EAPC Course on Diagnostics in Sports Cardiology

16 - 17 July 2025, Munich, Germany

Venue:

Department of Preventive Sports Medicine and Sports Cardiology, TUM School of Medicine and Health, Technical University Munich, Am Olympiacampus 11, 80809 München

Organising committee:

Martin Halle, MD, Preventive Sports Medicine and Sports Cardiology, TUM University Hospital, Munich, Germany

Simon Wernhart, MD, PhD, Preventive Sports Medicine and Sports Cardiology, TUM University Hospital, Munich, Germany

Cajetan Lang, MD, Preventive Sports Medicine and Sports Cardiology, TUM University Hospital, Munich, Germany

Programme and Organisation:

16.07.2025 Afternoon – Echocardiography:

- Simon Wernhart, MD, PhD, Preventive Sports Medicine and Sports Cardiology, TUM University Hospital, Munich, Germany
- Cajetan Lang, MD, Preventive Sports Medicine and Sports Cardiology, TUM University Hospital, Munich, Germany
- Flavio D'Ascenzi, MD, University of Siena, Italy
- Michael Schindler, MD, Cardiology, Sports Cardiology and Sports Medicine, Baden, Switzerland

17.07.2025 Morning – Lactate Diagnostics:

- Martin Halle, MD, Preventive Sports Medicine and Sports Cardiology, TUM University Hospital, Munich, Germany
- Mario Weichenberger, PhD, Preventive Sports Medicine and Sports Cardiology, TUM University Hospital, Munich, Germany

17.07.2025 Afternoon – Spiroergometry/CPET Testing

- Stephan Müller, PhD, Preventive Sports Medicine and Sports Cardiology, TUM University Hospital, Munich, Germany
- Flavio D'Ascenzi, MD, University of Siena, Italy
- Simon Wernhart, MD, PhD, Preventive Sports Medicine and Sports Cardiology, TUM University Hospital, Munich, Germany

I. Echocardiography in Sports Cardiology – 16 July 2025

Learning Objectives:

- Understanding the echocardiographic assessment of cardiac changes in athletes
- Getting to know special diagnostics in sports cardiology (strain analysis, tissue doppler) and relevant sports cardiology issues
- Learning how to differentiate between an athlete's heart and cardiomyopathies

Target Group:

- Medical doctors interested in sports cardiology with moderate to advanced echocardiography skills

Organisation:

- Simon Wernhart, MD, Preventive Sports Medicine and Sports Cardiology, TUM University Hospital, Munich, Germany
- Cajetan Lang, MD, Preventive Sports Medicine and Sports Cardiology, TUM University Hospital, Munich, Germany
- Flavio D'Ascenzi, MD, University of Siena, Italy

Time	Duration	Topic	Speaker
13:00 - 13:15	15 min	Welcome and introduction	M. Halle, MD S. Wernhart, MD, PhD C. Lang, MD F. D´Aszenzi, MD - TBC
		Theoretical Part	
13:15 – 13:45	30 min	**Echocardiographic special diagnostics in sports cardiology** Strain, tissue Doppler, stress echocardiography	S. Wernhart, MD, PhD
	5 min	Discussion	
13:50 – 14:20	30 min	**Special Questions part 1** -Coronary Anomalies -Valvular heart disease (bicuspid/ MV-Prolapse)	M. Schindler, MD - TBC
	10 min	Discussion	
14:30 – 15:10	40 min	**Special Questions part 2** Athlete's heart vs. cardiomyopathies	C. Lang, MD
	15 min	Discussion	
	20 min	**Break**	
		Practical Part (Training at Patients)	
15:45 – 18:00	135 min	**Practical Echocardiography (à 45 min)** - Case 1: Athlete's heart - Case 2: HCM - Case 3: ACM/A(R)VC	C. Lang, MD F. D´Aszenzi, MD S. Wernhart, MD, PhD
18:00 – 18:15	15 min	Farewell – Dinner afterwards	

II.   Basics of Lactate Testing – 17 July 2025 – Morning

Learning objectives:

- knowing the aims and content of lactate performance diagnostics and to be able to evaluate results using reference values
- understanding the physiological mechanism of aerobic and anaerobic metabolism
- knowing different lactate threshold concepts and to understand differences
- performing lactate performance diagnostics in practice

Target Group:

- Lactate beginners (no to low experience; medical doctors or scientists)

Organisation:

- Martin Halle, MD (Preventive Sports Medicine and Sports Cardiology, Munich, Germany)
- Mario Weichenberger, PhD (Preventive Sports Medicine and Sports Cardiology, Munich, Germany)

Time	Duration	Topic	Speaker
08:30 – 08:35	5 min	Welcome and introduction	M. Halle, MD M. Weichenberger, PhD
Theoretical Part			
08:35 – 08:55	20 min	Methods and basics of endurance performance diagnostics, advantages of lactate performance diagnostics, fields of application	J. Schellenberg, MD, MHBA - TBC
	5 min	Discussion	
09:00 – 09:50	50 min	Energy metabolism and exercise, theoretical basics of lactate metabolism and lactate threshold concepts	K. Röcker, MD -TBC
	10 min	Discussion	
	10 min	Break	
10:10 – 10:40	30 min	Basics and practical implementation of lactate sampling, equipment: ergometers, lactate measurement devices, lactate analysis software	M. Weichenberger, PhD
	10 min	Discussion	
Practical Part			
10:50 – 12:20	90 min	Lactate diagnostics (in groups): Treadmill and bicycle ergometry	J. Schellenberg, MD, MHBA M. Weichenberger, PhD S. Wernhart, MD, PhD M. Halle, MD
	40 min	Lunch and Discussion	

III.   Basics of Cardiopulmonary Exercise Testing – 17 July 2025 - Afternoon

Learning Objectives:

- Understanding the basics of exercise physiology and the physiology behind CPET
- Learning how to conduct and interpret cardiopulmonary exercise testing

Target Group:

- CPET beginners (no to low experience; medical doctors or scientists)

Organisation:

- Stephan Müller, PhD (Preventive Sports Medicine and Sports Cardiology, Munich, Germany)
- Flavio D'Ascenzi, MD (University of Siena, Italy)
- Simon Wernhart, MD, PhD (Preventive Sports Medicine and Sports Cardiology, Munich, Germany)

Time	Duration	Topic	Speaker
13:00 – 13:05	5 min	Welcome and introduction	S. Müller, PhD F. D'Ascenzi, MD S. Wernhart, MD, PhD
Theoretical Part			
13:05 – 13:20	15 min	CPET Equipment (Set-Up and Calibration)	S. Müller, PhD
13:20 – 13:25	5 min	Discussion	
13:25 – 14:15	50 min	Basic Exercise Physiology – CPET made easy	S. Müller, PhD
14:15 – 14:25	10 min	Discussion	
14:25 – 14:40	15 min	Break	
14:40 – 15:00	20 min	Plausibility and measurement errors, Case examples	S. Müller, PhD
15:00 – 15:15	15 min	CPET protocols, criteria for maximal exhaustion, termination criteria	S. Müller, PhD
15:15 – 15:25	10 min	Discussion	
15:25 – 16:10	45 min	Understanding pathological changes in the 9-panel plot	S. Wernhart, MD, PhD
16:10 – 16:20	10 min	Discussion	
16:20 – 16:40	20 min	Exercise Prescription based on CPET	F. D'Ascenzi, MD
16:40 – 16:45	5 min	Discussion	
16:45 – 17:00	10 min	Break	
Practical Demonstration			
17:10-18:00	60 min	Practical demonstration	All
18:00 – 18:15	15 min	Farewell	