



# SYMPOSIUM 2010

## The effects of exercise and nutrients on brain function

Copenhagen 23-27 August 2010

### **Purpose**

The purpose of the course is to present and discuss the current understanding of the effect of exercise and nutrients on brain function. A central theme of the course is an understanding of the signalling pathways involved in mediating the effect of exercise and various nutrients on brain function. The course will also focus on the practical use of knowledge of the interaction of nutrients and exercise in cognitive and motor rehabilitation.

### **Content**

The course will cover basic physiology of brain metabolism, basic physiology of brain-gut signalling and the neurobiological basis of plasticity in the brain.

### **Structure of the course**

The structure of the course will be a combination of lectures by leading international speakers, group discussions and panel discussions. Prior to the course the students will be expected to read papers selected by the speakers related to each for the lectures. These papers will make the basis for group discussions among the students in the afternoon. Each of the groups will be asked to address specific issues in relation to the lecture/paper and to prepare specific questions for the speakers. During the subsequent panel discussions representatives from each group will present the conclusions and viewpoints from the individual group discussions and present the questions that the groups have generated for the speakers.

In between lectures and discussions students will be given the possibility of talking to the speakers in informal master classes. Social events will be arranged during the week

### **The venue**

Helene Elsass Center was established in 2004 by the Ludvig & Sara Elsass Foundation. The center is named after the donor of the foundation Helene Elsass, daughter of Ludvig and Sara and she herself suffering from Cerebral Palsy. The main objective of Helene Elsass Center is to initiate research and development on Cerebral Palsy. Helene Elsass Center develops best practice and golden standards in relation to intervention strategies for Cerebral Palsy based on most recent knowledge and evidence based methods. Research is primarily conducted on data from intern projects, secondarily by monitoring new research internationally aiming at developing individual learning and training programs, providing insight and self-awareness and granting counseling and guidance to the individual and the family.

The center is situated in Charlottenlund in the northern part of Copenhagen. Here on an estate complete with park and lake situated in calm and beautiful surroundings the Helene Elsass Center welcomes you.

More information is obtained at [www.elsasscenter.dk](http://www.elsasscenter.dk)

## Target groups

Students (M.Sc., M.D, Ph.D.), researchers, health care personnel (MD, PT) who are interested in motor development and disorders

## Organizers:

Ass. Professor Kirsten Caesar, Professor Jens Bo Nielsen, CEO Peder Esben Bilde.

## Course certificate

All participants will receive a certificate on completion of the course.

## ECTS

The course corresponds to 3 ECTS (estimate, subject to decision by the involved Ph.D.-schools)

## Preparation for the course

Students will receive relevant reading material prior to the course. The students will be expected to have read this material prior to the course since it will be used as a basis for group discussions and panel discussions in the afternoons.

# Program

## Monday, August 23

- 08:45-09:00 Introduction (Kirsten Caesar/Jens Bo Nielsen/ Peder Esben Bilde)
- 09:00-09:45 **Jens Bo Nielsen:** Brain Neuroplasticity – the role of exercise and nutrition
- 09:45-10:15 Break
- 10:15 - 11:00 **Bente Klarlund:** Effects of exercise on brain function
- 11.00 – 11:45 **Jesper Mogensen:** Exercise and the brain (Suggest new title)
- 11:45-12:45 Lunch
- 12:45-14:45 Group sessions and discussions
- 14:45-15:15 Break
- 15:15-16:00 Panel discussion

## Tuesday, August 24

- 09:00-09:45 **Peder Esben Bilde:** Brain Food at the Helene Elsass Center
- 09:45-10:30 **Lasse Bak:** Brain metabolism
- 10:30-11:00 Break
- 11:00 - 11:45 **Bente Kiens:** Basic concepts of healthy nutrition
- 11:45 - 12:45 Lunch
- 12:45 - 13:30 **Lotte Lauritzen:** Omega3 fatty acids and the brain
- 13:30 - 15:00 Group sessions and discussions
- 15:00 - 15:30 Break
- 15:30 - 16:15 Panel discussion

## Wednesday, August 25

- 09:00 - 09:45 **Kirsten Caesar:** Summary
- 09:45 - 10:30 **Hans Forsberg** (Stockholm): Motor and cognitive training and brain plasticity
- 10:30 - 11:00 Break
- 11:00 - 11:45 Short papers: Practical experience from the Clinic
- 12:15 - 13:15 Lunch
- 13:15 - 14:00 Short papers: Practical experience from the Clinic
- 14:00 - 14:45 Group sessions and discussions
- 14:45 - 15:15 Break
- 15:15 - 16:00 Panel discussion

## Thursday, August 26

- 09:00 - 09:45 **Zsolt Radak:** Effects of exercise on brain function
- 09:45 - 10:30 **Daniel P. Holschneider:** Activity Dependent Reorganization of the Brain:  
Neuroimaging Findings
- 10:30 - 11:00 Break

- 11:00 - 11:45 **Charles H. Hillman:** exercise effects on brain and cognition
- 11:45 - 12:30 **Susan E. Carlson:** Lipids and early brain function and development
- 12:30 - 13:30 Lunch
- 13:30 - 14:15 **Joseph R. Prohaska:** Copper deficiency and AMPK in the brain
- 14:15 - 15:00 **Jenni Harvey:** Leptin: Role in cognition
- 15:00 - 15:30 Break
- 15:30 - 16:15 **Mehmet Cansev:** Effects of Uridine, DHA and Choline on brain function
- 16:15 - 17:00 **Michael Crawford:** DHA and the evolution of big brains.

### **Friday, August 27**

- 09:00 - 09:45 **Henriette van Praag:** Effects of combined exercise and nutrients on brain function
- 09:45 - 10:30 **John J. Ratey:** The effect of exercise on mood
- 10:30 - 11:00 Break
- 11:00 - 11:45 **Ellen C. Breen:** Exercise induced VEGF transcription in brain
- 11:45 - 12:30 **Arthur F. Kramer:** Effects on cognition and brain of older adults?
- 12:30 - 13:30 Lunch
- 13:30 - 14:15 **Fernando Gomez-Pinilla:** Effect of combined exercise and DHA on brain function