Magnesium (Urine)

Description	Second most abundant intracellular cation. Cofactor in enzymatic reactions, particularly those involving the formation or utilisation of ATP.
Indication	Diagnosis / investigation of magnesium deficiency.
Additional Info	Renal excretion of magnesium is the major mechanism for magnesium homeostasis. The amount excreted is dependent on intake and serum concentration of magnesium.
Concurrent Tests	Serum magnesium.
Dietary Requirements	N/A
Interpretation	Low urine magnesium <2.4mml/24hr Reduced renal excretion can be caused by decreased renal function e.g. dehydration, or reduced magnesium intake e.g. malnutrition / malabsorption. High urine magnesium >6.5 mmol/24hr Hyperaldosteronism, drug therapy (e.g. cisplatin), osmotic diuresis and chronic glomerulonephritis can cause increased renal excretion. The detection of significant urine magnesium in the presence of a low serum magnesium level suggests renal loss of magnesium as the cause of the hypomagnesaemia. Magnesium loading test. This may be used to determine if a patient is magnesium deficient. Normal individuals will excrete >70% of a loading dose of magnesium within 24 hours, whereas individuals who are magnesium deficient will retain a significant fraction. Procedure: Give the patient 30 mmol of magnesium IV and start the 24hr urine collection from the time of the infusion. Normal response: urine magnesium >21 mmol/24 hr.
Collection Conditions	For a 24 hour collection, ensure the correct collection procedure is followed.
Frequency of testing	As required.