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Author list (with affiliations):	Mennens Lisa[1-3], Vandebroek Sarah[1-3], Verbunt Jari[1], Jocken Johan WE[1], Hosseinkhani B[4], Blaak Ellen E[1], Verboven Kenneth[2-3]. [1]Department of Human Biology, Institute for Nutrition and Translational Research in Metabolism (NUTRIM), Maastricht University Medical Center+, Maastricht, The Netherlands. [2]Rehabilitation Research Center *REVAL*, Hasselt University, Diepenbeek, Belgium. [3]Biomedical Research Institute *BIOMED*, Hasselt University, Diepenbeek, Belgium. [4]Laboratory of Angiogenesis and Vascular Metabolism, Center for Cancer Biology, VIB and Department of Oncology, Leuven Cancer Institute (LKI), KU Leuven, Leuven, Belgium.
Research area:	1: Metabolic Health
Poster title:	**Systemic extracellular vesicle concentrations are elevated in insulin-resistant obesity but remain unaffected by exercise training.**
Abstract (300 words):	**Background**: Obesity is associated with impaired interorgan crosstalk, contributing to insulin resistance and dysregulated lipid metabolism. Extracellular vesicles (EVs) have emerged as important mediators in these processes and are known to be modulated by lifestyle interventions such as exercise. Here, we investigated how exercise impacts circulating EV levels in individuals with different metabolic phenotypes. **Methods**: EDTA-plasma was obtained during an exercise intervention in three metabolically distinct groups (n=10 each): lean, insulin-sensitive obesity (IS) , and insulin-resistant obesity (IR). Samples were collected at rest, after 60min of exercise, and following 60min of recovery, both before and after a 12-week training program. Plasma was filtered through a 0,8µm polycarbonate membrane, and EVs were isolated using size exclusion chromatography (SEC, 12 x 1mL fractions). EV concentration and size were assessed by nanoparticle tracking analysis (NTA, Zetaview®). Glycerol concentrations were measured in adipose tissue microdialysates at corresponding timepoints. **Results**: Individuals with IR displayed significantly higher circulating EV concentrations compared with lean and IS participants ($7,6\times10^{10}$ vs $2,8\times10^{10}$ and $2,3\times10^{10}$ particles/mL; $p<0.0001$). EV levels further increased during recovery compared to rest ($5,9\times10^{10}$ to $9,7\times10^{10}$; $p<0.05$). No significant difference in concentration was observed after a 12-week training intervention in either group. Mean EV size (~ 132nm) remained unchanged across all timepoints and groups. HOMA-IR showed the strongest positive correlation with EV concentration ($r=0,61$; $p<0.0001$), while BMI, waist-to-hip ratio, and android-to-gynoid (A/G) ratio showed a slightly positive association with systemic EV concentrations ($r=0,30$; $p<0.001$). No correlation was observed between circulating EV levels and subcutaneous adipose tissue lipolysis, as reflected by microdialysate glycerol concentrations. **Conclusions**: The obese insulin resistant state is accompanied by elevated systemic EV concentrations, yet neither an acute exercise nor 12-week training intervention substantially altered these levels. Further proteomics analyses are warranted to clarify the functional impact of exercise on circulating EVs.