Safe Sport: The Pre-Participation Examination

Katharina Grimm, MD, MSc(Med)
“I know nothing about the subject, but I’m happy to give you my expert opinion.”
Pre-Participation Examination (PPE)

- IPC requirements;
- IOC Consensus statement;
  - Objectives of PPE
  - Requirements for PPE;
- Three approaches to PPE:
  - sports governing body,
  - national law,
  - sports medicine centre;
- Conclusion.
Fitness to practice a sport

46. Prior to engaging in competitive sport, and preferably with regular intervals throughout their athletic career, athletes should undergo pre-participation evaluation....
Pubmed search PPE / PCMA and paralympic / disabled / physically-challenged:


• Several articles on oral health.

• Madorsky JG, Curtis KA. Wheelchair sports medicine. AJSM. 1984.

The International Olympic Committee (IOC) Consensus Statement on Periodic Health Evaluation of Elite Athletes


Objectives

• Ensure current health problems are managed appropriately;
• Determine athlete is **medically suitable** to engage in particular sport;
• Detect **silent conditions** that are not severe but may influence performance;
• Opportunity to **establish relationship** with medical team.
Objectives

- Identify characteristics that put athlete at risk for future injury or disease.
  - **Cardiac pathology** predisposing for Sudden Cardiac Death: Evidence for effectiveness of PPE in Veneto region, best method no consensus internationally (ECG, echocardiography);
  - **Injury prevention**: currently no evidence (apart from identifying previous injury and ensuring complete rehabilitation) for effectiveness of PPE.
Requirements

• Performed in primary interest of the athlete.
• Under responsibility of sports medicine physician.
• Free and informed consent of athlete and, if applicable, guardian.
• If PPE identifies serious medical risk, the physician must strongly discourage athlete from participation.
• Based on advice, ultimately athlete’s decision.
Requirements

- Nature and scope should take into account individual factors, such as the geographical region, sport discipline, level of competition, age, gender;
  Specific / individualised approach needed.

- Setting of evaluation should be chosen to optimise the accuracy of the examination and respect privacy of athlete.
  Implementation experience to increase knowledge base for Paralympians?
International Federation: FIFA PCMA

- Competition and medical history, physical exam.
- Focus on detection of risk factors for SCD;
  - Heart rate, blood pressure at rest,
  - 12-lead resting ECG,
  - Echocardiography;
- Blood parameters;
- Musculoskeletal part;
- Eligibility.
FIFA Pre-Competition Medical Assessment

- 2006 FIFA World Cup Germany™: 598 players;
- 2010 FIFA World Cup South Africa™: 736 players;
- FIFA Women’s World Cup 2007: 11 of 16 teams; 231 players
- U-20 WWC 2010: 16 of 16 teams, 336 players
- U-17 WWC 2010: 14 of 16 teams, 294 players

2355 players examined and documented.

Recommendation only, not mandatory, and no funding provided.

- All levels of play, including female youth and member associations worldwide.
- Developing countries highest compliance and quality.
- Legal implications for International Federation, Member Association.
Conclusion for football: Worldwide screening is possible...

Decision of FIFA Executive Committee: PCMA mandatory
National law requirement: Italy

• Since 1982, every subject engaged in competitive sports must undergo clinical evaluation;

• Medical history, physical examination, 12-lead resting ECG and after exercise (step test);

• 6 Mill athletes, 2 Mill elite athletes;

• 2% of athletes are not cleared for competition: 70% cardiovascular disease.
Reduction in SCDs in young athletes in Veneto region (1979-2004)

Corrado et al. JAMA 2006.
National law requirement: Italy

Personal information from Prof. Antonio Pelliccia*

- >300 Paralympic athletes (2008-2010);
- Medical history and physical examination;
- 12-lead resting ECG;
- Exercise stress testing (arm ergometer 10 Watt increment per minute to exhaustion);
- Echocardiography;
- Orthopaedic, neurological, psychiatric, ophthalmological, ENT, nutritional assessment etc.

*Unpublished data.
National law requirement: Italy

About 10% of athletes cardiovascular abnormality
- Systemic hypertension,
- Vascular disease,
- Arrhythmias,
- Cardiomyopathy.

Higher prevalence than in Olympic athletes.

More attention to PPE in Paralympians needed.
Sports Medicine Clinic: Aspetar

• All athletes in Qatar are screened at Aspetar (approx. 2500-3000 per year).
• Sports Cardiology project (ethnicity, echocardiography);
• Sports dentistry, blood test, biomechanical.
• Sports-specific screening initiatives, e.g. football;
• Disabled athletes: small subpopulation.
Aspetar disabled athlete screening

Between November 2010 and September 2013:

- 2276 disabled athletes*, mostly visually impaired, cerebral palsy, para- or tetraplegic;
- 1245 Arabic, 686 black African, 345 Caucasian;
- Cardiac testing on wheelchair treadmill initially, later arm bike;
- 10 athletes (0.4%) with underlying cardiovascular pathology related to Sudden Cardiac Death
  - 7 Hypertrophic cardiomyopathy (HCM)
  - 3 Wolff-Parkinson-White Syndrome (ablated, returned to sports after restitution period).

* >6 hours training per week
Aspetar Paralympic athlete screening

40 male athletes*

- No abnormal ECGs;
- **4 abnormal echocardiography** (1 blood-pressure related LVH; 1 diastolic dysfunction; 1 dilated aorta; 1 significant aortic regurgitation) → 10%
- 4 hypertension;
- 4 chest pain;
- 3 palpitations;
- 12 abnormal lipid profile;
- 3 dizzy (both at rest and during exercise);
- 2 with an audible murmur;
- 1 syncopal episode.

* >6 hours training per week
Conclusions

- IPC requirement;
- No evidence base or best-practice;
- Individualised approach;
- Increasing knowledge on injury and illness profile;
- Indications are for potentially higher cardiovascular risk;
- Safe participation prerequisite to enable promotion and maximum benefit from health effects.
The International Paralympic Committee (IPC)
Consensus Statement on Periodic Health Evaluation of Elite Paralympic Athletes

www.paralympic.org/sites/…
THANK YOU!