



## Conference Abstract

# P.33 Changes in Blood Pressure, Pulse Wave Velocity and Augmentation Index Induced by Postural Changes and Exercise

Enrique Rodilla<sup>1,\*</sup>, José Chordá<sup>2</sup>, Andrea Gea<sup>3</sup>, Jose Antonio Costa<sup>1</sup>

<sup>1</sup>Hospital Universitario de Sagunto, Universidad Cardenal Herrera-CEU, CEU Universities

<sup>2</sup>Hospital General de Valencia, Universidad Cardenal Herrera-CEU, CEU Universities

<sup>3</sup>Universidad Cardenal Herrera-CEU, CEU Universities

### Keywords

Pulse-wave-velocity  
augmentation-index  
exercise  
postural-changes

### ABSTRACT

**Objectives:** To determine how orthostatic changes in body position alter BP and estimation of pulse wave velocity (PWV) and Augmentation Index (AIx), when changing from supine to the sitting position [1]. Also, to analyze the effect of a short physical exercise and of physical training status on PWV/AIx in supine and sitting position.

**Methods:** Cross-sectional, observational study in 63 voluntary healthy students. Age, height, weight, waist and smoking habits were assessed. We estimated peripheral and central BP, AIx and PWV (brachial oscillometry, AGEDIO, IEM®, Stollberg) after 5' in supine position (SUP), then after 30'' in sitting (SIT) and again in sitting position after 25 squats in 30'' (EXE). A validated questionnaire (Vital sign, <https://www.seh-lelha.org/wp-content/uploads/2017/03/GuiaEjercicioRCV.pdf>) was implemented to assess chronic physical condition (CPC).

**Results:** 52, 4% were women, mean age was 23.2 years. Systolic, diastolic and median BP rose from 115/67/89 (SUP) to 118/72/93 (SIT) and to 122/67/93 (EXE) mmHg ( $p < 0.001$  for all comparisons to SUP), PWV was 4.9 (SUP), 4.9 (SIT) and 5.0 (EXE) m/s, with no significant difference. Variables associated with PWV were central BP ( $p < 0.001$ ), age ( $p < 0.001$ ), gender ( $p < 0.001$ ) and AIx ( $p = 0.04$ ), but not CPC. Predictors of AIx were heart rate ( $p = 0.003$ ), BMI ( $p = 0.03$ ) and CPC ( $p = 0.03$ ). The latter became more significant in the transition from SUP over SIT to EXE ( $R^2$  of multivariate analysis 0.23, 0.55 and 0.68, respectively).

**Conclusions:** Although peripheral BP significantly changed from supine, sitting and post-exercise sitting, PWV remained constant. Chronic physical condition did not affect PWV, but was associated with wave reflection.

### REFERENCE

- [1] Avolio A, Parati G. Reflecting on posture. *J Hypertens* 2011;29:655–7.

© 2020 Association for Research into Arterial Structure and Physiology. Publishing services by Atlantis Press International B.V.  
This is an open access article distributed under the CC BY-NC 4.0 license (<http://creativecommons.org/licenses/by-nc/4.0/>).