



# IOC COURSE ON SPORT CARDIOLOGY: PERIODIC HEALTH EVALUATION, ECG AND IMAGING TESTING IN ATHLETES



**BUENOS AIRES, ARGENTINA  
2-3 NOVEMBER 2015**



**In collaboration with the Argentine Olympic Committee, the Cardiology Sport Committee of the Argentine Society of Cardiology and the Argentine Cardiology Foundation, we are pleased to announce a 2-day IOC Sports Cardiology Course.**

**Course Title:** Periodic Health Evaluation, ECG and Imaging Testing

**Course Dates:** 2<sup>nd</sup> and 3<sup>rd</sup> November 2015

**Venue:** Argentine Olympic Committee Auditorium, Buenos Aires City

**Organisers:** International Olympic Committee, Medical and Scientific Department

**Scientific Programme:** Antonio Pelliccia, Roberto Peidro, Patricia Sangenis.

**Participants:** Sport physicians. Team physicians. Clinical cardiologists.  
Generalist physicians interested in Sport Cardiology.

**Faculty:**

**Prof Antonio Pelliccia, MD**

Chief of Cardiology, Institute of Sport Medicine and Science,  
IOC Medical & Scientific Group member

**Prof Roberto Peidro, MD**

Director Sport Cardiology Committee of the Argentine Society of Cardiology  
Professor of Sport Medicine Postgraduate Course of the University of Buenos Aires and the Catholic Argentine University. Head of Cardiovascular Rehabilitation, Institute of Sport Medicine, "Futbolistas Argentinos Agremiados"

**Prof Patricia Sangenis, MD**

President of the Women and Sport Commission, Argentine Olympic Committee.  
IOC Medical & Scientific Group member

**Prof Diego Perez de Arenasa, MD**

Specialist in cardiology images. Hospital Italiano de Buenos Aires

**Prof. Gustavo Avegliano**

Head of Echocardiography Laboratory, Cardiac Imaging Department.  
Head of Working Group on Hereditary Cardiomyopathies.  
Instituto Cardiovascular de Buenos Aires

**Prof. Alberto Giniger, MD**

Head of the Electrophysiology and Arrhythmias Department, Instituto Cardiovascular de Buenos Aires  
Associate Director of Electrophysiology and Cardiac Stimulation Course of the Argentine Society of Cardiac Stimulation.

Coordinator, Chapter Arrhythmias in athletes, Recommendations for participation in competitive sports for athletes with cardiovascular abnormalities, Argentine Society of Cardiology

**Prof. Jorge Franchella, MD**

Head of the Physical Activity for Health and Sports Programme, Hospital de Clínicas, University of Buenos Aires  
Head of Sports Medicine Postgraduate Course, School of Medicine, University of Buenos Aires.

**With the scientific collaboration of:**

**Prof. Nestor Perez Baliño, MD**

President, Argentine Cardiology Foundation

**Prof. Gustavo Castiello, MD**

Director, Exercise Testing & Cardiovascular Rehabilitation Council, Argentine Society of Cardiology

**Prof. Martín Bruzzese, MD**

Past Director, Exercise Testing & Cardiovascular Rehabilitation Council, Argentine Society of Cardiology



# COURSE TIMETABLE

## Day 1 – Monday 2 November 2015

**08:30 Registration and Accreditation**

**09:30 Welcome and Introduction**

Prof. Lars ENGBRETSEN (IOC Head of Scientific Activities)

### **Session One ECG AND PERIODICAL HEALTH EVALUATION IN ELITE ATHLETES**

**09:20 Eudden death of the athlete. Etiology, mechanisms, prevalence and prevention**  
Roberto PEIDRO

**09:50 ECG in the elite athlete. Introduction. Guidelines and consensus**  
Roberto PEIDRO

**10:20 ECG criteria for Left Ventricular Hypertrophy: athlete's heart and hypertrophic cardiomyopathy**  
Antonio PELLICCIA

**10:40 Negative T waves in an athlete's ECG: indication and interpretation of the imaging testing**  
Antonio PELLICCIA

**11:00 Refreshment Break**

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### **Session Two ECG AND IMAGING TESTING IN THE ATHLETE'S EVALUATION**

**11:30 Right ventricular dysplasia: From suspicion to the images**  
Antonio PELLICCIA (ECG, Echocardiogram)  
Diego PEREZ DE ARENOSA (Cardiac Magnetic Resonance Imaging (CMRI))

**12:10 Left Ventricular Non-compaction: Diagnostic criteria**  
Roberto PEIDRO (Athletes with Hypertrabecular aspect of left ventricular myocardium)  
Gustavo AVEGLIANO (Echocardiogram, CMRI)

**12:50 Lunch**

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### **Session Three ECG SPECIAL FINDINGS IN ELITE ATHLETES**

**14:30 Early repolarisation pattern: benign or malignant?**  
Antonio PELLICCIA

**14:50 ST/T in anterior leads: Brugada like, Right ventricular dysplasia, athlete heart**  
Roberto PEIDRO

### **Session Four VALVULAR DISEASES IN THE ATHLETE. DETECTION AND MANAGEMENT**

**15:10 Differences between a normal and abnormal heart murmur**  
Roberto PEIDRO

**15:30 Bicuspid aortic valve and other valve disease. Diagnostic and prognostic**  
Gustavo AVEGLIANO

**15:50 Mitral valve prolapse**  
Patricia SANGENIS

**16:20 Discussion of clinical cases**  
All



## Day 2 – Tuesday 3 November 2015

### **Session Five** ARRHYTHMIAS IN ATHLETES

- 09:00** Clinical significance of Ventricular Arrhythmias and Ventricular Tachyarrhythmias in elite athletes  
Antonio PELLICCIA
- 09:20** Supraventricular Arrhythmias: symptoms, diagnostic and treatment  
Alberto GINIGER
- 09:40** Evaluation and management of Wolff-Parkinson-White in athletes  
Alberto GINIGER
- 10:00** Bradyarrhythmias and Syncope in the athlete  
Roberto PEIDRO
- 10:20** Discussion: Questions and Answers  
All
- 10:45** *Refreshment Break*
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### **Session Six** EXERCISE TESTING IN ATHLETES

- 11:20** When is exercise testing indicated in the Periodic Health Evaluation?  
Patricia SANGENIS
- 11:40** Abnormal ST/T-wave during exercise  
Antonio PELLICCIA
- 12:00** High Blood Pressure response during exercise  
Roberto PEIDRO
- 12:20** Discussion: Questions and Answers  
All
- 12:50** *Lunch*
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### **Session Seven** THE ATHLETE WITH CARDIOVASCULAR DISEASE. SPECIAL TOPICS

- 14:30** Atherosclerotic heart disease  
Roberto PEIDRO
- 14:50** Long QT and Brugada syndrome  
Alberto GINIGER
- 15:10** Asymptomatic congenital heart defects  
Roberto PEIDRO
- 15:30** Chagas Disease  
Jorge FRANHELLA
- 15:50** The heart of the female athlete  
Patricia SANGENIS

***CLOSING AND DELIVERY OF CERTIFICATES  
OF PROFICIENCY TO THE ATTENDEES***

**PROF. LARS ENGBRETSSEN**



## Aim

This educational course aims to provide the NOC team physicians with the most up-to-date academic and practical information for appropriate investigation(s) and the interpretation of diagnostic examinations associated with the athlete's heart, and diagnostic criteria of cardiac conditions that may predispose an athlete to sudden cardiac death.

## Objectives

To provide the examining physicians with the means for learning the appropriate indication and interpretation of the ECG tests on athletes, and indication and interpretation of the imaging testing in the context of Periodic Health Evaluation in elite athletes.

## Learning Objectives

At the end of this course, the participants will be able to:

1. Outline the cardiovascular adaptation that occurs with regular and intensive exercise, including the impact of age, gender, ethnicity and sporting discipline upon such adaptation.
2. Discuss the physiological adaptation associated with an athlete's heart vs. the pathological abnormalities associated with inherited cardiac disease on a resting 12-Lead ECG and the imaging modalities.
3. Competently conduct a cardiovascular screening examination to identify athletes at risk of adverse cardiovascular events.
4. Evaluate and conduct appropriate risk stratification of athletes diagnosed with (possible) cardiac disease.

## Course Cost

This two-day workshop is **free of charge**.

## Course Entry

Limited to 30 places. Participants wishing to attend this two-day workshop are requested to send their CV and a letter (<400 words) outlining how their attending this workshop will protect the health of athletes to:

Roberto Peidro: [rpeidro009@hotmail.com](mailto:rpeidro009@hotmail.com)

Patricia Sangenis: [psangenis@fibertel.com.ar](mailto:psangenis@fibertel.com.ar)

**Priority will be given to NOC team physicians from developing countries currently working with Olympic and/or international athletes.**

## Accommodation

Buenos Aires City has a big range of hotels and accommodation options.

We advise you to contact:

Biblos Travel, María Inés Semmartin, Account Executive

[msemmartin@biblostravel.com](mailto:msemmartin@biblostravel.com) | [www.biblostravel.com](http://www.biblostravel.com)

Tel: +5411 5031-7777 Extension 7718

Below are some hotels near the Auditorium hosting the Course:

5 * Hotels	<a href="#">Sofitel Hotel</a>	841 Arroyo Street
	<a href="#">Sheraton Hotel</a>	1235 San Martin Street.
4* Hotels	<a href="#">Aires de Recoleta</a>	1980 Guido Street
	<a href="#">Marseille des Anges</a>	1394 Arenales Street
3* Hotels	<a href="#">Bel Air Hotel</a>	1462 Arenales Street
	<a href="#">NH Crillon</a>	796 Santa Fe Av.



## Background information

We encourage all successful applicants to make use of the free online learning resources before arriving in Buenos Aires:

- Ljungqvist A, Jenoure P, Engebretsen L, Alonso JM, Bahr R, Clough A, De Bondt G, Dvorak J, Maloley R, Matheson G, Meeuwisse W, Meijboom E, Mountjoy M, Pelliccia A, Schwellnus M, Sprumont D, Schamasch P, Gauthier JB, Dubi C, Stupp H, Thill C. The International Olympic Committee (IOC) Consensus Statement on periodic health evaluation of elite athletes March 2009. *Br J Sports Med.* 2009 Sep; 43(9):631-43.
- <http://learning.bmj.com/ECGathlete>
- Caselli S, Maron MS, Urbano-Moral JA, Pandian NG, Maron BJ, Pelliccia A. Differentiating left ventricular hypertrophy in athletes from that in patients with hypertrophic cardiomyopathy. *Am J Cardiol.* 2014 Nov 1;114(9):1383-9. doi: 10.1016/j.amjcard.2014.07.070. Epub 2014 Aug 12. PubMed PMID: 25217454
- Quattrini FM, Pelliccia A, Assorgi R, DiPaolo FM, Squeo MR, Culasso F, Castelli V, Link MS, Maron BJ. Benign clinical significance of J-wave pattern (early repolarization) in highly trained athletes. *Heart Rhythm.* 2014 Nov;11(11):1974-82. doi: 10.1016/j.hrthm.2014.07.042. Epub 2014 Aug 1. PubMed PMID: 25092400.
- Biffi A, Maron BJ, Culasso F, Verdile L, Fernando F, Di Giacinto B, Di Paolo FM, Spataro A, Delise P, Pelliccia A. Patterns of ventricular tachyarrhythmias associated with training, deconditioning and retraining in elite athletes without cardiovascular abnormalities. *Am J Cardiol.* 2011 Mar 1;107(5):697-703. PubMed PMID: 21316505
- Interpretation of the electrocardiogram of young athletes.
- Uberoi A, Stein R, Perez MV, Freeman J, Wheeler M, Dewey F, Peidro R, Hadley D, Drezner J, Sharma S, Pelliccia A, Corrado D, Niebauer J, Estes NA 3rd, Ashley E, Froelicher V. *Circulation.* 2011 9;124(6):746-57. PubMed PMID: 21824936
- Peidro R, Froelicher V, Stein R. Pre-participation screening of the young athlete: is this the time for an agreement? *Arq Bras Cardiol.* 2011 Mar;96(3):e50-2. PubMed PMID: 21484067 Recommendations for interpretation of 12-lead electrocardiogram in the athlete.
- Corrado D, Pelliccia A, Heidbuchel H, Sharma S, Link M, Basso C, Biffi A, Buja G, Delise P, Gussac I, Anastasakis A, Borjesson M, Bjørnstad HH, Carrè F, Deligiannis A, Dugmore D, Fagard R, Hoogsteen J, Mellwig KP, Panhuyzen-Goedkoop N, Solberg E, Vanhees L, Drezner J, Estes NA 3rd, Illiceto S, Maron BJ, Peidro R, Schwartz PJ, Stein R, Thiene G, Zeppilli P, McKenna WJ; Section of Sports Cardiology, European Association of Cardiovascular Prevention and Rehabilitation. *Eur Heart J.* 2010 Jan;31(2):243-59. PubMed PMID: 19933514

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