



## ENDOTHELIAL PROGENITOR CELLS MOBILIZATION IS INCREASED AMONG HIGH-PERFORMANCE ATHLETES

ACC Poster Contributions

Ernest N. Morial Convention Center, Hall F

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**Background:** Physical exercise is recommended to prevent cardiovascular disease. Exercise stimulates the release of endothelial progenitor cells (EPC) from the bone marrow, improving the turnover of the endothelium. However, high-performance runners (HPR) have been less studied. We aimed to quantify the number of EPC and microparticles (MP) in HPR and compared with a control group.

**Methods:** HPR subjects (n=16), defined on basis of time to perform a 10-km race, were compared with sedentary controls (n=40), matched for age and gender. Quantification of EPC (CD34+/CD133+/KDR+), counts of endothelial-derived (E) MP (CD31+/CD51+) and platelet-derived (P) MP (CD31+/CD42+) per mL of plasma were performed by flow-citometry. Flow-mediated dilation and carotid intima media thickness (cIMT) were evaluated.

**Results:** Mean time for performing 10-km race was 31 min and 40 sec for men and 37 min and 37 sec for women in the HPR group, and they ran an average of 132 km/week. HPR presented higher HDL-C ( $p<0.0001$ ), lower values for body mass index ( $p<0.0001$ ), LDL-C ( $p=0.0001$ ), triglycerides, apo B ( $p<0.0001$ ), and high-sensitivity C-reactive protein ( $p=0.025$ ). We observed a trend to higher number of EMP in HPR ( $p=0.088$ ), without differences in PMP. There was an increase in all subpopulations of EPC in HPR (Table 1). FMD (SD) was increased in HPR [30 (12)% vs. 16 (10)%,  $p<0.0001$ ], without differences in cIMT.

Table 1. Distribution of EPC subpopulations in HPR and controls

Group	HPR	SD	CONT	SD	p-value
CD34+/KDR+	0.42	0.34	0.08	0.03	0.05
CD34+/CD133+	0.07	0.02	0.01	0.01	0.002
KDR+/CD133+	0.29	0.06	0.05	0.01	<0.0001

**Conclusions:** High-performance exercise is related to increased EPC mobilization and to vascular health.