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NOTES C-14 labeled acetate & bicarbonate in diabetic and non-diabetic subjects pg. 2/2
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Quantitation of De Novo Lipid Synthesis in Diabetic and Non-Diabetic Subjects Using ^{14}C-acetate and Bicarbonate

There is suggestive evidence of deranged kinetics of in vivo synthesis of lipids in diabetes and related states. We have recently developed a method whereby the fraction of the freely misceable acetate pool fixed into lipids can be estimated following intravenous administration of ^{14}C-acetate and bicarbonate by measurement of $^{14}CO_2$ excretion in the breath. We propose that Dr. Monnier apply this method to analysis of lipid synthesis in patients with diabetes and related states.

The method involves intravenous injection of ^{14}C-acetate followed by quantitation of the rate of $^{14}CO_2$ excretion in the breath using a continuous $^{14}CO_2$, CO_2 and O_2 breath analyzer which we have at this laboratory. A similar study is performed following administration of ^{14}C-bicarbonate. Using appropriate data analysis methods which we have developed the fractional rate of acetate incorporation into lipids can be estimated. We have applied this method to study of endogenous lipid synthesis in rats and in human subjects prior to, and subsequent to clofibrate administration with rewarding results. Dr. Monnier would have diabetic and control patients available to him from our clinic and would have technical support in performing his studies. The knowledge he could gain with regard to use of the $^{14}CO_2$ breath analysis technique could be useful upon his return to France.

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