



Circulation in the Human Body

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Blood - The Basis of All Life

Your body is made up of approximately 37.2 Trillion* electrically charged cells, which, when supplied with properly balanced electrical and chemical energy sustain life. The red blood cells carry oxygen and nutrients to all of these cells. The biochemistry at cellular level is extremely complex, but the cells are the source of your life. The energy in chemical form (Adenosine Triphosphate, or ATP) is generated inside the cells from the food we eat. The electrical component of cell energy is Life!

Proper Blood Flow

The body's circulatory system ensures the survival of the body by facilitating metabolism in each and every cell. We have between 4-6 million red blood cells (RBC). RBC's transports oxygen from the lungs to the cells and exchanges it for carbon dioxide to be removed as waste. RBC's also transports nutrients such as fats, carbohydrates, or proteins from the digestive tract to the individual tissues and cells where they can be processed and consumed.

The cellular metabolic waste products are then transported by the RBC's to via the veins and lymphatics and finally to the excretory organs such as the kidneys and colon. In addition, blood distributes hormones, immune cells, and other signaling messenger molecules. The human body's circulatory system is essential for providing the raw materials needed for energy production as well as physical and mental performance. Cells rely on the RBC's to deliver oxygen and nutrients and remove waste products in order to perform their essential functions.

Proper circulation is fundamental for all human metabolic processes. As you can see, it is clear what a critical role the circulatory system plays in overall tissue healing, health and well-being.

The human circulatory system is 14.5% of veins, 11.5% arteries, 74% micro-vessels. We have about 60,000 to 100,000 miles of blood vessels. When you gain a pound of fat, your body makes seven new miles of blood vessels. This means your body must work harder to pump blood through all of these extra new vessels, which may put a strain on your heart, and may reduce oxygenation and nutrient replenishment in other tissues. Fortunately, if you lose a pound, your body will break down and re-absorb the now unnecessary vessels.

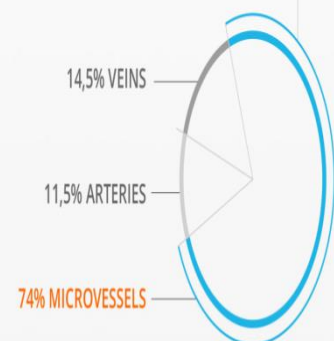
Many physical conditions are directly related to a diminished or damaged circulatory system which can result in dysfunctional cellular metabolic processes.

Laser, Myofascial Therapy and PEMF therapy can improve circulation and repair.



THE GRAPH SHOWS THE PROPORTIONS OF THE VARIOUS TYPES OF BLOOD VESSELS

About ¾ of all blood vessels in our body are microvessels!



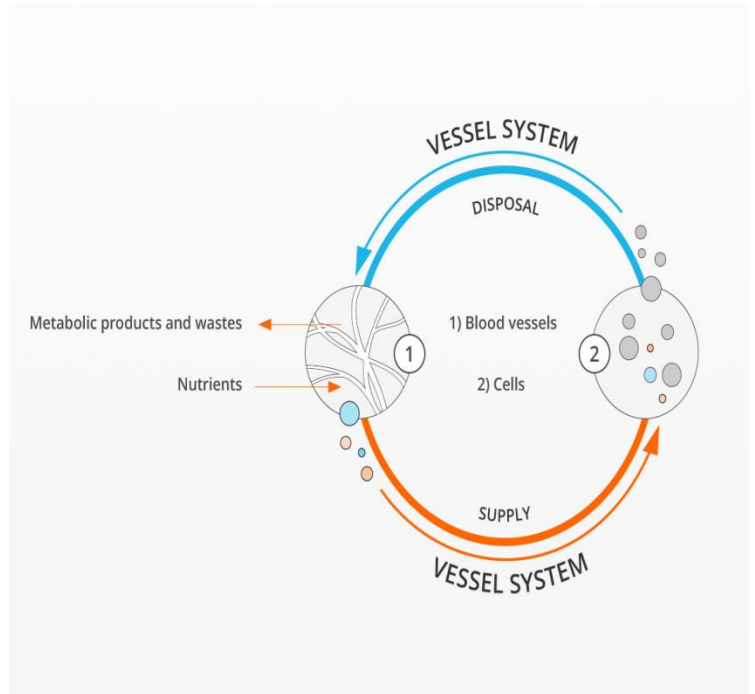
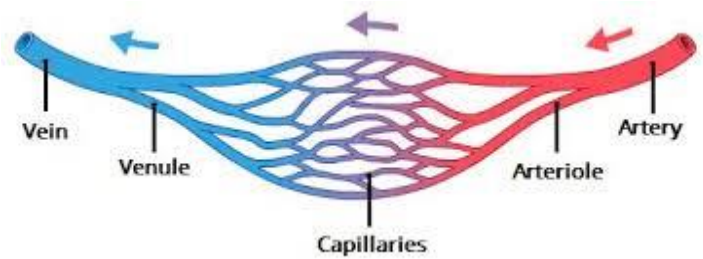
* And their final count is... **37.2 trillion**. Calculating the number of cells in the human body is tricky. Part of the problem is that using different metrics gets you very different outcomes. Guessing based on volume gets you an estimate of 15 trillion cells; estimate by weight and you end up with 70 trillion. Oct 24, 2013

[There are 37.2 Trillion Cells in Your Body | Smart News | Smithsonian](http://www.smithsonianmag.com/.../there-are-372-trillion-cells-in-your-body-494...) www.smithsonianmag.com/.../there-are-372-trillion-cells-in-your-body-494...

* These statements have not been evaluated by the Food and Drug Administration. This information is not intended to diagnose, treat, cure or prevent any disease.
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Significance of Microcirculation

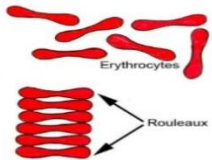
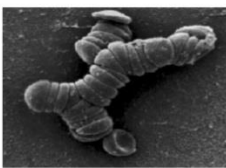
Microcirculation is very important to our organism. It represents a major reservoir of blood, affects blood pressure, facilitates heat exchange, and transports oxygen and nutrients to the trillions of cells. In return, waste products and toxins are removed from the cells. This makes microcirculation part of the circulatory system, which includes the smallest blood vessels (capillaries, arterioles, venules). However, this too is subject to the limits of nature, because the performance of microcirculation declines with age, toxins and injuries. This is also related to a reduction in mental capacity, affecting among other things perception, memory, learning, problem-solving, attentiveness and creativity. Even if some don't notice it, declines in mental capacity often begin as early as in the third decade of life, even if this is usually unnoticeable. The first signs manifest themselves in the form of declining concentration and mental strain, symptoms that can have fatal results in our high-performance society. This applies not only to our professional lives, but also to our private lives and interpersonal relationships, because mental balance also plays a major role here. It is particularly fatal when impairments of the microcirculation prove a problem during an apprenticeship or degree.



Dark-field microscopy:

After just two minutes of PEMF application, isolation of red blood cells improve blood-flow and oxygen carrying capabilities have improved as seen below.

Rouleaux formation



When blood is taken out, RBC pile up one above another like pile of coin. This property of the red blood cells is called rouleaux formation.



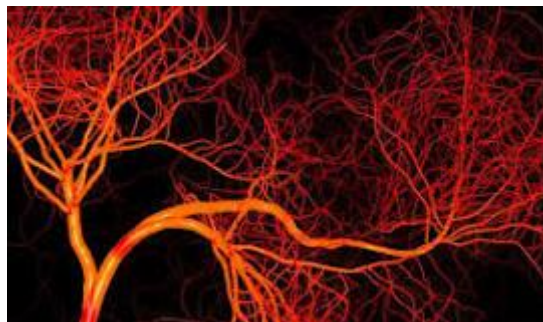
The heart pumps up to 10,000 liters of blood through the body each day. **With PEMF Therapy, blood and its components are better distributed, and decisive support is provided for these vital processes.**

Our contemporary fast-living lifestyle produces several negative characteristics for our cell's proper function: high stress causes high acidity, many ingested toxins disrupt cellular chemistry, poor eating habits provide less than optimum nutrients, lack of exercise and shallow breathing reduce the oxygen intake and further hamper the effective cellular metabolism. Simply put, ATP production goes down.

These adverse lifestyle and illness conditions reduce the availability of the cells' basic requirements of oxygen and nutrients, which in turn is detrimentally affecting the performance of cells by making them acidic and severely curtailing their energy (ATP) production. Hence, cellular functions and complete organs operate at poor efficiency over long periods of time. After a couple of decades of this, the cells simply “give up” to put it in non-medical language.

The result of these dysfunctional cells: A decrease in vitality, degenerative processes, chronic diseases and higher susceptibility to infectious diseases. It works the same way in animals too.

The PEMF simply enables the poorly functioning cells to get back to a regulated state and subsequently the body can often heal itself. But it's not the PEMF that does the healing – the PEMF only **enables** the body's cells to obtain the required oxygen by significantly improving the blood circulation. Scientists and medical practitioners are amazed that a non-pharmaceutical product with no negative side effects, can achieve this in such a simple manner.



Positive results of PEMF treatment are consistently and repeatedly achieved over a wide spectrum of ailments and conditions:

- recovery from chronic illnesses and pain relief for many conditions,
- faster post-operative recovery,
- improved wound and fracture healing,
- improved performance in sport applications, quicker regeneration after high intensity training or -competition, lower risk of injury, shorter warm-up time.
- improved sleeping patterns
- stress relief as well as physical and mental performance enhancement
- general maintenance of health and vitality
- improves quality of life in terms of well being, vitality and health for older people, bedridden patients (bedsores), the physically disabled and the highly stressed!

PEMF therapy is so successful because it boosts and balances energy deficiencies in a gentle and natural manner by using an exactly dosed pulsating electromagnetic field. Significantly, it treats the cause, not just the symptoms by effecting self-healing at the cellular level. Cells are energized; the metabolism is activated, and when your cells are healthy - you are healthy and the often painful symptoms are alleviated, and often removed completely.

PEMF is safe, with no known negative side-effects and few contra-indications (Organ transplants and aneurysms being the only two serious ones).

PEMF technology generates pulsed electromagnetic energy causing cell membrane changes resulting in increased cellular uptake of oxygen and nutrients and removal of cellular waste products enhancing the cells metabolic ability to function and repair. The PEMF energy produces a percussive muscular contractions, in combination with increased vaso-dilation, the breaking up of intramuscular adhesion/trauma and decreases in inflammation. The restoration of human cell function is what set this technology apart from all other devices. When using in combination with our other services, we can achieve greater pain reduction and restoration of health, quickly, safely and naturally.