FEPS

Federation of European Physiological Societies

FEPS NEWSLETTER

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http://www.feps.org

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Letter of the Secretary General of FEPS

Dear colleagues,

The next joint FEPS meeting in Bratislava, September 2007, with the Slovak Physiological Society and the Physiological Society of Great Britain and Ireland is getting shape. The scientific programme consists, among others, of 15 pre-selected symposia dealing with important subjects in nowadays Physiological research. Prompted by the overwhelming success of the European Young Physiology Symposium in Munich this year, a European Young Physiology Symposium (EYPS) will also be held in Bratislava focussing on "Signalling in Physiological Systems".

In this issue of the FEPS Newsletter an extensive report is posted regarding the FEPS-organised Symposium on Teaching Physiology at the joint FEPS-German Physiological Society in Munich. This symposium was focussing on the subject: "Innovative methods in Teaching Physiology. Experiences with Problem Based Learning." This report may contain invaluable information for those of you who are involved in teaching Physiology in a medical curriculum.

Ger J. van der Vusse
Secretary General of FEPS

Joint Meeting
of
The Slovak Physiological Society
and
The Physiological Society
and
The Federation of European Physiological Societies

BRATISLAVA, September 11-14, 2007

Dear colleagues,

We are delighted to invite you to this Joint Meeting in the capital of Slovakia.
Throughout the program the most rapidly developing areas and hot topics will be represented in plenary lectures, symposia, and open oral & poster presentations. Symposia selected from submitted proposals reflect your recent fields of interest. Traditionally a special platform will also be organized for young European scientists with their own selected topics and sessions.
We hope you will enjoy the science presented at the Joint Meeting and the friendly atmosphere in Bratislava as well as its history, cultural life and beauty.

On behalf of the local organizers,
Vladimir Strbák

International Organizing Committee

Chris Fry	Chair, Physiological Society
Tanya Ravingerová	Slovak Physiological Society - local organizing committee
Daniela Jezova	Slovak Physiological Society - local organizing committee
Vladimir Strbak	Slovak Physiological Society - local organizing committee
Eva Sykova	FEPS
Hans Hultborn	FEPS
Ger van der Vusse	FEPS
Bridget Lumb	Physiological Society
David Eisner	Physiological Society

Congress Site
Faculty of Architecture, Slovak Technical University, Bratislava

General schedule

	11th September	12th September	13th September	14th September
9:00–10:00	European Young Physiologists Symposium (EYPS)	Five symposia, including coffee break	Five symposia, including coffee break	Five symposia, including coffee break
10:00-11:00				
11:00-12:00				
12:00-13:00		Oral Comm x20	Oral Comm x20	Oral Comm x20
13:00-14:00		Lunch	Lunch	Lunch
14:00-15:00	EYPS and Teaching symposium	Plenary lecture	Plenary lecture	Plenary lecture
15:00-16:00		Oral Comm x20	Oral Comm x20	Oral Comm x20
16:00-17:00		Posters	Posters	Posters
17:00-18:00				
Evening			Dinner	

Symposia selected by the Organizing Committee

1. GAP JUNCTIONS IN CARDIOVASCULAR REGULATIONS
2. FINE TUNING OF MYOCARDIAL CONTRACTILITY BY MYOFIBRILLAR REGULATORY PROTEINS IN CONTROL AND DISEASES
3. CARDIAC EXCITATION-CONTRACTION COUPLING IN HEALTH AND DISEASES
4. ROLE OF L-TYPE CALCIUM CHANNELS IN CELLULAR EXCITABILITY
5. MITOCHONDRIA: ROLE IN MYOCYTE INJURY AND PROTECTION
6. Kv7 (KCNQ) POTASSIUM CHANNELS THAT ARE MUTATED IN HUMAN DISEASES
7. UNCOUPLING PROTEINS – DIFFERENT ROLES THROUGH THE LIFE CYCLE?
8. OXYGEN SENSING: FROM FETAL PROGRAMMING TO POSTNATAL REMODELLING
9. SYNERGISTIC CONTROL OF FOOD INTAKE, ENERGY METABOLISM AND REPRODUCTION
10. CIRCADIAN RHYTMS AND MELATONIN
11. HYPOTHALAMIC-PITUITARY-ADRENOCORTICAL AXIS IN HEALTH AND DISEASE
12. CONTROL OF PARTURITION: UTERUS OR HYPOTHALAMUS?
13. SPINAL AND CORTICAL INHIBITORY INTERNEURONS: FROM SYNAPSES TO NETWORKS
14. NEW ASPECTS IN PHYSIOLOGY OF CHOLINERGIC SYSTEM
15. MOLECULAR PHYSIOLOGY OF INTEGRATION IN NEURONAL-GLIAL CIRCUITS

FEPS Meeting Munich, March 2006

Workshop on "Innovative methods in Teaching Physiology Experiences with Problem Based Learning"

On the first day of the FEPS meeting in Munich a workshop was organized on innovative methods in Physiology Teaching in academic centers in Europe. Communications were presented on how Problem Based Learning (PBL) is used to teach (patho) physiological principles and mechanisms in a medical curriculum.

FEPS took this initiative not only because guarding and steering of the Physiology curriculum in medical education is one of her essential tasks, but also because there is a tendency to change from a more classical approach towards more integrated courses. Besides, more curricula are organized in a PBL form, the characteristics of which offer new opportunities to improve the integration of knowledge of medical students. On the other hand however, this can also create problems in terms of (in)visibility of the Physiology discipline, a concern which is accentuated by the fact that Physiology departments tend to disappear, inevitably leading to a loss of control over the disciplinary input in medical curricula. Speakers of this workshop was asked to concentrate upon the questions whether (a) PBL is an advisable vehicle to teach physiological principles and mechanisms and (b) whether or not a PBL approach disables Physiology departments in keeping a central place in the basic education of medical students.

The first speaker, Luc Snoeckx (Dept. Physiology, Maastricht Univ., the Netherlands) described the spectrum and development of medical education during the last century. The integrated and student-centered PBL approach is rather novel and was only introduced in the 1960's. From a pedagogic point of view, PBL can be classified as a constructivist teaching method, implying that understanding of a problem is based on individual experiences with content, context and learning goals. The generally accepted idea is thus that understanding is a construction unique to the individual. A further predicament of constructivism is that opinions are not transmitted, although they may be tested for compatibility with those of others. Furthermore puzzlement is an essential factor which motivates learning, while social negotiation and permanent testing of existing concepts' viability in face of personal experiences are considered to be principal forces involved in the evolution of knowledge. At the Maastricht University these underlying principles were applied in the medical curriculum from 1974 on. As such the Physiology staff of the medical faculty has a long-standing experience with PBL.

When a physiological principle is approached via PBL, typically ill-structured patient problem are presented. They are intended to precede and motivate learning of basic physiology in a broader context. After discussing the patient problem in small tutorial groups (30 groups of 10 students each) students have to agree upon a number of learning goals, after which the necessary literature needs to be consulted. Such approach encourages the individual student to have ownership of the learning environment. After 2-3 days the acquired knowledge is elaborated in the tutorial groups via discussion and reflection. As such appropriate learning experiences can be consolidated. The still not solved question is whether the PBL approach is ideal for and can be adopted by each type of student. Indeed, typical PBL students are good problem solvers and team players, communicate adequately and have a drive for life long learning. Experience learns that these abilities can be acquired and stimulated to a certain extent. Some students however fail to adapt to this learning system. They complain that there is no precise indication of learning material and that they are uncertain regarding the dept and broadness to be mastered.

The PBL approach requires the problem to be integrated in a patient case in an interdisciplinary way. Thus relevant physiological principles have to be integrated with information provided by members of such disciplines as biochemistry, pharmacology, internal medicine, anatomy, etc. Strain is put on the staff because an interdisciplinary approach seriously hampers proper control over when and where in the curriculum the various physiological systems have to be implemented. In an intuitive approach, one could argue that this would inevitable stimulate the disappearance of a pre-clinical department as an entity.

However, the Maastricht experience learns that this is not the case. Results of three consecutive revisions of the medical curriculum over the last 25 years learn that expert feedback by physiologists is highly appreciated when medical students in their master phase encounter real patient problems in a clinical environment. As such, the overall idea of the 2001 revision of the Maastricht curriculum was to reserve ample time for discussions with pre-clinical disciplines during the clinical clerkships in the last phase of the curriculum. For physiologists this is highly rewarding because such discussions, in which also clinical experts are involved, stimulate the expert to renew his own knowledge and to evaluate it in the light of daily clinical practice.

The 25 years experience also learns that Physiology is an ideal discipline to study within a PBL context. After a thorough training in course building, staff members are well able to define common medical problems which can be used as starting points for learning essential physiological principles. Of course, a major issue is whether a case will work out well in a discussion group. Therefore it is crucial to provide adequate instructions to the tutors, implying them to be content-competent. Furthermore, it is of utmost importance that students give serious feedback on the way the case motivated them to study in dept.

To illustrate the way of working of a typical tutorial group Anne Custers, last year medical student from the Maastricht University, explained the audience how a PBL session can be experienced. She first presented the typical PBL discussion tool, which is the “seven jump”. After reading the case the following steps have to be taken: (1) clarification of terms and concepts, (2) definition of the problem(s), (3) generation of explanations in the so-called brainstorm phase, (4) arrangement of the proposed explanations, and (5) formulation of learning objectives. Thereafter, each individual student tries to (6) fill knowledge gaps through self-study in the library. In the following group session the last step has to be taken, which is (7) to report the literature findings and to receive feedback from colleague students and the tutor. Miss Custers presented a typical case and asked to take the first 4 steps of the seven jump, which was well appreciated by the audience. Thereafter she referred to the advantages and disadvantages of the PBL system for the student himself. PBL seems to be ideal for the “ideal” student in that it promotes active learning which leads to better knowledge retention. In motivating learning student-centered PBL seems to be superior over a teacher-centered environment. Furthermore, PBL promotes a better information management leading to improved applicability and relevance of the acquired information. Not all students are evenly motivated, depending on their personality and motivation. Some of them define superficial learning goals enabling them to solve the case. The major problem however seems to be the students’ insecurity about the required level of acquired knowledge and the tendency, most pronounced during the first two study years, to get lost in the load of information. Throughout her study Miss Custers experienced remarkable differences between levels of (pre-existing) knowledge in the various tutorial groups. This depends – of course - on the individual members of the group but also on the tutor, the invaluable help of which seems to be often underestimated.

Gillian Maudsley (Div. Public Health, Univ. Liverpool, UK) discussed the tutorial role in PBL meetings. From ten years’ experience of tutoring medical students, the Liverpool problem-based curriculum provides examples of good practice and of difficulties needing careful attention. The tutor’s role has been refined since the first-ever tutors took on the challenge enthusiastically, albeit tentatively, in 1996. The effect of group dynamics and tutoring on the consistency of students’ experience remains a challenge, as indicated earlier by Miss Custers. In Liverpool, students were asked to reflect on the function of tutors in teaching sessions via a questionnaire. Such questions as “Why does (did) a session not work?“ were asked to students at the end of the first year. Remarkably, students’ accounts of when PBL did not work so well for them focused particularly on peers’ under- or over-contribution, and tutors not creating a good balance between intervention/non-intervention in the group process. At the end of the sessions, students reported various disruptions from their peers and that tutors should anticipate better.

Carlo di Benedetta (Univ. Bari, Italy) described the experiences from 1998 on with a European TEMPUS project, aiming at renewing the medical curricula in such academic centers as the University of Bari, Pecs University and Semmelweis (Hungary), and the University of Tirana (Romania). Basic ingredients of these curricula were PBL and community based education (CBE). In Bari, the new approach was introduced in a parallel experimental curriculum in a subgroup of 40 students, offering unique

opportunities for future comparison of the students' outcome and experiences with those which followed a more classical curriculum. The first results show that the implementation of PBL is not unequivocal positive, which was merely due to logistical and financial problems. The experiment will be conducted further.

Martin Fischer (Univ. Munich, Germany) presented a web-based learning environment for medical students, using case-based learning and developed in a collaborative project between the universities of Munich and Duesseldorf (CASUS; http://casus.medinn.med.uni-muenchen.de). Although initially designed for independent self-study, it is now used in various educational settings including case-based examinations. An interesting feature is that teachers can select and combine cases into new courses and are enabled to follow the activities of the users at any place and time, as well as to give on-line feedback. At present about 200 medical cases are available which are used in various medical faculties, also abroad Germany. CASUS is part of the CASEPORT-project establishing the national German portal for case-based learning in medicine. It allows access to various systems with semantic interoperability (http://www.caseport.de/) and to which 13 German medical faculties participate.

Finally, Mascha Verheggen (Maastricht Univ., the Netherlands) presented the experiences with the examination of knowledge gathered via a PBL teaching method. The underlying principles are that assessment should be congruent to the training, comprehensive, continuous, both formative and summative, and should yield good quality. Following the knowledge pyramid of Miller, the basis of all competencies is knowledge ('student knows'). This and the second 'knows how' level can be assessed best via written exams, and/or oral and computer-based test. The third Miller level in the evolution towards professional authenticity is the 'shows how' level, on top of which stands the 'does' level. These two levels can be assessed via performance and/or hands on tests. Examination of physiological knowledge resides largely into the first two levels. For each course, a tailored assessment is necessary, consisting of MCQ, open end questions or true/false questions, and assignments such as designing a poster, writing essays or research proposals, preparing a forum discussion, etc. Longitudinally, students have to pass a progress test which is organized 4 times a year. Highlights of this test are that it consists of about 250 true/false/? items in which all disciplines are represented, and that all students (from all classes) take the same test. A more then 10 years experience with this progress test learns that – as could be predicted – basic science knowledge, including that of physiology, increases relatively more in the first two years that in the consecutive year, while the knowledge of clinical disciplines shows an opposite tendency.

In conclusion, this workshop showed that PBL is an interesting learning tool for acquiring medical knowledge. It allows a constructivist approach which stimulates the student to develop necessary competencies in a motivation driven way. The tutor plays a crucial role in the process of knowledge interpretation and reflection on personal development. PBL seems to find its way in various international universities and has no negative effects on the status of physiology departments as an individual and independent discipline.

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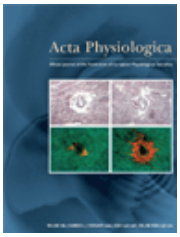

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