

The metabolic impact of hypoxia exposure in human obesity

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Propositions related to the dissertation entitled:

THE METABOLIC IMPACT OF HYPOXIA EXPOSURE IN HUMAN OBESITY: a translational approach

1. Mild intermittent hypoxia exposure impacts substrate oxidation and the abdominal subcutaneous adipose tissue proteome, but does not alter tissue-specific insulin sensitivity, muscle mitochondrial respiration and systemic low-grade inflammation in overweight and obese men. ***This thesis***
2. Hypoxia exposure increases insulin-independent glucose uptake in primary human myotubes, but not adipocytes, at least partially via AMP-activated protein kinase (AMPK)-dependent mechanisms. ***This thesis***
3. Mild hypoxia exposure alters myokine secretion *in vitro*, but has no effects on systemic myokine concentrations in individuals with overweight and obesity. ***This thesis***
4. Our data indicates that mild intermittent hypoxia exposure may impact the gut microbiota composition, potentially inducing a shift towards an increased abundance of anaerobic butyrate-producing bacteria. ***This thesis***
5. Performing exercise under mild hypoxic conditions does not alter 24-h glucose levels in overweight and obese men with impaired glucose metabolism, although the reduction in systemic saturation during hypoxia exercise is correlated with the improvement in 24h glucose concentrations. ***This thesis***
6. "It more and more turns out that the specific application of hypoxic exposures may be capable of provoking beneficial metabolic changes in patients with metabolic syndrome or diabetes or might increase exercise tolerance in patients with coronary artery disease or COPD". (Burtscher et al. (2010), Sleep and Breathing: Hypoxia: good guy or bad guy?)
7. "Proof-of-concept studies deliver the promising notion that manipulation of the gut microbiome can treat metabolic disorders". (Alteri et al. (2019), Cell: Can the Microbiome Deliver? A Proof-of-Concept Engineered E. coli PKU Therapeutic)
8. "What we know is a drop, what we don't know is an ocean" (Sir Isaac Newton)
9. "There is no difficulty in holding current views, and we are all clever in thinking the thoughts of fashion. But to create a new idea, and to foresee the development before time is ripe, that is insight. To see further than the obvious, and to put things into a wider context, is insight." (Asbjorn Følling, the discoverer of phenylketonuria (PKU)).