ABSTRACT

KINETICS OF TRANSPLACENTAL TRANSFER OF SELENIUM

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This study was designed to investigate the influence of the quantity of selenium intake by pregnant rats on the rate and amount of selenium absorbed by the fetus.

Sodium selenate, tagged with Se-75, was added to the drinking water of pregnant rats at 3 different concentrations, and the rats were serially sacrificed during the gestation period and the selenium in the fetuses was measured. Gross selenium uptake was measured by sequential whole body counting of the rats, and elimination was determined by radiometric analysis of the excreta. From these data, we constructed a three compartment model for the kinetics of transplacental transfer of selenium.

The distribution pattern of selenium was found to be consistant with other reports, with most of the selenium being in the liver, kidneys, and blood. The kinetic parameters of the excreta and the transfer from the fetus to the mother's blood was found to be dependent on the selenium intake level. Other kinetic parameters were found to be independent of the selenium intake level.