1.2 Distribution of Mg in the human body

Table (1) Magnesium functions in the body

Enzyme function	As Enzyme substrate Direct enzyme activation
Membrane function	Cell adhesion Transmembrane electrolyte flux
Calcium antagonist	Muscle contraction/relaxation Neurotransmission release Action potential conduction
Structural function	Proteins Polyribosomes Nucleic acids Multiple enzyme complexes Mitochondria

The total magnesium content of human body is ~20mmol/kg of fat free tissue. Therefore, total magnesium in an average 70 kg adult with 20%(w/w) fat in ~1000 to 1120 mmol (Ford & Mokdad, 2003; Swaminathan, 2003).

Ninety nine percent of body magnesium exists in bone, muscles and non-muscular soft tissue. Furthermore, 50-60% of magnesium resides as surface substituent of hydroxyapatite in bones (Swaminathan, 2003; Pasternak *et al.*, 2010).With aging, magnesium content in bones decreases making it less bioavailable for body in cases of magnesium deprivation. Nevertheless, bone still provides a huge exchangeable pool to buffer acute alternations in magnesium levels in serum because one third of skeletal magnesium is exchangeable (Pasternak *et al.*, 2010; Geiger & Wanner, 2012; Jahnen-Dechent & Ketteler, 2012).