

Preconception physical activity should be continued during pregnancy in women at risk for gestational hypertensive disorders

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Objective. To evaluate the long-standing effect of preconception physical activity on the cardiovascular functions of women at risk for gestational hypertensive disorders (GHD) in their first trimester of pregnancy.

Materials and Methods. A non-invasive haemodynamics assessment of arteries, veins, and heart was performed on 26 women at risk for developing GHD at three different time points: 1) preconception (baseline), 2) preconception following the advice of performing physical activity (30-50 min, 3x/week) for a period of 4-6 months, 3) at approximately 12 weeks of gestation in the subsequent pregnancy. Measurements of electrocardiogram Doppler ultrasound, impedance cardiography, and bio-impedance spectrum analysis were compared using the two-sided paired Student's t-test or the Wilcoxon signed-rank test, depending on the normality of the data.

Results. At baseline, 57.7% (15/26) of the total study population showed an aberrant cardiac output (CO), being either too low (n = 9) or too high (n = 6) (< P25 or > P75 resp.). After physical activity, in 40% (6/15) of these women, a shift in CO was observed towards the normal reference interquartile range (P25-P50). However, the beneficial effect of preconception physical activity on CO was only maintained in 2 women at the first-trimester measurement, with both being initially categorized in the high CO group at baseline.

Conclusions. Preconception physical activity improves CO in women with an aberrant cardiovascular profile who are at risk for developing GHD. However, since this is not a permanent feature, it is essential that these women continue to exercise during pregnancy in order to maintain a more gestation-adaptable cardiovascular system.