



**Fenestra Research Labs**

*The World Leader In Wellness Studies*

Preliminary Study  
For Quantum Age Water  
Product: the Stirwand  
By Fenestra Research Labs

**Overview of 5-person 14-day study:**

This preliminary study looked at 5 test subjects over a two week period. Each subject was to consume one-half their weight in ounces daily of water. Three subjects consumed only purified water after being stirred with the **Stirwand** for 20-seconds just before drinking for the duration of this study. Two subjects consumed only tap water after being stirred with the **Stirwand** for 20-seconds just before drinking for the duration of this study. One subject from the purified water consuming group had blood draws to evaluate oxygen levels at baseline and at the end of this study.

**\*No changes were made to diet, exercise or other fluid intake for the duration of this study.**

All subjects tolerated this product well and showed improvement in some areas of measurement.

**Inclusion Criteria:**

1. Subjects who have signed a written informed consent consistent with required guidelines meet prior to participation in the trial.
2. Subjects 18 years of age or older without any restriction to sex.
3. Subjects whose **Optimal Wellness Test** indicated they were at least 35% out of balance for standard Wellness in the Hydration and Toxicity indicators (in the red zone).
4. Subjects who were able to follow the protocol as designed by **Quantum Age Water** and **Fenestra Research labs**.



## Exclusion Criteria

1. Subjects with a history of serious diseases or illness diagnosed at this time.
2. Subjects with known moderate or severe renal insufficiency.
3. Subjects with a recent history (i.e., 6 months or less prior to Visit 1) of myocardial infarction.
4. Subjects who regularly use oxygen therapy.
5. Subjects with known active tuberculosis.
6. Subjects with a history of cancer within the last 5 years.
7. Subjects with treated basal cell carcinoma are allowed.
8. Subjects who have undergone thoracotomy with pulmonary resection.
9. Subjects who are currently in a pulmonary rehabilitation program or who have completed a pulmonary rehabilitation program in the 6 weeks prior to the screening visit (Visit 1).
10. Subjects on any current medications that are diuretics, cardiac stimulants, or any other prescribed or non-prescribed medication that may alter testing results.

## **Optimal Wellness Test** Provides Analysis of:

Test	Urine	Saliva
pH	x	x
rH2 (oxidation and reduction)	x	x
r (resistivity)	x	x
C (conductivity)	x	x
Nitrate	x	
Ammonia	x	
Brix (refractometry)	x	



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Specific Gravity	x	
Oxidative Stress	x	x
Cellular Respiration	x	x
Renal Balance	x	
Hepatic Balance	x	x
Digestion	x	x
Hydration	x	x
Toxicity	x	x
Adrenal Balance	x	
Protein digestion	x	
Carbohydrate digestion	x	
Blood sugar Balance	x	
Anabolic State	x	
Catabolic State	x	
Surface Tension		x



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## **Parameters *Optimal Wellness Test* provides**

### **Hydration & Four Associated Parameters**

#### **Hydration**

There are four ***Optimal Wellness Test*** parameters used to determine overall hydration:

Conductance  
Resistivity  
Surface Tension  
Specific Gravity

This involves a proprietary mathematical formula based on the four parameters (Conductivity, Resistivity, Surface Tension, and Specific Gravity) to determine whether or not a person is moving towards or is within the wellness range. The more a person is outside the range for hydration Wellness the more dehydrated they are considered to be.

To measure the four components for cellular hydration computation it is vital to analyze saliva, and urine samples from the body.

The foundation of evaluating the electrical properties in the ***Optimal Wellness Test*** technology is the basic formula  $C = R/V$ , which is Ohm's Law. Through the interplay of voltage with both Conductivity and Resistivity some basic knowledge about intra and extra cellular hydration can be accessed. Conductivity is related to intracellular hydration and Resistivity is related to extracellular hydration. With the fluid samples obtained from each person in the Quantum Age Water Study these parameters can be measured and evaluated. Specific Gravity and Surface Tension pertain more to chemical content but still relate to electrical properties of the body. Surface tension is directly related to inward molecular attraction, with the obvious implication that if solids are suspended properly via molecular combinations with H<sub>2</sub>O then the fluids of the body will have lower surface tension. Specific gravity of any given bodily fluid reveals the content of solids in solution, with higher and higher concentrations of



solids –both intra and extra cellular – raising the specific gravity number as a possible indicator of dehydration.

### **Conductivity**

Conductivity is a measurement of the amount and quality of electrical current in the body. Salts are electrolytes and they are responsible for the electrical conduction of information in the body. Conductivity looks at the measurement of the quantity of current flow within the biological specimen and is an indicator of osmotic pressure, heat loss, and fluid balance. If the current in the body is too high or too low there will be symptoms of degeneration of the body. Osmotic pressure comes in to play also here.

### **Resistivity**

Resistivity reflects the flow of ions across cellular membranes. The resistivity is the measurement of the relative concentrations of minerals contained within the tested sample. The slight difference in the concentration of minerals found in the plasma vs. the amount found inside the cells creates a voltage gradient called the membrane potential. Therefore, resistivity is a direct reflection of the body's ability to conduct electrical currents.

### **Surface Tension**

The surface tension of fluids in the body can be compared through technological analysis with that of pure water. Higher surface tension implies a decreased capacity for cellular permeability for any given fluid.

Surface tension of a fluid can be defined as inward molecular attraction forces, which must be overcome to increase the surface area. Surface tension is the energy required to increase the surface area of a liquid by a unit amount.

In water the intermolecular hydrogen bonds are involved in the inward attraction forces. The surface tension of water at 20 degrees centigrade is  $7.29 \times 10^{-2} \text{ J/m}^2$ .



## **Specific Gravity**

Mathematically specific gravity is similar to density. Specific gravity is defined as density of a substance divided by the density of water. Since the units will cancel out in any computation it simply means that the only difference between specific gravity and density is that there are no units associated with specific gravity, as is the case with density.

With bodily fluids density is a function of the types and amounts of solids found in solution. The more there is of substances in solution that are heavier than water the higher the density will be. With dehydration, whether it is intra or extra cellular, the density of fluids will be higher because the water content goes down as the solids go up. The converse is true for increased hydration.

## **Other indicators**

### **pH**

The pH is a measurement of the concentration of hydrogen ions within the various body fluids. The lower the pH, the more acidic the solution; conversely, the higher the pH, the more alkaline the solution is. The pH is measured on a logarithmic scale, meaning that for each change of one pH unit, there is a tenfold change in the concentration of H<sup>+</sup> ions in the fluids.

The normal range for venous blood is 7.30 to 7.35. This slightly alkaline pH is due to the reservoir of bicarbonate ions in the blood that act as physiologic buffers and maintain the normal pH range. The perfect number for fasting urine and saliva is 6.4. These fluids tend to be more acid due to the removal of acid that is taking place in these body fluids.

## **ORP (Oxidation-Reduction Potential)**

The oxidation-Reduction potential is a true value. It is the actual measure of the fluids milli-volt (mV) potential, the measurement of the fluid's ability to donate or accept electrons. The higher the ORP, the more reduced intermediates are in the specimen, meaning the fluid is



active, charged, and has the ability to create energy. When the fluid is oxidized, the fluid has lost its capacity to create energy.

### **Oxidative Stress (rH2)**

Oxidation is the combination of oxygen with other elements. In physiological terms, oxidation is defined as the gain of an oxygen molecule or the loss of a hydrogen particle (electron), during cellular respiration. Through a complex series of reactions (ATP cycle), the energy source for all biochemical processes in the body, is ultimately produced. This step-by-step removal of pairs of electrons from a substrate is the means by which food is converted into cellular energy. The end result of cellular respiration is the creation of energy (ATP), carbon dioxide, water and metabolic isolates.

The rH2 value is a derived measurement. It is a calculation from the OPR (oxidation-reduction), the pH and the temperature of the fluid. The normal for urine is 22.5-24.5 and for saliva 21.5-23.5

### **Brix**

The refractometer is an instrument that is used to relate the amount of refractive light in a liquid or a dissolved solid. The unit of measurement that the refractometer uses is called degrees Brix. The Brix number represents the amount of potential energy available. This potential energy is in the form of heat (calories), electro-magnetic attraction, conductivity, and matter.

If the Brix number falls below 1.2 the oxygen levels in the blood may be decreased and the body will not circulate enough oxygen. If the Brix number falls above 5.49 the oxygen levels may be higher than it needs to be, resulting in calcium absorption problems. This number being brought within range will often have the largest effect on your client's state of well-being!



### **Urea numbers- Nitrate and Ammonium**

Both of these numbers influence the electromagnetic picture of the body fluids. Together they determine the amount of energy being lost from the system. Nitrate and ammonium are related to digestion, and they provide a look at the amount of usable energy being produced by digestion. The chemical reaction that takes place between food and digestive enzymes is vital to Wellness. The correct balance of water, calcium, and oxygen in the body is necessary for usable energy to be the result.

The nitrate and ammonium particles are the result of poor digestion. For the liver to make energy the liver incites the urea cycle to occur. The body cannot use amino acids that have not been digested properly. Another cause of ammonium production is bacterial metabolism in the intestinal lumen. This released ammonium is absorbed and transported to the liver. The liver treats the nitrates and ammoniums as toxins because the poor digestion has rendered the byproduct unusable. This unusable material is converted into urea and stored in the body. Urea can only be stored for 72 hours before it becomes toxic, at that time the urea is broken down to urea salts of Nitrate and Ammonium Nitrogen. The numbers for perfect digestion are 3 nitrate and 3 for ammonium.

### **Toxicity**

Toxicity is an assessment of what the body is containing too much of causing a toxic relationship between the substance and the cellular body. Here we have several different mathematical representations of ammoniums, nitrates, salts, oxygen, urea's and other toxic materials that may be present in the body. Significant changes in toxicity have not been observed in studies less than three months in duration.

### **Protein Digestion**

The importance of protease enzymes is directly related to protein digestion. Proteases refer to a group of enzymes whose catalytic function is to hydrolyze (breakdown) proteins.



Proteolytic enzymes are vital in digestion as they breakdown the peptide bonds in the protein to liberate the amino acids required by the body.

Enzymes break down undigested protein, cellular debris, and toxins in the blood, sparing the immune system this task. This measurement of protein digestion is a strong indicator of how well the cellular body can handle and destroy attacks on the body. One of the ways that acidity is created is through the digestion of protein. Therefore a protease deficiency results in alkaline excess in the blood.

### **Carbohydrate Digestion**

Many of the vital chemical reactions that take place in the cell require energy, which is derived from the oxidation of the glucose within the cell. Measuring and evaluating carbohydrate metabolism provides you with a thorough look at the cellular functions, limitations and possible shortcomings of the body.

### **Cellular Respiration**

The series of metabolic processes by which living cells produce energy through the oxidation of organic substances. This measurement provides us a look at the most efficient way for cells to produce energy stored in food. Cellular respiration is a catabolic pathway for the production of adenosine triphosphate (ATP), a high-energy molecule, necessary for working cells. We provide a mathematical measurement of the bodies' ability to produce energy and predict how that ability can be enhanced as well as increase its efficiency.

### **Renal (Kidney) Balance**

This calculation is a measurement of the kidneys ability to excrete wastes products and the ability of the body to maintain the electrolyte balance. The proprietary measurement of fluids provides us a look at the function of and clues to rebalancing the kidneys. Hydration plays a significant roll in normalizing kidney function. Considerable changes in kidney function have not been seen in studies less than three months.



## Hepatic (Liver) Balance

This measurement provides a look at the ability of the liver to impart its normal functions. Each day the liver is required to make millions of chemical reactions occur for necessary body functions. The pH plays an important roll in the ability of the liver to perform its functions because enzymes, hormones and many of the livers other chemicals are pH dependant for their strength and ability to provide reactions. The liver requires body fluids to be flowing and not stagnant to maintain normal functions. Changes in liver balance have not been seen in studies less than three-months in duration.

\* **Blood Oxygen Levels** were drawn at the baseline and at the end of the two week period on one subject.

## CONCLUSION

Significant changes to hydration were seen in all subjects in both groups.

Significant changes to oxygen levels were seen in all subjects in both groups.

### GROUP 1

The group of 3-subjects who consumed purified water had hydration increases of 18.4%, 22.1%, 19.8%. This group also showed increases in oxygen levels of:

- |                            |                                 |
|----------------------------|---------------------------------|
| 1. Subject 1- baseline 88% | 2 <sup>nd</sup> week test 96%   |
| 2. Subject 2- baseline 89% | 2 <sup>nd</sup> week test 98%   |
| 3. Subject 3- baseline 88% | 2 <sup>nd</sup> week test 98%   |
| 4. *Subject 3-baseline 87% | 2 <sup>nd</sup> week test ` 99% |

\* Indicated blood oxygen levels were drawn

The color zone indicators for hydration, which were all in the red zone at the beginning of study, all shifted more positively into the yellow zone. This is a very powerful indicator as it measures and evaluates the body's cellular hydration levels.



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### **Group 2**

The group of 2-subjects who consumed tap had hydration increases of 16.9% and 20.1% This group also showed increases of oxygen levels of:

- |                            |                               |
|----------------------------|-------------------------------|
| 1. Subject 1- baseline 87% | 2 <sup>nd</sup> week test 92% |
| 2. Subject 2- baseline 88% | 2 <sup>nd</sup> week test 92% |

The color zone indicators for hydration, which were all in the red zone at the beginning of study, all shifted more positively into the yellow zone. This is a very powerful indicator as it measures and evaluates the body's cellular hydration levels.

There are no quotable facts to be drawn from this study in my opinion as the group was too few in numbers. The conclusion can be drawn that this product introduced into water may increase the health benefits of consuming water.

It is recommended that a minimum 30-day 70-subject study be done with this product. With 50-subjects using the Stirwand on a specific water source of water and 20-subjects using the same water source without the addition of the Stirwand. This control group study is a powerful tool to provide measurable facts as to the benefits that may be gained by using this product over water alone.

In addition a 6-month study of at least 50-subjects is a strong indicator of safeness and effectiveness for your product.

Thank You,  
Melonie Montgomery  
President  
**Fenestra Research Labs**