Sudden death less likely in exercise related cardiac arrests

a report from the AmsteRdam REsuscitation STudies (ARREST)

ESC Congress Munich August 26 2012

Arend Mosterd

Jocelyn Berdowski, Margriet F. De Beus, Abdenassar Bardai, Michiel L. Bots, Pieter A. Doevendans, Diederick E. Grobbee, Hanno L. Tan, Jan GP. Tijssen, Ruud W. Koster

Conflict of interest: None

This study was supported by a grant from Physio Control Inc., Redmond WA, USA. De Beus had an unrestricted grant from the University Medical Center Utrecht, Utrecht, The Netherlands. Bardai was supported by the Netherlands Organization for Scientific Research (NWO, grant Mozaïek 017.003.084). Tan was supported by the Netherlands Organization for Scientific Research (NWO, grant ZonMW-Vici 918.86.616) and the Dutch Medicines Evaluation Board

Exercise related cardiac arrest

- Regular exercise promotes cardiovascular health
- Cardiac arrests in athletes are dramatic, high profile events

- Prospective ARREST database of out of hospital arrests:
  - How many exercise related cardiac arrests occur?
  - What is the prognosis of the victims?

Exercise related cardiac arrest

Greater Amsterdam area (2.4 million inhabitants) 2006 -2009

- 145 (5.8%) of 2.517 arrests are exercise related:
  - Cycling (49), tennis (22), the gym (16), swimming (13), other (45)
  - Only 10 in women, only 7 in persons < 35 years
  - 48 exercise related cardiac arrests/year (i.e. 2/100.000 persons)

- Survival following out of hospital cardiac arrest:
  - 45% (exercise related) vs 15% (non-exercise related) arrest

Exercise related cardiac arrest
Characteristics of the victims

	Exercise related	Non exercise related
	(N=145)	(N=2372)
Mean age in years	58.8 ± 13.6	65.5 ± 15.8
Men	93.1%	71.9%
Public location	99.3%	25.3%
Bystander witnessed arrest	89.0%	75.7%
Bystander CPR initiated	86.2%	64.4%
AED use	35.2%	22.2%

- Taking all these factors into account:
  - exercise related cardiac arrest 57% better survival

Take home messages

- Exercise related cardiac arrests are uncommon
- Almost half of victims of exercise related arrests survive
- Bystander resuscitation is the key to survival

- Supporting evidence from France:
  - Overall 16% survival after exercise related cardiac arrest
  - But 50% in regions with high rates of bystander resuscitation

Marijon E. et al. Circulation 2011;124(6):672-81