# A8

ORAL PRESENTATION TIME: 1112 - 1124
POSTER PRESENTATION TIME: 1130 - 1200
RESIDENT COMPETITION: NO

## BODY FAT DOES NOT INFLUENCE VENOUS BUBBLE FORMATION AFTER AIR DIVES: NITROGEN-LOAD MODELS AND EXPERIMENTS

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**INTRODUCTION/BACKGROUND**: Ever since Haldane, one thinks that more body fat (BF) increases VGE since more $N_2$ dissolves during the dive. Because in general, multicollinearity between age, BF, and $VO_{2max}$ was not taken into account, studies on the effect of BF in DCS-risk and VGE show inconsistencies. For a 40min/3.1bar(a) profile $N_2$ tensions and loads were calculated, using a novel model with 8 parallel Bühlmann compartments, preceded by a blood compartment in series. Outcomes were checked indirectly in a simulated dive (40min/3.1bar(a)).

**MATERIALS AND METHODS**: Of 53 male divers with a small range in age and $VO_{2max}$ to minimize multicollinearity, a novelty, precordial Doppler KM scores were determined at 40, 80, 120, and 160 min after surfacing to calculate KISS values and log{# bubbles/$cm^2$} (logB).

RESULTS: Compared to Haldanian models, this model showed a substantial delay in $N_2$ uptake and (particularly) release. One hour after surfacing, a diver with 2x more BF (reference 14%) gave a whole body increase of the $N_2$ load of 51%, but only 15% increase in the blood compartment. This would result in an increase in bubble grade of only 0.01 KM unit at the scale near KM=I–. The outcomes hold for substantial changes in halftimes, compartment volumes and profiles (also saturation). The highest of the four scores per subject yielded a mean logB=–1.78, equivalent to KM=I–. All statistical outcomes of partial correlations with BF were highly non-significant, supporting the model.

**SUMMARY/CONCLUSIONS**: The model practically shows no dependency on BF, irrespective profile and model parameters. This and previous work (Schellart et al., ASEM, 2012) suggest that BF does not influence VGE. In contrast to age and $VO_{2max}$, it is doubtful whether BF should remain a basic DCS-risk factor in the medical examination or should become only a clue. (Schellart et al., JAP 2013, doi:10.1152/japplphysiol.00949.2012.

# A9

POSTER PRESENTATION TIME: 1130 - 1200
RESIDENT COMPETITION: NO

## ISOPROSTANES IN BLOOD PLASMA AND IN THE EXHALED BREATH CONDENSATE (EBC) AFTER 30 MINUTES BREATHING 280 KPA(A) OXYGEN – PILOT STUDY

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**INTRODUCTION:** Isoprostanes are products of free radical-catalyzed lipid peroxidation of arachidonic acid. Plasma levels of metabolites of 8-iso-prostaglandin-F2alpha (8-iso-PGF2alpha) are reliable markers of oxidative stress. The purpose of this study was to investigate whether the oxidative stress during 30 min of breathing 100%