRF as a member of the SA-IUPS board for a period of 3 years w.e.f. August 2004.

Forthcoming conferences: SA Hypertension Society

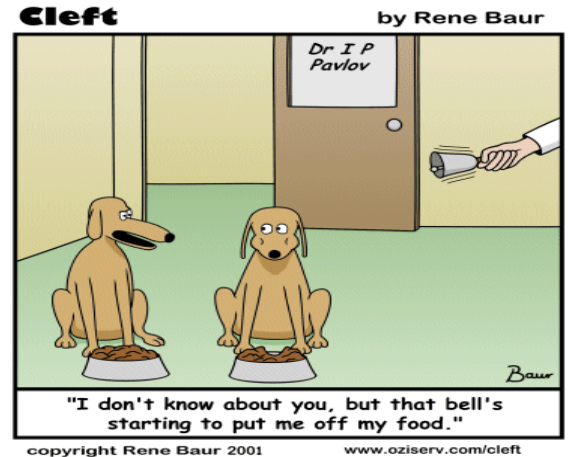
The 14th Biennial Congress of the Southern African Hypertension Society will be held on 5-7 March 2005 in Cape Town in collaboration with the SA Stroke Foundation. Call for papers closes on 15 December 2004.

Saturday 5 March - Primary Care providers symposium.
Scientific programme - Sunday 6th and Monday 7th March 2005.
For further information phone 011-706-4196 or fax 011-706-4915 or e-mail sahs@absamail.co.za

Working on your grey matter...

Happy anniversary

2004 marks the 100th Anniversary of the Nobel Prize Award of one of the greatest physiologists, namely **Ivan Pavlov**. According to Gerard P. Smith in his article "Pavlov and integrative physiology" (American Journal of Physiology, Sept 2000), Pavlov's "unexpected" discovery was that "psychic events" affected "physiological function". In his breakthrough experiments on salivation and digestion, Pavlov emphasized the neural control of the salivary glands as the "prototype of a general scheme of an innervation mechanism". A list of the Nobel Laureates in Physiology or Medicine for the past century can be found at: <http://nobelprize.org/medicine/laureates/index.html>



In the eye of the beholder

An **optical illusion** is any illusion that deceives the human visual system into perceiving something that is not present or incorrectly perceiving what is present. There are physiological illusions and cognitive illusions. Optical illusions can occur naturally or be demonstrated by specific visual tricks that show particular assumptions in the human perceptual system. A mirage is an example of a natural illusion that is an optical phenomenon. The variation in the apparent size of the moon (smaller when overhead, larger when near the horizon) is another natural illusion; it is not an optical phenomenon, but rather a cognitive or perceptual illusion

For more information on optical illusions see http://en.wikipedia.org/wiki/Optical_illusion

"Why sex?" he asked and now "Kidneys in a nutshell"

"Kidneys in a nutshell - fantastic

Congratulations!!!!!!!!!!!!!!!!!!!!!! You are the ONLY one capable of explaining the kidney physiology I have come across. Thank you soooooo much you seriously rock!! have a great day....."

"Your website is truly wonderful. For the last 30 years, I've had from time to time to try to understand how the kidney works, and I've always ended up confused -- enough understanding to fake it in class, but so little as to know that I'm faking it. Today, in preparing my lecture on aquaporin structure and mechanism, in the way of providing some background, I stumbled upon your primer on kidney physiology, and the Light has Dawned! An extremely clear, right-to-the-center exposition of a devilishly complicated thing. Bravo -- and thank you!"

Chris Miller, Professor of Biochemistry, HHMI Investigator, Brandeis University

These are just two of the many regular e-mails received about Johan Koeslag's The Kidneys in a Nutshell essay on the web (<http://academic.sun.ac.za/medphys/kidney.htm>). Similar world-wide commentary is regularly received about the essay on ketosis (<http://academic.sun.ac.za/medphys/ketosis.htm>)

Conference report-back

The 1st Regional Congress of the International Society for the Study of Obesity was held on 28-31 October 2004 at Sun City. Dr. Alta Schutte attended this well organized event where several international speakers, such as Prof. Philip James (Chairman, International Obesity Task Force), Prof. Krzysztof Narkiewicz and Prof. Arné Astrup gave excellent presentations and workshops.

FOCUS ON: Physiology at Stellenbosch (from page 1)

In addition, staff in the department are members of several international societies, including the American Physiological Society, the British Pharmacological Society, the International Society for Heart Research, the American Heart Association, the South African Heart Association, the South African Sports Medicine Association, the American College of Sports Medicine, the Biochemistry of Exercise Society and the Society for Muscle Biology and Regeneration, the Association for Dietetics in Southern Africa, the Nutrition Association of Southern Africa. Two

staff members are also registered dietitians.

Staff in the department also provide critical review for several national and international journals, including Cardiovascular Research, the Journal of Cardiovascular Pharmacology, Basic Research in Cardiology, the Cardiovascular Journal of South Africa, Medicine and Science in Sport and Exercise, Comparative Biochemistry and Physiology, American Journal of Physiology, the European Journal of Sport Science, Sports Medicine and the International Journal of Sports Nutrition and Metabolism.

Prof Myburgh is on the editorial board of the South African Journal of Sports Medicine and Dr Senekal on the editorial board of the South African Journal Consumer Sciences. Several staff members review grants for the Medical Research Council, the National Research Foundation and even once for the Austrian Foundation for Science!

More information about the Department of Physiological Sciences can be obtained at: <http://academic.sun.ac.za/physiosciences/>

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Positions available

POSTGRADUATE POSITIONS AVAILABLE

The Dept of Physiological Sciences, Stellenbosch University Main Campus has an open invitation for potential postgraduate

students to apply for positions. Contact Prof Kathy Myburgh for further details.

Are you interested in investigating the adaptive physiology of domestic pigs? Contact Dr Kennedy Erlwanger at Wits, email: erlwangerk@physiology.wits.ac.za

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[http://academic.sun.ac.za/
medphys/pssa.htm](http://academic.sun.ac.za/medphys/pssa.htm)

Newsletter name

In the first issue of the news letter we asked you for suggestions for a name for our news letter.

Dr Rob Smith from Stellenbosch University has suggested *PHYSIFORUM*

Do you have any other ideas?

Please send any other suggestions to the editors.

The weakest link

The weakest link in the survival and sustained production of this newsletter is YOUR input. We desperately require

submissions from you the members of the PSSA. Please send us any news of general interest to PSSA members.

We'd also like to get postgraduate students in the society involved. Please write to us.

Who said marking was not a joke?

Jose Luis Hernandez Caceres has sent in a couple of light moments from his time at UNITRA.

"I explained to my students at UNITRA that radiation is so effective in harming people that if the amount of energy contained in a cup of coffee were transferred to the body not as heat but as radiation, it would be enough to kill the person. Now a typical question in the test:

Q. *Mention some measures for protecting ourselves from radiation.*

A. Drink a cup of coffee.

In another exam I set a question on based on

Bernoulli's law.

Q. *In rural areas of Transkei, people are used to eating large quantities of fat. Identify the wrong statements. They had to choose from several statements and give reasons for their choices. One of the wrong statements was " fat allows the blood to flow easier in accordance with Bernoulli's law. This was correctly identified but the reasoning from one the students was "Nobody in the rural areas of Transkei knows who Bernoulli was".*

I gave the student 50% of the mark for sincerity's sake, but in hindsight I should have given him full

marks!"

Jose would also like to inform everyone that he "still feels a part of the beautiful team at UNITRA".

According to some students at Wits:

"The extra-ocular **rectal** muscles rotate the eyeball"

"**Peacemaker** cells in the heart regulate ventricular activity".

Q. Why does the subject with a phaeochromocytoma have high blood pressure?

A. Because the patient suffers frequent episodes of constipation, the water is continually being reabsorbed from the faeces, hence \uparrow plasma volume $\rightarrow \uparrow$ BP.

