► The Myth of Disease and Acid/Alkaline food on Blood Acidity Balance

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Introduction

- Healthy blood pH tightly range between 7.35 to 7.45 (*Pizzorno et al. 2009*)
- Buffer system is a solution that naturally resists a change in pH when acids or bases exist (*Carnauba et al. 2017*)

Misleading information in nutrition

Controversy around Blood pH imbalance

An urge Need of education

Objective

- To explore the scientific evidence on the relationship between acid/alkaline food and blood pH.
- This relationship can be easily misunderstood by the public because the maintenance of blood pH involves complicated and continuous chemistry processes.

Method

- 14 articles were reviewed as follows:
- 7 were peer-reviewed journals and 1 of them were recently published in 2017
- Gray literature
- PEN and Dietitian of Canada
- Google scholar & PubMed
- Krause's nutrition textbook
- Using the key words: Blood pH, Alkaline diet, and blood acid- base balance

Future Work & Questions

- If the fluctuation of the pH within the normal range may cause chronic disease over time, normal blood pH range must be changed. Further studies are needed to verify this claim
- Does acidosis and alkalosis affect normal aging process?
- Since breathing is essential for survival, so is acid-base balance why the latter burnout human body while breathing does is not?

Results

1. Three main systems maintain blood pH balance hemostasis strictly:
 - Respiratory
 - Renal
 - Buffers (*Kellum. (2000)*).
2. Two main components found inside human blood :
 - Main acid (CO_2)
 - Base (HCO_3) called bicarbonate (*Mahan & Raymond. (2017)*)
3. Arterial Blood gas (ABG) test and blood serum electrolyte values are the only ways to evaluate blood pH status (*Mahan & Raymond. (2017)*)
4. All sources agreed that:
 - Any tiniest fluctuation in blood pH above or below the normal level leads to serious health complications or even death
 - Did not support the claim that food intake impact blood pH in healthy population
5. Food impacts Urine pH, acid or alkaline, but not blood pH to maintain internal blood environment balance (*Carnauba et al. 2017*)
6. Some researchers found that maintaining blood pH on the extreme sides of the normal range **7.35 to 7.45** may results in health problem on the long run (*Pizzorno et al. 2009*)
7. Inconsistent results and lack of evidence between protein intake and bone health (PEN Diet Composition. 2016)
8. Meat, eggs, cheese and grains produce acids metabolite where fruits and vegetables produce base metabolite (*Scialla & Anderson. (2013)*)

Conclusion

- From reviewing data it appears that although acid/ alkaline food may increase the acid load and consequently the net acid excretion through the kidneys, there has not been a clear evidence connecting extreme normal levels of blood pH and long term chronic disease in healthy
- There is no strong evidence that acid alkaline food directly affects blood pH

Significance to the field of dietetics

- Dietitians need to convey the true science about blood pH and food intake in an understandable way to the public
- Increase awareness to question anyone, regardless of their scientific background who promotes this myth
- The developed Algorithm and other methods may be used as a tool for dietitian to promote vegetables and fruits eating, which in return will increase health (*Frassetto et al. 2001*)

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