Alkalosis Encyclopedia Article

Alkalosis

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Alkalosis

Alkalosis is an acid-base imbalance toward alkalinity, or the base end of the acid-base range. Alkalosis is indicated by an elevated pH that corresponds to a decrease in hydrogen ion concentration. The body does not maintain an exactly neutral pH of 7, but rather a **blood** serum ph of 7.3 to 7.5. Accordingly, a pH of 7.293--although in strict terms an alkaline pH--is for the body an acidic rather than an alkaline state. Alkalosis exists when blood serum pH is greater than pH 7.5 (some clinicians and medical texts set this level at pH 7.45).

With regard to acid-base imbalance, the other extreme of disorder (lower pH) is termed **acidosis**. Alkalosis occurs less frequently that acidosis. An individual may suffer from both an acidosis and an alkalosis at the same time. For example, a metabolic acidosis may occur at the same time as a respiratory alkalosis. Invariably, one disorder is physiologically more dominant than the other. Accordingly, the less dominant imbalance is sometime referred to as a compensating or balancing mechanism.

Alkalosis may result from a loss of acidic compounds, or ingestion of base (alkaline) compounds that then shifts the acid base balance in favor of alkalinity. A loss of potassium and a reduction in potassium ion concentration is also a cause of alkalosis. If large amount of chloride ions are lost from the Gastrointestinal tract, there is also a large loss of potassium ions that results in hypochloremic alkalosis. Direct loss of potassium is termed hypokalemic alkalosis.

Especially in infants and small children prolonged malnutrition, constipation and vomiting may accompany alkalosis. Due to potassium depletion, individuals with alkalosis often complain of severe muscle cramping. The loss of gastric contents or the ingestion of diuretic compounds may also result in alkalosis. An increasingly common cause of alkalosis results from the over ingestion of antacids or bicarbonate of soda in an effort to ease indigestion.

Respiratory alkalosis results from an excessive ventilation of carbon dioxide (CO_2) and a corresponding decrease in CO_2 concentration (as measured by blood gas analysis). Excessive ventilation of carbon dioxide also results from hyperventilation, a form of deep and rapid **breathing**. Treatments for alkalosis resulting from hyperventilation include rebreathing techniques, the simplest of which allows individuals, under proper supervision, to breath into a paper bag for a few seconds to increase carbon dioxide levels.