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Using Alkaline Diet for Controlling Blood Acidosis

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اتباع النظام الغذائي القاعدي للسيطرة على حامضية الدم

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ABSTRACT

The metabolism, biological and physiological processes in normal cells require keeping the blood pH within narrow limits (7.35 - 7.45). Blood acidosis is expressed as an increase in the concentration of acids in the blood or a decrease in the concentration of alkaline substances, which leads to a decrease in the blood PH from the ideal value (slight basal 7.35 - 7.45) and its conversion to acid values less than PH 7. In which the acidity intensity increases The lower the pH value is less than PH, which lead to acids accumulate in the blood or by the accumulation of carbon dioxide in the blood, which results from poor functions Lung or respiratory acidosis. Blood acidity is the main and primary factor for all diseases. To get rid off the negative effects of acidic foods, you should eat a lot of alkaline foods, vegetables and fruits. Eating them helps to provide the body with vitamins and minerals essential for health, which are used as buffers against acid-forming foods.

Keywords: **Blood acidosis , Metabolic aciodosis, Acidic diet, Alkaline diet.**

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INTRODUCTION

Blood pH must be kept within certain bounds, 7.35-7.45, for normal cellular metabolism and function. According to medical and physiological texts, even a slight deviation from this range can be harmful, and a pH of less than 6.8 or more than 7.8 is deemed incompatible with life [1].

Inflammatory illnesses and the loss of bone density are fostered by the lifestyle and meals that raise the body's metabolic acid load. Two actual effects of a high metabolic acid load are: The most hazardous kind of acidification of the body is acidosis, which occurs when the arterial PH drops below 7.35 and alters the PH of the blood plasma [2].

According to [3], acidity causes oxidative stress, which can harm cells and occasionally even result in cancer. It also puts strain on the liver, kidneys, pancreas, and other organs. After years of an excessively acidic diet, the eliminative channels (kidneys, lungs, respiratory system, and skin) will start to affect our blood [4].

The primary compensatory mechanisms for the human body's remarkable ability to keep the blood pH at a constant level are the renal and respiratory systems. Our bodies use mineral reserves to achieve balance and regulate the body's pH so that it can function as efficiently as possible [5]. To safely remove the acid from the body and buffer it, minerals are taken from bones and vital organs. This strain can cause high acidity, which can cause the body to suffer severe and prolonged damage that may go unnoticed for years [6].

Alkaline diets have several potential health advantages. An alkaline diet with more fruits and vegetables would raise the K/Na ratio, which would then help with bone health, muscle atrophy prevention, and the management of other chronic conditions like hypertension and strokes [7]. An alkaline diet and the resulting rise in growth hormone may enhance a variety of conditions, including memory and cognition as well as cardiovascular health [8].

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ACIDIC AND ALKALINE FOOD

Foods high in acid cause the body to release acids when they are broken down. To function at our best, our bodies require roughly twenty amino acids, dozens of sugars and fatty acids, forty or so vitamins, over a hundred minerals, and trace elements. These substances can all be classified as acidic or alkaline [6] . Foods can be classified as acidic or alkaline forming based on the minerals they contain. Here are a few minerals that are both acidic and alkaline:

Acidic substances include silicon, fluoride, phosphorus, iodine, and sulphur.

Alkaline: cobalt, copper, magnesium, calcium, sodium [9] .

Regular food consumption has an effect on the acidity or alkalinity of our blood [10]. Food can be classified as acidic or alkaline on the pH scale, just like our blood. It's crucial to remember that both are necessary to keep the pH balance in check. The majority of the foods in today's typical diet, however, are on the acidic end of the spectrum [6]. Based on the residue they leave behind after being metabolised, foods are classified as acid or alkaline [8].

Foods are also classified as low acid (or alkaline) depending on whether the body needs to release alkalizing minerals in order for them to do so. According to Fenton et al. (2008), these minerals serve as a "buffer" for extremely acidic foods, reducing the harmful effects they have on the blood.This explains why, even though they have acidifying qualities before entering the body, citrus fruits, tomatoes, and onions are alkalizing. They do not need to be buffered after being metabolised or leave behind acidic residue. Keep in mind that a food's propensity to form an acidic or alkaline bodily environment has nothing to do with the food's actual pH [10]. For instance, lemons are highly acidic, but after being digested and assimilated, they produce very alkaline end products consequently, lemons cause the body to become alkaline [11]. Similar to how meat, like almost all animal products, will test alkaline prior to digestion but leaves

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behind an extremely acidic residue in the body, meat is also highly acid-forming. It is crucial that you eat enough food each day to maintain a pH balance in your body [9].

How Acidic Foods Affect the Body

Foods high in acidity help to lower the pH of the blood. Acidic blood can cause major health problems like kidney stones, raise the risk of cancer because acidic environments encourage the growth of cancer cells, and impair the liver's ability to adequately detoxify. [3] Calcium is one readily available, highly alkaline mineral. The body takes calcium from the bones, an alkaline mineral that is highly effective at PH balancing, when the metabolic acid load increases [12]. This is how conditions like osteoporosis and bone loss can develop over time as a result of a high metabolic acid load [7]. In the West, it's common knowledge that drinking milk will their bones, but dairy milk raises the body's acid load even if it contains a lot of calcium [4]. and may be a factor in bone loss .According to Dawson-Hughes et al. (2008), there are reports of stomachaches caused by eating acidic foods. However, the causal relationship between acidifying foods and stomachaches is subjective and depends on the individual's internal environment and current health. The lining of the stomach is naturally shielded from acidity because stomach acid would otherwise "eat" it. However, acidic foods can occasionally bother those who have digestive problems such as acid reflux or stomach ulcers [13].

Canker sores have also been related to acidic diets. Acidic foods may aggravate certain areas around the mouth where stress or tissue injury already exists, even though there is currently no proof that this is the main cause of canker sores [12].

Acidic diet

Numerous foods have the ability to raise the body's metabolic acid load. One of the main causes of many people's acidic blood pH is sugar [14]. Furthermore, after being digested, animal protein like chicken and beef is regarded as acidic. This is due to the fact that animal protein has a high purine content, which is a compound found in DNA and RNA that forms uric acid. Increased blood uric acid levels can cause kidney stones and

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gout in addition to having an acidic effect on blood pH and spreading to tissues and joints [15]. The way minerals interact with one another in the body determines how important they are to health, which is why certain ratios of minerals are required. Dairy products made from cow's milk have both calcium and phosphorus. For optimum health, the ratio of phosphorus to calcium must be 1 to 2.5. [16]. Sadly, the ratio of cow's milk to one is 1.27 to 1.This indicates that while cow's milk does contain calcium, it also contains far too much phosphorus.Because phosphorus inhibits the small intestine's ability to absorb calcium, calcium must be removed from bone stores to keep blood from becoming overly acidic due to the acidifying effects of milk [17].

In addition to making the body more acidic, difficult to digest, and causing inflammation, are the other effects of consuming glutinous grains [14] . Furthermore, while legumes are thought to be a food that slightly raises blood sugar levels, they also have a number of positive health effects. Because of this, it's not essential to completely avoid legumes; instead, eat them in moderation and combine them with foods that are alkalizing [18] .When you eat for energy, legumes can help balance blood sugar levels, which is very beneficial to your health.According to Bruno (2013), they can also aid in lowering blood pressure and LDL cholesterol levels. Due to their high uric-acid forming purine content, eggs are also considered acidic. [19].

Controlling Metabolic Acidosis by Alkaline Foods

The best source of alkaline metabolites is citrus. Our metabolic state becomes alkaline when we consume oranges, lemons, and limes. Citrus fruits are rich in vitamin C and are well-known for their ability to help the body detoxify, which includes relieving acidity [20]. and seasonal fruits are loaded with antioxidants, vitamins, and minerals that support a number of bodily processes. Particularly, kiwi, pineapple, persimmon, nectarine, watermelon, grapefruit, apricots, and apples are excellent sources of alkaline foods [18].

In our system, the majority of green leafy vegetables have an alkaline effect. Numerous leafy green vegetables, such as spinach, lettuce, kale, celery, parsley, and mustard greens, are rich in essential minerals that the body needs to perform a variety of tasks [20]. The

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mineral content of seaweed and sea vegetables is ten to twelve times higher than that of land-grown vegetables [19]. They are also regarded as extremely alkaline food sources and are well-known to have a number of positive effects on the body [17]. Alkali-rich root vegetables include sweet potatoes, taro, lotus, beets, and carrots. [18]. Broccoli and cauliflower are both excellent alkaline foods. They include a number of phytochemicals that are vital to the body [18]. Onion, garlic and ginger are also producing an alkaline effect in the body [17].

One important strategy for managing metabolic acidosis is to use less acidic food sources. For example, plant protein can be a less acidic substitute for animal protein because it contains fewer purines [21]. Additionally, using nut milks—like almond or coconut milk—as a dairy substitute is less acidifying [15].

Although non-glutenous grains like buckwheat, quinoa, and brown rice are lower on the acidity scale, they are still regarded as acid forming foods. They are therefore appropriate to include in your diet. [19].Additionally, when choosing to eat eggs, aim to consume fewer of them or eat more alkalizing foods overall [20] . When choosing high-quality eggs, go for organic, cage-free varieties because they are richer in nutrients and have lower levels of hormones and antibiotics, which are harmful to the body [21] .Lastly, consume alkalizing fruits and vegetables, like sweet potatoes, to satisfy your sugar craving.Alkalizing substitutes for acidic sweeteners include raw honey, dates, and maple syrup, which can be used in small amounts [15] .

CONCLUSION

The following methods can be used to counteract the harmful effects of acidic foods:

1. Relying on foods with alkaline metabolism, such as fruits, citrus, root vegetables, and green leafy vegetables, to balance and regulate metabolic acidosis.
2. Making use of less acidic substitutes for food, such as plant-based protein in place of animal protein and nut milks in place of dairy. Alkalizing substitutes for acidic sweeteners, such as raw honey, dates, and maple syrup, can be added to small servings of food in place of glutenous grains.

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Conflict of interests.

There are non-conflicts of interest.

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الخلاصة

تتطلب عمليات التمثيل الغذائي والعمليات البيولوجية والفسيولوجية في الخلايا الطبيعية الحفاظ على درجة حموضة الدم ضمن حدود ضيقة (7.35 - 7.45). يتم التعبير عن حامضية الدم على أنها زيادة في تركيز الأحماض في الدم أو انخفاض في تركيز المواد القلوية مما يؤدي إلى ارتفاع درجة الحموضة في الدم عن القيمة المثالية (قاعدية طفيفة 7.35 - 7.45) وتحولها إلى حامضية أقل من 7. وتزداد شدة الحموضة كلما انخفضت قيمة الحموضة أقل من 7 مما يؤدي إلى تراكم الأحماض في الدم أو عن طريق تراكم ثاني أكسيد الكربون في الدم والذي ينتج عن ضعف وظائف الرئة أو الجهاز التنفسي. حموضة الدم هي العامل الرئيسي والأساسي لجميع الأمراض. وللتخلص من الآثار السلبية لحامضية الدم يجب الإكثار من تناول الأطعمة القلوية والخضروات والفواكه. اذ يساعد تناولها على تزويد الجسم بالفيتامينات والمعادن الضرورية للصحة، والتي تستخدم كمواد عازلة ضد الأطعمة التي تشكل الأحماض.

الكلمات المفتاحية : حامضية الدم ، حامضية الايض ،الغذاء الحامضي ، الغذاء القلوي

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