BOOK OF ABSTRACTS

29th Annual Congress of the

EUROPEAN COLLEGE OF SPORT SCIENCE

2 - 5 July 2024, Glasgow - Scotland, UK

Hosted by the University of the West of Scotland

Edited by: Davison, R.C.R., Tsolakidis, E., Thompson, J.L., Ferrauti, A., Piacentini, M.F.

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RESULTS: IDE significantly reduced the number of RWMAs during HD-EX compared to HD-CONT (estimated difference: 1.1segment, 95%CI: 0.33/1.90, p=0.009). There was a base-to-apex benefits gradient of IDE with the greatest reduction in RWMAs observed at the apex during HD-EX when compared to HD-CONT. Overweight patients had a decrease in RWMAs during HD-EX compared to HD-CONT (HD-CONT: 7.1±3segments, HD-EX: 5.3±3segments; p<0.001) whereas we observed no significant difference for normoponderal patients (HD-CONT: 6.5±3.5segments, HD-EX: 6.2±3.5segments; p=0.99).

CONCLUSION: We confirm that IDE limits the myocardial stunning induced by HD. Using a regional analysis for the first time in the literature, we exposed a reduction in the number of RWMAs occurring during HD-EX compared to a standard session with greater benefits observed at the apical level. The most relevant clinical characteristic related to the decreased myocardial stunning induced by IDE was the ponderal status of patients. Overweight individuals presented a greater decrease in RWMAs compared to normoponderal patients.

Further studies are needed to fully elucidate the mechanisms underlying the benefits of IDE on the regional myocardial function and better identify the clinical factors that determine the degree of cardioprotection.

KEEP HYPERTENSION "OUTDOOR" FROM YOUR CARDIOVASCULAR HEALTH

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INTRODUCTION: Hypertension is the primary risk factor for global mortality. Physical activity (PA) has been established as an effective treatment for hypertension, leading to reductions in Systolic BP (sBP), a response known as Post-Exercise Hypotension (PEH). Although gym-based exercise is the most common form of PA, there has been a growing trend towards outdoor activities. Considering the limited research on its benefits, this study aims to compare the sBP response and the PEH following indoor (laboratory) and outdoor activities.

METHODS: 11 subjects (age:24.3±1.1 years; BMI: 23.5±2.6 kg/m2) completed an outdoor activities on a selected hike and participated in a laboratory-based treadmill test, incorporating both uphill and downhill walking. During the laboratory test, subjects self-selected their speed to replicate their pace from the outdoor activities. The initial 2-min stage was set at 0% grade. The grade then increased by 2% at each 2-min stage during the uphill phase until subjects reached 95% of their estimated maximum heart rate (HRmax) or volitional fatigue, followed by a decrease of 2% at each 2-min stage during the downhill phase until it returned to 0% grade. During both sessions, sBP was measured 15-min before (PRE) and 30-min after (POST). Means (M) and standard deviations of PRE and POST sBP, along with PEH (difference between PRE and POST sBP measurements), were determined. Repeated measures mixed models assessed the effects on sBP, treating subjects as a random effect and measurement times (PRE and POST) as fixed effects. Paired t-tests compared PEH between field and laboratory settings, with statistical significance set at p<0.05.

RESULTS: Significant reductions were observed in the field session (length: ~3800m, max slope: 19%, M slope: 5.3%, M duration: 41:86min, M HRmax: 84%) between PRE (127.8 ± 7.8 mmHg) and POST (110.2 ± 8.6 mmHg) sBP measurements, resulting in a PEH of 17.6±6.7mmHg (p<0.001), and in the laboratory session (length: ~2800m, max slope: 25%, M slope: 8.1%, M duration: 40:00min, M HRmax: 92%) between PRE (124.5±8.6mmHg) and POST (106.1±6.4mmHg) sBP measurements, resulting in a PEH of 18.4±10.7mmHg (p<0.001). No significant (p=0.80) differences in PEH (M difference: 0.9 ± 11.3 mmHg) were found between the sessions.

CONCLUSION: Our findings align with the existing literature, confirming the positive effect of PA on reducing BP. These results suggest that the beneficial effects of PA on sBP could be replicated, and potentially even enhanced, by exercising in outdoor environments. This enhancement is linked to subjects achieving a lower internal load during outdoor activities, suggesting a stronger cardiovascular protective effect, even with similar exercise characteristics. Outdoor activities replicate traditional PA benefits and provide a potentially more sustainable and beneficial approach to improving overall health by reducing cardiovascular stress.

IS IT MORE TIRING TO CARRY OUT RESUSCITATION PROCEDURES WITH THE PATIENTS BED AT A HEIGHT OF 80 CM OR 42 CM?

MORGADO, J.P., BHUDARALLY, M.1, FEBRA, C.2, ATALAIA, T.3, PEREIRA, H.1,2, GUERRA, J.3, PALMEIRA, A.1, ALEIXO, P.1

1- CIDEFES -UNIVERSIDADE LUSÓFONA 2- HOSPITAL DA LUZ, LISBOA, PORTUGAL 3- ESCOLA SUPERIOR DE SAÚDE DA CRUZ VERMELHA PORTUGUESA LISBOA, PORTUGAL

INTRODUCTION: The guidelines of the American Heart Association and the European Resuscitation Council (ERC) (Perkins et al., 2021) for improving Cardiopulmonary Resuscitation (CPR) procedures applied to cases of cardiopulmonary arrest have recently been updated. During these procedures, chest compressions (CT) are essential to maintain continuous blood supply to the heart and brain (Chi et al., 2008). Depending on the clinical scenario, a resuscitator can perform CPR kneeling (patient on the floor outside the hospital setting) or standing (with or without a stool, with the patient on a bed in an emergency unit).

Kinematic analysis of the resuscitated patient in two situations with different bed heights (63 cm and 37 cm) revealed that there were no differences in the compression forces and their depths (Chi et al., 2008) compared. On the other hand, another study (Parent-Nichols et al., 2021) also analysed the effects of bed height on the resuscitators kinematics during standing CPR.