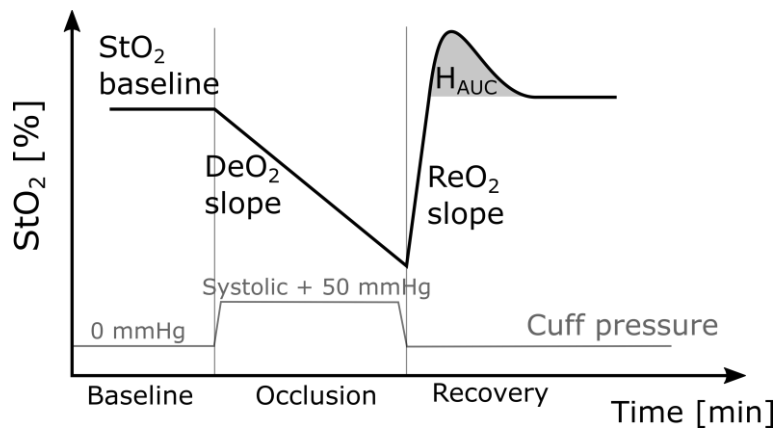**Additional file 1**

VOT variables calculation

StO$_2$ [%]: Directly measured by the NIRS device

THC [μM/L]: Directly measured by the NIRS device

DeO$_2$ [%/min]: The deoxygenation slope has been calculated by linearly fitting the curve StO$_2$ [%] vs. Time [min] from the instant the occlusion started up to one minute after the occlusion started

ReO$_2$ [%]: The reoxygenation slope has been calculated by linearly fitting the curve StO$_2$ [%] vs. Time [min] from the instant the occlusion ended up to the instant the saturation reached the baseline value.

H$_{AUC}$ [%·min]: The hyperemic response has been calculated as the area defined by the hyperemic peak and the recovery baseline StO$_2$ level