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BIOEFFECTS OF MAGNETIC FIELDS RELATED TO MEDICINAL BIOMAGNETISM IN APPLICATION OF A QUALITATIVE APPROACH IN THE SINGLE HEALTH SYSTEM (SUS)

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Abstract: This descriptive qualitative study, carried out in 2017, investigated the contributions of Biomagnetism in the treatment of patients assisted by the Family Health Program (PSF) in the Unified Health System (SUS). The research aimed to assess the effectiveness of the technique in the public health sphere, seeking evidence for its possible implementation. Approved by the Research Ethics Committee of the Federal University of Viçosa (UFV), the study involved 60 patients of both sexes, with no age restriction, from the community of Viçosa, Minas Gerais, attended by the PSF. After collecting the data and signing an informed consent form, the participants underwent a diagnostic assessment to identify the affected biomagnetic points. The application of the magnets, with an intensity of over 1000 Gauss, took place during sessions of 1 hour and 30 minutes, on a weekly or fortnightly basis, according to individual need. At the end of the treatment, the participants answered an interview about their experiences and perceptions of the effects of the technique. The results of the research revealed that Biomagnetism had shown positive results in the treatment of various dysfunctions, significantly impacting the quality of life of the participants. The main improvements reported were: Reduction in physical pain: Lower back pain, knee pain, headaches and other chronic pains. Improved emotional well-being: Decreased anxiety, insecurity, extreme fear, sadness, depression, bitterness and abandonment. Relief from organic problems: Gastritis and other digestive dysfunctions. We believe that the practices of the biomagnetism technique can bring integral well-being to individuals, as it balances body/mind functions

Keywords: Biology; Biomagnetism, Magnetic Fields, Quality of Life, BioQuantum

INTRODUCTION

Scholars claim that the human body is an electromagnetic machine, whose main source of energy comes from the earth's magnetism, although this is not the only way. Oxygen, food, cellular activity itself, physical and mental activity, the fluid in liquids and biochemical factors constitute a constant production of biomagnetic energy. For all these reasons, it is understandable that the appearance or cure of many illnesses and treatments to improve the physical state of the body, increase muscle mass and reduce localized fat deposits, have as their cause or consequence, changes in the body's biomagnetic potential.

Many years of research have enabled Japanese scientist Kioichi Nakagawa to formulate his theory of "magnetic field deficiency syndrome". This condition occurs in people who spend a large part of their time inside buildings that are supported by huge grids that disrupt the lines of force of the earth's magnetic field, in a similar way to what happens to radio waves when they pass under a bridge. The syndrome can be effectively curbed by ensuring greater contact with the natural world in open and airy environments, away from buildings, equipment and power lines. Walking barefoot on green grass is often a highly recommended therapy for those who live in cities under the conditions described. The symptoms of this "modern" disease are, among others, discomfort not registered by clinical and physical examinations; among them, shoulder, lumbar and cervical pain, chest pain, migraines, heaviness in the head, insomnia and general tiredness.

Studies have shown that people in the modern world who feel physical and psychological discomfort are unable to come to terms with the fact that they are unhealthy and seek out doctors and chemical drugs which are often addictive. In this situation, some symptoms increase the feeling of emotional

exhaustion and the incidence of psychosomatic illnesses rises, such as headaches, sleep disorders, mental fatigue and muscle pain. To resolve this issue, there are various somatic practices that can help improve and revitalize the individual. **Biomagnetic Par** is part of this group of practices, as it is a new therapeutic discipline for improving illnesses such as diabetes, tuberculosis, fibromyalgia, hepatitis, asthma, sinusitis, rhinitis, bronchitis, headaches, psoriasis, sclerosis, arthrosis, arthritis, rheumatism, muscle problems, lupus, vertigo, insomnia, hypertension, herpes, lumbago, neuropathies, glaucoma, Alzheimer's, gastric problems, skin disorders (acne, dermatitis, vitiligo, allergies), cancer, depending on the type and situation of the person. (Dr. Goiz Duran, 1992)

In addition to the aforementioned illnesses, many others can be treated using this method, as it directly addresses the pathology and not the symptoms.

According to Tapia (2008), biomagnetism has proven to be more effective than other treatments, mainly due to the absence of chemical products in the process of eliminating pathologies, which avoids potential side effects that are harmful to human health. In addition, biomagnetism promotes general, physical and psycho-emotional well-being, contributing to a better quality of life for the individual.

The Biomagnetic Pair, or Medical Biomagnetism, is based on identifying distortions at specific points in the human body, related to pathogenic microorganisms or glandular dysfunctions. These distortions arise due to hyperacidity and hyperalkalinity, which exceed the limits of relative neutrality in the place where health is conditioned. This bioenergetic phenomenon, called the "Biomagnetic Pair", has the ability to identify pathologies in their etiology, and not just in their symptomatology or signology, thus avoiding late and non-specific clinical manifestations.

The induction of vibrational and energetic charges occurs by means of natural magnets with an intensity of more than 1000 Gauss, applied continuously and over critical and short periods, usually minutes. This process allows pathogenic microorganisms and glandular dysfunctions to lose their natural pathogenic polarization, promoting a simultaneous therapeutic effect (Bernard, Feymann and Goiz Durán).

This article was developed with the aim of identifying the main dysfunctions and pathologies associated with the application of biomagnetism in the community of Viçosa, Minas Gerais, as well as analyzing the effects reported by the participants in relation to the physical, biological and psychological discomforts previously identified.

THEORETICAL BACKGROUND

Biomagnetism is a valuable and appropriate method from the point of view of biology. Dr. Isaac Goiz Dran (2004) developed the biomagnetic therapy system, discovering the first biomagnetic pair in 1988 (DURAN, 2004). From then on, to work with biomagnetism, pairs of magnets are used in powers of 1,000 to 10,000 gauss, recommended to optimize the functions of the organs and obtain the proper balance necessary to maintain the state of health.

Modern physics, according to Dr. Kittl (2005), establishes that even the smallest atom that comprises matter is a magnet in itself, so it is possible to say that the cells that make up a living organism are also magnets. Junqueira and Carneiro (2000) explain that the human body produces magnetic fields that are generated by chemical reactions inside the cells and use ionic currents through the nervous system. Research into biomagnetism is geared towards studying the effects of magnetic fields on living beings. Based on these measurements, the aim is to find new information that can be useful in understanding biophysical systems, diagnostics and human therapy.

Dr. Guillermo Mendoza Castelán, Dr. Pedro Mendoza Castelán, Dr. Isaac Goiz Duran, (2006), explain in detail the currents produced by the field that stimulates the cells for excellent performance.

On the one hand, from the induced currents produced by the magnetic field, this field produces a direct stimulation of the cellular process, which manifests itself by stimulating the synthesis of ATP, AMP and DNA, favoring cell multiplication, protein synthesis and the production of prostaglandins (anti-inflammatory effect). It also stimulates ion flow through the cell membrane, especially Ca^+ and Na^+K^+ ions. This action is very important when the membrane potential is altered. The normal membrane potential is between -60 and -90 mV. This potential is maintained by an active mechanism, in which it is essential to expel Na^+ ions from outside the cell, which spontaneously enter (sodium pump). In pathological situations, the sodium pump doesn't work and the sodium ion falls in relation to the water. In this situation, magnetic fields can normalize the altered membrane potential. Both by this effect of intracellular induced currents and by the direct effect of a magnetic field on sodium ions, they re-establish the normality of the membrane potential, by reducing cellular edema, which is one of the first stages of inflammation on a cellular scale in tissues and organs (Dr. Guillermo Mendoza Castelán, Dr. Pedro Mendoza Castelán, Dr. Isaac Goiz Duran, 2006, p. 55).

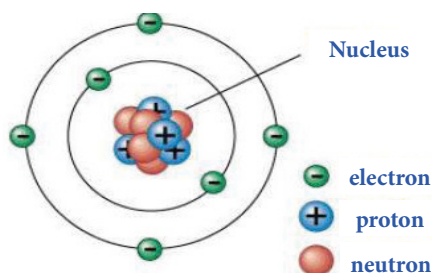


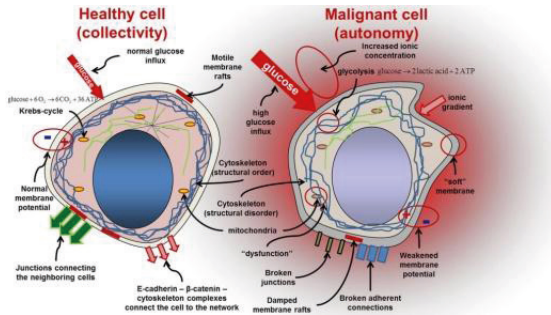
Fig.1: Hydrogen atom (protons, electrons and neutrons)

Source: Junqueira, L.C. & Carneiro, J, 2000).

Most biological tissues have a magnetic susceptibility very close to that of water, i.e. they are made up of diamagnetic molecules. Organs such as the spleen, heart, liver and brain have paramagnetic properties because of the presence of ferritin compounds in their tissues, due to the amount of iron atoms present in these tissues. A non invasive measure of magnetic susceptibility in the region of these tissues can be used to bring quality of life to cells when depolarized using the biomagnetism technique. On an atomic scale, it can be seen that the magnetic character of materials is related to the movement of electrons around the nucleus and their own axis. These rings of currents are small, considered magnetic dipoles

PIRAHANCHI, Y.; JESSU, R.; AEDDULA, N. The cell membrane that separates the water compartments, the intracellular and interstitial spaces, is not impermeable and has channels that easily release the K^+ and Cl^- ions (without energy expenditure), while it is more difficult for the Na^+ ion to pass through (with energy expenditure). In the extracellular space, positive charges predominate due to the accumulation of K^+ and Na^+ ions, while in the intracellular space negative charges predominate (Cl^- and protein anions), causing membrane polarization. This polarization generates a potential difference between the intracellular and extracellular spaces, ranging from -70 mV to -90 mV, depending on the type of cell. The negative polarity results from the movement of ions from the outside to the inside of the cell, essentially regulated by the sodium-potassium pump. This mechanism is responsible for expelling excess sodium ions to the outside and reinserting potassium ions inside the cell after they have left by simple diffusion. It is an active process that consumes a large amount of energy and oxygen and can be altered under different conditions (PIRAHANCHI; JESSU; AEDDULA, 2020).

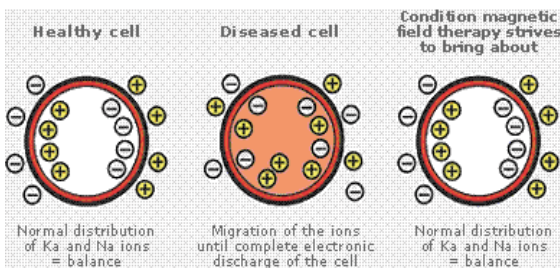
Bazal (1976) found that, due to the random orientation of the atoms, the resulting field of the magnetic dipoles is zero. However, when an external magnetic field is applied to the material, these magnetic dipoles align, making the material magnetically polarized or magnetized. Unlike electrical polarization, which is always in the same direction as the field, biological materials become magnetized parallel to the applied field.



(Fig. 2)

The intense investigation to determine the cause of some of the illnesses suffered by the first astronauts to return from their journeys instigated a study into the action of the Earth's magnetic field to maintain and restore health. It was found that, for this reason, both astronauts and spacecraft are equipped with magnets of different magnitudes, both to prevent bone loss and to prevent other disabilities or illnesses resulting from a lack of magnetism while they are traveling in space. (CHÁOS, 1988) There are more than 1,300 tracking points, allowing the body to regain its internal balance and perfect functioning harmony with the correct application of the magnets. In this way, physical and psycho-emotional balance is restored in a simple way, and the treatment is painless, comfortable, relaxing and non-invasive. In this sense, this therapy stands out as both curative and preventative. Biomagnetism is the natural medicine to be worked on with the community, through the force and energy fields generated in our cells.

Through research by Dr. Goiz (1988)¹, it was discovered that the positive pole, which is generated by an excess of H⁺ hydrogen ions, tends towards acidification and the development of viruses. In contrast, the negative pole is generated by a deficit of H⁺ and the presence of free radicals, which is why it tends towards alkalinity and favors the development of bacteria. The positive biomagnetic pole is formed by the presence of H⁺ and, or pathogenic viruses. The negative biomagnetic pole is formed by the presence of free radicals and,



(Fig. 3)

Fig. 2 and 3: Depolarizing cells

Source: <https://drjockers.com/bio-magnetic-therapy/#lightbox/0/> on 20/11¹2017.

1. In 1964, he joined the Adele Ann Iglesias School of Physiotherapy, British Cowdray Hospital Americano (now UNAM) in Mexico City. After graduating in Physiotherapy, she taught swimming, medical physics and other subjects. In the same year, he began his career at the National Institute of Pneumology, where he worked for 20 years in the Department of Physical Medicine and Rehabilitation. In 1977, he entered the School of Medicine at the Autonomous University of Puebla, obtaining the title of Certified Professional Surgeon and Obstetrician in 1984. Working as a doctor and physiotherapist, he studied alternative medicines, including Dr. Richard Broeringmeyer's energy therapy course in 1988 in the city of Guadalajara. That same year, inspired by Dr. Richard Broeringmeyer's teachings in the medical knowledge of physiotherapy and other disciplines, and in the book "Medical Physics" 1988, in the village of San Pedro Xalostoc, State of Mexico, Dr. Isaac Goiz Durán discovered his first discovery. Isaac Goiz Durán discovered the first biomagnetic pair in the history of Biomagnetism, baptizing it as the "Thymus-Rectum Pair" and, proclaiming himself to be the discoverer of Otto Glasser, discovered the "Biomagnetic Pair" when treating a patient with HIV, obtaining significant results after 8 days in which the patient was treated by applying two magnets of opposite polarities of around 1000 G to specific areas of the body for 15 minutes.

or pathogenic bacteria. When the biomagnetic poles collide, pathogenic viruses lose their genetic information and bacteria suffer a drastic change in their internal pH, losing their favorable alkaline environment for their metabolism and reproduction.

Biomagnetism then emerges as a regulator of this imbalance, promoting the ionic harmonization of cells in order to restore health. With the return to neutrality of the blood pH, the body finds the right environment to naturally return to its balanced condition. The magnetic fields of the therapeutic magnets, positioned in specific places, rescue the sick body from this stage of illness and so the diseases begin to disappear. Inflammation is caused by an excess of sodium ions inside the cell. This generates a variation in the electrical potential of the cell membrane, making it a stationary state from a thermodynamic point of view. Magnetic depolarization obeys the universal law that opposites attract and equals repel. We know that energy in motion generates magnetic fields and this is no different in the human body. This organic magnetism triggers polarities throughout the body and they can be easily identified Lucas (2010) discusses the generic form, explaining that magnetism manifests in the hands according to: Polarities of the flow of prana and Polarities of the flow of prana in the human body.

Prána is a Sanskrit term meaning bioenergy. It refers to any type of energy, as long as it manifests biologically. Prána is the energetic substrate that sustains every form of organic life. Energy in living and non-living beings is little discussed and related, i.e. the question of transformation from one form into another is little highlighted. The predominant view here is that energy is matter and not waves, which contradicts Angotti

Energy is a construct that cannot be structured, modeled or even objectified. It is not only tied to things (matter), but also to manifestations that we classify in the field of “forms”, such as light, heat, movement, the positions of bodies... (1991, p.140).

Kittl (2005) observed that the magnetic character of materials is related to the movement of electrons around the nucleus and its own axis. These movements generate small electric currents, which can be thought of as magnetic dipoles. Under normal conditions, the random orientation of these dipoles means that the resulting magnetic field is zero. However, when an external magnetic field (such as a magnet) is applied, the dipoles tend to align themselves, magnetizing the material.

According to Dr. Miguel Ojeda (2017), when a bacterium is activated with bacteriophages, a cascade of reactions starting from metabolic mechanisms, increased bacterial growth, biofilm formation and bacterial consortia, virulence, formation of “toxins” that have a specific activity, sporulation, exudate formation, oxidative stress, quorum sensing, etc. all occur. Most of the time, the reactions are different from the more well-known expression of classical pathogenicity, associated with tissue invasion and uncontrolled multiplication bacteria called infection. However, in almost all infectious processes, the participation of a bacteriophage is key both in duration and intensity.

Conditions that activate a bacteriophage: large conflict mass, threshold conflict mass, unmentioned or unresolved conflict, conflict experienced through non-verbalized suffering (threshold), prolonged conflict, repetition of a conflict, negative or blocked visceral emotion (accumulated energy), biological resolution (post-conflict Lysis A and B, epicrisis), biological replenishment, sensations with patterns of sensitivity and reactivity.

Biochemical effects: piezoelectric effect on tone and collagen, deviation of particles due to electrical charge in motion, production of induced currents, intra and extracellular, increase in the solubility of substances in water, change in the degree of ionization, influence on enzymatic activity, greater effectiveness and efficiency of the respiratory chain, changes in the electromagnetic balance of sodium and potassium, changes in the orientation of macromolecules and subcellular components.

METHOD

At the Department of Arts and Humanity of the Federal University of Viçosa, an exploratory study was carried out using the Biomagnetism treatment technique, the aim of bringing health, well-being and quality of life to the Viçosa community. The research began with training in the Biomagnetism technique in 2016, with Dr. Elias Arroyo Roman² at the educational institution itself, with intensive 20-day practice sessions and four months of theoretical and practical studies.

The study, with assistance from the Institutional University Extension Scholarship Program (PIBEX), began in March 2017. Participants were enrolled by appointment with the health agents of each PSF and by the link they had with the program in each neighborhood mentioned in the project. At the PSF in the Santo Antônio neighborhood, 50 patients were seen, and at the PSF in Nova Viçosa, 10 patients were seen, for a total of 60 participants aged between 20 and 68.

The time taken to apply the magnets in the first session varied between 1 hour and 30 minutes. In the 2nd and 3rd sessions, around 1 hour. The project's research fellow used three instruments to collect the data: the diagnostic questionnaire (applied before the biomagnetism practice), the logbook (through the researcher's own participant observation during

each patient's sessions) and the interview (carried out with the participant at the end of all the sessions). Minimum number of sessions: 1 - Maximum number of sessions: 3). It should be noted that the research instruments were applied individually to each patient. It is important to emphasize that, in order to carry out this study, even though it was an extension study, it was submitted to the UFV Ethics Committee and approved by Opinion No. 1107476.

ANALYSIS AND DISCUSSION OF RESULTS

The results were analyzed and discussed in two stages. Firstly, the initial condition of the patients before the application of Biomagnetism was considered and, secondly, the alleviation of psychosomatic symptoms after the application of the magnets was evaluated.

PATIENTS' INITIAL CONDITION

The first instrument used by the project's research fellow was a diagnostic questionnaire with the aim of investigating the patient's physical, emotional and organic conditions.

The diagnostic questionnaire identified the dysfunctions and pathologies most affecting patients, such as body aches, inflammation, infections, tiredness, dizziness, anxiety and depression. These symptoms are characteristic of psychosomatic dysfunctions resulting from the imbalance caused by the environment and the individual's own life. A large number of participants often report facing difficulties in various areas, especially in specific situations.

2. Dr. Elias Arroyo Roman CRM:74163-SP

THE CONDITION OF ALLEVIATING PSYCHOSOMATIC SYMPTOMS

From the screening of the biomagnetic pairs in the 60 patients, it can be seen that of those who have already been discharged, all needed the pairs: pole2, palm2, sole of foot 2, umbilicus-sacrum, umbilicus - uterus, cervical-sacrum, patella 2, pineal 2 (pineal dysfunction), parietal 2, temporoccipital 2, pineal-thyroids, heart2, mastoid 2, umbilicus - coccyx, tip of pancreas - bladder, malar 2, axilla 2, chiasm 2, pineal-spinal bulb, ear 2, adductor minor-rotula (bilateral), Iliac 2 (gastrointestinal dysfunction), supra sensory - pituitary gland, frontal sinus - contralateral sien, parietal thallus 2, supra ciliary - Interciliary . Emotional release (sadness, loneliness, fear, anguish, depression). In each bioaccolhido, 3 sessions were applied with a 15-day gap between each session, as can be seen in Graph 1.

The energy pairs most identified by mapping the points are related to a type of dysfunction and treatment:

- a) Polo2, palm 2 are for treating lack of attention;
- b) Umbilicus-sacrum, umbilicus-uterus (lack of a mother or female figure in their life);
- c) Mastoid 2, heart 2 (depression);
- d) 2 and right bronchus and cerebellum (extreme fear);
- e) Cervical-sacral is an energy realignment point that treats the high parasympathetic nervous system and emotional conflict, inflammation, heat, headache and sexual pain,
- f) Umbilicus - coccyx (treatment for symptoms),
- g) Thyroid - stomach (treatment to maintain overweight),

All of the above points bring with them treatment for those dysfunctions of extreme fear, depression, bitterness, resentment, anxiety, insecurity and frustration that can be readjusted by biomagnetism.

Other points also detected in the participants relate more precisely to magnetic field deficiency syndrome linked to: sleep disorders, fatigue, stiff shoulders and the base of the neck; pain in the lower back, chest, headaches, vision and skin problems, dizziness, nausea, chronic constipation, generalized pain, imbalance of the autonomic nervous system.

In 1958, Dr. Kyoichi Nakagawa coined the term Magnetic Deficiency Syndrome as a deficiency in the magnetic field that produces the symptoms mentioned above. However, experienced scientists and doctors have shown that these and other problems are caused by the negative influence of the Earth's magnetic field, which is more modernly called magnetic deficiency syndrome. Scientists Shiro Saito, director of the surgical service at Kikei University School in 1975, and Kyoichi Nakagawa, director of Isuzu Hospital in 1977 (the latter is considered the pope of modern magnetic therapy), discovered the symptoms resulting from the lack of magnetic field in human beings. These dysfunctions and symptoms can only be eliminated by correcting their causes, which is precisely the replacement of magnetism, Dr. Goiz, (1995).

According to Augusto (2001, p. 10), "[...] human beings will be increasingly prone to psychic, psychosocial and psychosomatic illnesses." Working with biomagnetism has been providing health and integral well-being, as it seeks to balance the functions of the body/mind, thus bringing significant results in terms of changes. The patient feels the improvement from the very first session. When comparing the results of the diagnostic questionnaires and the patients' reports, there are significant improvements in their emotional and physical state. The whole body is moved at a cellular level by electrical impulses and there are magnetic fields in each of its cells and the magnets, properly applied, have a positive effect by balancing the magnetic fields

FINAL CONSIDERATIONS

Biomagnetism has been widely investigated and described in various studies due to its potential implications for health promotion. This technique uses specific and non-invasive marking points, which facilitates both the identification of compromised areas and aids in the treatment of conditions in different

parts of the body. The results obtained in this research indicated significant improvements in patients' health, suggesting that biomagnetism can be recommended as a complementary practice. Its application offers a less invasive approach to health care, in line with the search for more accessible and safer therapeutic methods.

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