

GLOBAL STUDIES USING DEUTERIUM TO DETERMINE HUMAN MILK VOLUME

JUNE

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EUROPEAN REGION

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The IAEA supports the use of the deuterium oxide dose-to-mother technique to quantify human milk intake. This technique allows accurate measurement of the amount of human milk consumed by breastfed infants without interfering with normal feeding practices. A lactating mother is given a small amount of deuterium-labeled water, which equilibrates with maternal body water including the human milk. The deuterium dose is then gradually, over a two weeks period, transferred via the milk to the breastfed infant. Simultaneous reduction in maternal and increase in infant body water allows calculation of human milk intake using a compartmental model. If the concentration of nutrients or potentially toxic contaminants is measured in human milk, the infant's intake of essential nutrients or environmental contaminants can be ascertained. The technique is also used to objectively assess the exclusivity of breastfeeding practices via non-milk water intake. Examples of human milk intake from different regions and infant's intake of nutrients and contaminants will be presented.



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