



ALKALA® “S” for the Regulation of Mineral and Acid-Alkaline Balance

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Minerals, such as Magnesium, Potassium and Calcium, support metabolic processes in the body which are essential for life. They are biologically active in ionised form (electrolytes) and are decisively involved in the formation and maintenance of the skeletal, nervous and muscular systems. Minerals are not formed within the organism, but have to be consumed as part of our diet. Thus a balanced diet is an essential precondition for the homeostasis of the electrolytes, which is hormonally controlled and, amongst other things, regulates the acid-alkaline balance.

Dietary errors with an excess of protein, combined with a lack of exercise or chronic disease, may send the electrolyte balance out of kilter or result in mineral deficiencies. We know from investigations of evolutionary biology that our organism is not adjusted to the modern diet, which so often is low in Potassium and rich in proteins (2). The protein surplus transforms the body into acidic metabolites, resulting in an increased elimination of minerals and an acid-alkaline balance that is excessively acidic. With increasing age, these metabolic processes are fortified by a reduced elimination of acid by the kidneys (1). In order to maintain vital functions (e.g. a constant blood pH level) even when electrolytes are in short supply, the organism draws on its mineral deposits, of which the skeleton forms a part. Should an over-acidic metabolic situation persist over a fairly long period of life, then this will cause an atrophy of the bone

tissue. These degenerative, inflammatory processes may be mitigated by regulation of the acid-alkaline balance, using alkaline preparations. For regulation of the acid-alkaline balance, the SANUM-Kehlbeck company offers the already well-known alkaline remedies ALKALA® “N”, and ALKALA® “T”, containing Sodium Hydrogen carbonate. These are now joined by the new ALKALA® “S” powder, which presents a combination of Potassium, Magnesium and Calcium citrates. Tucker (1999) demonstrated in a study that an adequate supply of Potassium and Magnesium slows down the loss of bone density (3).

Potassium and Magnesium – the Intracellular Electrolytes

Alongside its numerous functions in the metabolism, as long ago as 1968 Wachmann and Bernstein recognised and described the role of Potassium in the acid-alkaline balance (4). 98% of the entire stock of Potassium found in the organism is bonded with proteins in the cells.

In the event of a Potassium deficiency, the missing K^+ ions are replaced by the acid-forming H^+ protons, so that the electro-neutrality in the cell is preserved. This results in intracellular acidosis and an alkalinisation of the extracellular space. Consequently, the urine becomes alkaline, masking the intracellular acidification. Thus the urinary pH level is an indicator of the state of the acid-alkaline balance as a whole. In a healthy organism the day’s profile of the urinary pH level should alternate between acidic and alkaline (Fig. 1). By means of Potassium supplementation, in the form of foods rich in Potassium, or by Potassium citrate as a food supplement, the intracellular hyperacidity can be reduced.

Moreover, the action of Potassium should always be viewed in connection with Magnesium. A Potassium deficiency frequently goes hand-in-hand with a Magnesium deficiency, e.g. after taking diuretics (5). As well as this, low levels of Potassium result in a greater excretion of Calcium in the urine (6). Likewise, following a

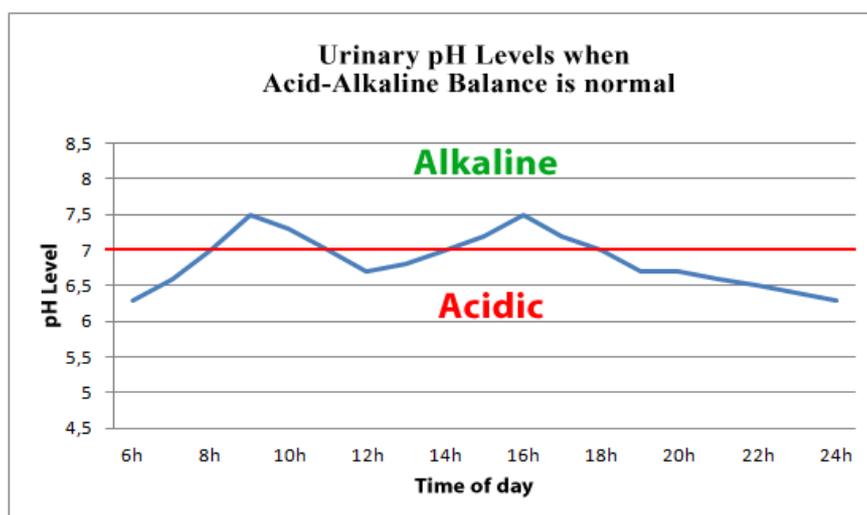


Fig. 1: Normal day’s profile of urinary pH levels.



coronary infarction, patients tend to have low serum levels of Potassium and Magnesium. In a retrospective investigation it became clear that a treatment with Magnesium and Potassium in combination, given to 50-year-old patients with coronary heart and myocardial diseases, promotes good health (8).

As well as Potassium, Magnesium is an essential intracellular electrolyte. Only 5% of the body's Magnesium is found in the extracellular space, where it is involved in maintaining the pH level in bone metabolism and in regulating the release of Calcium from the bones. Various investigations show that, between the ages of 50 and 70 an adequate Magnesium uptake (320 mg/day) is often not attained (9). In the animal experiment it was demonstrated that supplementation with Magnesium has a positive action on bone density (10).

Moreover, more recent studies show that, in the event of an electrolyte deficiency, not only is the skeletal system affected, but that functions of the autonomic nervous system are also impaired. In one study from the USA carried out in 2015, a correlation was described between low Magnesium uptake and the occurrence of depressive episodes in young adults (11). Likewise a connection has been found between poor-quality sleep and a depressed Magnesium level (12). As Magnesium also has a vasodilative action, it has an important function in regulating the blood pressure. If levels of

Potassium and Magnesium are both at the upper limit of serum concentration, the risk of dysrhythmias is reduced (13). A study from 2013 shows that taking Magnesium protects from hypertension in the last weeks of pregnancy (14).

Calcium – an Extracellular Mineral

Unlike Potassium and Magnesium, 98% of the body's Calcium occurs extracellularly in the skeletal system and the teeth. Calcium has many kinds of tasks affecting the movement of the musculature of skeleton and heart and of the smooth muscles. The Calcium homeostasis is influenced by states of protein deficiency and slight changes in the blood pH level. In one meta-analysis it was shown that the risk of broken bones and fractured vertebrae is lowered by Calcium supplementation (on average 1050mg/day) (15). Thus, in patients with a low Calcium level, such a supplementation makes sense. However, once an adequate Calcium level has been reached, an excessive Calcium intake does not achieve any increase in bone density.

ALKALA® “S” – Mineral Supplementation and Regulation of the Intracellular Acid-Alkaline Balance

Because of their chemical properties, when taken orally, citrates of Calcium, Magnesium and Potassium are dissolved in the stomach and absorbed in the small intestine. No formation of

gas occurs in the stomach, which might result in eructations. The above-mentioned citrates possess good bio-availability, with two important functions: they have a de-acidifying action, i.e. they act as buffers for H⁺ ions and, as well as that, they are suppliers of minerals. Ca²⁺, Mg²⁺ and K⁺ ions are placed at the body's disposal, for the relief of deficiencies, thus improving its general micro-nutrient status. This is particularly to be recommended in the treatment of chronic diseases of the vascular system, the musculature and the locomotor system.

ALKALA® “S” is a powder, containing a physiologically suitable combination of the following mineral compounds:

- Potassium citrate
- Calcium citrate
- Magnesium citrate

ALKALA® “S” contains neither flavourings nor preservatives. It is lactose- and gluten-free.

ALKALA® “S” – Dosage

ALKALA® “S” is available in tins containing 250g. The recommended adult daily dose is 1 tsp. (of 4.5g) once or twice a day, i.e. a maximum of 9g a day. In 9g of ALKALA® “S” powder there are 1500 mg of Potassium citrate, 500 mg of Calcium citrate and 300 mg of Magnesium citrate. When being taken, the powder is stirred into c. 300 ml of still, low-Sodium water, tea or fruit juice. If possible ALKALA® “S” should be taken with a meal, since the uptake of

Potassium and Magnesium into the cell is insulin-dependent. Care should be taken in cases of advanced renal insufficiency and renal failure to reduce the dose and not to take any alkaline mixtures, as otherwise the kidneys will be overloaded. Moreover, ALKALA[®] “S” should not be prescribed together with medicines that influence the Potassium balance, nor in hyperpotassaemia or alkalosis.

When hyperacidity is present (Fig. 2), in the initial stage of treatment the maximum dosage (1 tsp. twice a day) is recommended, since initially considerably larger amounts of Potassium are required, so as to release the acids from the cells. The aim is to achieve a daily pH profile with urine that is acidic in the morning (pH 6.5 – 7) and which, over the course of the day, becomes more alkaline, returning clearly to the acidic level again in the evening (pH level c. 5.5, Fig. 1). With this aim in

view, the dosage can be adjusted over the course of treatment to arrive at 4.5g per day.

ALKALA[®] “S” – SANUM Treatment

ALKALA[®] “S” is a food supplement that can be employed in the regulation of the cellular acid-alkaline balance and as a Magnesium, Calcium and Potassium supplement. When combined with ALKALA[®] “N”, which results in a rapid deacidification of the extra-cellular connective tissue, ALKALA[®] “S” supports the intracellular deacidification. For regulation of the internal milieu, ALKALA[®] “N” is prescribed for c. 14 days right at the outset of treatment. Then the treatment is continued for a further 4-6 weeks with ALKALA[®] “S” (see Treatment Plans for the specialist group at www.sanum.com).

Summing up:

ALKALA[®] “S” is a preparation which broadens the palette of products from the SANUM-Kehlbeck company for regulation of the internal milieu, and in particular for support of the Magnesium and Potassium balance. It may be used both as a single remedy and also in combination with other SANUM remedies.

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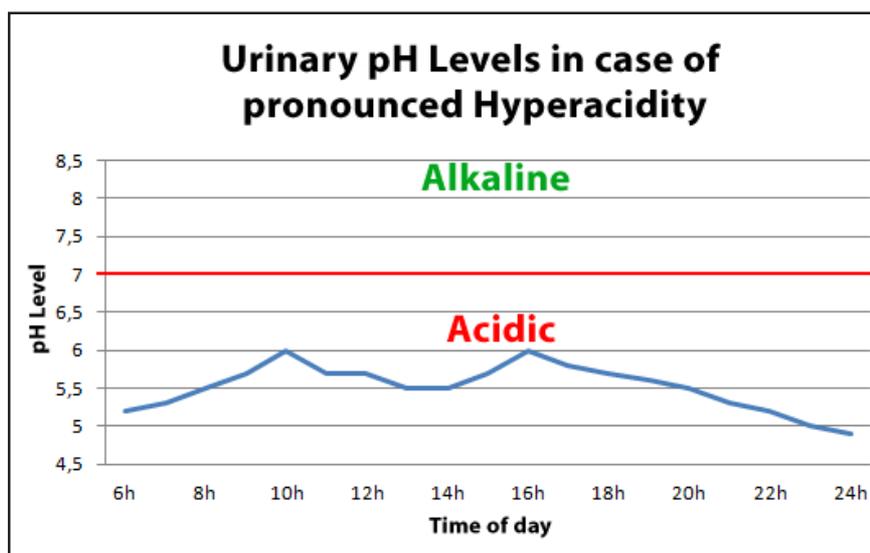


Fig. 2: Daily profile of urinary pH level in severe hyperacidity

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