Effects of preeclampsia and peripheral oedema on skeletal muscle oxygenation
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Objective
Skeletal muscle tissue oxygenation (StO2) can be assessed by near-infrared spectroscopy (NIRS). Our goals were to determine the changes of skeletal StO2 of pregnant women and the difference of skeletal muscle StO2 between healthy pregnant women and women developing preeclampsia. The effects of peripheral oedema on skeletal muscle StO2 were also assessed.

Methods
The thenar skeletal muscle tissue oxygenation was measured by near-infrared spectroscopy (25 mm probe, Inspectra 325, Hutchinson, USA) during 5 consecutive prenatal visits during pregnancy (at 3, 5,..months). Vascular occlusion test was performed at each office visit, allowing us to determine the basal StO2, deceleration slope after vascular occlusion (i.e. deoxygenation rate), and maximal StO2 after reperfusion.

Results
243 pregnant women, mean age 28±5 years, were studied. Basal StO2, deceleration slope and maximal StO2 were 75±7%, 19±7 %/min and 91±9%, respectively. There were no statistically important changes of NIRS skeletal muscle variables during pregnancy. 5 women developed preeclampsia. There were no statistically important difference in skeletal muscle oxygenation between women with and without preeclampsia, however the statistical power was not high enough to make definitive conclusion. Peripheral oedema decreased basal StO2 compared to non oedematous conditions (72%, 95CI: 70-76% vs. 76%, 95CI: 75-77%, p=0.02).

Conclusion
Skeletal muscle StO2 in basal conditions, deoxygenation rate and maximal StO2 have not changed significantly during pregnancy. Peripheral oedema decreases basal StO2. The low prevalence of preeclampsia in our population did not allow us to make definitive conclusions about changes of StO2 during preeclampsia. Peripheral oedema decreases basal StO2.