



FEPS

Federation of European Physiological Societies

FEPS NEWSLETTER

January 2010

#25

<http://www.feps.org>

Secretariat

FEPS Newsletter:

Sonia Froidmont
Dept. of Physiology
University Maastricht
P.O. Box 616
6200 MD Maastricht
the Netherlands

Phone: +31-43-3881200

Fax: +31-43-3884166

s.froidmont@fys.unimaas.nl

Executive Board of FEPS:

Ulrich Pohl
Munich, Germany
President

Hans Hultborn
Copenhagen, Denmark
Past-President

Ger van der Vusse
Maastricht, the Netherlands
Secretary General

Bryndis Birnir
Uppsala, Sweden
Treasurer

Ginés M. Salido
Cáceres, Spain
Member

Alexej Verkhratsky
Manchester, UK
Member

<u>Letter of the Secretary General of FEPS</u>	1
<u>Report of the FEPS meeting in Ljubljana, November 2009</u>	2
<u>Report of the Teaching Workshop in Ljubljana, November 2009</u>	4
<u>Message from Jan Henriksson, editor-in-chief of Acta Physiologica</u>	7
Content of the <u>January issue of Acta Physiologica</u>	8

Letter of the Secretary General of FEPS

Dear colleagues,

On behalf of the Executive Board of FEPS I would like to wish you a healthy and fruitful 2010.

At the latest FEPS Council meeting in Ljubljana Dr. David Eisner from Manchester, UK, was elected as new President of FEPS. His term as President will start in 2011.

FEPS activities are financially supported by Acta Physiologica, the official journal of our Federation. You will find more information about Acta Physiologica in the present Newsletter. A report of the previous FEPS-supported meeting in Ljubljana (November 2009) and an extensive summary of the 2009 Teaching Symposium organized by the Teaching Task Force of FEPS are included as well.

In 2010 FEPS is involved in the joint German-Scandinavian Physiological meeting to be held in Copenhagen. You are cordially invited to participate in one of the most important European Physiology meetings in 2010. More information of the meeting can be found on the website of the meeting : <http://scangerman.ku.dk/>

I'm looking forward to meeting you in Copenhagen.

Ger van der Vusse
Secretary General of FEPS



Report of the FEPS 2009 meeting in Ljubljana, November 2009

The annual FEPS 2009 meeting was organized in Ljubljana, the capital of Slovenia, from 12th to 15th of November, 2009 by the Slovenian Physiological Society, the Austrian Physiological Society, and the Federation of European Physiological Societies (FEPS). The Meeting was held at the Faculty of Medicine and at the University Medical Centre Ljubljana. There were over 400 registered participants from 35 countries.

The meeting has covered a broad spectrum of topics in physiology, basic and applied. The main goal was to bring together key scientists in physiology with various background and expertise. The meeting comprised of 24 symposia, which included four invited lectures of high scientific quality. All physiological societies composing FEPS were invited to formulate the scientific program by submitting symposia proposals. Symposia topics were selected from submitted proposals by the members of the FEPS 2009 Programme Committee. There were up to 5 parallel symposia as part of the morning and afternoon sessions each day of the meeting. The most outstanding symposia topics were neuronal, glial, and endocrine physiology, cardiovascular physiology, gravitational physiology, microcirculation, physiology of deconditioning, cell signalling, and stem cell physiology. Each session consisted also of Oral Presentations for generally younger physiologists.

The meeting began with the FEPS keynote lecture by Tullio Pozzan from the University of Padova, Italy, on the measuring and manipulating second messenger levels in cellular organelles of living cells. The following days there were two more keynote lectures by Philip Haydon from Tufts University, USA, on glial regulation of sleep and memory, and by Per-Olof Berggren from Karolinska Institutet, Sweden, on structure-function relation of the endocrine pancreas.



Opening session of the FEPS 2009 meeting in Ljubljana. Welcome speech by the mayor Mr. Zoran Jankovič in the presence of the minister of Higher Education, Science and Technology Mr. Gregor Golobič.

Young researchers were especially welcome and had the opportunity to present their research in a more formal setting at the European Young Physiologists Symposium (EYPS), which was also part of the FEPS 2009 meeting. There were two EYPS keynote speakers invited and 16 EYPS speakers selected from submitted abstracts by the EYPS Programme Committee. This symposium was partly sponsored by FEPS.

The abstracts of the FEPS 2009 meeting were published in the Book of Abstracts and online at the FEPS 2009 meeting website. The publication was sponsored by the Slovenian Research Agency and the Slovenian Physiological Society. Moreover, the meeting abstracts will also be available online at the Acta Physiologica (Blackwell) website, which is the FEPS official journal.

There were enough opportunities for the discussions also at different social events. The guests of honour at the FEPS 2009 opening ceremony were the Mayor of the City of Ljubljana Mr. Zoran Jankovič and the Minister of Higher Education, Science and Technology Mr. Gregor Golobič. After the opening and after the opening FEPS keynote lecture the delegates enjoyed the social evening with the buffet dinner at the Faculty of Medicine. On Saturday the majority of participants joined the evening walk to the Conservatory of Music and Ballet Ljubljana where they attended the concert of talented Slovenian young musicians, which was followed by the conference dinner. Young physiologists have organized their own party in "Orto bar" with the concert of Slovenian band "Bohem". The EYPS party was sponsored by FEPS.

We would like to thank all the participants for coming to Ljubljana. We hope that they enjoyed the city of Ljubljana and had had opportunities to discuss the main developments, achievements and perspectives in physiology at FEPS 2009.

Nina Vardjan and Robert Zorec
for FEPS 2009 Organizing and Programme Committee

Ljubljana, Slovenia

Joint meeting of the Slovenian and Austrian Physiological Societies and the Federation of European Physiological Societies; Ljubljana, November 12-15, 2009

Educational workshop on Reappraisal of basic sciences in the construction of medical curricula and how to evaluate study progress by portfolio

The FEPS 2009 meeting in Ljubljana started with a workshop on the role of basic sciences in medical curricula and on evaluation of study progress by means of a relatively new evaluation format, i.e. the portfolio. FEPS initiated this workshop not only because one of her essential tasks is guarding and steering Physiology as a discipline in the medical curriculum, but also simply because teaching innovations deserve the critical attention of modern, academic educators.

The present topic was selected because over the last decade a tendency has evolved to concentrate more on outcome than on construction of medical curricula. This is a consequence of the recognition of the principle that learning should be focused not only on knowledge building but rather on the different competencies a graduate physician should master. Several models have been forwarded, but essentially seven competencies can be identified, i.e. communication, professional behavior, collaboration, management, health advocate, academic learning, and medical expertise. It is also generally agreed upon that, in order to ascertain an adequate and harmonious development of all these competencies, a multidisciplinary integrated curriculum is better suited than a disciplinary-based curriculum. The question is thus valid how teaching of basic sciences like physiology should be implemented in a multidisciplinary approach without losing its significance as an indispensable fundament of medical knowledge. A consequence of competency-based learning is that the development of all competencies needs permanent evaluation. For both student and teacher, in order to achieve adequate insight in this development, a portfolio is an elegant instrument. It not only provides evaluation overviews, but enables reflection and planning of development and/or remediation. The present letter reflects on the highlights of this workshop for which 4 experts were invited.

Dr. Karen Mattick (Exeter, UK) illustrated her vision on how basic and clinical sciences should be educated within integrated medical curricula. She emphasized the importance of bringing together both sciences, of projecting basic sciences beyond the early years of undergraduate education, and on bringing clinical experience/context into the early study years. In such vertically integrated curricula, students learn physiology in a clinical context from the beginning and learn medicine in a clinically and scientifically rich setting which stimulates them to become life-long learners. A consequence is that educators need to define the basic science knowledge which is relevant and essential for the clinical setting and to point out the patho-physiological principles underlying the origin and development of a disease. In an attempt to define the essential basic science knowledge the group of Dr. Mattick investigated which persons are the right ones to define which basic science knowledge has to be acquired. Traditionally, experts are asked to indicate what is core to their discipline or what clinical cases a graduate must be familiar with. However, experts are highly specialised and show the tendency to over-represent their own subject. As such, Mattick and her group initiated research to compare the differences in sets of learning outcomes, as defined by a group of experts and by a group of newly qualified doctors. Results of this investigation will soon be available.

As an internal medicine specialist, Dr. Brigitte Velkeniers (Brussels, Belgium) presented insights into the role of a clinician in teaching both physiology and patho-physiology in medical curricula. Physiology core principles are not only important and relevant to understand normal functioning of the human body but also development, presentation and consequences of pathologies. Functions of the organism are measurable, and deviations of "normality" are the basis of the diagnostic procedures used by medical doctors. Furthermore, new information from basic and translational research in the field of (patho)physiology is important to understand advances in diagnosis and treatment of diseases and is the basis for sound randomized clinical trials. So, students have to learn to apply the disciplinary content in order to develop critical thinking and acquire skills of life-long learning, communication and

team building. To this end, teaching physiology at the medical faculty in Brussels is organized as a combination of didactic lectures for maximally 50 students with problem-based learning sessions in groups of 10 students. Essential is that integrated concepts are transferred, a necessary platform for a similar approach to the ill patient.

Because of the nature of such learning process there is a great potential for portfolios as an assessment tool. Indeed, a portfolio supports the development of complex skills, clarifies learning goals and helps students to monitor their achievements. It stimulates the personal development and encourages reflective practice. It is thus a unique instrument for preparing the student to continuing professional development and professional effectiveness. However, the today evaluation of student's progress is still centered on objective assessment through validated knowledge tests and observed assessments by the tutor's survey. Multidirectional feedback and the use of portfolio as a summative assessment is not routine practice. Therefore, at present the evidence for the effectiveness of portfolios for robust future use is still weak. Nevertheless, institutional support and commitment are prerequisites for success, since students report uncertainty in what is expected and a lack of confidence in their ability to construct the required portfolio.

Dr. Sylvia Heeneman (Maastricht, the Netherlands) talked about a portfolio-based assessment of medical and generic competencies in a recently started project in which – on an annual basis – 30 preselected students with a bachelor track with recognizable biomedical background are trained to become medical doctor in combination with clinical investigator in a master program, stretching over a period of 4 years. The common characteristics of these students are a high level of dedication and motivation, ambitious, enthusiastic, initiative-rich, open-minded and willing to learn from each other and from teachers. The curriculum for these students is competency-based and in line with a corresponding assessment program. The portfolio was conceived to be a central instrument for steering and monitoring the competency development. Since coaching is believed to be essential for the successful use of reflective learning skills, each student was linked to a well trained and selected counselor, in all cases a faculty staff member with a PhD degree. The counselor team consists of both basic scientists and clinicians, who will give advice/comments and guard study progress as well as competency development.

For this curriculum the portfolio is not used as 'just' an extra assessment tool, but as an instrument in which all competencies come together and is used to both guide and assess. In order to assure external validation, at least once a year a second counselor is present during the progress meeting between counselor and student. In case of a problematic relationship, a new counselor can be appointed. The assessment of the portfolio is based upon formative and summative assessment elements from various teaching modules. In a second step this information is matched with the competencies, taking into account that a specific test can contain information relevant for more than one competency. At the end of the year each counselor formulates a grading advice for the portfolios under his guidance, which is conferred to the committee of the other counselors, which subsequently formulates an own independent advice (fail, satisfactory, or good). Although the physician-clinical investigator portfolio was designed to be an integral grading instrument per annum, this goal seemed not to be achievable because by Dutch law each study element (module/course) had to be assigned a labeled amount of ECTS points. Therefore in the first years, the portfolio was assigned only one third of all ECTS points while two thirds were reserved for the individual program elements.

The first evaluation after two years revealed that students were positive on the portfolio system and the counseling system; most students complied very well with the goals set (self-analyses, reflective learning). Problems (e.g. planning) were quickly identified so that re-sits and/or drop-out could be prevented. However, a high focus on getting grades for the different program-elements remained present, which was linked to the factual devaluation of the portfolio by reducing the percentage ECTS points linked to it. This was experienced to limit the motivation of students to give the portfolio appropriate time and energy. As a result of this evaluation, the future goal is to renew the grading procedure of the master program in order to use the portfolio as an integral and final grading instrument.

Finally, Dr. Charlotte Ringsted (Copenhagen, Denmark) illustrated the importance of basic science knowledge to clinical practice in Anaesthesiology by showing that causal understanding of concepts, principles, and tool design affects quality of patient management. In the context of an anesthetized patient clinical physiology and pharmacology need be combined with procedural skills, like monitoring of respiratory and cardiovascular parameters. The au-

thor explained two distinct patterns of the anaesthesiologists' behaviour to be recognized, i.e., a realistic orientation in which uncertainty and unpredictability was appreciated while the patients' uniqueness was recognized, and an objectivistic orientation in which uncertainty and unpredictability were not recognized and an authoritative relationship with the patient was present. Based upon the use of resources, another distinction could be made between an interpretative and a reactive way of action. The interpretative way was characterized by a cumulative construction of a plan based on interpretation of the patient's physiological reaction potentials and by the combination of monitor information with situational information and background knowledge. Numerical values, as observed from monitors were conceptualized before interpretation of physiological functions and the versatility of information from several resources, such as oxygen saturation, end-tidal carbon dioxide levels, etc, was recognized. On the other hand, the reactive way could be described by the presence of a deterministic implementation of a preoperative plan in combination with maintaining pre-determined numerical values of certain parameters. This habit was further illustrated by follow-up of the recommended ranges of parameters and a contradictory use of monitors, emphasising importance regarding patient safety without understanding the mediated character and versatility of information.

On this background the author presented an in-training assessment program for anesthesiologists where the objectives of outcome-based assessment were to demonstrate knowledge and understanding of basic and clinical science, and situational aspects when managing anesthesiological tasks and problems, as well as to prepare a rational plan for anesthesia including monitoring, prevention and management of possible complications. This plan had to be based on integrated interpretation of (para)clinical information and patho-physiological implications of medical diseases or conditions related to anesthesia and surgery. Such plans can be ideally formulated in a portfolio and enable the reflection of both student and experts.

In conclusion, this workshop showed that portfolio as an assessment tool is very well suited to document and evaluate formative and summative documentation of the development of several competencies of medical undergraduate student. The function of physiology as a fundament of clinical reasoning and understanding is well recognized. To be effective and meaningful it is recommended to identify the essential physiological principles and working mechanisms, and not to concentrate upon a context-lacking root learning. At present, under such circumstances no negative effects on the status of physiology as an individual and independent discipline have been reported.

Luc H.E.H. Snoeckx, chairman of the FEPS Task Force for Education in Physiology
Dept. Physiology, Maastricht Univ., the Netherlands (l.snoeckx@fys.unimaas.nl)

Address list of collaborators

1. Dr. Karen Mattick, Dept. Clinical Education, Univ. Exeter and Plymouth, Exeter, UK (kmattick@pms.ac.uk)
2. Dr. Brigitte Velkeniers, Dept. Internal Medicine, Free Univ. Brussels, Belgium
(Brigitte.Velkeniers@uzbrussel.be)
3. Dr. Sylvia Heeneman, Dept. Pathology, Univ. Maastricht, the Netherlands
(s.heeneman@path.unimaas.nl)
4. Dr. Charlotte Ringsted, Dept. Clinical Education, Copenhagen Univ., Denmark
(charlotte.ringsted@rh.regionh.dk)
5. Dr. Liisa Peltonen, Dept. Physiology, Univ. of Helsinki, Finland (liisa.m.peltonen@helsinki.fi)

Submit your manuscript to Acta Physiologica today!

Acta Physiologica has been published without interruption since 1889 and is thereby one of the oldest physiological journals in the world. Despite its age, it is presently undergoing a strong development as part of its status of the Official journal of the Federation of European Physiological Societies.

The journal has a long record of publishing high-quality research in all areas of physiology as well as having a special focus on translational research "Bench-to-bedside". Our international editorial board guarantees a rapid, fair and competent review process. Median time from submission to decision is just 31 days. As the journal is independent and Society-owned, the publication profits go back to Physiology in the form of support to meetings, travel grants and many other activities. The present impact factor of Acta Physiologica is 2.455.

- Fast publication – accepted articles are published online within 3-5 days (raw manuscript) and 25 days (final form, Early View), respectively.
- No page or colour charges
- You can make your article free through our Online Open option
- Once your paper is published you will receive a 25% discount on Wiley-Blackwell books

Do visit the journal homepage to find out the latest news regarding Acta Physiologica at <http://www.blackwellpublishing.com/journal.asp?ref=1748-1708&site=1>

Jan Henriksson
Chief Editor



List of contents of Acta Physiologica January 2010, Vol. 198 Issue 1 Page 1 - 98

REVIEWS

Mechanisms of fibrinogen-induced microvascular dysfunction during cardiovascular disease (p 1-13)

D. Lominadze, W. L. Dean, S. C. Tyagi, A. M. Roberts

[Abstract](#) | [References](#) | Full Text: [HTML](#), [PDF](#) (Size: 306K)

Reactive oxygen and nitrogen species in normal physiological processes (p 15-35)

J. Pourova, M. Kottova, M. Voprsalova, M. Pour

[Abstract](#) | [References](#) | Full Text: [HTML](#), [PDF](#) (Size: 917K)

CARDIOVASCULAR

Single-beat estimation of the left ventricular end-systolic pressure–volume relationship in patients with heart failure (p 37-46)

E. A. ten Brinke, R. J. Klautz, H. F. Verwey, E. E. van der Wall, R. A. Dion, P. Steendijk

[Abstract](#) | [References](#) | Full Text: [HTML](#), [PDF](#) (Size: 376K)

Scn3b knockout mice exhibit abnormal sino-atrial and cardiac conduction properties (p 47-59)

P. Hakim, N. Brice, R. Thresher, J. Lawrence, Y. Zhang, A. P. Jackson, A. A. Grace, C. L.-H. Huang

[Abstract](#) | [References](#) | Full Text: [HTML](#), [PDF](#) (Size: 401K)

EXERCISE

Acute exercise reverses TRB3 expression in the skeletal muscle and ameliorates whole body insulin sensitivity in diabetic mice (p 61-69)

A. Matos, E. R. Ropelle, J. R. Pauli, M. J. S. Frederico, R. A. de Pinho, L. A. Velloso, C. T. De Souza

[Abstract](#) | [References](#) | Full Text: [HTML](#), [PDF](#) (Size: 287K)

MUSCLE

Training response of mitochondrial transcription factors in human skeletal muscle (p 71-79)

J. Norrbom, S. E. Wallman, T. Gustafsson, H. Rundqvist, E. Jansson, C. J. Sundberg

[Abstract](#) | [References](#) | Full Text: [HTML](#), [PDF](#) (Size: 293K)

Oestrogen receptor-alpha activation augments post-exercise myoblast proliferation (p 81-89)

A. Thomas, K. Bunyan, P. M. Tiidus

[Abstract](#) | [References](#) | Full Text: [HTML](#), [PDF](#) (Size: 325K)

The decrease in electrically evoked force production is delayed by a previous bout of stretch–shortening cycle exercise (p 91-98)

S. Kamandulis, A. Skurvydas, N. Masiulis, G. Mamkus, H. Westerblad

[Abstract](#) | [References](#) | Full Text: [HTML](#), [PDF](#) (Size: 229K)