

### SUMMARY

Net amino acid, water and electrolyte transport from the small intestine in vivo was studied in normal and magnesium depleted rats, by a single pass perfusion technique.

The net absorption of the amino acids, alanine and lysine increased with increasing concentration of the amino acid in the perfusion solution, within the concentration range studied (10 and 50mM). In all cases alanine was absorbed faster than lysine.

Dietary magnesium depletion, lasting for a period of twenty eight days did not affect the net rate of transport of these two amino acids in any of the regions of the small intestine which were studied.

In general, the presence of amino acids increased the absorption of water by comparison with that from saline. However, lysine at a concentration of 50mM tended to inhibit water absorption by comparison with that observed in the presence of alanine at 50mM.

Magnesium depletion did not in general affect net transport rates of water in the presence and absence of amino acids. However, when alanine at a concentration of

50mM was perfused, water absorption was inhibited in the magnesium depleted rats.

The presence of amino acids did not affect the transport of sodium in any of the regions of the small intestine. However, magnesium depletion did severely inhibit sodium transport, especially in the presence of alanine at a concentration of 50mM in all three regions of the small intestine.

Amino acids stimulated the absorption of chloride by all segments of the small intestine by comparison with that from saline alone. Magnesium depletion however, significantly reduced chloride ion absorption by all three segments.

Good correlations were found between the transport rates of sodium and chloride, sodium and water, and total solute and water in all three regions of the small intestine.