

## **THE IN VITRO STUDIES ON PREPARED MAGNETIZED WATER**

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### **Summary**

Modern medicine is evidence based. The evidence is derived from clinical research. Medical practices not part of modern medicine are collectively called as complementary and alternative medicine systems (CAMS). Various methods in complementary medicine have been practiced mainly based on experience rather than rational scientific exploration. Magneto therapy is one of such therapies, it is energy based practice. Alternating magnetic field/Pulsating magnetic field/ Magnets/Magnetized water is used in therapy. Magneto therapy broadly effective and regulates the natural system of body and rebalances altered functions. Above all, magneto therapy produces no harmful side effects, is not addictive, does not interfere with other therapies and is not expensive. The task of scientifically evaluating CAM medicines difficult but not impossible. The present study was driven by a desire to explore and uncover scientific predicaments of Magnetized water prepared at laboratory. 700 and 2000 Gauss strength magnets were used to prepare LPMW and HPMW respectively. The invitro studies has been done on muscle preparations using magnetized physiological solutions ; showed reduction in response The probable mechanism of action may be due to the alteration in movement of ions and inhibition of ion channels or combination of both. The exact mechanism is not known.

**Key words:** - CAMS LPMW (Low power magnetized water) ,HPMW (High powered magnetized water) , rectus abdominis, guinea pig ileum

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### Introduction

The entire cosmos is delicately balanced by magnetism. Earth is a big magnet. The ponderous flow of matter in earth's core acts, as dynamo is responsible for magnetic property of earth.<sup>1</sup> The magnetism of an atom or molecule of the substance is due to orbital and spins motion of electrons in it. Spin is everywhere, around every object in the universe. Spin forces produce rotation. Magnetic forces produce twist, push, and pull. Electric forces produce push or pull, gravity only pulls. In this way, the forces help to structure the universe. Man is tiny replica of universe. The life on earth is developed and evolved permanently under sun and influence of other fields. Magnetic field presence is universal and invisible. The electricity and magnetism are the twin manifestation of the same basic energy. All life exists in and responds to magnetic field of the earth. Water is the most abundant body constituent Water is less dense liquid than as solid. The elements of water namely hydrogen and oxygen are unusually reactive. The water molecule is electrically neutral, but positive and negative charges not distributed uniformly, this constitutes electrical dipole. This dipole, as electrical image of water molecule.<sup>2</sup> The water molecules joined by hydrogen bonding in a container hence, the whole mass of water in a container behaves as a single molecule. Intracellular water very close to any membrane or organelle is organized very differently from built water and that this structured water plays significant role in governing shape and biological activity of large folded biomolecules. The structure of water in this biomolecules is imposed solely by the geometry of the surrounding hydrogen bonding sites. The water molecules may form a 'thread' that can snake its way through more open space of the large molecules, that is water can have a highly organized local structures when it interacts with molecules capable of imposing these structure of water. All living system contains minerals in their bodies. They need to function properly. These minerals activate biological energy to power circulation in the blood, which, along with minerals produce magnetic field. The magnetic field activates and stabilizes liquids in the body as well as already existing magnetic field. The biological properties originate from and are expressible in term of biomolecules. The essential aspect of living system is the coherence of its biomolecules. Cooperative and coordinating function of biomolecules is responsible for various activities in organism.<sup>3</sup> The alteration in this entanglement of matter and energy state may lead to sick. Various energy fields like magnetic, electric, attractive, gravity and biophotons influence these activities. By manipulating either its matter or energy state or combination of two we can achieve healthy state. Magnetization transformed water into charismatic liquid. The trace elements present in water are responsible for retention of magnetic property in water.<sup>4</sup> There is lengthening of hydrogen bond, lengthen the water lattice after magnetization. The p<sup>H</sup> and redox potential of water alters when exposed to magnetic field. The reasons for this behavior are not clear but one possibility is that dissolved oxygen molecules, which are paramagnetic, may be involved.

### Materials and Methods

#### Preparation of magnetized water<sup>5</sup>

It was prepared by premier magnet with magnetic field strength 700 and 2000 Gauss. The magnetic field strength measured by Gauss meter at Department of Physics, IISc Bangalore. Gauss meter Model G-11/G-14 Mfg by Control systems and Devices, Bombay.

#### Low power magnetized water (LPMW)

Procedure: - 2000ml previously boiled, cooled and filtered tap water was taken in beaker and premier magnets with magnetic field strength 700 Gauss was kept into the beaker and the beaker with magnet was kept on a wooden box covered with glass plate for 18 hours. After 18 hours water was ready for use.

**High power magnetized water (HPMW)**

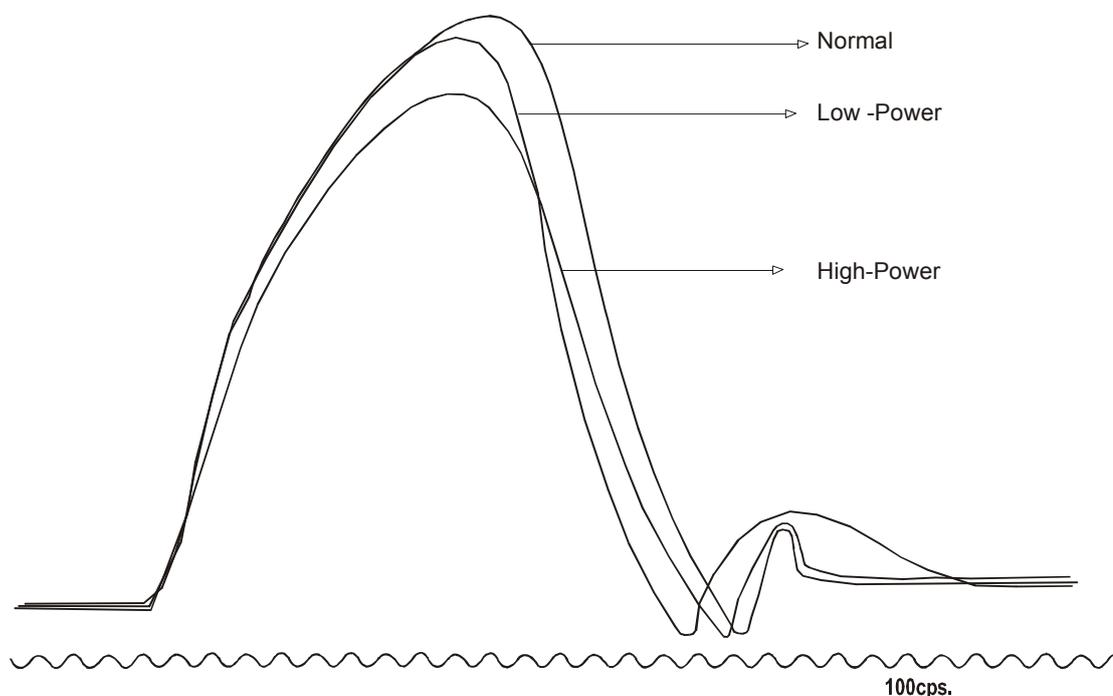
Procedure: - It was prepared by using magnets with field strength 2000 Gauss. Two magnets with North Pole and South Pole markings were placed on a wooden box. 1000 ml previously boiled, cooled and filtered tap water containing beakers were kept on the magnets and beakers were covered with glass plates. The beakers were remained on magnets for 18 hours. After 18 hours North Pole and South Pole marking water were mixed in a clean bottle, the resulting water was ready for use.

**IN VITRO STUDIES****1. SIMPLE MUSCLE CURVE<sup>6</sup>**

To study the general physiological properties, the frog's muscle -nerve tissue was used in experimental work. Its activity is visible and can be measured and recorded. The electric stimulation 8.0 V for one second was applied. The effect of magnetization on gastrocnemius-nerve muscle preparation was studied using magnetized Frog ringer solution. The results were as follows. Fig: 1.

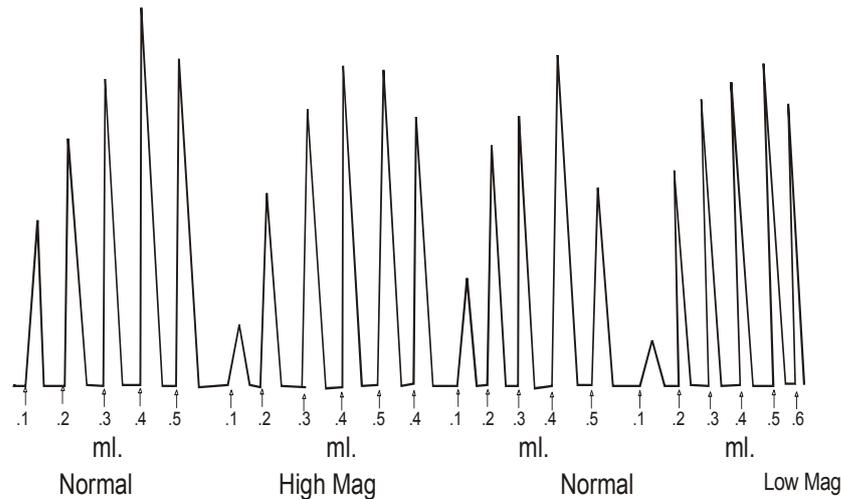
**Table no: 1: The effect of magnetization on gastrocnemius-nerve muscle preparation**

Particulars	Normal	LPM Frog Ringer	HPM Frog Ringer
Latent period	0.01 sec	0.01 sec	0.01 sec
Contraction period	0.10 sec	0.09 sec	0.08 sec
Relaxation period	0.065 sec	0.06 sec	0.07 sec
Height of contraction	102 mms	98 mms	89 mms

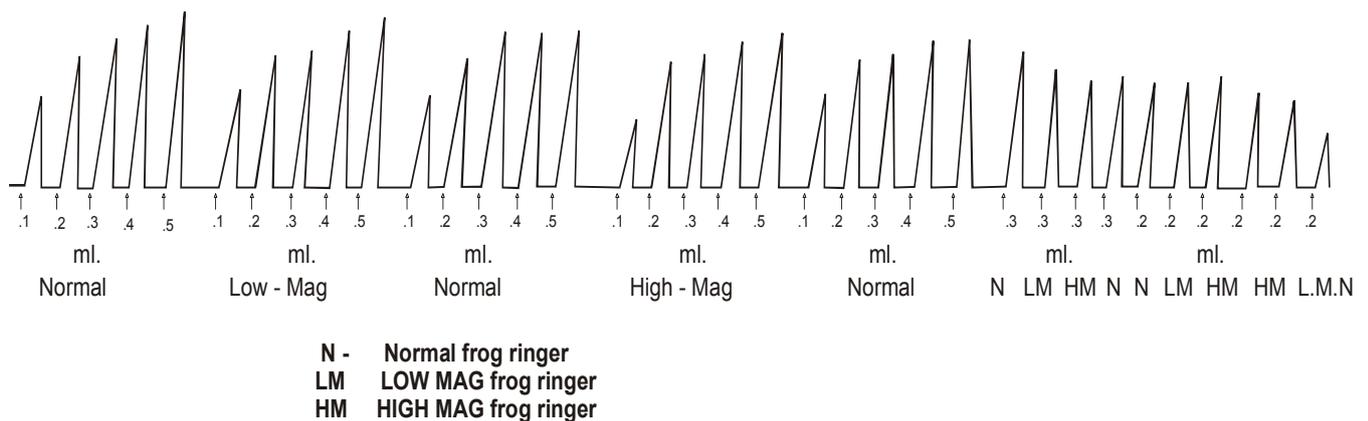


**Fig.1. Effect Of Magnetisation on Frog ringer Solution and its effect on electric stimulation on Sciatic Nerve Preparation**

**2. THE CONCENTRATION RESPONSE CURVE OF ACETYLCHOLINE USING FROG RECTUS ABDOMINES MUSCLE PREPARATION Fig 2&3.**



**Fig.2 Effect of magnetisation on Frog ringer solution & Physiological response of rectus abdominis using Acetylcholine as agonist.**



**Fig.3.Effect Of Magnetisation On Frog Ringer Solution & On Physiological Respons Of Rectus Abdominis Muscle Preparation using Acetyl choline agonist.**

**Table no;2: The Concentration Response Curve Of Acetylcholine Using Frog Rectus Abdomens Muscle Preparation.**

Experimental parameters:-

Organ bath volume	65.0 ml
Ringer solutiobn	Frog Ringer
Aeriation	Air
Bath temperature	23 <sup>0</sup> C
Recording	Isotonic contraction
Resting tension	1.0 Gm
Equillibration period	45.0 minutes
Dose cycle	5.0 minutes
Contact time	45.0 seconds
Acetyl choline solution concentration	100 microgram/ ml.

### 3. THE CONCENTRATION RESPONSE CURVE S OF GUNIEA PIG ILEUM PREPARATION USING NORMAL AND MAGNETISED PHYSIOLOGICAL SOLUTIONS Fig 4.

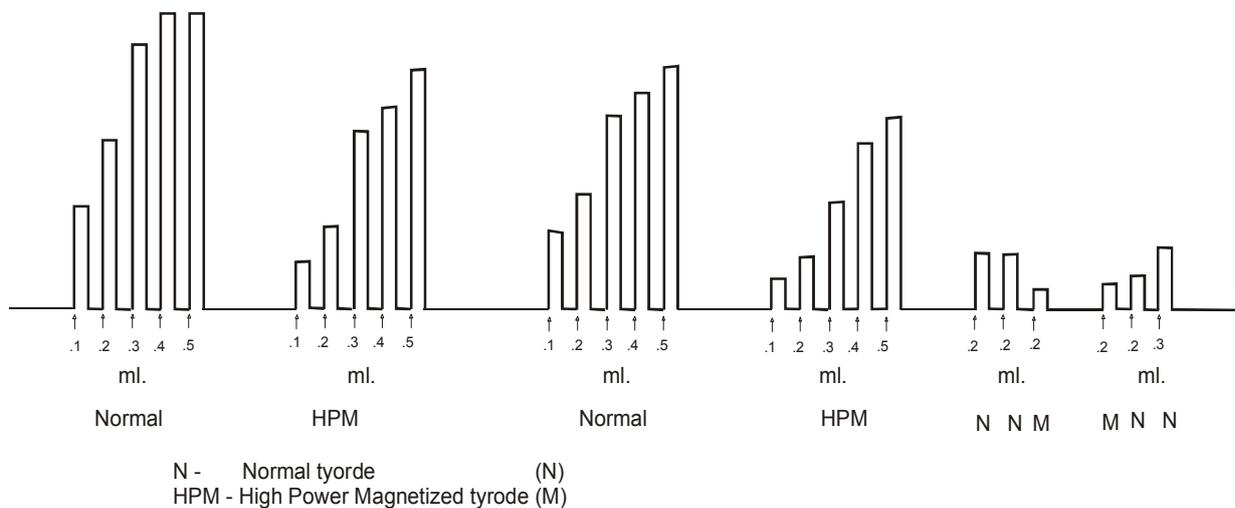


Fig.4.Effect of magnetisation on tyrode solution & Physiological response of guinea pig ileum using Histamine as agonist.

**Table no: 4: The Concentration Response Curve S of Guniea Pig Ileum Preparation Using Normal and Magnetized Physiological Solutions**

Experimental parameters:-

Organ bath volume	65.0 ml
Physiological Solution	Tyrode
Aeriation	Air
Bath temperature	35 <sup>0</sup> C
Recording	Isotonic contraction
Resting tension	0.5 Gm
Equillibration period	30.0 minutes
Dose cycle	2.0 minutes
Contact time	30.0 seconds
Histamine solution concentration	100 microgram/ ml.

### Results and Discussion

Each cell is an electromagnetic machine. Each cell has positive and negative field. Muscle cells are specialized contractile cells, also called fibers.<sup>9</sup> Three types of muscle tissue are identified smooth, skeletal, and cardiac, each differing in structure, location and physiological function. The contraction is active process and relaxation is a passive. The actions of hormones, neurotransmitters and metabolite products depend upon the type of receptors present in the membrane of muscle fiber in particular area produce contraction due to depolarisation and relaxation by hyperpolarisation. In present studies normal & magnetized physiological solutions were used to record dose response curves for comparison (fig1, 2, 3&4). There is decrease height of contraction of both smooth and skeletal muscle response in presence of magnetized physiological solutions.<sup>8</sup> According to Rajeshwari et al the decrease in heights of contractions in dose response curves may be due to increased cholinesterase activity that hydrolyses acetylcholine during metabolism. . Our studies showed that it may be due to alteration of ion (Ca<sup>+</sup> and Na<sup>+</sup>) movement or inhibition of ion channels in combination with increased activity of cholinesterase.

### Acknowledgement

I take this as my privilege to express my sincere gratitude to the Karnataka State Council for Science and Technology, Bangalore for providing grant for this research work.

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