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Understanding The Nitrate Indicators

Product: **Stirwand**

Company: **Quantum Age Water**

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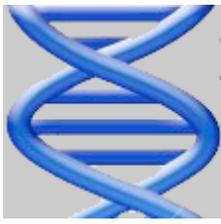
Fenestra Research Labs

Introduction

An in-depth understanding of cellular nitrate numbers will be explained here in this paper. We will assume that the reader has some general knowledge of the structure and function of the human systems. This paper will not attempt to provide the reader with the general information found in the original study report so it is recommended that the reader obtain a copy of that report and familiarize themselves with that information before reading the material presented here; please contact **Quantum Age Water** for that material.

[Note that links to all research references will be added to an updated version of this document. Please check back.]

Fenestra Research Labs is the company that developed the revolutionary **Optimal Wellness Test** (Anti-Aging & Wellness Analyzer). *The **Optimal Wellness Analysis** is an analytical, mathematically based test that actually measures wellness in every organ and system of the human body to within 0.02% accuracy. What we have established is a simple, reproducible,*



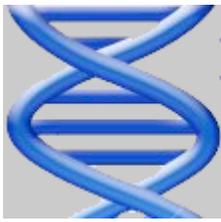
mathematical based system to determine if a natural product is resulting in your body moving closer to or farther from *Wellness parameters*. Making it possible for healthcare professionals to *objectively* establish, determine and provide improved cellular health for patients. The **Optimal Wellness Analysis** cannot be compared to traditional lab testing devices because nothing available today tests for wellness, they all test for disease. The typical patient in today's world is becoming more and more aware of the need to treat the cause rather than the symptom, and that is precisely what the **Optimal Wellness Test** provides, while eliminating all opinion and guess work!

The measurements we use for our analysis are not subjective nor are they questionable science. It is an analytical system that uses cutting edge science to evaluate health at the cellular level. Many of the measurements are based on multiple points of data. This system measures thirty-nine cellular parameters. Every measurement we use can be found in any college text book of chemistry, biochemistry, biology, or physics. The standard values of these numbers have been well established for a decade at minimum.

Nitrates

Nitrates influence the electromagnetic functions of the body fluids. The measurement provides us with a look at the amount of energy being lost from the human system. Nitrates are also related to digestion and provide an evaluation of the amount of usable energy being produced by digestion. The nitrate particles we are measuring in the body are the result of poor digestion.

To understand this further we must take a look at the body's Urea Cycle: The liver incites the urea cycle to occur; it cannot use amino acids that have not been digested properly. The liver treats the nitrates and ammoniums as toxins because the poor digestion has rendered the byproduct useable. This unusable material is converted into urea and stored in the body. Urea can only be stored up to 72 hours, after this it becomes toxic and the urea is broken down to urea salts of Nitrate and Ammonium Nitrogen.



Nitrites in urine

One of the thirty-nine tests that the *OWT* runs is testing for nitrates in urine. This test is done using the advanced technologies of meter science, being standardized correct to two-one-hundredths. We insure the use of the classic approach to measurement of net nitrogen retention based on nitrogen balance data measured in subjects after adaptation to different protein levels over periods of several days

(Millward and Pacey, 1995; Munro, 1964). This test is run three times on each urine sample to insure accuracy from the sample. The normal nitrate count found in a urine sample for a human should be zero.

Methods based on digestibility and short-term protein retention is of value when we are looking at the short-term utilization of dietary proteins also. Net postprandial protein utilization (NPPU) is calculated using true digestibility and true protein parameters while adding the dietary nitrogen collected in the urine and that retained in the body in the form of urea, as follows:

Nitrite values maybe indicative of

Urinary tract infection

Bacterial infection

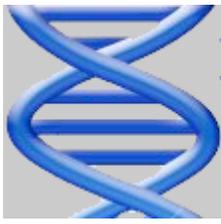
E Coli

Salmonella

Citrobacter

Proteus

Clebsiella



Stirwand Conclusions

Nitrate numbers of the ***Optimal Wellness Test*** indicate a positive move in the wellness numbers of those in the live product study group of up to 18.2%.

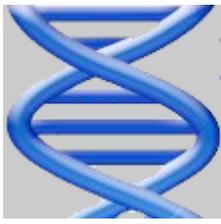
All subjects in the live product group showed an improvement in their nitrate numbers with the most significant improvements seen in subjects with their baseline first test numbers the farthest from wellness range. This shows an improvement in the body's ability to remove urea stores before they can become nitrates and toxins. Extrapolation of data pertaining to nitrates indicates an increase in fluidity of substances in the cellular body resulting in decreased nitrate production and storage in subjects consuming the live product at about the 2nd month of consumption. I will presume the reason for the length of time of consumption being necessary for nitrate production to decrease corresponds to the increase of intracellular hydration numbers and the body's ability to create homeostasis.

This study also indicates a change in the amount of toxins (Nitrates) being stored in the intracellular body being decreased in all subjects on the live product. A scientific measurement of toxins in the body is a new science and this is a significant improvement for these subjects. The mechanism for the removal of the toxins is the movement of fluids throughout the body as they become less viscous and have a more anionic field in nature. This anionic field allows for the cationic substances to be attracted and moved out as waste products.

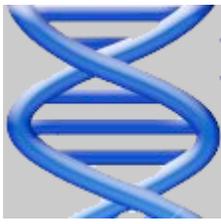
No changes in toxic levels were seen in the placebo group.

References

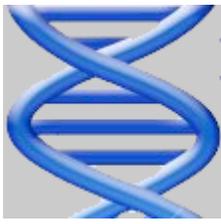
1. Boirie Y., Dangin M., Gachon P., Vasson M. P., Maubois J. L., Beaufrere B. Slow and fast dietary proteins differently modulate postprandial protein accretion. Proc. Natl. Acad. Sci. U.S.A. 1997;94:14930-14935



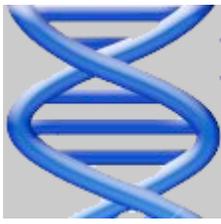
2. Bos, C., Benamouzig, R., Bruhat, A., Roux, C., Mahé, S., Valensi, P., Gaudichon, C., Ferriere, F., Rautureau, J. & Tome, D. (2000) A short-term protein and energy supplementation activates nitrogen kinetics and accretion in poorly nourished elderly. *Am. J. Clin. Nutr.* (in press).
3. Bos C., Mahe S., Gaudichon C., Benamouzig R., Gausseres N., Luengo C., Ferriere F., Rautureau J., Tome D. Assessment of net postprandial protein utilization of ¹⁵N-labelled milk nitrogen in human subjects. *Br. J. Nutr.* 1999;81:221-226
4. Calloway D. H., Margen S. Variation in endogenous nitrogen excretion and dietary nitrogen utilization as determinants of human protein requirement. *J. Nutr.* 1971;101:205-216
5. Cheng A. H., Gomez A., Bergan J. G., Lee T. C., Monckeberg F., Chichester C. O. Comparative nitrogen balance study between young and aged adults using three levels of protein intake from a combination wheat-soy-milk mixture. *Am. J. Clin. Nutr.* 1978;31:12-22
6. Deutz N. E., Bruins M. J., Soeters P. B. Infusion of soy and casein protein meals affects interorgan amino acid metabolism and urea kinetics differently in pigs. *J. Nutr.* 1998;128:2435-2445
7. FAO/WHO Report of a Joint FAO/WHO Expert Consultation on Protein Quality Evaluation 1990 Food and Agriculture Organization of the United Nations Rome.
8. FAO/WHO/UNU (1985) Energy and Protein Requirements: Report of a Joint FAO/WHO/UNU Expert Consultation. WHO Technical Report Series No. 724. World Health Organization, Geneva, Switzerland.
9. Fisher H., Brush M. K., Griminger P., Sostman E. R. Nitrogen retention in adult man: a possible factor in protein requirements. *Am. J. Clin. Nutr.* 1967;20:927-934
10. Forslund A. H., El-Khoury A. E., Olsson R. M., Sjodin A. M., Hambraeus L., Young V. R. Effect of protein intake and physical activity on 24-h pattern and rate of macronutrient utilization. *Am. J. Physiol.* 1999;276:E964-E976



11. Fouillet, H., Gaudichon, C., Mariotti, F., Mahe, S., Lescoat, P., Huneau, J. F. & Tome, D. (2000) Compartmental modeling of postprandial dietary nitrogen distribution in humans. *Am. J. Physiol.* (in press).
12. Fuller M. F., Milne A., Harris C. I., Reid T. M., Keenan R. Amino acid losses in ileostomy fluid on a protein-free diet. *Am. J. Clin. Nutr.* 1994;59:70-73
13. Gaudichon C., Mahe S., Benamouzig R., Luengo C., Fouillet H., Dare S., Van Oycke M., Ferriere F., Rautureau J., Tome D. Net postprandial utilization of [¹⁵N]-labeled milk protein nitrogen is influenced by diet composition in humans. *J. Nutr.* 1999;129:890-895
14. Gaudichon C., Roos N., Mahe S., Sick H., Bouley C., Tome D. Gastric emptying regulates the kinetics of nitrogen absorption from ¹⁵N-labeled milk and ¹⁵N-labeled yogurt in miniature pigs. *J. Nutr.* 1994;124:1970-1977
15. Gausseres N., Mahe S., Benamouzig R., Luengo C., Drouet H., Rautureau J., Tome D. The gastro-ileal digestion of ¹⁵N-labelled pea nitrogen in adult humans. *Br. J. Nutr.* 1996;76:75-85
16. Gausseres N., Mahe S., Benamouzig R., Luengo C., Ferriere F., Rautureau J., Tome D. [¹⁵N]-labeled pea flour protein nitrogen exhibits good ileal digestibility and postprandial retention in humans. *J. Nutr.* 1997;127:1160-1165
17. Mahe S., Huneau J. F., Marteau P., Thuillier F., Tome D. Gastroileal nitrogen and electrolyte movements after bovine milk ingestion in humans. *Am. J. Clin. Nutr.* 1992;56:410-416
18. Mahe S., Roos N., Benamouzig R., Davin L., Luengo C., Gagnon L., Gausseres N., Rautureau J., Tome D. Gastrojejunal kinetics and the digestion of [¹⁵N]beta-lactoglobulin and casein in humans: the influence of the nature and quantity of the protein. *Am. J. Clin. Nutr.* 1996;63:546-552
19. Mahe S., Roos N., Benamouzig R., Sick H., Baglieri A., Huneau J. F., Tome D. True exogenous and endogenous nitrogen fractions in the human jejunum after ingestion of small amounts of ¹⁵N-labeled casein. *J. Nutr.* 1994;124:548-555



20. Manatt M. W., Garcia P. A. Nitrogen balance: concepts and techniques. Nissen S. eds. *Modern Methods in Protein Nutrition and Metabolism* 1992:9-66 Academic Press San Diego.
21. Marchini J. S., Cortiella J., Hiramatsu T., Chapman T. E., Young V. R. Requirements for indispensable amino acids in adult humans: longer-term amino acid kinetic study with support for the adequacy of the Massachusetts Institute of Technology amino acid requirement pattern. *Am. J. Clin. Nutr.* 1993;58:670-683
22. Mariotti F., Mahe S., Benamouzig R., Luengo C., Dare S., Gaudichon C., Tome D. Nutritional value of [¹⁵N]-soy protein isolate assessed from ileal digestibility and postprandial protein utilization in humans. *J. Nutr.* 1999;129:1992-1997
23. Millward D. J. Optimal intakes of protein in the human diet. *Proc. Nutr. Soc.* 1999;58:403-413
24. Millward D. J., Nnanyelugo D. O., Garlick P. J. The effect on muscle protein metabolism of refeeding protein-depleted. *Proc. Nutr. Soc.* 1974;33:115A-116A
25. Millward D. J., Pacy P. J. Postprandial protein utilization and protein quality assessment in man. *Clin. Sci.* 1995;88:597-606
26. Munro H. N. General aspects of the regulation of protein metabolism by diet and by hormones. Munro H. N. Allison J. B. eds. *Mammalian Protein Metabolism* 1964; Vol. 1:381-481 Academic Press New York.
27. Munro H. N. Adaptation of mammalian protein metabolism to amino acid supply. *Proc. Nutr. Soc.* 1969;28:214-225
28. Oddoye E. A., Margen S. Nitrogen balance studies in humans: long-term effect of high nitrogen intake on nitrogen accretion. *J. Nutr.* 1979;109:363-377
29. Pacy P. J., Price G. M., Halliday D., Quevedo M. R., Millward D. J. Nitrogen homeostasis in man: the diurnal responses of protein synthesis and degradation and amino acid oxidation to diets with increasing protein intakes. *Clin. Sci.* 1994;86:103-116
30. Price G. M., Halliday D., Pacy P. J., Quevedo M. R., Millward D. J. Nitrogen homeostasis in man: influence of protein intake on the amplitude of diurnal cycling of body nitrogen. *Clin. Sci.* 1994;86:91-102



31. Rand W. M., Young V. R. Statistical analysis of nitrogen balance data with reference to the lysine requirement in adults. *J. Nutr.* 1999;129:1920-1926
32. Rennie M. J., Smith K., Watt P. W. Measurement of human tissue protein synthesis: an optimal approach. *Am. J. Physiol.* 1994;266:E298-E307
33. Young V. R. Nutritional balance studies: indicators of human requirements or of adaptive mechanisms. *J. Nutr.* 1986;116:700-703
34. Young V. R., Gucalp C., Rand W. M., Matthews D. E., Bier D. M. Leucine kinetics during three weeks at submaintenance-to-maintenance intakes of leucine in men: adaptation and accommodation. *Hum. Nutr. Clin. Nutr.* 1987;41:1-18
35. Young V. R., Pellett P. L. How to evaluate dietary protein. Barth C. A. Schlimme E. eds. *Milk Proteins* 1988:7-36 Steinkopff-Verlag Darmstadt/Springer-Verlag, New York.

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