

The word "PULSE" is rendered in a bold, blue, sans-serif font. The letters are slightly transparent, allowing the background to show through. The background is a dark blue field filled with intricate, glowing, and branching patterns that resemble a complex network of energy or a microscopic view of a material. A faint, white, jagged line, similar to an ECG or a signal waveform, runs horizontally across the middle of the image, passing behind the text.

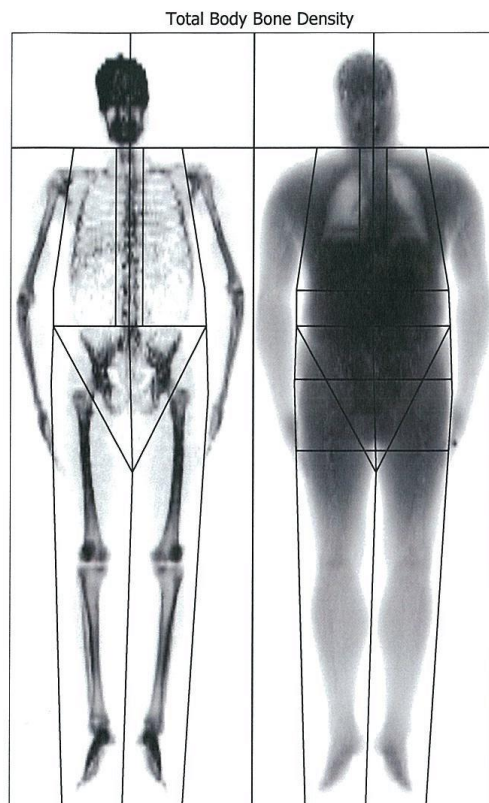
# PULSE

Pulse Centers Presents: PEMF Research Behind the Results

# The Power of PEMF

## Total Bone Density test of Pulse Centers founder

The Integrative Longevity Institute of Virginia conducted a Total Bone Density test of Paul Webb, founder of Pulse Centers. Paul uses the Pulse XL PRO system every day, logging thousands of hours on it over the years. The little square at the top of the grid are Paul's results, the highest percentile possible. Dr. Parker, MD, in 30 years of testing has never seen a perfect score before this test.



### Integrative Longevity Institute of Virginia - ILIV

5041 Corporate Woods Drive; Suite 200

Virginia Beach, VA 23462

<b>Patient:</b>	Webb, Paul	<b>Referring Physician:</b>	L. Titus Parker
<b>Birth Date:</b>	05/23/1963 50.3 years	<b>Facility ID:</b>	
<b>Height / Weight:</b>	69.0 in. 203.0 lbs.	<b>Measured:</b>	09/12/2013 11:14:51 AM (12.30)
<b>Sex / Ethnic:</b>	Male	<b>Analyzed:</b>	09/12/2013 11:14:51 AM (12.30)

#### Total Body (Total) Results

<b>BMD (g/cm<sup>2</sup>)</b> <sup>1</sup>	1.450
<b>T-Score (SD of young-adult BMD)</b> <sup>2</sup>	2.9
<b>Z-Score (SD of age-matched BMD)</b> <sup>3</sup>	2.3

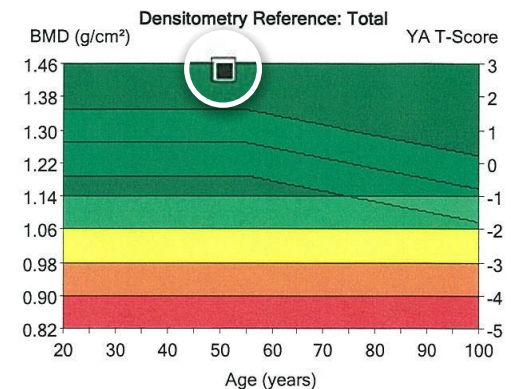


Image not for diagnosis

Printed: 09/12/2013 11:15:30 AM (12.30)76:0.15:153.85:31.2 0.00:-1.00  
4.80x13.00 16.0:%Fat=30.2%  
0.00:0.00 0.00:0.00  
Filename: 04q0tmc2k.dfb  
Scan Mode: Standard 0.4 µGy

1 - Statistically 68% of repeat scans fall within 1SD ( $\pm 0.010$  g/cm<sup>2</sup> for Total Body Total)  
2 - USA (Combined NHANES (ages 20-30) / Lunar (ages 20-40)) Total Body Reference Population (v112)  
3 - Matched for Age, Weight (males 25-100 kg), Ethnic

# Whole Body Assessment

Whole Body Assessment of Pulse Centers founder, Paul Webb. Dr. Martin Milner conducted a capacitance test.

Phase Angle is the measurement of your body's overall health; lower phase angles appear to be consistent with either cell death or a breakdown of the cell membrane. Higher phase angles appear to be consistent with quantities of intact cell membranes and body cell mass.

Capacitance, somewhat like phase angle, is a measurement of cell membrane health that can change dramatically depending on disease or good health. Paul tested 602 points above the norm (1574 vs 972). This is the highest capacitance score ever recorded.

*"Using bioimpedance (body composition) equipment, I documented well above optimal levels of cellular capacitance in [Paul], who in his personal use has completed over 1,200 (as of 6/08) hours of high-intensity PEMF. In thousands of patients, over ten years of bioimpedance testing in my practice I have never recorded such high levels. These objective results are verification of the exceptionally enhanced ability of Paul's cell membranes to take in nutrients and remove waste products of metabolism."*



**Dr. Martin Milner**

Center for Natural Medicine Professor, Portland OR

## WHOLE BODY BALANCE ASSESSMENT

Body Composition and Nutritional Status, copyright 2000,

NAME: <u>Paul Webb</u>	AGE: <u>45</u>	IDEAL WT: <u>166</u>		
DOB / ID#:	<u>M</u> / <u>F</u>	HEIGHT: <u>5'10"</u>		
DATE: <u>6/19/08</u>				
	TEST #1	TEST #2	TEST #3	NORMS
<b>BODY COMP</b>				
% Fat	<u>15.1</u>	<u>17</u>		<u>17.6</u>
% BCM	<u>47.1</u>			<u>40.5</u>
% ECM	<u>37.8</u>			<u>41.9</u>
Fat lbs.	<u>24.5</u>			<u>21.1</u>
BCM lbs.	<u>92.4</u>			<u>48.6</u>
BMI	<u>28.1</u>			<u>27.49</u>
Weight	<u>196</u>			<u>166</u>
Exercise Level (0-4)	<u>1</u>			
Resistance	<u>326</u>			
Reactance	<u>54</u>			
<b>FLUID BALANCE</b>				
ICW	<u>67.5%</u>			<u>64.8%</u>
ECW	<u>32.5%</u>			<u>35.2%</u>
Total Body H <sub>2</sub> O%	<u>63.7%</u>			<u>57.6</u>
<b>CELLULAR HEALTH</b>				
<u>Capacitance</u>	<u>1574</u>	<u>972</u>		<u>972</u>
Phase Angle	<u>9.2</u>			<u>8.2</u>
BMR	<u>2196</u>			<u>1781</u>
Daily Calories				
Other				
Other				

Normal body fat: Age 20-30 M 16-18% F 18-22% Age 40-50 M 20-30% F 25-35%  
Optimal Intracellular Fluids: Men 63%+ Women 60%+



# FDA approved for bone growth

## Dr. Blackman's amazing recovery

The FDA has approved PEMF devices for bone growth. Dr. Blackman's fractured arm is an example how 'high intensity' PEMF helped repair his arm in just 9 days (note European dates are day-month-year) to the point where there is no visible sign of any fracture remaining. Dr. Blackman is an owner of our PEMF Cellular Exercise system and practices in Amsterdam Netherlands.

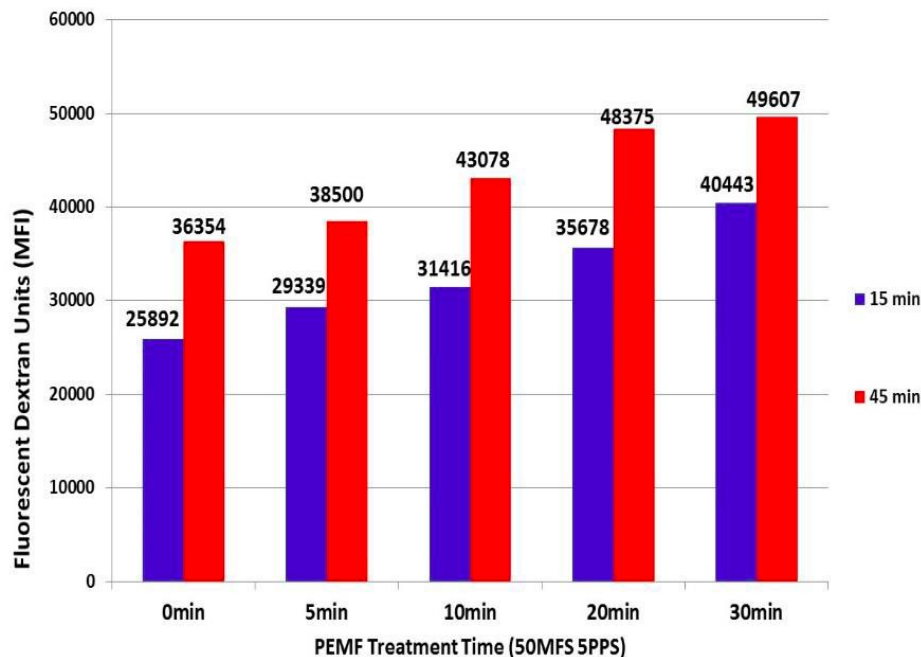




# Effects of PEMF on Mouse Bone Marrow-Derived Macrophages

Royena Tanaz, Brittany P Lassiter, China M. Kummitha, Nicola Lai and Stephen J Beebe

Conducted at the Frank Reidy Research Center for Bioelectrics at Old Dominion University



Full study available upon request.

## Results:

- **55.2% increase** in first 15 minutes
- **36.6% increase** at 45 minutes
- **Holding at 36.6%** over 3 hours

The rate of phagocytosis (the process by which certain cells engulf and destroy microorganisms and cellular debris) is greater in cells that have been treated with PEMF.

# PEMF and Heart Disease

## Reversal of a Case of Advanced Coronary Artery Disease with Unstable Angina Using Pulsed Electromagnetic Field (PEMF) Cellular Exercise

by Martin Milner, ND

It is wonderful to both the patient and physician when, after years of failed trials in both conventional and alternative medicine, a safe, natural method of cellular exercise makes dramatic change in a case of serious chronic disease. This case is an extraordinary example of reversing end-stage coronary artery disease with pulsed electromagnetic field cellular exercise (PEMF). The case also elucidates critical monitoring and decision-making horizons throughout patient management.

### **The Case**

SH, a 65-year-old, very pleasant white Caucasian female, presented to our clinic with advanced coronary artery disease, diabetes, hypertension, and obesity. Her cardiac history began in 1996, when she went into cardiac arrest and was successfully defibrillated and brought back to life. She did lose sensation in two of her toes at discharge from this hospitalization. This loss of sensation was presumed to be a complication of chest defibrillation. During this hospitalization, significant ischemic heart disease was diagnosed on cardiac catheterization, and two stents were deployed into the left anterior descending and right circumflex coronary artery.

### **Progression to Advanced Coronary Artery Disease**

As time progressed, her disease advanced, and a second angiogram involved the deployment of a third stent in her left

anterior descending coronary artery. Her ischemic heart disease progressed further, and in 2005 she underwent three vessel coronary artery bypass graft surgery where the LAD stents were bypassed along with bypass surgery of the left circumflex and bypassing a new occlusion in the right anterior descending coronary artery. At the time of this hospitalization, she was diagnosed with non-insulin-dependent diabetes mellitus and hypertension. Her diabetes advanced, and she became insulin dependent in 2008.

### **Cardiac Selective Beta 1 Blocker Affecting Asthma**

SH began seeing me in January 2006. At that time, her biggest concern was to be able to reduce her prescription drug load. She had a history of asthma and was being prescribed atenolol for hypertension. Even though atenolol is a cardiac-selective beta 1 blocker, it may aggravate asthma in sensitive patients. Recall that beta 1 cardiac-specific blockers do not affect beta 2 receptors and in general do not exacerbate asthma, unlike beta nonselective blocking drugs such as propranolol. The uncommon effect of beta 1 blockers' aggravating asthma may be due to their tendency to reduce sympathetic tone overall beyond the heart causing bronchial constriction.

### **Drug Side Effects and Gradual Weaning of Atenolol**

Additional side effects that she was experiencing included leg

cramps from Lipitor and a dry cough from lisinopril. She was taking bioidentical hormones via her obstetrician. Through 2006 she was very gradually weaned off Atenolol over a six-month period. She experienced great difficulty getting off the last 6.5 mg, with rebounding rapid heart rate. It is important to always wean any cardiac arrhythmic or coronary artery disease patients off beta blockers gradually. The rebounding tachyarrhythmia induced by too-abrupt weaning can be life threatening. Once we successfully brought her down to 6.25 mg, her asthmatic breathing resolved. Apparently, in this patient, the cardiac specificity of Atenolol crossed over and somehow affected beta 2 adrenal receptors in the bronchial tubes, aggravating her asthma.

### **Modifiable Metabolic Markers of Heart Disease**

Our initial work-up included a comprehensive profile of modifiable metabolic markers of heart disease, including a lipid panel with lipoprotein A and lipid fractionation, homocysteine, CRP-HS, fibrinogen, and bleeding time. Her homocysteine had not been formerly measured and was 11.4 in January 2006, reduced to less than 6 since June 2006 with routine homocysteine-lowering B vitamin therapy, including B6, B12, and folic acid.

### **Advanced Coronary Artery Disease**

#### **Progressing to Congestive Heart Failure, then Remitting**

This first year of management also focused on better control of her hypertension. However, she developed progressive unstable anginal chest pain at rest. An April 2007 angiogram reveals severe obstructive disease involving a nonrevascularized diagonal branch of the LAD with the native bypass graft unchanged. A high-grade distal lesion at LAD evolved into worsening chest pain.

### **Continuous Nitrate Prescribing**

#### **Adjustments from Arginine to Isosorbide**

During SH's enhanced external counterpulsation (EECP) treatment, the referring cardiologist in collaboration with our office adjusted the nitroglycerine management. I had initiated the pre-

scribing of arginine 900 mg, 2 t.i.d. with gamma-tocopherol 200 IU, b.i.d. in March 2007. This was unsuccessful in controlling chest pain and was discontinued in September 2007. Concurrent nitrate therapy was added with isosorbide dinitrate ER, 40 mg q.d. in April 2007 to further aid in the management of her ischemia and unstable chest pain at rest. This was increased to 40 mg b.i.d. and ultimately one every six hours after arginine was discontinued in September 2007 to adequately control her progressing unstable chest pain at rest. At this point, SH was completely disabled, with unstable chest pain at rest with no activity.

Most ratings of coronary artery disease disability follow the following table from the New York Heart Association.

### **New York Heart Association (NYHA)**

#### **Cardiac Disability Rating Scale:**

I = no symptoms

II = symptoms with ordinary activities of daily living

III = symptoms with less than ordinary activity

IV = symptoms at rest

### **End Stage Coronary Artery Disease**

It doesn't get any more disabling than persistent unstable angina at rest. Having failed EECP and progressing to unstable angina with extensive prior CABG (coronary artery bypass graft) and stent deployments, conventional as well as alternative medicine interventions seemed to be used up. Although intravenous chelation was discussed, I questioned its ability to improve end stage disease and suggested we begin a trial of pulsed electromagnetic field (PEMF) cellular exercise.

### **Living Cells Are Direct Current Systems:**

#### **Treating the Electrical Cause of Disease**

Our living cells are electrical direct current (DC) systems. In fact, all life generates an electrical DC charge. This natural charge is

created by the movement of ions in and out of cell membranes, creating and maintaining a membrane charge of approximately 70 mV. Any challenge to the cell, such as oxygen/ nutrient deficiency, toxicity, tissue changes, or inflammation alters ion movement, and the charge on the cell membrane changes. This altered charge profoundly affects metabolic nutrition into and waste products out of the cell.

### **Pulsed Electromagnetic Field Cellular Exercise**

PEMF takes alternating current (AC) and transforms it into DC, producing variations ranging from low to high voltage. This voltage is passed through a coil, generating a safe, pulsed magnetic field around the coil. As the magnetic field is pulsed on, electrons are excited, and cells exposed to the magnetic field are exercised and expanded. The electrically charged cell membrane is gently pulled by the pulsing magnetic field, and the matter as well as the space around matter is recharged. On the off phase of the pulse, the cells relax. This is profoundly beneficial cellular exercise and cellular rehabilitation. As cells expand and relax, they rehabilitate, ion movement improves, and the membranes' electrical charge begins to return to optimal. As cells recharge themselves, they heal and return to optimal function. High-intensity PEMF is not a medical device in the US. It simply produces a pulsed magnetic field of varying strengths functioning as a cellular exerciser. It is not intended for the treatment, diagnosis, or prevention of any disease or condition.

### **Recovery of Toe Paresthesia After One Session**

We started using PEMF with SH in June 2008. After the first session of approximately 10 minutes over her chest and heart, she fully regained the sensation in the two toes of her left foot that had permanently lost sensation for the last 12 years. This lack of sensation has not returned as of this writing (February 2010). While this may sound miraculous, it actually makes sense, since it was hypothesized that the defibrillation during her cardiac arrest

induced the nerve damage. PEMF could very well recover that nerve damage. Nerve and heart cells are both extraordinarily ionically sensitive cell structures and respond exquisitely to the cellular exercise of a pulsed magnetic field.

### **Remission of Unstable Angina at Rest**

SH continued with PEMF session of 30 to 60 minutes two to three times a week. She became able to perform activities of daily living without chest pain after the first month of PEMF and was no longer experiencing chest pain at rest. Her isosorbide dose was lowered from three times daily back to twice daily. Her BNP dropped from a high of 699 to 126 by December 2008, confirming resolution of ischemic heart failure. Partial Relapse Followed by Remission She experienced a partial relapse with reduction of PEMF sessions from three times weekly to once weekly. However, upon purchasing her own machine in June 2009 and increasing the sessions to one to two hours daily, her ischemia improved further. She improved again to the point of never getting chest pain at rest or with mild activities of daily living. She was able to mildly exercise without chest pain, and her BNP was low at 134 as of July 2009.

Toward the end of December 2009 and thereafter, the patient upgraded her PEMF machine with enhancement in its pulse pattern. There were no other changes in her health-care regime. A BNP in Feb.

2010 came back very low at 63, indicative of further improvement in heart failure from the new pulse upgrade to the PEMF machine. She remains well as of this writing (February 2010) with no unstable chest pain episodes at rest.

### **Brain Natriuretic Peptide (BNP) as a Marker of CHF**

SH developed congestive heart failure in April 2007 due to advanced coronary artery disease verified with a mild elevated BNP of 342 pg/mL. BNP levels are the best blood marker for



heart failure. For patients with heart failure, BNP values will generally be above 100 pg/mL. A BNP above 100 pg/mL has a sensitivity of 90% and specificity of 76% for heart failure. A more conservative interpretation of the BNP is a normal value less than 50 pg/mL with a diagnostic “gray area” between 100 and 500 pg/mL, for which the test may be considered inconclusive. Values above 500 pg/mL are generally considered to be positive for heart failure. This gray zone has been addressed in several studies referenced below. It is best to combine BNP findings with clinical history, physical signs, and symptoms of heart failure along with periodic echocardiogram findings to aid in stratifying diagnostic severity. We were able to pull her out of heart failure for the entire second half of 2007 with levels well below 100 pg/mL.

<b>Date</b>	<b>BNP pg/mL</b>
May 2007	315
June 2007	699 Definitive ischemic CHF
July 2007	319
Aug. 2007	44
Oct. 2007	61
Dec. 2007	31

BNP levels were brought to a low of 31 pg/mL in December 2007 using bed rest (essential in unstable heart failure), an array of nutritional support, no or minimal Atenolol, and a referral for concurrent 45, one-hour, EECF treatments from July 2007 through January 2008. While SH was better during the EECF sessions, she quickly relapsed after completion of the 45th session, and just three months later she developed a recurrence of heart failure in April 2008 with a BNP of 291 pg/mL.

<b>Date</b>	<b>BNP pg/mL</b>
April 2008	291 relapse a few months after EECF
Oct. 2008	233 PEMF started 1-3 times weekly July 2008
Dec. 2008	126

Apr 2009	180
Jul 2009	134 PEMF sessions increased to daily June 2009
Oct. 2009	250
Nov. 2009	229
Feb. 2010	63 out of heart failure after one month of PEMF with upgraded technology

## Conclusion

A review of the electrophysiological effects of pulsed electromagnetic fields and the presentation of this case compel the reader to consider PEMF as one of greatest hidden breakthrough technologies of cellular exercise and cellular rehabilitation of the last century. Over 5,000 studies have been published worldwide over the last 40 years. It definitely warrants further investigation.

## Full Disclaimer

Pulsed electromagnetic fields (PEMF) are generators that produce a DC pulsed electromagnetic field of varying strengths delivered via insulated cables. No current of any kind comes into contact with the body. The magnetic field energy produced at the cable passes freely through living tissue for the purpose of cellular exercise to promote and support a sense of well-being. It is not a medical device. It has not been evaluated by the FDA. It is not intended for the diagnosis, treatment, or cure of any physical or medical condition. If you are experiencing the symptoms of a physical or medical condition, you should seek the advice of a medical professional before using PEMF as a form of cellular exercise.

## About Dr Millner

Dr. Milner received his ND from National College of Natural Medicine in 1983. He has remained at his alma mater for the past 23 years as professor of cardiovascular and pulmonary medicine. Dr. Milner is also the CEO and medical director of the Center for Natural Medicine Inc. (1983–present) in Portland, Oregon. CNM is in its 11th year providing a clinical training ground for naturopathic medical student interns and resident doctors, supervised by Dr. Milner. He is well published in endocrinology, cardiology, pulmonology, oncology, and environmental medicine. Dr. Milner cofounded BioMagnetic Relief LLC, dedicated to researching pulsed electromagnetic field as a form of cellular exercise.

*\*See back cover for article references*



The science presented in this brochure, as well as other research and the practical application throughout the years, is the foundation of Pulse Centers PEMF technology.

We recognize all PEMF based on this science is good for the user, but what sets our technology apart from others is our ability to adjust frequencies, intensities, and our unique accessories for maximizing PEMF benefits.

To learn more visit [www.pulsecenters.com](http://www.pulsecenters.com)

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- [www.BioMagneticRelief.com](http://www.BioMagneticRelief.com) – link to worldwide research



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34 Center Rd. Cartersville, GA. 30121 T: 770.334.2226 E: [info@pulsecenters.com](mailto:info@pulsecenters.com)