ESPEN Experts’ Course
Indirect calorimetry
(Course director: prof. Pierre Singer)

Tel Aviv, Rabin Medical Center, Israel
January 28-29, 2013

In an attempt to improve good clinical practice in the field of clinical nutrition, the General Intensive Care Department and the Institute for Nutrition Research of the Rabin Medical Center (Tel Aviv University) is happy to share more than 30 years of experience in practicing indirect calorimetry measurements.

A course for health practitioners (MD, RD, RN) is organized for ESPEN members to learn the practical approach of this technique in intensive care patients, hospitalized and community patients as well.

The course will include:

- Explanation of the theoretical aspects of the technique
- Hands on approach with rounds for indications
- Explanation on calibration aspects including calibration with burning alcohol,
- Comparison of the measurement results with predictive equation
- Discussion about contra indications to the measurement and pitfalls
- Demonstration on most of the metabolic monitors available.
- Development of strategies to ensure the success of the implementation of such a technique in the department of origin.
Our center has acquired the expertise and the reputation of practice of indirect calorimetry. Many physicians and dieticians from Belgium, Russia, China, U.S.A., Finland, Kenya, India, Brazil, and Australia have already visited our center and participated to previous courses. The center of expertise team has published several articles, reviews and chapters in most of the well known critical care text books on this topic and numerous conferences have been delivered all over the world from Chile to Japan. This unique experience is today shared by many (a workshop is organized in June 2012 in the frame of the Israel Nutrition Week, for example) and our team is proud to propose it to ESPEN initiative.

The course will be held during 1.5 days at the department of Intensive care medicine of the RMC, Beilinson Hospital in Petah Tikva and will focus on clinical applications of indirect calorimetry. Professor Pierre Singer assisted by Dr Shaul Lev, Dr Miriam Theilla and Roni Anbar (all members of ESPEN) will organize the course.

Publications of the team on this topic will be provided to each participant on a disk on key.

The course will accept no more than 15 participants to allow hands-on demonstrations and the time will be shared between theoretical and practical aspects.

The course is open to physicians, nurses and dieticians that will learn the technique and use it back in their unit. A particular importance will be given to the interpretation of the results, which is not accessible from the literature.

The course will be concluded by a test to assess the level of knowledge acquired as well as an evaluation sent directly by mail to ECPC.

Travel and housing will not be provided but lunch, dinner and coffees are included.

Further information on the programme, on how to reach the course venue and on convenient housing can be obtained by sending an e-mail to prof. Pierre Singer (psinger@clalit.org.il). Send applications (including CV and, in case the applicant is a resident, letter of presentation by the Head of the Unit/Residency programme) to prof. Pierre Singer (psinger@clalit.org.il). The course is open to all health care professionals that apply on a first come first served basis.
The program is as followed:

**Monday, 28.01.2013**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30-09:00</td>
<td>Welcome and introduction</td>
<td>Dr. B Tadmor, Beilinson Hospital Director Prof. Pierre Singer ICU director</td>
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<tr>
<td>09:00-10:00</td>
<td>Theoretical framework of energy metabolism</td>
<td>Prof. Pierre Singer</td>
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<tr>
<td>10:00-11:00</td>
<td>Methods of measurement and pitfalls</td>
<td>Dr. Shaul Lev</td>
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<tr>
<td>11:00-12:30</td>
<td>Hands-on in the department for ventilated and non ventilated</td>
<td>Dr. Shaul Lev, Ronit Anbar</td>
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<tr>
<td>12:30-13:30</td>
<td>LUNCH</td>
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<tr>
<td>13:30-15:00</td>
<td>Measurements of ICU patients and out clinic patients</td>
<td>Dr. Miriam Theilla, Ronit Anbar</td>
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<tr>
<td>15:00-16:00</td>
<td>Indirect calorimetry better than equations</td>
<td>Prof. Pierre Singer</td>
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</tbody>
</table>

Dinner together

**Tuesday, 29.01.2013**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00-10:00</td>
<td>TICACOS in ICU and in geriatric patients. Is it possible</td>
<td>Ronit Anbar, Ph.D Student, RD</td>
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<tr>
<td>10:15-11:00</td>
<td>Discussion on results and theoretical cases</td>
<td>All</td>
</tr>
<tr>
<td>11:00-12:00</td>
<td>Fuel utilization: more information from indirect calorimetry</td>
<td>Prof. Pierre Singer</td>
</tr>
<tr>
<td>12:00-12:30</td>
<td>Conclusions and Final exam</td>
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At the end of the course, the participant will be able to consider:

1. Principles of Indirect Calorimetry
2. Correct application of the technique
3. Accuracy and the limits of indirect calorimetry
4. Commercially available instruments allowing continuous and discontinuous measurement
5. Indications for measurement of energy expenditure in the ICU: to assess energy balance, to evaluate the metabolic effect of drugs
6. Use of indirect calorimetry as a diagnostic tool (sepsis, brain injury and brain death)
8. Applications for substrate utilization with nitrogen excretion measurement.