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Pierantonio Laveneziana, Susan Ward, J. Alberto Neder, Vitalii Poberezhets

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Pierantonio Laveneziana<sup>1</sup>, Susan Ward<sup>2</sup>, J. Alberto Neder<sup>3</sup>,  
Vitalii Poberezhets<sup>4</sup>



<sup>1</sup>Sorbonne Universités, UPMC Université Paris 06, INSERM UMR\_S 1158, Neurophysiologie Respiratoire Expérimentale et Clinique, Faculté de Médecine Pierre et Marie Curie (site Pitié-Salpêtrière), Service d'Explorations Fonctionnelles de la Respiration, de l'Exercice et de la Dyspnée, Hôpital Universitaire Pitié-Salpêtrière (AP-HP), Paris, France. <sup>2</sup>Human Bio-Energetics Research Centre, Crickhowell, UK. <sup>3</sup>Queen's University, Kingston, ON, Canada. <sup>4</sup>Propedeutic Dept to Internal Medicine, National Pirogov Memorial Medical University, Vinnytsia, Ukraine.



pier\_lav@yahoo.it

# Clinical exercise testing: basic principles and practice

## Course organisers

P. Laveneziana, S. Ward, J.A. Neder

## Faculty

P. Laveneziana, S. Ward, J.A. Neder, R. Casaburi,  
P. Onorati, P. Palange, S. Singh

## Introduction

The ERS course on “Clinical exercise testing: basic principles and practice” was held in Rome, Italy, from February 23 to 24, 2017. This is the first time that the course has taken place as a 2-day basic course. Previously, a 3-day course had taken place six times. Overall, 94% of participants were satisfied and declared that they would change their daily practice after attending the course; some of them even felt confident to start practicing clinical exercise testing. This was a great success.

The programme consisted of lectures, tutorials and practical workshops. The tutorials were discussion-based and speakers used flip charts to structure their discussions. Four tutorials ran simultaneously and covered the same topic areas; participants attended one of the tutorials per session. The practical laboratory sessions revolved around the volunteers simulating tests on the equipment. Four practical laboratory sessions ran simultaneously, again covering the same topic area. Participants rotated for each workshop so that they could see the different equipment brands.

Volunteers were recruited locally by Paolo Palange, a member of the course faculty.

The main challenge was to adapt and tailor the basic course to the expectations of each participant, ranging from true beginners with no or very little knowledge of exercise physiology, to participants already involved in this field but who were beginners in terms of interpretation of normal and abnormal response profiles, and application of cardiopulmonary exercise testing (CPET) in real-life clinical practice, such as how and to what extent CPET can help answer specific clinical decision-making questions. Participants were particularly eager to learn about: normal and specific abnormal response profiles (chronic obstructive pulmonary disease, interstitial lung disease, pulmonary arterial hypertension, congestive heart failure, *etc.*); how to bring the test to clinical practice; and how to practically perform CPET (hints and pitfalls, and the “nuts and bolts” of CPET, especially the incremental tests).

The interactive sessions, such as workshops and tutorials, where the most important parts of the course. Participants were able to ask questions that perhaps they would never ask while sitting in a large audience. Tutors were able to reply to each and every question (when possible) in a simple manner by encouraging participants to find a response, and stimulating the discussion starting from a physiological standpoint, and encompassing a wide range of clinical and pathological situations.

There was a need to provide participants with more structured tutorials and workshops, as

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well as more practice regarding test results and interpretation. In future, this course will be more focussed on the incremental test, spend more time in teaching abnormal response patterns, and bring the test to the real world. An advanced course will follow on February 22–23, 2018.

## **Vitalii Poberezhets, Ukraine, a participant**

This ERS course was one of the most interesting events in my life. First of all, I want to thank the European Respiratory Society because the fact that I was selected as the recipient of a full bursary made it possible for me to attend this course.

During the course, I learned a lot of new information about clinical exercise testing and normal physiology of human body during exercise. Besides this, practical laboratory sessions gave me practical skills for using this testing in my medical practice.

Another important point was the atmosphere at the course. It was really light and friendly. Questions to the faculty were not only allowed, but even encouraged.

In my opinion, the most interesting issues were test performance and its interpretation, because of the fact that there are a lot of small details during clinical exercise testing that are very important, and interpretation of the exercise testing plays a huge role in making correct diagnosis and assessing the results of treatment. Personally, I gained a lot of new knowledge from this course and have already used it in my practice.

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### **Conflict of interest**

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