

Effect of *trans*-10,*cis*-12 Conjugated Linoleic Acid and Resveratrol on Lipid Accumulation and Lipase Expressions in 3T3-L1 Mature Adipocytes

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Introduction: Although it has been demonstrated that *trans*-10,*cis*-12 CLA reduces triacylglycerol (TG) accumulation in adipocytes, it seems not to promote lipolysis. A new antioxidative molecule, resveratrol, has been proposed to reduce triacylglycerol content but the mechanism is not clearly described.

Aim: To analyze the effects of *trans*-10,*cis*-12 CLA and resveratrol, as well as their combination, in TG accumulation and the expression of HSL (hormone-sensitive lipase) and ATGL (adipose triglyceride lipase) in 3T3-L1 mature adipocytes.

Methods: 3T3-L1 pre-adipocytes were cultured in DMEM+FBS media. After reaching confluence differentiation was induced by insulin, dexamethasone and IBMX. On day 12 after differentiation mature adipocytes were treated with 10 and 100 μ M of *trans*-10,*cis*-12 CLA and 10 and 100 μ M of *trans*-resveratrol and a mixture of both molecules. Cells were harvested after 20 hours and TG content was measured. HSL and ATGL expression was analyzed by Real Time RT-PCR.

Results: Both doses of either CLA or resveratrol decreased TG content in the mature adipocytes. The mixture of both molecules reduced TG accumulation in the same extent than each one separately. A lack of effect was observed in HSL and ATGL expressions after CLA treatments. Both lipase expressions were increased in the case of resveratrol treatments and when mixing resveratrol with CLA.

Conclusion: Whereas the reduction in TG content caused by resveratrol is due, at least in part, to the increase in HSL and ATGL expressions, this is not the case for CLA. The combination of CLA and resveratrol does not improve the individual effect of each molecule in 3T3-L1 mature adipocyte fat accumulation.

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