

SUPPLEMENTAL MATERIAL

Table S1. Prevalence of athletes and sedentary controls showing >10 isolated premature ventricular beats or ≥1 complex ventricular arrhythmias according to sex and age class.

		Athletes	Sedentary control
Female sex	≤25 y.o.	2/62 (3%)	2/31 (6%)
	> 25 y.o.	5/24 (21%)	2/12 (17%)
Male sex	≤ 25 y.o.	9/134 (7%)	5/67 (7%)
	> 25 y.o.	12/68 (17%)	7/34 (21%)

Table S2. Comparison between the burden of ventricular arrhythmias at 24-hours 12-leads ambulatory ECG monitoring in athletes and controls with and without a history of palpitations.

	Athletes		Sedentary controls	
	History of palpitations (N=7)	No history of palpitations (N=281)	History of palpitations (N=12)	No history of palpitations (N=132)
No PVBs	3 (43%)	115 (41%)	9 (75%)	79 (60%)
1-10 isolated PVBs	3 (43%)	139 (49%)	3 (25%)	38 (29%)
11-100 isolated PVBs	0	2 (1%)	0	3 (2%)
> 100 isolated PVBs	0	10 (4%)	0	5 (4%)
≥1 couplet or triplet	1 (14%)	9 (3%)	0	5 (4%)
≥1 run (≥4 beats)	0	6 (2%)	0	3 (2%)
<i>P</i> value	0.65		0.84	

Table S3. Ventricular arrhythmias grading and prevalent morphology in the subgroup of 28 athletes with >10 isolated PVBs/hour or ≥1 complex VA according to sex.

	Females N=7	Males N=21	p
VA grading			
11-100 isolated PVBs	1 (14%)	1 (5%)	0.26
> isolated PVBs	2 (29%)	8 (38%)	
Couplets or triplets	1 (14%)	9 (43%)	
Non-sustained VT	3 (43%)	3 (14%)	
VA morphology			
Outflow tract	3 (43%)	8 (38%)	0.48
Fascicular	1 (14%)	3 (14%)	
LBBB and intermediate or superior axis	2 (29%)	4 (19%)	
RBBB QRS duration >130 ms.	1 (14%)	4 (19%)	
Polymorphic	0	2 (10%)	

PVBs=premature ventricular beats; LBBB=left bundle branch block; RBBB=right bundle branch block; VA=ventricular arrhythmias

Table S4. Summary of previous studies comparing the burden of ventricular arrhythmias in athletes and sedentary controls.

Reference	N. athletes/ controls	Type of athletes	Prevalence of arrhythmias	Imaging for underlying heart disease
Viitasalo, Br Heart J 1982¹	35/35	Young endurance (23±6 y.o.)	29% athletes versus 31% controls had rare isolated PVBs (p=0.79); 6% athletes versus 11% controls had frequent PVBs or complex VA (p=0.67)	N/A
Viitasalo, Eur Heart J suppl 1984²	35/35	Teenager athletes (14-16 y.o.)	60% of athletes versus 57% of controls had at least 1 PVB (p=0.80)	N/A
Talan, Chest 1982³	20/50	Young (19-29 y.o.) long-distance runners	70% of athletes versus 50% of controls had ≥1 PVB (p=0.13) 10% of athletes versus 6% of controls had >50 PVBs or complex VA (p=1.0)	N/A
Pilcher, Am J cardiol 1983⁴	80/0	Young (mean 30 y.o.) runners	50% athletes at least 1 PVB, 7.5% >50/die, 4% repetitive	N/A
Palatini, Am Heart J 1985⁵	40/40	Young endurance (20±7 y.o.)	70% of athletes versus 55% of controls had ≥1 PVB (p=0.17) 13% athletes vs 0% controls had >30 PVBs or complex VA (p=0.12)	Echocardiography: negative in all
Bjornstad, Cardiology 1994⁶	60/30	Young	No differences between cases and controls in rare PVBs. No complex forms.	N/A

y.o.= year-old; PVB=premature ventricular beats; VA=ventricular arrhythmias. Complex VA are defined as couplets, triplets or NSVT

Supplemental References:

1. Viitasalo MT, Kala R, Eisalo A. Ambulatory electrocardiographic recording in endurance athletes. *Br Heart J*. 1982;47:213-220.
2. Viitasalo MT, Kala R, Eisalo A. Ambulatory electrocardiographic findings in young athletes between 14 and 16 years of age. *Eur Heart J*. 1984;5:2-6.
3. Talan DA, Bauernfeind RA, Ashley WW, Kanakis C, Jr., Rosen KM. Twenty-four hour continuous ecg recordings in long-distance runners. *Chest*. 1982;82:19-24.
4. Pilcher GF, Cook AJ, Johnston BL, Fletcher GF. Twenty-four-hour continuous electrocardiography during exercise and free activity in 80 apparently healthy runners. *Am J Cardiol*. 1983;52:859-861.
5. Palatini P, Maraglino G, Sperti G, Calzavara A, Libardoni M, Pessina AC, Dal Palu C. Prevalence and possible mechanisms of ventricular arrhythmias in athletes. *Am Heart J*. 1985;110:560-567.
6. Bjornstad H, Storstein L, Meen HD, Hals O. Ambulatory electrocardiographic findings in top athletes, athletic students and control subjects. *Cardiology*. 1994;84:42-50.