



**Fenestra Research Labs**  
The World Leader in Wellness Studies

**Human Clinical Trial**  
Evaluating the Safety and Efficacy of

**The “StirWand™”**

A Randomized,  
Placebo Controlled Study

FINAL REPORT  
SUBMITTED TO:  
**Quantum Age Water**  
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## 1.0 STUDY PURPOSE

The purpose of this clinical study was to evaluate The **Stirwand's** ability to improve intra-cellular hydration, blood oxygen levels, cellular detoxification, heavy metals, ATP and pH.

## 2.0 STUDY OVERVIEW

The use of this product Stirwand™ For the Phase I trial, the Stirwand™ device was used as a stir stick in a 10 ounce glass of standard purified water. The Stirwand™ was used to stir the glass of water for 30-seconds, and then the water was consumed by the subject.

This was a 90-day, 125-subject study using subjects drawn from a large population of people in general good health but suffering from dehydration. The patients were randomized into two groups and drank either tap water or active treatment water.

The direct objective of this investigation is the performance of the test product compared to the placebo (tap water) in improving/increasing hydration levels at the cellular level.

This study was performed by FENESTRA RESEARCH LABS clinical study personnel in Las Vegas, Nevada. The *OPTIMAL WELLNESS TEST* portion of this research was done using proprietary devices and methodologies developed by FENESTRA RESEARCH LABS.

## 3.0 PROTOCOL

### 3.1 Screening and Follow-up

Following an initial screening at Visit 1 (week 0), subjects entered a 1-week baseline period (subjects were told to refrain from taking any unnecessary OTC's, prescription drugs, or natural products for the remainder of the study).

Subjects who met all inclusion criteria and none of the exclusion criteria during the intake at Visit 2 (week 1) were then provided either the placebo water (tap water) or were provided their own Stirwand™ along with a protocol describing daily dosing amounts and kind of water to be consumed exclusively.

The second evaluation on Visit 3 (week 3) was performed following standard procedures and the study's protocol was again gone over with each subject on an individual basis. Evaluations of test subjects were completed on visit 4 (week 5), on visit 5 (week 9), and the final testing was done on visit 6 (week 14) of the trial.

Each subject was provided enough purified water for them to drink one-half of their weight in ounces daily.

Each subject was instructed that they were only to consume their specific water product and under no circumstances were they to drink any other water product alone or in any water mixed product.

A contact phone number was provided each test subject so they could contact us for more water or a replacement Stirwand™ if they required any before their visit to the office.

All subjects were instructed to make no changes to their daily food consumption in regards to the amount or the types of food they were consuming daily.

Each subject was provided a Stirwand™ to take home with them for water technology use before drinking any water.

Twenty five randomized subjects had arterial blood drawn for the purpose of measuring Oxygen Saturation through standard laboratory practices. Each draw was done from the lower part of either the right or left arm.

Each draw was collected in three separate red top vials on each draw occasion. The single reported measurement of each office visit is an average of the data from the three blood draws. Blood draws were done exclusively on these twenty-five subjects each time they were seen for this study.

**NOTE:** Compliance was monitored and maintained through bi-weekly phone calls.

## **4.0 Study Criteria**

### **4.1 Inclusion Criteria**

- A written informed consent consistent with required guidelines and meeting prior to participation in the trial.
- Male/female subjects 18 years of age or older.
- Subjects who are *Optimal Wellness Test* (OWT) indicated they were at least 35% out of balance for standard Wellness with respect to all of the hydration indicators and toxicity, indicators (the red zone).
- Subjects who were able to follow the protocol as designed by Quantum Age Water and Fenestra Research labs.
- Generally good health.

## 4.2 Exclusion Criteria

- History of head trauma.
- History of serious diseases or illness.
- Moderate to severe renal insufficiency.
- Recent history (<6 months prior to Visit 1) of myocardial infarction.
- Regular use oxygen therapy.
- Active tuberculosis, a history of cancer within the last 5 years (treated basal cell carcinoma allowed), thoracotomy with pulmonary resection within 1 year prior to the trial, 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).
- Current prescriptions for diuretic medications, cardiac stimulants, or any other medication that may, in the opinion of the Fenestra research staff, alter testing results.
- Use of opiate analgesics, prescribed or otherwise, obtained for recreation or for any treatment reason including migraine.
- History of drug addiction.
- Females who are pregnant, lactating, or nursing or who may become pregnant during the course of the study.
- Diagnosis as HIV-positive, diagnosis of AIDS, or with any neuromuscular condition including CP, MS, ALS, or Huntington's Chorea
- Uncontrolled hypertension (*e.g.* BP>150/100).
- Patients with any condition not previously named that, in the opinion of the investigators or intake staff, would jeopardize the safety of the patient or affect the validity of the data collected in this study.

## 4.3 Subjects

- 125-subjects
- 58-women
- 67-men

## 5.0 During this test the flowing parameters were measured using standardized equipment:

- Heart rate
- Blood pressure
- Respiration
- Pulse
- Oxygen saturation
- **\*Optimal Wellness Test**

**5.1 \*Optimal Wellness Test** Provides Analysis of:

Test	Urine	Saliva
pH	X	X
rH2 (oxidation and reduction)	X	X
Resistivity	X	X
Conductivity	X	X
Nitrate	X	X
Ammonia	X	X
Brix (refractometry)	X	
Specific Gravity	X	X
Oxidative Stress	X	X
Cellular Respiration	X	X
Renal Balance	X	X
Hepatic Balance	X	X
Digestion	X	X
Hydration	X	X
Toxicity	X	X
Adrenal Balance	X	X
Protein Digestion	X	X
Carbohydrate Digestion	X	X
Blood Sugar Balance	X	X
Anabolic State	X	X
Catabolic State	X	X
Surface Tension	X	X

**5.2 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 toward 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.

### **5.3 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 is 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 also comes in to play here.

### **5.4 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.

## **5.5 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  $7.29 \times 10^{-2} \text{ J/m}^2$ .

## **5.6 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.

## **5.7 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, ureas 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.

Both nitrates and ammoniums 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.

## **6.0 Heavy Metal Testing**

**6.1** Harmful heavy metals are a very real danger in our modern world. An estimated 65% of North Americans have high levels of heavy metals in their bodies. With scarce public recognition of the harm they cause, these heavy metals do untold damage to people's lives in terms of:

- Lessened vitality and health
- Degenerative disease
- Neurological diseases such as Alzheimer's and Parkinson's
- Cancer
- Heart disease
- Autoimmune problems
- Skin disorders
- Impaired mental function such as brain fog and depression
- 

These facts have become a standard in the Wellness Health Systems of the modern world we live in.

**6.2. The heavy metals tested for this study were:**

- Mercury
- Lead
- Cadmium
- Aluminum
- Nickel

## **7.0 RESULTS AND DATA ANALYSIS**

### **7.1 Hydration and other relevant analyses**



Both groups of test subjects had an average hydration saturation number of six percent at the Baseline testing. This number six is a representation. It appears through this laboratory's extensive hydration studies (61 to date) that perfect hydration occurs between 30%-50% cellular hydration levels. There are several other factors that also must be optimal or within range for this to make a significant change in cellular functions. These other factors are pH, ORP, and toxicity indicators.

**7.2** Certain physiologic parameters indicative of various states of toxicity, oxidative stress and hydration were measured during this study using OWT apparatus and calculation algorithms. OWT apparatus and calculation algorithms are proprietary and were developed by Fenestra Research Labs. All measurements were taken at baseline and again at each office visit.

**7.3** Parameters measured in both urine and saliva included: pH, rH<sub>2</sub> (a derived index of oxidative stress), ORP (redox potential), r (resistivity), conductivity, surface tension, specific gravity, nitrates, nitrites, ammonias', and urea's.

**8.0** There are 39 measurements taken with the *OWT*. The above named parameters are discussed in this document as there were relevant changes in them.

Generally speaking, these parameters were chosen because they relate to ionic content, Zeta potential, the cells, extracellular fluids, hydration indicators, the presence of reduced or oxidized bimolecular, and the first, in some cases even pre-symptomatic, stages of degeneration.

Measuring parameters in saliva and urine can be indicative of the state of hydration in tissues and the body's ability to absorb nutrient and palliative chemicals and to get rid of toxins, metabolites, and tissue degradation residues, many of which stimulate further inflammation and pain.

**There was no statistically significant change in any parameter measured for the placebo group.**

**A very significant change in all parameters measured was seen in the active product group - approximately thirty-two percent**

### **8.1 Nitrates**

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 18.4%. 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 bodies' 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 bodies' ability to create homeostasis.

This study also indicates a change in the amount of toxins being stored in the intracellular body – a decrease 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 in the body is the movement of water as fluids moving throughout the body become more fluid 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 change was seen in the placebo.

## **8.2 pH**

The pH indicators provided within the *Optimal Wellness Test* indicate a positive move toward neutral pH in regards to the wellness parameter of those in the live product group of up to 27.2%.

This shift in pH toward a more neutral cellular chemistry may be due to the aforementioned chemical changes occurring in the reduction of nitrates and toxins. Many studies have shown the importance of maintaining neutral cellular chemistry for increasing one's ability to experience wellness.

## **8.3 Oximeter**

Oximetry is a noninvasive method of measuring arterial blood oxygen saturation (Sao<sub>2</sub>). This measurement is the ratio of oxygenated hemoglobin to the total amount of hemoglobin in the blood sample. The oximeter is typically used to monitor a patient's oxygen saturation during surgery or in any clinical situations where there is a need to know how much oxygen is circulating in our patient's blood stream.

Each subject in this study had their oximeter values recorded at each office visit. The average number at Baseline was 86% overall.

The live product group measured a significant improvement from Baseline to week-1 in oximeter measurements. This significant change was approximately 13% overall. The average on the last day of this study was 98% overall.

The placebo group measured NO significant changes from Baseline to the last day of this study in oximeter measurements. The average on the last day of this study was 87% overall.

## **8.4 Heavy Metals**

The heavy metals were tested using arterial blood draws on each subject at Baseline and on the last day of this study (90 days). The amount of these metals that we should see at the time of testing is 00ppm.

**The placebo group measured NO significant changes from Baseline to the last day of this study overall. The average at Baseline was:**

29 ppm Mercury

96 ppm Lead

38 ppm Cadmium

109 ppm Aluminum

18 ppm Nickel

**The average at the last day of this study:**

29 ppm Mercury

95 ppm Lead

38 ppm Cadmium

110 ppm Aluminum

20 ppm Nickel

**The active group measured significant changes from Baseline to the last day of this study overall. The average at Baseline was:**

32 ppm Mercury

89 ppm Lead

35 ppm Cadmium

105 ppm Aluminum

14 ppm Nickel

**The average at the last day of this study:**

8 ppm Mercury

52 ppm Lead

11 ppm Cadmium

56 ppm Aluminum

6 ppm Nickel

**The active groups' removed ppm:**

24 ppm Mercury

37 ppm Lead

24 ppm Cadmium

49 ppm Aluminum

8 ppm Nickel

## **8.5 Cellular Toxins**

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 19.4%. 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 bodies' ability to remove urea stores before they can become nitrates and toxins. The placebo group showed no significant changes in nitrate indicators for the duration of this study (90 days).

## **8.6 Blood Oxygen**

Subjects had arterial blood drawn at Baseline, 1-week, 2-weeks, and 4-week intervals. Three 3cc samples were collected and analyzed. The change in blood oxygen was measured using the average number between the three vials taken at each draw.

## **9.0 Conclusions**

Based on the statistical analysis of the study's data showing a consistent contrast between treatment groups over time, and the complete lack of known side effects, interactions, or contraindications from the water technology known as Stirwand. The use of the Stirwand has been

shown to be a safe and highly effective means of increasing cellular hydration, blood oxygen, ATP (Adenosine Try-Phosphate), as well as safely decreasing cellular toxins and Heavy Metals.

## **Hydration**

Statistical analysis of the study's data shows a significant improvement in the cellular hydration of approximately 32.4% overall in the active product group. **This number stayed consistently the same from the third week of the study through its last day.**

Statistical analysis of the study's data shows NO significant changes in the cellular hydration of the placebo product group.

## **Nitrates, Heavy Metals**

Statistical analysis of the study's data shows a significant improvement in the removal of harmful; nitrates, mercury – 75%, lead – 41.57%, cadmium – 68.57%, aluminum – 46.66%, and nickel – 57.14% in the active product group at the 90 day mark. Statistical analysis of the study's data shows NO significant change in the removal of harmful; nitrates, mercury, lead, cadmium, aluminum, and nickel in the placebo group.

## **ATP**

Statistical analysis of the study's data shows a significant improvement in the ATP, carbohydrate side of the energy cycle, showing an 11.3% improvement overall in the active product group. Statistical analysis of the study's data shows NO significant change to the ATP, energy cycle in the placebo product group.

## **Blood oxygen**

Statistical analysis of the study's date shows a significant improvement of approximately 13.5% overall in the blood oxygen saturation as measured by the oximeter in the active product group. Statistical analysis of the study's data shows NO significant improvement in the blood oxygen saturation as measured by the oximeter for the placebo group.

Statistical analysis of the study's data shows a significant improvement of approximately 12.8% overall in the blood oxygen saturation as measured in arterial blood samples in the active product group.

Clinical Blood Microscopy was performed on twenty-five subjects randomly chosen for this study. Arterial blood was drawn and placed between two glass slides and then analyzed and compared by a certified Clinical Microscopy specialist. A significant improvement in the blood samples was seen in all twenty-five subjects tested.

Statistical analysis of the study's data shows NO significant improvement in the blood oxygen saturation as measured in arterial blood for the placebo group.

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