

Mechanisms of cold-induced improvements in glucose homeostasis

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Propositions

1. The skeletal muscle is important for cold-induced improvements in glucose homeostasis in humans, although the underlying mechanisms remain unknown. *(Chapter 2, this thesis)*
2. Treatment with a selective β_2 -agonist enhances skeletal muscle glucose uptake and improves glucose homeostasis in diet-induced obese mice, independent of brown adipose tissue thermogenesis. *(Chapter 3 and 4, this thesis)*
3. Selective β_2 -agonist treatment improves insulin-stimulated glucose disposal in healthy young males. *(Chapter 5, this thesis)*
4. Repeated cold-induced shivering improves glucose homeostasis in overweight/obese humans. *(Chapter 6, this thesis)*
5. Lowering ambient temperature in houses and offices not only minimizes global energy consumption, but also has beneficial health effects. *(Impact paragraph – This thesis)*
6. Obesity causes or exacerbates many health problems, both independently and in association with other diseases. *(Kopelman, Nature, 2000)*
7. The skeletal muscle adapts (or maladapts) to chronic nutrient excess, which reshape its metabolic character. *(Adapted from Hulett, Nutrients, 2022)*
8. Science involves confronting our 'absolute stupidity'. *(Schwartz, J. Cell Sci, 2008)*
9. It always seems impossible, until it is done. *(Nelson Mandela, 2001)*
10. In the end, everything will be alright. *(Sten van Beek, 2022)*