

PPAR α activation influences plasma one-carbon metabolites and B-vitamin status in rats

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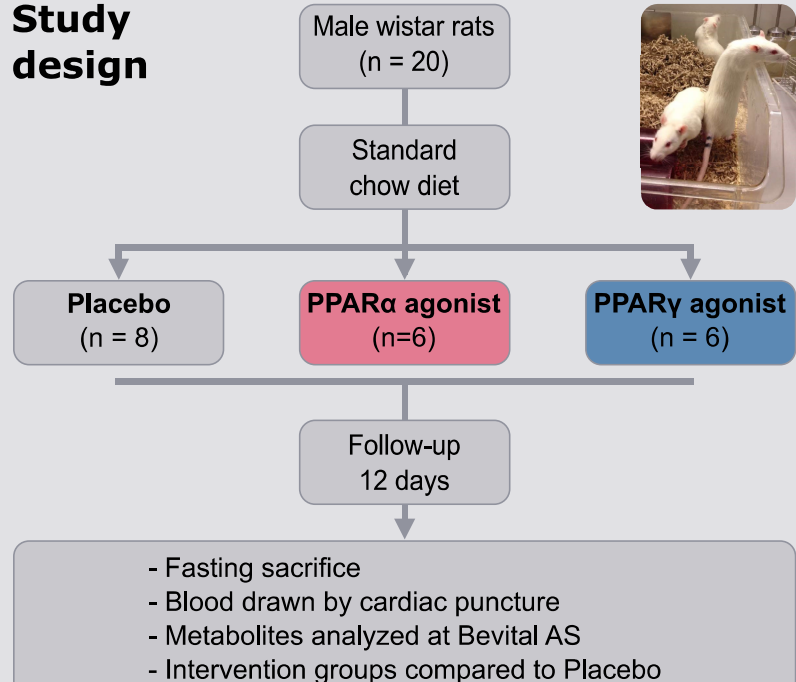
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Background

Activation of peroxisome proliferator-activated receptors (PPAR) with a pan-PPAR agonist increased plasma one-carbon and B-vitamin metabolites, including dimethylglycine (DMG), nicotinamide (NAM) and methylmalonic acid (MMA)¹.

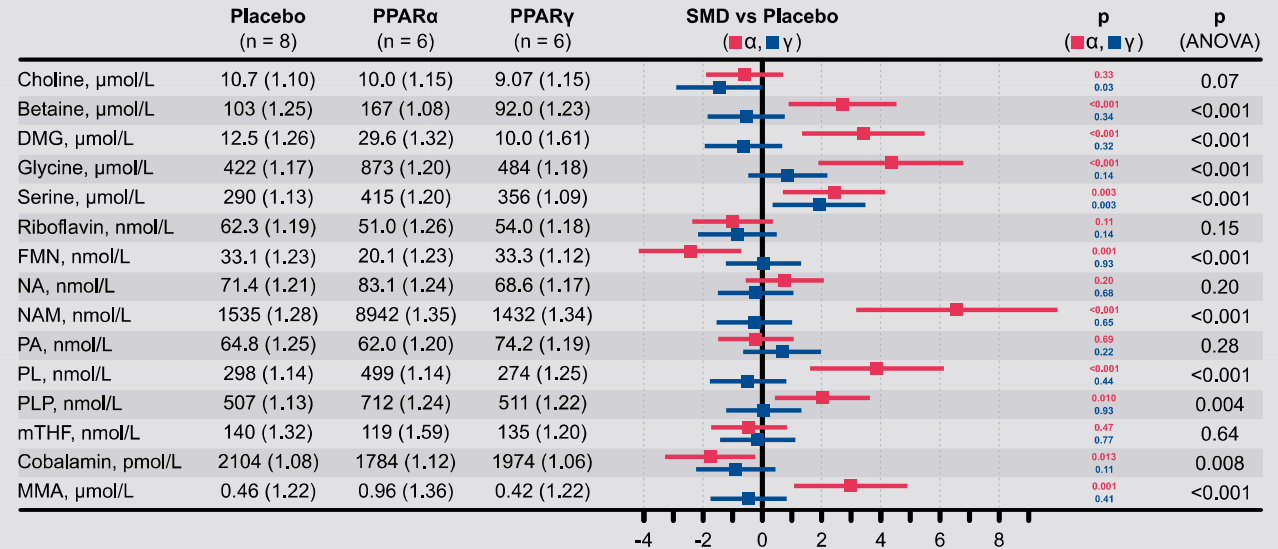
This study aims to investigate the effect of specific PPAR α and PPAR γ agonists on metabolites of the choline oxidation pathway and B-vitamin status.

Study design



Effect of PPAR α and PPAR γ activation

Metabolite concentrations are given as geometric mean (multiplicative SD). The bars indicate standardized mean difference (SMD) vs Placebo, red represents PPAR α , and blue represents PPAR γ . Groups were compared with ANOVA, and intervention groups compared to Placebo.



Abbreviations: DMG, dimethylglycine; FMN, flavin mononucleotide; MMA, methylmalonic acid; mTHF, 5-methyltetrahydrofolate; NA, nicotinic acid; NAM, nicotinamide; PA, pyridoxal; PL, pyridoxal; PLP, pyridoxal-5'-phosphate; PPAR, peroxisome proliferator-activated receptor and SMD, standardized mean difference.

Conclusion

PPAR α activation increases plasma levels of one-carbon metabolites and B-vitamins, including DMG, NAM and MMA. This confirms previous findings, suggesting a role of PPAR α in the regulation of one-carbon metabolism and B-vitamin status.

Literature

1. Lysne V, Strand E, Svengen GF, Bjørndal B, Pedersen ER, Midttun O, et al. Peroxisome Proliferator-Activated Receptor Activation is Associated with Altered Plasma One-Carbon Metabolites and B-Vitamin Status in Rats. *Nutrients*. 2016;8(1).

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