



The Danish Diabetes and Endocrine  
and Cardiovascular Academies

# Basic Cardiometabolic Research PhD course

24-27 October 2023

Musholm Conference  
Musholmvej 100  
4220 Korsør  
Denmark

# Session overview



## **Day 1**

**Tuesday, 24 October 2023**

Session I

Setting the stage

Session II

Fundamentals

Session III

Metabolic perturbations in diabetes and cardiovascular disease

## **Day 2**

**Wednesday, 25 October 2023**

Session IV

Introduction to energy metabolism in endocrinology

Session V

Cardiovascular benefits of diabetes medicine

## **Day 3**

**Thursday, 26 October 2023**

Session VI

Environmental & biological determinants in prevention & treatment of metabolic disease

Session VII

Cardiometabolic models and translation into humans

Session VIII

Hands-on workshops

Keynote talk

## **Day 4**

**Friday, 27 October 2023**

Session IX

Technologies in cardiometabolic research

Course closing

# Programme

## Tuesday 24 October

09:00-10:00 Registration & breakfast

10:00-10:30 Welcome, introduction to the course and meet & greet

Education & Networking Coordinator **Pernille Bruun Nielsen**,  
Danish Diabetes and Endocrine Academy (DK)

Head of Administration **Emil Toft Brøndum**, Danish  
Cardiovascular Academy (DK)

### Session I **Setting the stage**

Chairs: Education & Networking Coordinator **Pernille Bruun Nielsen**, Danish Diabetes and Endocrine Academy (DK) and  
Head of Administration **Emil Toft Brøndum**, Danish  
Cardiovascular Academy (DK)

10:30-10:50 A patient's perspective

Volunteer patient representative **Anne Kathrine Skibelund**, the  
Danish Heart Association (DK)

10:50-11:00 Questions & answers

### Session II **Fundamentals**

Chair: Associate Professor **Joanna Kalucka**, Aarhus University  
(DK)

11:00-11:35 Fundamentals of metabolic regulation

Professor **Nils Færgeman**, University of Southern Denmark  
(DK)

11:35-11:45 Questions & answers

11:45-12:20 Fundamentals of cardiovascular physiology ("normal" state)

Associate Professor **Thomas Andrew Qvistgaard Jepps**,  
University of Copenhagen (DK)

12:20-12:30 Questions & answers

12:30-13:15 Lunch

13:15-14:30 Group activity/networking activity

14:30-15:00 Coffee & tea break

**Session III Metabolic perturbations in diabetes and cardiovascular disease**

Chair: Associate Professor **Joanna Kalucka**, Aarhus University (DK)

15:00-15:35 Diabetes - (sub)types, pathophysiology, and treatment  
Associate Professor **Esben Søndergaard**, Steno Diabetes Center Aarhus (DK)

15:35-15:45 Questions & answers

15:45-16:20 Type 2 Diabetes and Cardiovascular Disease: micro-/macrovascular pathways and preventive strategies  
Medical Doctor and Postdoc **Kristian Løkke Funck**, Aarhus University Hospital (DK)

16:20-16:30 Questions & answers

16:30-17:00 Recap of the day  
Education & Networking Coordinator **Pernille Bruun Nielsen**, Danish Diabetes and Endocrine Academy (DK)

17:00-18:30 Check in & free time

18:30-20:00 Dinner

20:00- Informal networking (optional)

# Programme

## Wednesday 25 October

07:00-09:00 Breakfast & morning exercise (optional)

09:00-09:15 Welcome back

### Session IV Introduction to energy metabolism in endocrinology

Chair: Professor **Morten Frost Nielsen**, University of Southern Denmark (DK)

09:15-09:50 The role of adipose tissue in energy metabolism and metabolic diseases

Junior Group Leader **Anne Loft**, University of Southern Denmark (DK)

09:50-10:00 Questions & answers

10:00-10:35 Multifaceted mitochondria in endocrinology: Looking beyond ATP

Postdoc **Paula Fernandez Guerra**, University of Southern Denmark (DK)

10:35-10:45 Questions & answers

10:45-11:15 Coffee & tea

11:15-12:45 Group activity

12:45-13:30 Lunch

### Session V Cardiovascular benefits of diabetes medicine

Chair: Professor **Thomas Jespersen**, University of Copenhagen and Executive Training Director, Danish Cardiovascular Academy (DK)



13:30-13:50	Cardiovascular protection by GLP-1R agonism Director <b>Michael Nyberg</b> , Department of Vascular Biology, Novo Nordisk A/S (DK)
13:50-14:00	Questions & answers
14:00-14:15	Short recap of the day
14:15-14:30	Coffee & tea
14:30-16:30	Free time with optional organised networking and sports activities
16:30-17:30	Panel discussion about research in different career environments
17:30-18:00	Wine and cheese reception with panelists
18:00-19:30	Dinner
19:30-	Informal networking (optional)

# Programme

## Thursday 26 October

07:00-08:30 Breakfast & morning exercise (optional)

08:30-08:45 Welcome back

### **Session VI Environmental and biological determinants in prevention and treatment of metabolic disease**

Chair: Nutrition Scientist **Andreas Buch Møller**, Arla Foods (DK)

08:45-09:20 The carbohydrate-insulin model of obesity and dietary strategies in prevention and treatment

Professor **David S. Ludwig**, Boston Children's Hospital and Harvard School of Public Health (US)

09:20-09:30 Questions & answers

09:30-10:05 Central reward processing: How the foods that we eat urge us to consume excessive calories

Professor **Marc Tittgemeyer**, Max Planck Institute for Metabolism Research (DE)

10:05-10:15 Questions & answers

10:15-10:45 Coffee & tea

### **Session VII Cardiometabolic models and translation into humans**

Chair: Nutrition Scientist **Andreas Buch Møller**, Arla Foods (DK)

10:45-11:20 Experimental models of atherosclerosis in mice and minipigs

Professor **Jacob Fog Bentzon**, Steno Diabetes Center Aarhus (DK)

11:20-11:30	Questions & answers
11:30-12:05	Incretin action at the molecular, cellular and cardiovascular level Professor <b>Mette Rosenkilde</b> , University of Copenhagen (DK)
12:05-12:15	Questions & answers
12:15-13:00	Lunch

## Session VIII **Cardiometabolic physiology in practice**

Chair: Nutrition Scientist **Andreas Buch Møller**, Arla Foods (DK)

13:00-13:30 Introduction to the physiological mechanisms in the practical exercises

13:30-16:30 Practical exercises (in parallel, 2 groups per exercise, 6 groups total)

### Room 1

**Practical exercise 1:** Post-exercise insulin sensitivity - Oral Glucose Tolerance Test after exercise or rest

Assistant Professor **Rasmus Kjøbsted**, Department of Nutrition, Exercise and Sports, University of Copenhagen (DK)

### Room 2

**Practical exercise 2:** Metaboreflex/ blood flow regulation exercise

MD, Postdoc **Ulrik Winning Iepsen**, Hvidovre Hospital and Centre for Physical Activity, Rigshospitalet (DK)

PhD Student **Jacob Peter Hartmann**, Rigshospitalet (DK)

### Room 3

**Practical exercise 3:** Use of continuous glucose monitors

Clinical Assistant, PhD **Julie Bjerrelund**, University of Southern Denmark (DK)

Professor **Morten Frost Nielsen**, University of Southern Denmark (DK)



16:30-17:05

**Keynote talk**

Chair: Nutrition Scientist **Andreas Buch Møller**, Arla Foods (DK)

Exercise training for health – Physiology and feasibility

Professor **Ylva Hellsten**, University of Copenhagen (DK)

17:05-17:15

Questions & answers

17:15-18:45

Free time

18:45-19:00

Pre-dinner drinks

19:00-21:00

Dinner with presentations

21:00-

Informal networking (optional)

# Programme

## Friday 27 October

07:00-09:00 Breakfast & morning exercise (optional)

09:00-09:15 Welcome back

### Session IX Technologies in cardiometabolic research

Chair: Associate Professor **Joanna Kalucka**, Aarhus University (DK)

09:15-09:50 Concepts and tools for single cell data analysis

Postdoc, **Lucas Massier**, Karolinska Institute (SE)

09:50-10:00 Questions & answers

10:00-10:35 Identifying protein targets to mitigate pathological remodeling in hearts by proteomics investigations

Professor **Alica Lundby**, University of Copenhagen (DK)

10:35-10:45 Questions & answers

10:45-11:15 Coffee & tea

11:15-12:00 Course reflection & summary

12:00- Farewell & departure with lunch boxes

# Organising Committee Scientific Programme

**Andreas Buch Møller**, Nutrition Scientist, Arla Foods (DK)

**Joanna Kalucka**, Associate Professor, Aarhus University (DK)

**Morten Frost Nielsen**, Professor, University of Southern Denmark (DK)

**Nils Færgeman**, Professor, University of Southern Denmark (DK)

**Thomas Jespersen**, Professor, University of Copenhagen & Executive Training  
Director, Danish Cardiovascular Academy (DK)

**Emil Toft Brøndum**, Head of Administration, Danish Cardiovascular Academy (DK)



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