SODIUM, POTASSIUM AND CHLORIDE

Introduction

Although excess Magnesium (Mg) can inhibit bone calcification, Mg excesses from dietary sources including supplements, are unlikely to result in toxicity. One reason for depending on Mg-in-water instead of using supplement tablets is that the participation is certain with water, while tablets may often be discarded by subjects. Mg tablets may be useful as an addition to water, but cannot be relied on as a replacement for water because patients may spit out or discard tablets. Water-borne Mg effectively serves as a "divided dose", consumed throughout the day. It is highly recommended that you consume at least eight glasses of water a day. Mg in water is 30% more bio-available than in food. Rand Water purifies the water through a conventional purification process, resulting in adequate Mg levels in your tap water (enough for your daily requirement), which is within SABS 0241 water specifications (70mg/l).

Three indispensable dietary constituents – Sodium, Potassium and Chloride, commonly known as the electrolytes, are found in your body. Sodium constitutes 2%, Potassium 5%, and Chloride 3% of the total mineral content of the body. These elements exist as ions in your body fluids, and get distributed throughout all body fluids. The three electrolytes are involved in maintaining at least four important physiological functions in your body:

- Water balance and distribution
- Osmotic equilibrium
- Acid base balance
- Regulate intracellular/extracellular differentials and their concentrations in these three electrolytes, as a result of the functioning of membranes

All three elements are readily absorbed by the small intestine and are excreted primarily via the urine. Faecal and sweat losses are the other routes of elimination. As these minerals are widely available in the diet, deficiencies do not usually occur in healthy individuals. A person, who does not consume enough fruits and vegetables, may ingest insufficient Potassium.

Sources and Recommended Intakes

Major food sources of sodium include foods in which salt is added during preparation or processing-cheese, ham, tomatoes, milk, salad dressings and mayonnaise, beef, ready to eat cereals, cakes, cookies and doughnuts. The foods providing the highest level of Potassium include milk, potatoes, beef, coffee, tomatoes, oranges, grapes fruit juices, and poultry. Water also contains of these indispensable dietary constituents, which occur naturally in most water suppliers.

Elements in Tap Water		Dietary reference intakes	Nutritional Aspects
Sodium (18mg/l)	Adults	1100-3300mg/day	Sodium helps regulate the size of the extracellular compartments and the plasma fluid volume. It also involved in the conduction of nerve impulses and muscle contraction control
	Children	225-2700mg/day	
	Infant	115-750mg/day	
Potassium (4mg/l)	Adults	>2000mg/day	Plays a role in the maintenance of normal water balance, osmotic equilibrium and acid -base balance. Along with Calcium, it aids in the regulation of neuromuscular activity. Potassium also promotes cellular growth. Deficiency of potassium may lead to muscle weakness and may also result in Cardiac failure
	Children	1000-2000mg/day	
	Infant	500 700mg/day	
Chloride (14mg/l)	Adults	1400-5100mg/day	Chloride deficiency has been seen in children fed formula mixed with chloride free water. This syndrome is characterized by loss of appetite, failure to thrive, muscle weakness
	Children	500-2775mg/day	
	Infant	0.01-0.5mg/day	

Table 1. Elements in tap Water.

A daily fluid intake of 1500 ml (1.5L) per day is adequate. Rand Water purifies the water through a conventional purification process, resulting in water that is safe to drink. Your tap water will satisfy your daily mineral requirements, and meets the SANS 0241 water quality specifications.

Visit **www.reservior.co.za** for further information on water quality in your area.

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RAND WATER