

# Integrative human cardiovascular control

Danish Cardiovascular Research Academy

Ph.D. course

The Panum Institute, University of Copenhagen

May 9 – 14, 2016

Here is the proposed program for the course. Please feel free to change titles of your presentations and eventually also the day if any other day is better and come forward with any other suggestions

<b>Monday</b> Panum Institute 42.0.01	<b>Topic and speaker</b>	<b>Background literature - assignments</b>
<b>8:30 - 9.00</b>	Welcome and introduction to the program - presentation of participants and speakers	
<b>9.00 - 10.30</b>	A primer to hypothesis-driven research 1. Control of blood pressure during exercise - Peter Raven, PhD, University of North Texas, Fort Worth, USA 2. Regulation of skin blood flow - Craig Crandall PhD, University of Texas Southwestern Medical Center, Dallas, Texas, USA	
<b>10.30 - 11.00</b>	Refreshments	
<b>11.00 - 11.30</b>	MR evaluation of the heart. Per Madsen, DK	
<b>11.30 - 12.00</b>	Lunch	
<b>12.00 - 16.00</b>	Workshop: Hypothesis-driven research in cardiovascular physiology: Presenting and discussion of participants' projects. Introduction by Lars Nybo (15 min) followed by group work: 3-4 students (each with a speaker as "supervisor"): Students presents in a group: the projects and techniques of presentations are discussed (approx. 45 min for each presentation) - Carsten Lundby, Lars Nybo, Zeijko Dujic, Peter Raven, and Woulter Wieling	Plan for groups – and schedule for presentations
<b>Evening</b>	Social dinner at Bagsværd	

<b>Tuesday</b> Panum institute 42.0.01	<b>Central circulation – experimental day + symposia</b>	<b>Background literature - assignments</b>
<b>9.00- 12.00</b>	Manipulations with cardiac output, blood volume and blood pressure – experimental medicine – pig experiment . Lars Nybo	
<b>12.15 – 13.00</b>	Lunch (RH)	
<b>14 .00 15.30</b>	Symposium – part 1	See special program
<b>15.30 - 16.00</b>	Coffee break	
<b>16.00 – 17.30</b>	Symposium – part 2	

<b>Wednesday</b> Panum Institute 42.0.01	<b>Central circulation</b>	<b>Background literature - assignments</b>
<b>9.00 – 9-45</b>	Ultrasound for evaluation of peripheral flow Kim Bredahl	
<b>9. 45– 10.30</b>	Animal experiments – Scott Smith PhD, Dallas, Texas, USA	
<b>10.30 – 11.00</b>	Refreshments	
<b>11.00 – 12.30</b>	Sympathetic activity Paul Fadel	
<b>12.30 –13.30</b>	Lunch	
<b>13.30 – 15.00</b>	Blood pressure regulation- Peter Raven	
<b>15.00 – 16.00</b>	Coffee and special interest colloquiums	

<b>Thursday</b> Panum Institute 42.0.11	<b>Special circulations: cerebral blood flow and metabolism – skin circulation and heat stress - muscle perfusion, oxygenation and metabolism</b>	<b>Background literature - assignments</b>
<b>8:30 - 9:15</b>	“The exercise pressor reflex” – importance of afferent feedback -James Fisher	
<b>9:15 - 10.15</b>	1. Regulation of skeletal muscle blood flow: role of vasodilators - Ylva Hellsten PhD, Copenhagen 2. Skeletal muscle blood flow regulation: sympatholysis - Stefan Mortensen	
<b>10.15 - 10.30</b>	refreshments	
<b>10.30 - 11.00</b>	Leg blood flow during exercise - influence of dehydration and heat stress. - Jose Gonzalez-Alonso PhD, Brunel University, UK	
<b>11.00 – 12.30</b>	The skin circulation and CV responses to heat	

	stress (Craig Crandall, Jose Gonzalez-Alonso and Lars Nybo)	
<b>12.30 - 13.30</b>	Lunch	
<b>13.30-15.00</b>	Cerebral blood flow and metabolism – J Van Lieshout, Niels Secher	
<b>15.00 - 16.00</b>	Coffee and special interest colloquiums	

<b>Friday</b> Panum Institute 42.0.11	<b>Pathophysiological responses and circulatory responses during stress and exercise</b>	<b>Background literature - assignments</b>
<b>8:30 - 10:00</b>	Peak performance and cardiovascular responses – Carsten Lundby (importance of blood volume) – Stefan Mortensen (cardiac pacing) – Niels (rowing)	
<b>10.00 –10.30</b>	Refreshments	
<b>10.30 –11.00</b>	Cardiovascular responses to diving – Zeijko Dujic, University of Split	
<b>11.00 -12.00</b>	The circulation during and following anesthesia/operations (and following bleeding) - Henning Bay	
<b>12.00 -12.30</b>	Lunch	
<b>12.30 - 14</b>	Coffee and special interest colloquiums	
<b>Evening</b>	Dinner: Regattapavillonen, Bagsværd	

<b>Saturday</b> Panum Institute 42.0.01	<b>Agenda</b>	<b>Background literature - assignments</b>
<b>9.00 – 9.30</b>	Of mice and men – Lars Bo Nielsen, DK	
<b>9:30 - 10.30</b>	Integrative cardiovascular aspects - Lars Nybo (questions. and discussion of topics from the week)	
<b>10.30 - 12.00</b>	Group examination - Lars Nybo	
<b>12.00 - 13.00</b>	Lunch and evaluation	