

Abstract

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Glucose and insulin responses in isolated human lymphocytes reflect in vivo status: effects of VLCD treatment.

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BACKGROUND AND METHODS: Human lymphocyte growth response to mitogen was examined in vitro under different conditions to monitor aspects of carbohydrate utilization in three groups: obese nondiabetic, obese/NIDDM, and normal-weight individuals.

RESULTS: Although lymphocyte growth capacity in minimal medium for these three groups was found to be similar at a glucose concentration of 72 micrograms/ml in the absence of insulin or glycerol, differences in mitogen-stimulated growth were observed at lower glucose concentrations or in the presence of insulin or glycerol. Interestingly, these metabolic alterations in lymphocytes can be normalized by treating obese and obese/NIDDM subjects with a very low calorie diet (VLCD) regimen.

CONCLUSION: The results of this study indicate that lymphocyte culture in a defined medium may provide a mechanism to examine different metabolic states and to evaluate treatment regimens (diet, exercise, etc.) for obese and NIDDM subjects.

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