

**For educational purposes only**

# Compendium

⌘ BEMER® PHYSICAL VASCULAR THERAPY

FOR YOU :: FOR LIFE :: FOR ENERGY

**BEMER**  
GROUP

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## THE MIRACLE OF THE HUMAN BODY.

A human being is made up of approximately 80-100 billion cells. The cell is the smallest unit in our organism which is capable of life. The prerequisites for life are reproduction, growth, metabolism, healing, the capacity to respond to stimuli, and mutagenity (adaptability). The molecular structures which comprise the cells either do not fulfill these prerequisites for life at all or else only do so partially. The cell is the first structure within our bodies that completely fulfills all conditions governing life.

In order for these cells to function correctly, they need to be both supplied and cleaned. Countless transport processes between the cells and the blood need to take place in an unhindered fashion in order to enable the cells to work in the proper manner and to keep us healthy. All of these many processes form part of our microcirculation. This clearly demonstrates the importance of microcirculation for our health.

Proteins are the building blocks of our organism and constitute both its construction and functional elements. Our genes store the building plans for these molecules and pass them on when cell division takes place. Proteins need to have specific forms and be in the right place at the right time and in the right quantity to guarantee the correct functioning of our organism. This places a permanent strain upon the proteins and causes deterioration over the course of time. Protein wear and tear is monitored by other proteins. Proteins which are no longer functioning in an optimum manner are marked and immediately eliminated to be replaced by other proteins. The protein degradation and renewal process takes place about 500 billion times a second within our body cells.

An average of around 5,000 proteins are eliminated or created every second in each and every body cell. Many of these proteins need to be transported back into the blood and to other places in our body. This is where our microcirculation, which operates throughout the body and in every cell demonstrates its huge impact and significance.

Because all elimination, creation, transport and information processes in our body are chains of consecutive chemical reactions, the number of such reactions taking place reaches the unimaginable figure of approximately 21 trillion per second. Each of these chemical reactions requires energy in order to take place, providing some idea of the enormous amounts of energy used every second within our organism. Such energy must, however, also be newly created every second since we are not in a position to store it. In fact, only muscle cells are able to store energy on a short-term basis for a few seconds.

At the beginning of life on our planet, the only beings which existed were single-cell organisms. These simple organisms secured their necessary nutrients through direct contact with the environment and excreted their metabolic waste products via the same route.

Once multi-cell organisms with increasing numbers of cells began to develop, this direct contact was no longer possible. For this reason, circulation systems evolved to deliver nutrients to the cells and to remove metabolic waste. This was the origin of blood circulation.

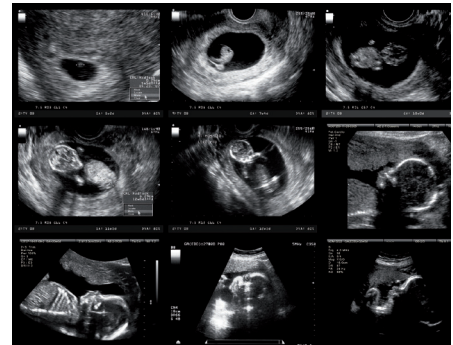


IMAGE :: Ultrasound technology makes heart movement within a human embryo visible in the mother's womb after as short a time as 14 days. The beginnings of a vascular system are already in place by this point. Our blood volume is approximately six litres. The distribution of this blood volume depends on the activity status of the individual organs within our organism.

Average systolic discharge (= ventricle output) is usually 70-100 ml. Both ventricles produce an equal volume in normal cases.

### THE CARDIOVASCULAR SYSTEM – OUR SUPPLY SYSTEM.

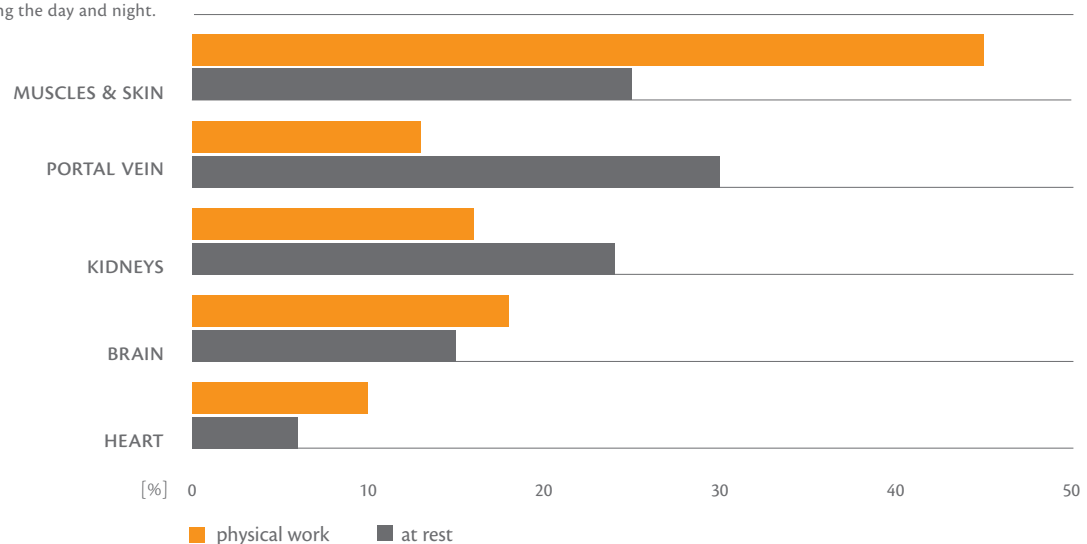
Compared with the situation when the body is at rest, physical activity brings about a change both in cardiac output (the blood volume per minute supplied to the aorta by the left ventricle) and in the distribution of minute output to the various organs (depicted schematically using the example of a comparison between conditions when the body is at rest versus during physical activity).

The human cardiovascular system comprises various systems. The heart and the major arterial vessels make up the high-pressure system, whereas the vessels which take blood away from the heart, such as venules and the major veins, comprise the low-pressure system. The vessels leading from the heart to the lungs and back are known as the pulmonary or lesser circulation. The vessels leading from the heart to the other parts of the body and back are referred to as the systemic or greater circulation.

Between these two systems lie the highly diffuse networks of the small and very smallest blood vessels. This is the area of microcirculation, in which the flow characteristics of the blood are subject to different rules compared to those which prevail in the area of the major blood vessels (macrocirculation). Blood flow characteristics in the microcirculation system are determined by the conditions governing flow (the way in which the vascular walls of the small blood vessels react, vasomotion) and the actual flow properties of the blood (fluidity). The extensive networks of the microcirculation system are present in all tissues supplied with blood and within all the organs of our body.

The concentration of the smallest blood vessels (capillaries) is determined by the metabolic activity of the tissue to be supplied. In organs where metabolic activity is particularly high, such as in the cardiac muscle tissue, very high concentrations of capillaries are found (up to 3,000 capillary branches per 1 mm<sup>3</sup> of tissue). About ¼ of all our cells (**approximately 20-25 billion**) are red blood cells. These cells transport oxygen to our body cells and remove carbon dioxide. The enormously high number of cells devoted to this task once again underlines the importance of oxygen for the human organism.

CHART :: Differing blood supply to organs during the day and night.





## COMPONENTS OF MICROCIRCULATION.

**Blood ::** comprises the following solid elements with a colon cells (erythrocytes or red blood cells, leukocytes or white blood cells, thrombocytes or blood platelets) and blood plasma. The latter is made up of 95 % water and 5 % dissolved materials such as proteins, body salts etc.

**Blood vessels ::** < 200 µm, small and large caliber arterioles (supplying oxygen, nutrients) – capillaries (where anabolism takes place) – small and large caliber venules (removing CO<sub>2</sub>, metabolic waste products).

**Lymphatic vessels ::** removal routes for lipophilic parentheses substances.

**Interstitial space ::** transit route for transcapillary movements of liquids and exchange of substances between capillaries and cells.

## FUNCTION OF MICROCIRCULATION.

Oxygen and nutrients need to navigate their way along a certain route, either in compound or free form, in order to arrive in a cell. By the same token, products which have been formed within the cell, such as new proteins and waste products which are no longer of use, need to find their way back to the vascular system in order to be transported to other regions of the body or to be expelled. Although many of the processes which occur in this regard have not yet been scientifically explained, one thing which scientists do agree on is that the microcirculation can be described as “the main road to health”.

**About ¾ of all blood vessels in the body form part of the microcirculation system.**

Microvessels are smaller than 200 µm in diameter. If blood distribution in the microcirculation system is impaired, it will immediately affect a large proportion of all our vessels and thus directly impact many of our cells.

Although the expanse of the microcirculation system across our organism is unimaginably large at first glance, every last cell ultimately needs to be supplied and cleansed in order to remain functioning and effective.

The tiny ball on the end of a pen has a volume of approximately 1 mm<sup>3</sup>. One cubic millimeter of cardiac muscle tissue contains about 3,000 capillary branches. This figure may rise to as much as 5,000 for highly trained professional athletes.

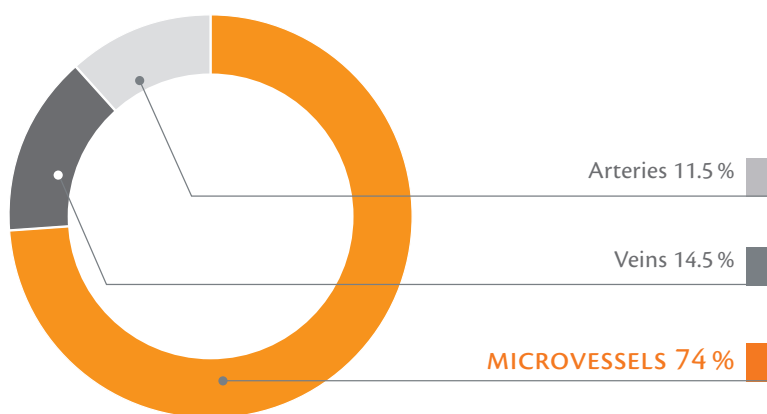


IMAGE :: Because of their high degree of functional significance, the vascular sections contained within the microcirculation system take up the majority of the cross-sectional space given up to blood flow (and lymph flow).

CHART :: Proportions of various vascular sections of the whole of the cross-sectional blood flow.

About ¾ of all blood vessels in the body form part of the microcirculation system.



CHART :: Good health depends on correct supply to and cleansing of the cells.

### ROLES OF MICROCIRCULATION.

The important role of microcirculation is to secure the necessary transport routes in both directions for metabolism between the cells and the major vessels. Oxygen and nutrients need to reach our body cells. Substances such as the proteins which are formed and the “waste” created by the energy generation work performed by the cells, e.g. carbon dioxide, need to return from the cells into the blood.

In fundamental terms, we can state that if these transport processes function correctly, the cell and everything depending on its work – namely life and good health – will also work well. If transport fails to function, cells will cease to work one after another, and the function of the organs formed by such cells will also begin to fail. This represents nothing less than the onset of illness.

**The performance of an organ, and therefore its “health”, is determined by the functional status of its microcirculation.**

There is a general recognition today that impairments to the microcirculation system are responsible for the vast majority of restrictions to physical and mental performance and that the way in which the microcirculation system functions exerts a material effect on the course of an illness.

**No regeneration, restitution or causal healing process can take place within our organism without relevant involvement by the microcirculation system.**

By the same token, however, this does not mean that a impairments to the micro-circulation system is always the underlying cause in every case of illness. (There are also a number of cases where intra-cellular malfunctions are not directly due to the transport phenomenon of microcirculation). Blood flow (Q) is mainly dependent on the respective radius (r) of the arterioles (and venules):  $Q \sim r^4$ .

Changes to the radius of the arterioles and venules are caused by various statuses of contraction of the flat muscle cells in their vascular wall (capillaries do not have any flat muscle cells in their vascular wall). A complicated mechanism involving nitric oxide (NO), a highly diffusible gas which acts as a signal provider, has a part to play within this process.

The most important regulatory mechanisms of the microcirculation system are thus vascular wall movements (changes to radius and diameter) in the sections which are located immediately upstream and downstream of the capillaries (small-caliber arterioles and venules).

**We refer to these expansion and contraction movements in general terms as vasomotion.**

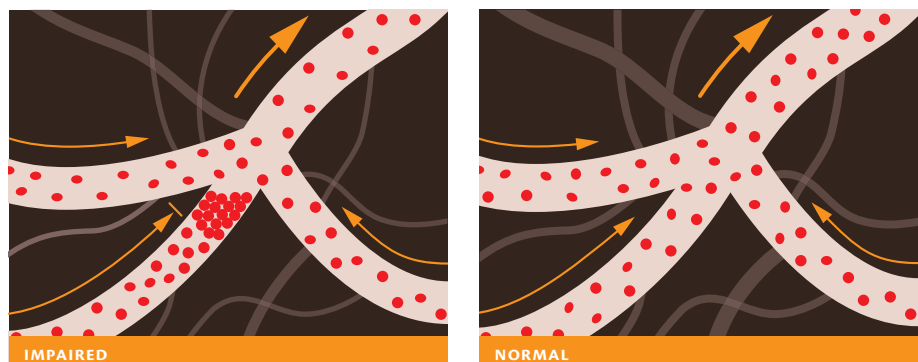


CHART :: Proper blood circulation within the capillary area is conducive to good health.

## DISTURBED MICROCIRCULATION.

The main characteristic of impaired microcirculation to an organ is that too few of the available capillaries are experiencing red blood cell flow rather than any restriction to overall blood supply. In other words, disruptions to microcirculation mostly comprise a disturbance to the way in which the blood is distributed across the microvessel networks.

If unfavorable distribution of blood components (too few capillaries with cell blood flow) causes certain associations of cells on the arterial side to be insufficiently supplied, the results are a reduction in the necessary energy production (ATP synthase) and a loss of quality in cell functions such as protein formation.

On the other hand, decreased distribution on the venular side in the form of such aspects as outflow malfunctions, which mean that too many metabolic waste products need to be stored within the cells, or on the transit route (between the cells and the blood vessels) will also lead to the compromising of the correct functionality of the tissue cells affected. Illnesses or additional adverse influences on the course of illness arise depending on the duration of the unfavorable distribution status.

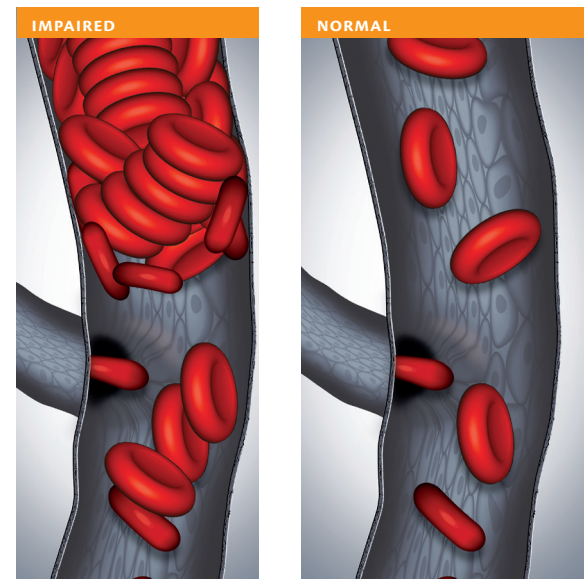
Pharmaceutical treatment options for a microcirculation system which has become disturbed to the point of illness remain limited and are also associated with the drawback of unwanted (side) effects. The use of synthetic drugs soon reaches its limitations, especially with regard to the treatment of multimorbid older people, patients undergoing rehabilitation and the chronically sick. Even in the case of younger people at the peak of their physical powers, there is a lack of effective alternatives to the use of synthetic medication when it comes to treating chronic stress and its consequences. There is a demand for low side-effect or even side-effect free alternatives to synthetic drugs to be used for effective preventive and complementary treatment purposes. Our inability up until now to intervene successfully in this area, one of the most important for our health, is actually shocking.

Although some herbal medicines, such as highly concentrated ginkgo extract, can be ascribed some degree of effectiveness in terms of relevance to treatment, their use as a supplement to established pharmaceutical treatment options is limited and not sufficiently effective in many cases.

Can an "external physical agent" which is free of side effects be of any assistance in this regard? Can experiences gleaned from recognized physiotherapy help us? Although physiotherapy as currently practiced provides a large number of valuable indications, it is unable to provide a compelling solution for targeted stimulation of a disturbed microcirculation system.

**We need to seek out and pursue new alternatives.**

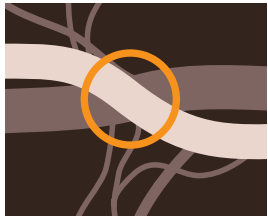
**The question is, how can restricted microcirculation performance be expanded by using a suitable physical signal?**



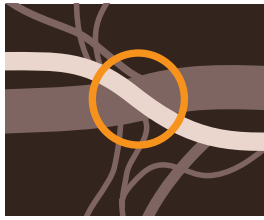
IMPAIRED MICROCIRCULATION ::  
the cause of a large number of illnesses.



UNDISTURBED MICROCIRCULATION :: the main road to health.



EXPANDED VESSEL



NARROWED VESSEL

**VASOMOTION ::** Normal vasomotion means that the smallest caliber vessels switch between their narrow and expanded positions at least 3 times per minute.

### SUPPORT FOR A DISTURBED MICROCIRCULATION SYSTEM.

In the search for an effective alternative to pharmaceutical treatment for restricted microcirculation or a microcirculation system which is impaired because of disease, the Institute for Microcirculation in Berlin, which is headed by Dr. R. Klopp, has undertaken many years of extensive research to develop a certain complex signal. The configuration of this signal is able to achieve a highly efficient stimulation of disturbed microcirculation regulatory processes without producing side effects.

Previous BEMER treatment devices used certain low-intensity alternating electro-magnetic fields to transfer energy and had been shown to be effective and promising in terms of targeted further development. This early generation of Bemer devices formed the starting point for the subsequent research undertaken. After many years of intensive research activity, knowledge of new scientific principles also brought in its wake a new way of thinking about treatment.

**Rather than merely representing a further development of the old system, the new BEMER system has made a leap forward in terms of both quality and quantity to an extent which was not believed possible at the outset of the research.**

**Today, the BEMER treatment system is the best investigated and most effective physical treatment method for restricted microcirculation in its field of application according to Dr. med. R. Klopp, Institute for Microcirculation**

The technical progress achieved with the devices of the new BEMER systems was preceded by significant gains in scientific knowledge. These discoveries related to the various rhythmic processes within the small caliber and large caliber arterioles; to the differing oscillatory characteristics of their vascular walls; to the mechanisms of local (BEMER 3000 *plus*) and superordinate regulation of vascular wall movements; and, in particular, to the effects exerted by all the above on the distribution of the plasma blood cell mixture in the capillary networks.

**These new findings formed the basis for the development of a bio-rhythmically defined and complex signal configuration for the stimulation of a restricted microcirculation system, the 2010 BEMER Technology.**

The complex BEMER stimulation signal represents a composite oscillation (whose particular characteristics include: various partial oscillation frequencies for the stimulation of the local and superordinate regulatory systems, certain bio-rhythmically defined signal configuration envelopes and a low energy alternating electromagnetic field acting as an energy transmitter).

## SCIENTIFIC EVIDENCE.

Within the narrow meaning of the term, scientific evidence constitutes medical studies or investigations which need to fulfill precise requirements.

The highest standard is required by double-blind randomized test conditions (neither those conducting the study nor those receiving treatment know whether an active agent – in our case an electromagnetic field – is present or not).

Clinical studies should be controlled via the use of placebos. This means that a control group needs to be in place which is not supplied with an active agent despite being treated via the same system. The degree of expectation can be determined and compared with the effects actually identified in order to ascertain the actual degree of change. Assignment of patients to the two groups needs to be random.

It should always be kept in mind that results of clinical studies secured via statistics should always be considered to be statements of probability. They are valid for a certain random sample forming the object of investigation which has been treated and studied under certain conditions. This means that they provide an indication as to the degree of probability with which a user can expect that the effect demonstrated in the study will also occur in his or her case (this probability is never 1, i.e. 100 % due to the fact that there is always a greater or lesser number of non-respondents).

Bemer Int. AG has organized several studies fulfilling these requirements on the effective mechanism and therapeutic efficiency of the BEMER treatment. These studies have been conducted in accordance with the required standard and thus enjoy general scientific recognition.

Investigations into the microcirculation system for the purpose of providing evidence for the relevant treatment effects of medicines or physical “active agents” are extremely resource intensive, in terms of require materials and technical equipment.

The equipment available at the Institute for Microcirculation in Berlin provides state-of-the-art technology and apparatus and is extremely impressive in overall terms. There are only a few comparable institutions worldwide which are in possession of the know-how and equipment required to carry out investigations of this nature.

We need to bear in mind that scientists have only recently recognized the importance of the processes of microcirculation for health or illness, and this is an area in which extensive work has been ongoing ever since.

All of the procedures are non-invasive, i.e. measurements take place without injury to the skin and the mucous membrane. The depths of penetration of modern examination devices are up to 8 mm. A high-speed camera system (75 to 750 pictures per second) is used to document findings. The highly sensitive 35mm special film deployed is processed using a complicated development procedure and is subjected to computer evaluation. This method makes it possible to record all relevant characteristics of the functional status of the microcirculation system.





## VASOMOTION, THE ENGINE OF MICROCIRCULATION.

Vasomotion **refers to** the movements medium sized blood vessels called arterioles and venules in microcirculation. Vasomotion represents the component which sets the pace for the transport of blood and for the separation processes between the solid and liquid parts of the blood. This means that it exerts a material effect on the status of distribution of the blood and of blood components in the capillary networks.

A normal healthy human being has **approximately three to five vasomotion movements per minute** within the area of the small caliber pre-capillary arteriole sections. In the case of illness or during the aging process, these movements reduce to a level of only one vasomotion movement within a time framework of two to ten minutes.

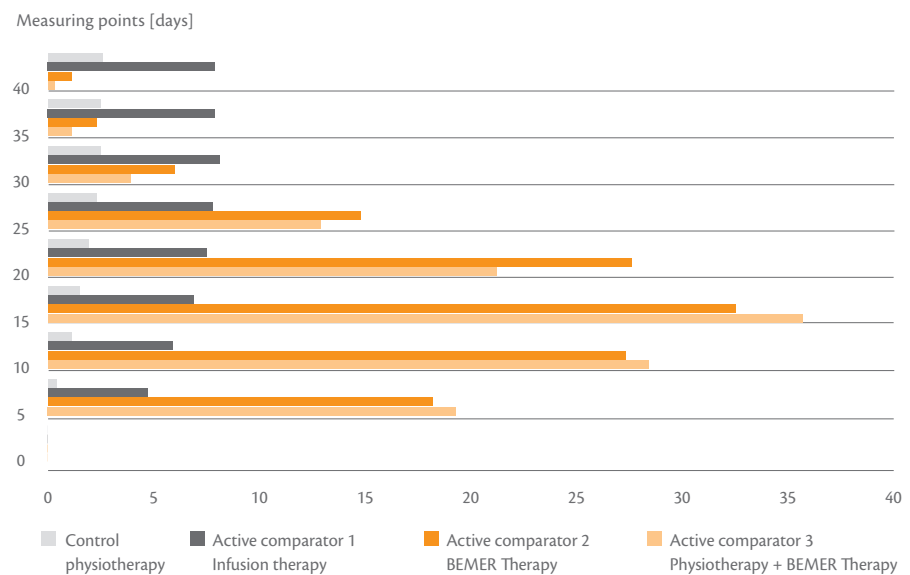
Impairments to the microcirculation system gradually form and tend then to establish themselves and create a “vicious cycle” in which they gain increasingly in strength, often independently of the rest of the course of the illness. The consequences are functional limitations for the organs affected and ultimately damage to organs.

Restrictions to our physical and mental performance power; increases in susceptibility to infection in the case of older people in particular; wounds which are slow to heal; incidences of resistance to treatment by many chronic diseases; and many more occurrences are frequently due to impairments in the functional status of the microcirculation.

CHARTS :: Influence of various treatment methods on spontaneous (local) arteriolar vasomotion (AVM) in the case of patients in rehabilitation exposed to infection and stress in a 30-day treatment interval.

IMAGE :: observe the varying behavior of characteristics in the “wash-out” phase (after the 30th day).

IMPORTANT TO REMEMBER :: application of the BEMER System does not cause any harmful side effects.



Comparative studies on functional characteristics of microcirculation have demonstrated the enormous benefits which the deployment of BEMER therapy is able to deliver, in contrast to other established treatment methods.

The application of a clinically established **hemodilution infusion treatment**, for example, produced only **changes in characteristics of less than 10 %**, whereas the BEMER “**physical agent**” enabled improvements in the functional status of the microcirculation **of more than 20 %**.

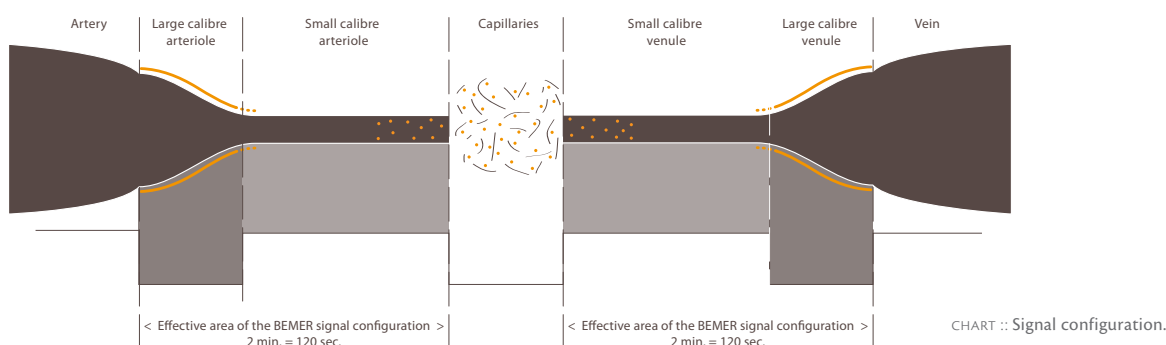
## CONTROL OF VASOMOTION.

In 2006, the research team headed by university lecturer Dr. Klopp recognized that the signals produced by the BEMER system stimulated the local auto-rhythmic vasomotion (local control) of the arterioles and venules. These vascular sections are less than 25 µm in diameter, possess only one or two layers of flat muscle and do not have any central nervous or humoral control receptors.

The vasomotion movements of the larger caliber arterioles and venules are dependent upon the activity status of the organism as a whole, and follow the superordinate nervous or humoral control orders. In the case of illness, there is a disturbance in the synchronization of local and superordinate regulation.

Further extension of duration of effect and of overall effectiveness is only possible if the regulatory systems of both vascular sections can be simultaneously addressed biorhythmically.

This major change was achieved in 2010 and implemented technically in the new generation of devices. Bio-rhythmic modulation of the impulse stimulates both the auto-rhythmic local vasomotion of the small caliber arterioles and the superordinately controlled vasomotion of the larger caliber arterioles. The synchronisation impaired in the case of illness is restored.



## INCREASED EFFECT.

### Longer duration of effect (approx. twelve hours)

Increased duration is highly significant for practical application due to the fact that treatment twice per day is now fully sufficient.

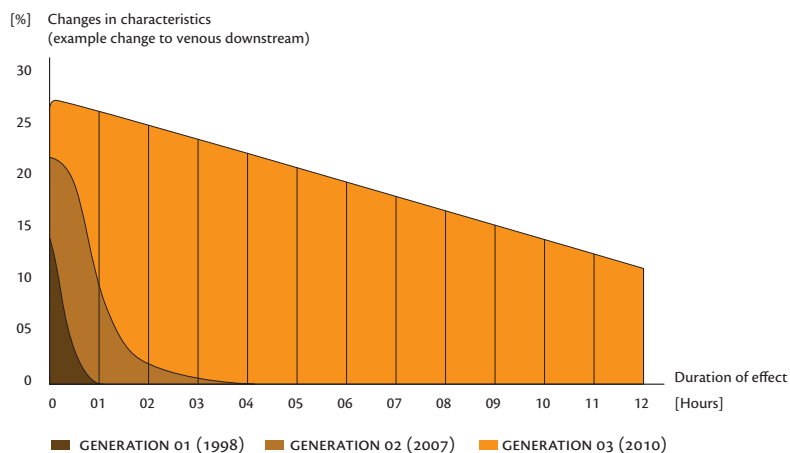


CHART :: BEMER therapy delivers significantly longer periods of effectiveness.



### THE CORE ISSUE OF ENERGY.

All life processes within our organism are based on energy conversions, which are basically realized via one particular substance, adenosine triphosphate (ATP).

Human beings produce an amount of ATP approximately equal to their body weight every day. Professional athletes can form up to 275 lbs (125 kg) of ATP daily. This energy is necessary in order to allow all chemical reactions in the body to be fully processed. In turn, the regular completion of all these reactions ensures maintenance of health within the human organism. Gigantic amounts of oxygen need to be transported to the cells in order to make it possible for ATP to be formed at all. A well functioning microcirculation system is the crucial factor in this regard.

Which aspects of these processes does the human body sense? If too little energy is produced, we sense weakness, feel listless and are unable to perform. We fall prey to frequent infections. If, on the other hand, energy production is fully functioning, we feel capable, strong and healthy and are able to concentrate.

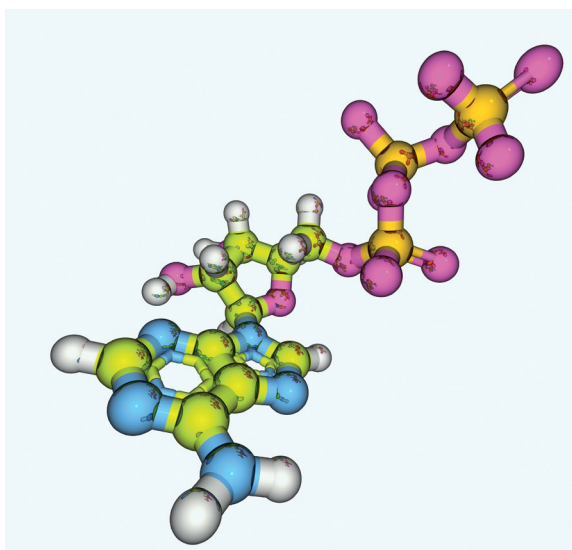


CHART :: Adenosine triphosphate molecule.

### ATP (ADENOSINE TRIPHOSPHATE).

This molecule can be said to carry our “universal biological energy” because when it is converted, huge amounts of “free energy” are formed within our bodies. This energy is used on a portion-by-portion basis to fuel further chemical reactions in the body as and when required, acting as a kind of “engine” for continuing bio-chemical processes.

ATP is formed in our body cells via a biochemical process referred to as oxidative phosphorylation (“respiratory chain” / “ion transport chain”). This is a process which particularly requires oxygen to be transported from the red blood cells (erythrocytes) to all cells in the body.

Why is the method of making energy in our body so complicated?

Why can we not make direct use of the energy from the sun, the source of all life on earth? The answer is that only plants are able to do this. We do, however, consume the metabolic products of plants and the energy thus stored in the form of food, which we convert into our body’s own substances via the processes of digestion and related chemical modification. This enables us to use the substrate energy contained for our organism.

If blood flow within an organ is poor, i.e. the distribution of blood in the small-caliber blood vessels is not functioning sufficiently, the supply to the organ in question of the necessary oxygen and nutrients for the production of ATP will be inadequate. Ultimately the performance of the cells in the body will be restricted.

BEMER therapy improves impaired microcirculation, providing sufficient oxygen for the formation of energy. The cells regain their performance capacity, and the regulatory mechanisms begin to function once more as nature intends, working to maintain health or bring about healing.

Certain structures known as “organelles” are contained within each body cell. The cell organelles which we refer to as “mitochondria” are of major significance due to the fact that they act as “power stations” for the cells. Within the mitochondria, a complicated conversion process takes place which converts the chemical energy stored in exploitable nutrients into a form of chemical energy which is made available in portions for cell function. The



carriers of this chemical energy are a particularly energy-rich substance, ATP or adenosine triphosphate.

Mitochondria are tiny elliptically cross-sectioned formations located within the body of the cell. Inside, they contain matrices, on which a large number of enzyme complexes are regularly arranged. These enzymes exert a bio-catalytic function to facilitate substance and energy conversion. The conversion processes consume a large amount of oxygen.

Because of the constant mitochondrial substance transport, the mitochondrion itself completes a slow turning movement around its longitudinal axis within the cell plasma. This rotational movement is the consequence of the inflow and outflow in the same direction of molecules in and out of the mitochondria. Most of the outflow comprises ATP. Rotation decreases in the case of illness due to the fact that molecular transport is also reduced. The effect of the BEMER signal configuration is to increase rotation once again. This means that the influence exerted by BEMER causes more molecules to be transported in and out of the mitochondria.

The enzyme complexes regularly arranged on the cristae also undergo constant rotational movement. These complexes turn 32 times a second in the case of a healthy human being. In the case of illness or disturbance, rotations are reduced, and less biologically available energy in the form of ATP is produced. Because the functional performance of the cells is tuned to a certain amount of production per second, however, this leads to a restriction in such performance. The BEMER SIGNAL also reaccelerates the rotational movement in the case of these structures.

Summarizing all these facts, we arrive at the hypothetical assumption that the influence of the BEMER application means that more oxygen is available in the cell tissues (a consequence of improved microcirculation) and also actually leads to the production of more energy (ATP). More energy is thus available to the body's cells overall; cell functions improve once again and the regulatory mechanisms regain their effectiveness.



## BEMER AND THE IMMUNE SYSTEM.

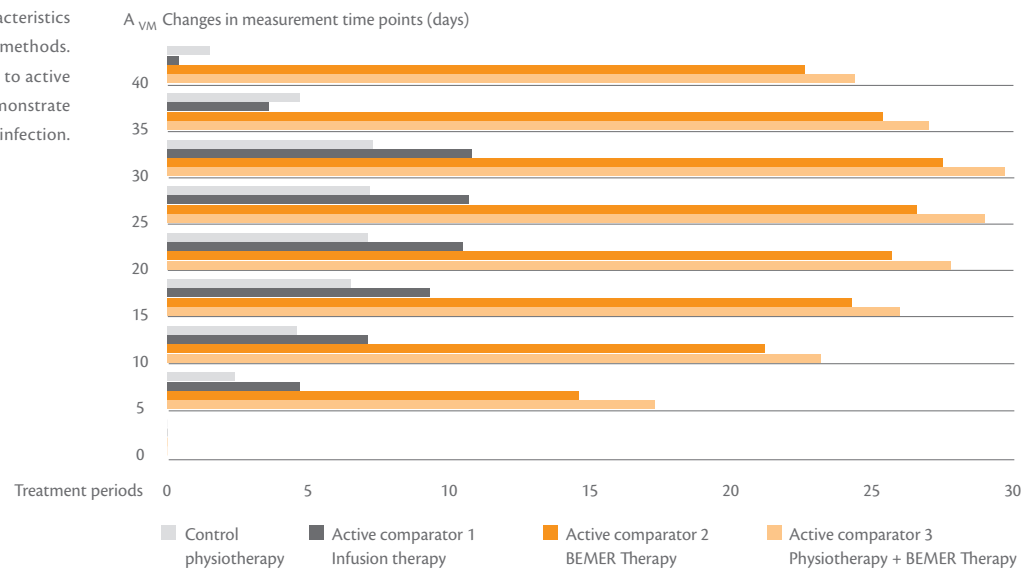
The BEMER Day Program and the BEMER Sleep Program exert effects both on the exchange of substances between the blood and the body cells, and on the transport of the plasmatic and cellular factors of the immune system. The behavior of the white blood cells in the smallest blood vessels is especially influenced by semiochemicals contained in information proteins. There are different types of information proteins which affect the behavior of the white blood cells.

The first group of information proteins issues an order to the white blood cells to undertake a slow rolling movement near to the vascular wall (one protein included in this group is ICAM 1, in respect of which an increase of 10 % has been measured as a result of the influence of the BEMER system).

A second group of information proteins then orders the white blood cells to leave the vessel and to perform their defensive tasks in the tissue between the vessel and the cells (interstitium or mesenchyme. This may involve neutralizing pathogens such as flu viruses which have invaded the body).

**Influence of various treatment methods on the transmigration behavior of white blood cells (number of transmigrated white blood cells in a defined tissue volume nBC/V) in the case of patients in rehabilitation, exposed to infection and stress during a 30-day treatment interval**

IMAGE :: observe the varying behavior of characteristics in the case of the different treatment methods. The changes in characteristics with regard to active comparator 2 and active comparator demonstrate rapid defence against infection.



## THE NEW BEMER SLEEP PROGRAM.

The latest research results obtained under the leadership of Dr. R. Klopp have shown that a redistribution of blood takes place within the organism during the recovery phase (regeneration or sleep phase). This favors the body's immunological and regenerative processes and is thus, to a large extent, able to compensate during the day for any deficits which have occurred in the blood flow to certain organs.

These compensatory processes during sleep exert an effect on the exchange of substances, as well as influencing the immune system mechanisms, which are particularly dependent on the functional status of the microcirculation system.

Research findings provided the foundations for the development of a Sleep Program which is unique the world over, and which supports general effectiveness of treatment as well as reducing susceptibility to illness, stimulating the regenerative processes within the organism, promoting restful, deep and refreshing sleep, and ensuring both greater deacidification of the body, and increased excretion of metabolic waste products.

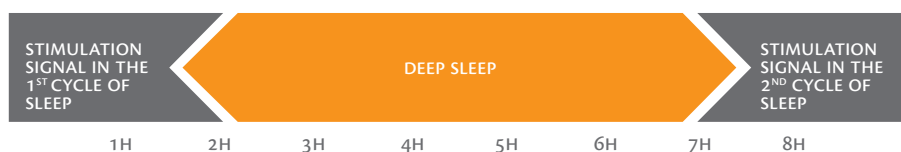
In the case of people who are healthy, fit, and not suffering from stress, temporary deficits which occur during the day through factors such as physical exertion, are rapidly balanced out during periods of rest or night time sleep. A redistribution of circulating blood flow to the skeletal muscles and away from the skin, intestine and kidneys (our most active organs in terms of the immune system) occurs to achieve balance. This compensatory process is restricted or impaired in the case of patients suffering from chronic stress or chronic illness, and is the cause of a continuing deterioration in physical and mental performance powers, declining course of illness and much more.

There is a correlation between minimizing interruptions by balancing out deficits to blood flow within certain organs and healthy sleep. Sleep disturbances cause these compensatory processes to be hindered. An improvement in sleep quality helps counter this problem.

Healthy sleep (or sleep which maintains good health) involves going through four to five sleep cycles of approximately one and a half hours each during a total night time rest period of between 7 and 8 hours. Each of these sleep cycles contains several stages. Falling asleep >> Lightest sleep >> Light sleep >> Medium sleep >> Deep sleep.

Various sleep disturbances (reduction in the number of stages, changes to the length of the sleep cycles etc.) may occur in the case of older persons and patients suffering from chronic stress. The consequences are hinderances to the body's compensatory processes during night time rest.

Following extensive research endeavors, the Institute for Microcirculation in Berlin has largely succeeded in clarifying the particular characteristics of microcirculation's regulatory mechanisms and redistributions during both normal and interrupted sleep and in developing a special stimulation signal for the treatment of relevant disturbances (low intensity level, particular signal configuration). The BEMER Sleep Program uses this signal during the phase of falling asleep (1st sleep cycle) and prior to waking up (last sleep cycle).



The BEMER Sleep Program is a highly effective treatment method for disturbances to microcirculatory compensation mechanisms. The application of the program may not lead to the desired degree of success in a small number of isolated cases (e.g. in circumstances where certain medications are also being used to treat existing cardiovascular and other illnesses displaying symptoms). In these (rare) cases, only the Day Program should be applied. In general, we recommend adopting a gradual approach to the implementation of the BEMER Sleep Program.



REGENERATIVE PHASE.



ACTIVE PHASE

GRAPHIC :: Special stimulation signals (low intensity level) of the BEMER Sleep Program

Effect of BEMER therapy when the Sleep Program is used: support for the body's regenerative and restitutive processes during night time rest and add and provide an additional increase in defence against infection.

## INSTRUCTIONS FOR USERS.

### Basic Plan

The Basic Plan is the general overall recommendation for daily use of the BEMER therapy regardless of indication.

Robust compliance with the Basic Plan lays the foundation for delivering positive psychological effects for the support of the body's regulatory processes, the proper functioning of which is a prerequisite for healing and maintenance of health.

The Basic Plan treatment using the B.BODY application module should generally take place twice a day. Combinations with other levels or programs or with treatment using other application modules are possible.

The following level selection has generally proved to be appropriate; Level 3-6 with an increase of one level per week over a period of four weeks, morning application with plus signal, evening application without plus signal. This cycle should be permanently retained and constitutes the BEMER therapy. Application always takes place using the whole body application module **B.BODY**.

BEMER therapy can be used to complement all conventional and naturopathic treatment methods. The effective mechanisms of the multi-dimensional signal configuration have been scientifically proven.

CHART :: B.BODY Classic // a premium professional application module for whole-body treatments.

CHART :: Basic Plan, user recommendation (application via B.BODY).

	CYCLE 1					
	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6
MORNING	Level 1 <i>plus</i>	Level 2 <i>plus</i>	Level 3 <i>plus</i>	Level 4 <i>plus</i>	Level 5 <i>plus</i>	Level 6 <i>plus</i>
EVENING	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
NIGHT	-	-	-			
	BY CYCLE 2					
	WEEK 7	WEEK 8	WEEK 9	WEEK 10		
MORNING	Level 3 <i>plus</i>	Level 4 <i>plus</i>	Level 5 <i>plus</i>	Level 6 <i>plus</i>		
EVENING	Level 3	Level 4	Level 5	Level 6		
NIGHT	Sleep Program 1 x per week	Sleep Program 2 x per week	Sleep Program 3 x per week	Sleep Program 4 x per week		

IMAGE :: Couldn't be easier to use!





## TARGETED ADDITIONAL TREATMENT.

Targeted treatment should always follow treatment under the Basic Plan (BEMER therapy). These important fundamental processes initiate the optimum platform on which targeted treatment can build.

The additional application modules B.SPOT and B.PAD should be used for targeted and intensive treatment of individual parts of the body. Several targeted treatments on the same day are possible. Programs 1-3 have been developed for targeted additional treatment. This enables increasing the intensity within the local area progressively to penetrate the special problem area.

**B.PAD** is an intensive application module for the small-surface and targeted treatment of individual parts of the body. The B.PAD can be of particular benefit when used for disabled persons or on patients whose movements are restricted.

**B.SPOT** is an intensive application module for selective and targeted treatment. Its compact dimensions make it an ideal companion for those on their travels. The B.SPOT is affixed to the universal holder B.GRIP and held against the part of the body to be treated.

**B.LIGHT** is an application module for the complementary treatment of skin diseases, delayed to the healing of wounds, and for cosmetic use. The illuminating diodes generate a monochromatic, non-coherent, photo-biologically effective red light. This creates additional energy-rich connections in the skin and connective tissue cells. The effect of B.LIGHT is comparable to the effect of soft laser treatments.

**Tip: Beginning with level 6, the level is increased by one every day. The higher intensities are retained in the case of long-term treatment.**

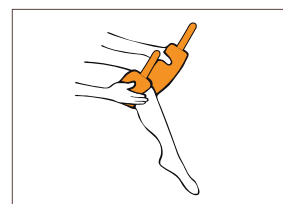
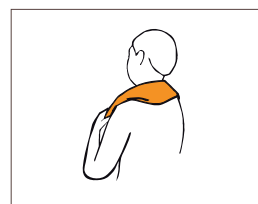


CHART :: B.PAD – a flexible application module for small surface area treatments.

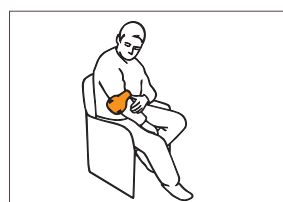
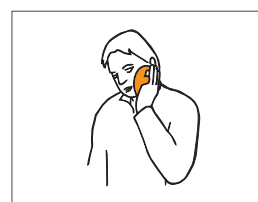


CHART :: B.SPOT // B.GRIP – application module for selective targeted treatment // holder module for B.SPOT and B.LIGHT.

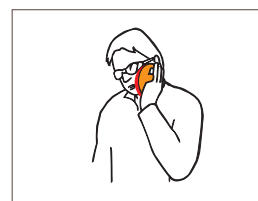


CHART :: B.LIGHT // B.GRIP – application module for light treatment // holder module for B.SPOT and B.LIGHT.



IMAGE :: BEMER Pro-Set.



IMAGE :: BEMER Classic-Set.



IMAGE :: Use sleep to maintain your health and vitality.

### BEGIN GRADUAL IMPLEMENTATION OF THE SLEEP PROGRAM

When beginning the BEMER therapy for the first time, the Basic Plan states that no Sleep Program should be used for entire first cycle due to the fact that the whole body must first become accustomed to the general change to regulatory conditions.

The Sleep Program is gradually introduced in the second cycle, beginning with one application per week. One further application can then be added each week until, after six weeks, the Sleep Program may also be applied on a daily basis. It may become apparent that application of the Sleep Program twice or three times per week may be sufficient in individual cases. Even those who have been using BEMER for many years should adopt the same procedure for initial use of the Sleep Program.



IMAGE :: No known side effects thus far.

### BEMER THERAPY AND COAGULATION INHIBITING MEDICATIONS.

The improvement in blood flow properties following a BEMER treatment has been shown to strengthen the effect of coumarin derivatives (such as Marcumar – anti-coagulants used to treat blockages to the arterioles, but not platelet aggregation inhibitors, such as Aspirin 100 or similar).

If such patients are commencing a BEMER therapy whilst continuing to take coagulation inhibiting medications, we urgently recommend close scrutiny of coagulation values due to the possibility of an increased tendency to bleed.

On the other hand, these patients represent an outstanding example of the positive effect of BEMER® Physical Vascular therapy (lower dose of medications with strong side effects).

There are no barriers to beginning a course of treatment of anti-coagulants (Marcumar or similar) whilst BEMER therapy is ongoing, provided that the BEMER treatment takes place on a regular basis.



IMAGE :: Maintain your vitality in old age.

### BEMER APPLICATION IN THE CASE OF ELECTRICAL / ELECTRONIC IMPLANTS.

#### (Heart pacemakers and defibrillators)

Persons with electronic implants should not use BEMER technology until confirmation has been received that the maximum values set by the manufacturer are not exceeded. Reciprocal effects such as electrical interference cannot generally be excluded in the case of electronic implants such as heart pacemakers, defibrillators, brain pacemakers, insulin pumps etc.

In the case of heart pacemakers and defibrillators which have been adjusted by a doctor in accordance with the Standard VDE AR-W 2750-10, BEMER therapy can generally be used without any restriction (see report by Dr. Lampadius).

## BENEFITS TO USERS OF THE BEMER SLEEP PROGRAM.

### BEMER THERAPY IS AN IMPORTANT ADDITIONAL TREATMENT OPTION FOR:

- >> improving supply to organs and tissues,
- >> supporting the healing of wounds and sports injuries,
- >> supporting the immune system,
- >> reducing susceptibility to infection,
- >> alleviating the consequences of stress,
- >> increasing physical and mental performance,
- >> increasing maximum exertion intensity,
- >> reducing regeneration periods in sports training,
- >> improving the effectiveness of training,
- >> reducing the risk of injury when playing sports.

## BEMER WORKS.

According to university lecturer Dr. Rainer Klopp, BEMER therapy is the most effective and best investigated physical treatment option currently available. It represents a modern and innovative way of protecting your health. No undesired side effects are currently known. The BEMER application brings about a measurable improvement in microcirculation characteristics.

- >> 27 % accelerated Vasomotion
- >> 29 % better blood distribution in the capillary network
- >> 31 % stronger venous return
- >> 29 % higher oxygen extraction

The percentages stated above are maximum levels following 30 days of treatment.  
Source: university lecturer Dr. R. Klopp; Institute for Microcirculation Berlin; 2010

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# BEMER® Physical Vascular Therapy.

All regulatory processes in the body depend on the performance capability of the cells they pass through. The regulatory process affecting blood distribution in the microcirculation system is one of the most important.

The performance capability of the cells and therefore of the tissues is determined by the status of exchange of substances between the blood and the body cells (supply of substrate and oxygen/removal of carbon dioxide and metabolic waste products). "BEMER Physical Vascular therapy" provides targeted stimulation for any restricted or disturbed reactions of the small caliber vessels involved in this regulatory mechanism (known as vasomotion) and thus expands the regulatory scope (i.e. adaptive scope) of the tissues and blood flow to the organs to meet existing metabolic requirements.

All the latest scientific findings regarding this functional mechanism, i.e. the influencing of microcirculation by stimulation of the local auto-rhythmic or superordinately (nerval, humoral) controlled vasomotion, have been used to inform special further development of the signal whilst maintaining direct control of the change in physiological processes. This knowledge of the actual processes which take place in the body as affected by "BEMER Physical Vascular therapy," and the subsequent development of an effective and targeted treatment for a disturbed microcirculation system represents the immense benefit and the scientific progress of the new BEMER Technology.

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