

# International Journal of Innovative Research in Science, Engineering and Technology

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## Science behind the Magnetic Field Therapy

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**ABSTRACT:** Magnet therapy is a clinical system in which human ailments are treated and cured through the application of magnets to the body of the patients. It is the simplest, cheapest and entirely painless system of treatment with almost no side or after effects. The only tool used is the magnet. In present article discussion of fundamental aspect about the application of magnetic field (Natural and artificial) and how it apply to the human body, so that, it activates the self-healing power of the body and can be used in the treatment of many diseases.

**KEYWORDS:** Natural magnetic field, Electrical magnetic field, Electromagnetic field.

### I. INTRODUCTION

Human body contains can not be alive without blood; blood is a living tissue that circulates in the body through heart, arteries, veins, and capillaries caring nourishment, electrolytes, hormones, vitamins, antibodies, heat and oxygen to the body tissues. Blood contains a mixture of two components cells and plasma. Cells contain Red blood cells, white blood cells, and plasma. Red blood cells Contain hemoglobin, a complex of iron-containing protein that carries oxygen from lungs throughout the body and carbon dioxide to the lungs. White blood cells protects the body from invasion of foreign substances such as bacteria fungi, and viruses, and plasma is the liquid portion of the blood and contains nutrients proteins, hormones, and west products; it serves a variety of functions, maintaining a satisfactory blood pressure, volume of supplying critical proteins for blood clotting and immunity. It also serves as the medium of exchange for vital minerals such as sodium and potassium, helping to maintain a proper balance in the body, which is critical to cell function <sup>[1]</sup>. Electrolytes are another large category of substances dissolved in plasma they includes Sodium( $\text{Na}^+$ ), Potassium( $\text{K}^+$ ), Chloride ( $\text{Cl}^-$ ), Bicarbonate ( $\text{HCO}_3^-$ ), Calcium ( $\text{Ca}^{+2}$ ), Magnesium ( $\text{Mg}^{+2}$ ). These chemicals are absolutely essential in bodily functions such as fluid balance, nerve conduction, muscle contraction, blood clotting and pH balance. The other key role of electrolytes is to carry charge and therefore information from one cell to another around the body <sup>[2]</sup>.

Magnetic field produce by magnet or electromagnetic generating devices are able to penetrate the human body and affect the functioning of human body, such as, diabetic <sup>[3]</sup>, nervous system, <sup>[4-6]</sup> metabolism of cell, <sup>[7-9]</sup> pain relief, <sup>[10]</sup> an anti-inflammatory effect, <sup>[11]</sup> hyper tension, <sup>[12]</sup> heart disease, <sup>[13]</sup> depression, brain simulation, <sup>[14]</sup> anxiety disorder, <sup>[15]</sup> depression, <sup>[16]</sup> syndrome, <sup>[17]</sup> psychiatry, <sup>[18]</sup> better immunity, a spasmolytic effect, wellness, and many more. Human body affects the magnetic therapy because human body is also behave a magnet, therefore it affects.

### II. LITERATURE SURVEY

Magnet therapy has been used by different cultures from a very long time. It is alternative medical therapy in which the placement of magnets or magnetic devices on the skin is thought to prevent symptoms of disease.

The increasing use of Magnetic Therapy for various illnesses has started established this therapy as a key alternative mode of treatment for conditions such as arthritis, joint problems, fibromyalgia, chronic pains, anaemia, cancer, delayed healing, injuries etc.

There is a natural electromagnetic field surrounding the earth and it largely affects our state of health and general well-being. The magnetic energy field is the area around a magnet in which magnetic forces act.

An electric field is the force field created by the flow of electricity (caused by the attraction and repulsion of electric charges). A magnetic field is the force field created as a consequence of the flow of electricity. Electric fields and

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magnetic fields always exist in tandem – one cannot exist without the other. An electromagnetic field, then, is the combination of an electric field and a magnetic field.

Electromagnetic fields affect the charge of the cell membrane, rebalancing it so that membrane channels can open up, by opening them, oxygen and nutrients are better able to enter the cell, and carbon dioxide and waste are more easily eliminated from the cell. This helps to rebalance and restore optimum cell function.

The cells making up the human body are capable of renewing themselves. And, as proponents of magnet therapy believe, magnets can be used to manipulate these cells. They contend that the same natural energy responsible for cell renewal can be amplified by magnetic force. If you restore and rebalance enough cells, they will all work more efficiently. Cells of the same type comes together to make tissues, which come together to make organs. By restoring or maintaining cellular function, you will in turn restore or maintain organ function, allowing the entire body to function better. This is the basis for magnetic field therapy – affecting and improving basic cellular function in order to combat a variety of health conditions and when possible, prevent cellular damage from happening in the first place.

On the other hand, beneficial magnetic force can be increase blood flow. Blood flow improves when iron in the blood is attracted to the magnetic field which causes movement within the blood stream.

## III. HUMAN BODY IS A TINY MAGNET

In this regard there is no doubt; because, science defines tiny magnet as, “a spinning electron”. If you make that charge rotate around some axis, its different parts will move in circles, each acting like small current, and the result would be that the electron is magnetized along its rotation axis and has a magnetic moment. In our body, blood is molten metal and it is flowing in clockwise direction (right side to left side) with charge particles (as mention above) and as it spins, electric currents are create within these metals, hence it produce magnetic field and its direction is from head to foot. It support from, “as the Earth’s core is molten metal and as it revolve around the Sun and spins itself hence electric currents are create within these metals which produces a magnetic field”.

## IV. ROLE OF MAGNETIC FIELD

Our body makes extensive use of ions (e.g.  $\text{Ca}^{+2}$ ,  $\text{K}^+$ ,  $\text{Na}^+$ ,  $\text{Mg}^{+2}$ ,  $\text{Cl}^-$ ) for transmitting electrical signal between the brain and nerves. It is most surprising that large quantities of ions, whether natural or artificial in origin, can affect human health. One hypothesis is that such ions interfere with the body’s own internal communication system. In a normal healthy cell, the ions are distributed around the cell with all of the positive ions on one side and the negative ions on the opposing side. The ions which live outside of the cell in the tissues will align with those inside of the cell so that opposing poles are together with the cell membrane between them (see diagram of healthy cell below) <sup>[8]</sup>. This allows fluid, oxygen and nutrients (fluid exchange) to move freely in and out of the cell, while maintaining the natural balance within the cell. In a diseased (injured) cell, the positive and negative ions do not stay on opposing sides of the cell. They are disrupted and scatter randomly around the cell. At the same time the ions on the outside of the cell membrane also become scattered as they try to find their opposing pole, this results in cellular imbalance. Extra fluid from the tissues outside the cell is able to penetrate the cell which in turn pushes vital nutrients, hormones and electrolytes (salts) out of the cell. The cell’s ability to function is greatly reduced and cellular degeneration begins which if not corrected will lead to the cell dying.

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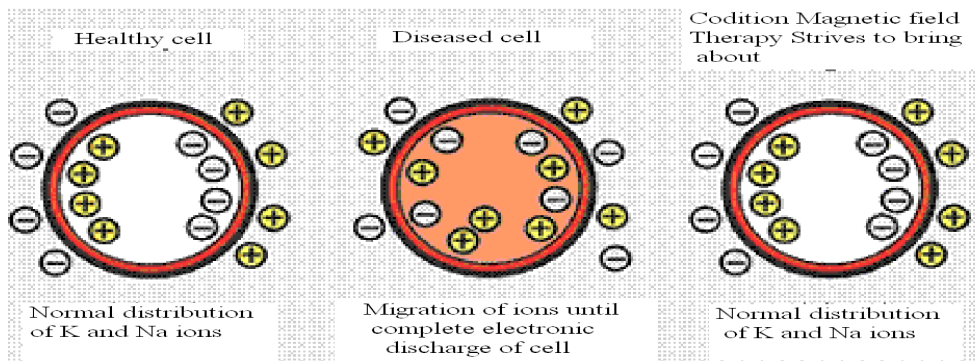


Figure 1: Healthy cell showing normal distribution of potassium and sodium ion, diseased cell shows the positive and negative ions are disturbed whereas due to magnetic field distribution of ions becomes normal.

When a static (fixed in place) magnetic field is applied over an injured (diseased) area, the magnetism penetrates into the tissues and surrounds the damaged cell. The magnetic field that is created around the outside of the cell will pull the ions, both inside and outside, back into alignment. The result is that the ions once again return to their correct position within the cell. The extra fluid that has penetrated the cell is pushed out (via osmosis and diffusion) and returned to the surrounding tissues. The cell regains its natural healthy balance and any damage are repaired over a period of days (see diagram of a cell with a magnetic field).

## V. ION EFFECT ON BLOOD FLOW

Red blood cells are slightly negative charged, the surfaces of blood vessels through which they flow, are also negatively charge therefore blood cells do not get attracted to the artery walls, hence negative ions increase circulation efficiency. A Magnetic field by negatively charging, reduces clogging of the arteries and reduce clogging of the arteries improve blood flow. Improved blood flow means that molecular oxygen and body's natural pain-relieving chemicals can be transport through the blood stream more efficiently.

However, positive ions adhesion to vessel walls therefore circulation efficiency is decreases. A magnetic field affects the positively charged iron atoms in the bloods hemoglobin, enabling them to carry more oxygen to the muscles where it is needs. This improved bio-availability of oxygen means that the muscles can do more work before they become tired and start to ache.

## VI. MAGNETIC LINES OF INDUCTIONS IN NATURAL AND ELECTRIC FIELD

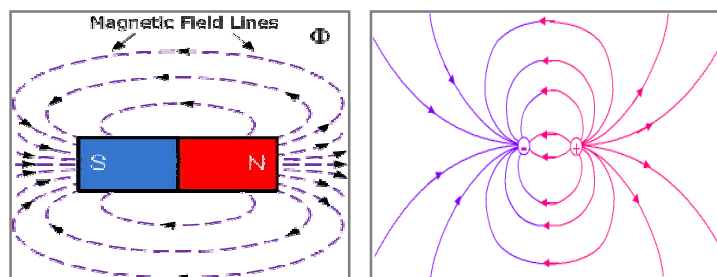


Figure 2: Magnetic field orientation showing lines of magnetic induction from N pole to S pole.  
Figure 3: Electric field orientation showing lines of magnetic induction from +q to -q.

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From the above Figure 2 the magnetic field orientation shows lines of magnetic induction starts from North Pole (N) and ends at South poles (S). Whereas Figure 3 shows the electric field orientation of a (+q) and a (-q) charge separated at some distance, with lines of magnetic induction starts from its positive charge sites and ends on negative sites produces magnetic field called as electromagnetic field.

## VII. ELECTROMAGNETIC FIELD

In electromagnetic theory, electron is revolving in orbit produces magnetic field (as a current is passing in coil, magnetic field is produced) as shown in Figure 4.

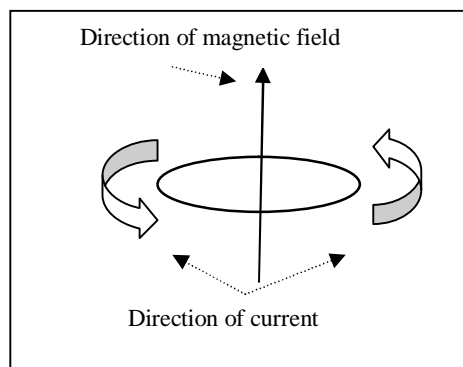


Figure 4: The electromagnetic field orientation when, electron revolves in orbit in clock wise direction, than according to Right hand rule produced magnetic field direction is in a plane in upward directions.

We know that when randomly oriented magnetic lines of inductions are, kept in externally strong magnetic field they get aligned along strong magnetic field and strength of magnetic field is increases. Which produces steady blood flow, hence above maintained symptoms are minimize.

## VIII. METHOD OF TREATMENTS

### VIII. I: NATURAL MAGNETIC FIELD TREATMENT

- (1) Sleep or take rest lying foots towards East, so that magnetic field of body is in perpendicular positions to the natural magnetic field. In this position magnetic forces will be maximum and in upward direction. Which is requires at the rest time, in the rest time the heart beats become slow means rate of blood flow becomes slow. Your right ventricle pumps blood to your lungs and your left ventricle pumps blood all around your body. The muscular walls of the left ventricle are thicker than those of the right ventricle, making it a much more powerful pump, to maintain the constant blood flow, external force is apply by natural magnetic field. High blood pressure person sleep, foots towards west so that natural magnetic field reduces the blood pressure.
- (2) Don't sleep or take rest lying foots towards Sough; because from magnetic properties, when line of induction passes through hollow space they are diverted, diverted magnetic line of induction produces turbulent blood flow, hence it exerts blood pressure, (body have at least seven holes, e.g. Nose, Ear, Mouth, Eyes...), and when line of induction passes through solid space they are converted,

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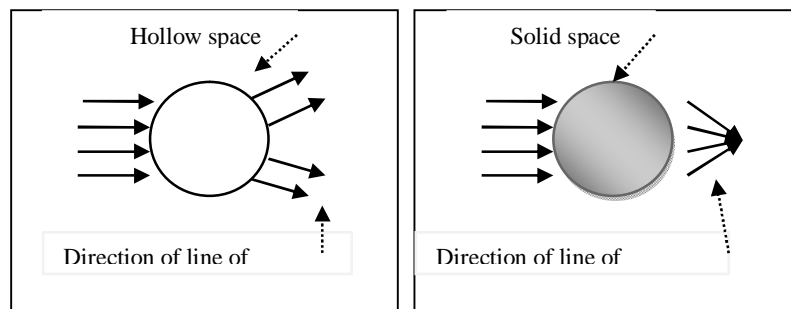


Figure 4: Diversities of Magnetic field when it passes through hollow space.

Figure 5: Conversations of Magnetic field when it passes through solid space.

Figure 4 shows the diversities of magnetic line of induction when passes through hollow space and Figure 5 shows the conversations of magnetic line of induction when passes through solid space. Turbulent blood flow always experience following symptoms, Disturbed sleep, babies and children fret and don't sleep well, restlessness, general tiredness, sick building syndrome, inability to get well and stay well immune system problems, repeated miscarriages of infertility problems, birth defects any other symptom, headaches, hyperactivity.

Hence don't sleep or take rest lying foets towards South and head towards west. Sleep on thin cotton cloth. Cotton cloth is in direct contact to the surface of the Earth, House should not be more than ten meter height.

## VIII. II: ELECTROMAGNETIC FIELD TREATMENT

Instrument of magnetic therapy must be in magnetic meridian. Current passing in coil must be in clockwise direction, so that produced electromagnetic field (minimize eddy effects) is at the center of the coil and parallel to the Earth's magnetic field which gives more effect.

Body of the patient must be in straight position (no inclination) on the bench. Bench must be steady only coil (i.e. electromagnetic field) can move along the bench (i.e. along the body). Thin white cotton cloth is cover on the body. Pass the current in coil from head towards foot. Off the current (i.e. electromagnetic field), and move the coil towards head, again pass the current (i.e. electromagnetic field), and move the electromagnetic field from head towards foot. Repeat this procedure at least three times. Invert the body of the patient, and repeat the above mentions procedure.

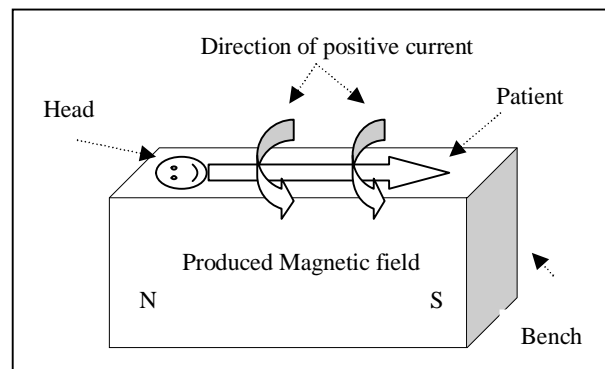


Figure 6: Treatment in Magnetic field showing patient in electromagnetic field.

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For fast relief before electromagnetic treatment, give ten ml tonic contains sodium, potassium, calcium, phosphate and minerals, to the patient. Don't apply electromagnetic field (i.e. magnetic therapy) for any particular part of the body, except injured part only.

## X. CONCLUSION

- (1) Instrument of magnetic therapy must be in magnetic meridian.
- (2) Current passing in coil must be in clockwise direction.
- (3) Body of the patient must be in straight position (no inclination).
- (4) Move the magnetic field coil from head towards foot.
- (5) Do not sleeps lying foots towards south and head towards north, particularly High blood pressure person
- (6) Sleep on thin cotton cloth. Cotton cloth is in direct contact to the surface of the Earth.
- (7) House should not be more than ten meter height.
- (8) For fast relief before magnetic therapy treatment, give ten ml tonic containing sodium, potassium, calcium, phosphate and minerals, to the patient.
- (9) Do not apply magnetic therapy for any particular part of the body, except injured part only.

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