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## Because of Body-Earthing: Health, Good Sleep and High Performance

The term “earthing” or “grounding” is known from physic lessons. This means establishing an electrical link between electrical devices and an electrically neutral conductor for protection against high contact voltage or against lightning strike. Earthing is also used for obviation from disturbances at electrical measuring instruments.

Is it also possible to ground a human being? Yes, since the human being is an electromagnetic being. The so-called bioelectricity is the energy source for people. We are able to measure these flows and thereby find out, whether the human being is healthy or sick. The ECG (electrocardiogram) - with which you can get information about the condition of the myocardial muscle – can indicate a heart attack. The EEG (electroencephalogram) is measuring brainwaves, this gives us for example information about epilepsy or sleep disorders. No more electrical energy can be verified when a person is dead. The clinical death is determined by “expiration” of the brainwaves (figure 1).

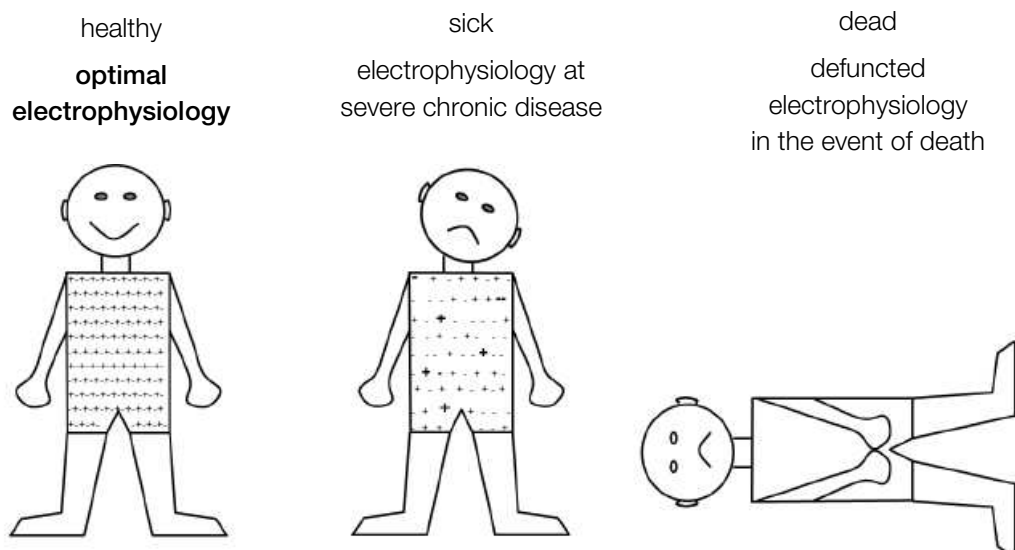


Fig. 1: Electrophysiology of a human being as a model in different states [Hecht und Hecht-Savoley 2008]

So, why now grounding? I would like to explain this with an example. In 1984, when we established our sleep-laboratory at the Charité in Berlin (Ziegelstrasse), our device that is measuring the brainwaves, showed massive disturbances. This was caused by the adjoining Varieté Friedrichspalast which was equipped with a large assortment of electricity. Only after we furnished the walls of the sleep-laboratory with aluminium-wallpapers, which were grounded about 8 m deep, we were able to work undisturbed. We had created a Faraday cage.

Soon after, a 45 years old patient came. For a long time, he was unable to find sleep at home. We were all surprised, that for five days in a row, he was presenting a picture-perfect sleep, although he was wired with 20 electrodes to measure his sleepfunctions. After returning home, he was suffering from sleeplessness again. With the renewed admittance to the sleep-laboratory his good sleep returned. We found out, that the patient's apartment was surrounded by transmitting stations, that caused the sleeplessness.

Even in 1932 the German physician, Dr. Erwin Schliephake, found, that people, who were working close to towers of a broadcasting station, showed sleep disorders, daytime tiredness, headaches of high intensity and nervous weaknessness [Schliephake 1932].

At home, our patient grounded his bed and from that day on, his sleep improved. In the following years, a whole number of patients with radio-wave-induced sleep-disorders came to us. Our recommendation to ground their beds partly worked out but did not in all cases. The only way out was a change of residence.

## **1. Why earthing a human being?**

A human being is not only a pure electrical being but an electromagnetical being, because there where are currents there arise magnetic fields. Naturally, mankind's environment is also construed electromagnetical. There are 80 – 500 km of ionosphere above us, on top of that up to 45.000 km magnetosphere – that means, the protecting, geomagnetic field for people against the gamma radiation of the sun [Hecht 2011; Becker 1994].

But also the earth's crust is, so to speak, an "electrical accumulator", that is radiating a weak energy. As is generally known, the earth crust consists mainly of silicium. After oxygen, it is the second most element on our planet. A large part of this silicium containing earth crust is there in the form of  $\text{SiO}_2$ -containing rock, especially also in the form of quartz. Quartz-crystals radiate electricity.

In 1880, the French physician Pierre Curie discovered electrical charge on the surface of quartz-crystals. He called this appearance piezoelectricity. Nowadays, this term already

belongs to everyday language. In 1889 Marie Curie, his wife, discovered the oscillating characteristic of quartz-crystals. This discovery provided the basis for sending and receiving information wireless and controlled via the movements of the oscillation (vibrations).

It is known fact, that radio,- TV- and mobile phones of today are equipped with oscillation-crystals that are able to oscillate on any desired frequency. Quartz-crystals can also be brought to oscillation through electrical impulses. Many people use this when carrying a wrist-watch.

By means of  $\text{SiO}_2$ -containing quartz-crystals, it is possible to radiate high-frequency-waves – hence microwaves - on a certain level of vibration. Furthermore, quartz-crystals are having an excellent memory capacity. Out of this reason, they are used in the production of microchips [v. Buttler 2002; Hecht und Hecht Savoley 2011]. The presented facts make it understood, that it is possible to send oscillations – just like with the quartz-watch – on to the human body via electrical stimulated quartz-crystals and to thereby create a bioresonance with the frequencies of the body.

Clinton Ober [et al. 2011] reported, that he was able to prove negatively charged free electrons on the earth's surface, that can i.e. flood the body via the sole of foot on walking barefoot and balance the electrical potential. If this takes place, Ober and his staff noted among the examined subjects calmness, well-being and buoyancy [Ober 2004]. Walking barefoot is the very own and constant earthing of a human being that keeps him healthy. It is known, that in recent years there have been built barefoot-paths in various places which have a huge attendance. Furthermore, Ober [et al. 2011] reports that his colleague Dr. Jeff Spencer has achieved spectacular wins with the US-cycle-racing-team at the Tour-de-France.

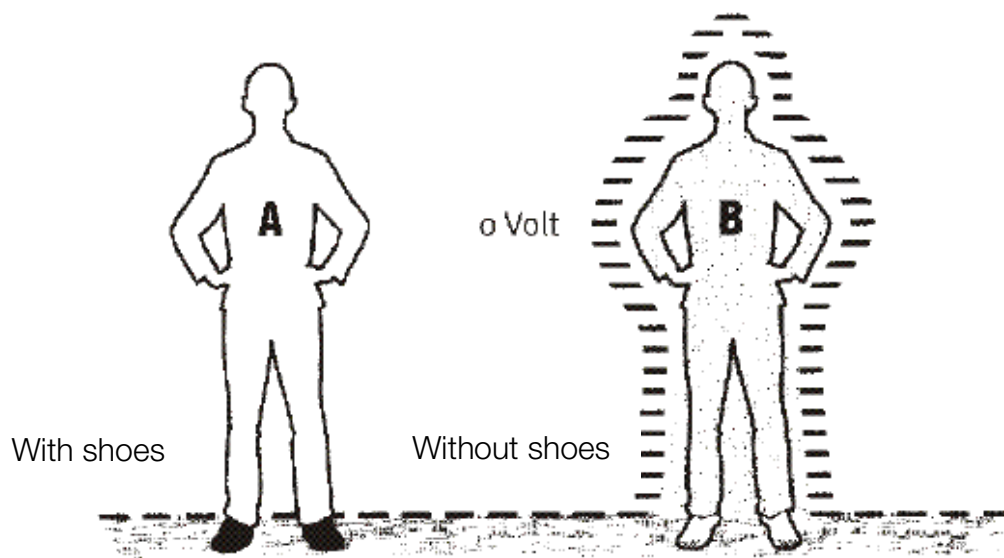


Fig. 2: Earthing (without shoes = barefoot) forms a protective shield around the human being and harmonizes the physiological processes (modified according to Ober et al. 2011)

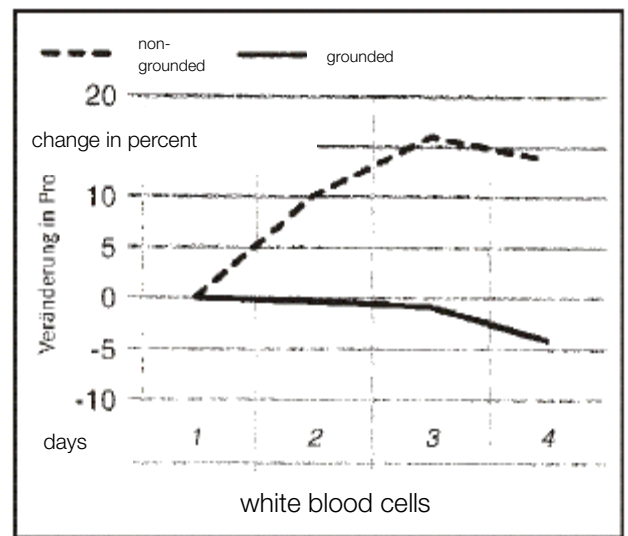
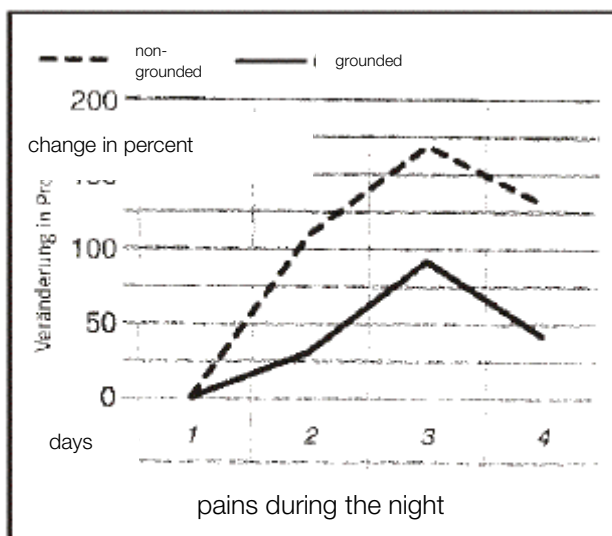


Fig. 3: Muscle-soreness-study from Dr. Dick Brown [2010; Ober et al. 2011]. As is well known, after excessive demand of the musculature emerges muscle-soreness that might last up to three days. When comparing the grounded with the non-grounded group a faster regeneration and disappearance of inflammation is visible in the grounded group.

After each stage, the cyclists have been grounded with a special method. Out of this reason, they regenerated faster, slept well, had no excessive-demands-symptoms (i.e. painful inflammations), injuries cured very fast. Oschmann [2007] reported, that the negative electrons of the earth's surface can develop an anti-oxidant effect. (That would also

correspond with the effect of the clinoptilolit-zeolit, that is rich in  $\text{SiO}_2$ .) This also explains the effects with the US-cyclists, which have been grounded after each stage. It is known that with top athletes like cyclists and marathon runner oxidative stress that leads to injuries and prolonged regeneration phases is formed.

The modern human being is withdrawing himself from the natural earthing and therewith increases the risk for chronic diseases, i.e. autoimmune disorders [Ober et al. 2011]

This happens because of:

1. Wearing shoes which insulate against earth-energy. As a result, the symbiosis of mankind with the electricity of the surface of the earth which is risen during evolution got lost.
2. The energy-contamination of our environment with electromagnetic pollution, thus radio waves of all sorts. These waves interfere with resp. break the natural symbioses of a human being with the geomagnetic protective shield of a human being and the ionosphere [Hecht 2011a].

Unfortunately, we are not able to perceive this increasing electromagnetic pollution of our environment. Out of this reason, it is being ignored. That is regrettable.

- Most people on our planet, at least the one's in the industrial countries, are exposed to a "wave-confusion" coming of a forest of transmitters around the clock. Here, especially the long-term effects are dangerous, since symptoms of a disease may occur five or more years later [Hecht 2011b; Yakymenko et al. 2011]. This is for example effected by the constant use of mobile radio, cordless telephone set, radar device, electrical appliances etc.
- We find statical electricity in any household, clothing, laundry, carpet, furniture. That leads to a bio-electromagnetic caused stress, which among other things is visible in a raised cortisol-level [Ober et al 2011] as well as in a weakening of the electrical communication between cells.

The consequences of a long-term influence of bio-electromagnetical stress are, among other things:

- Changes in cell- and tissue-function
- Chromosome breaks
- Enhanced tumor growth
- Decrease of melatonin, a hormone that regulates the natural sleep-wake-rhythm
- Change of the biological clock similar to the jetlag-syndrom – but this permanently

- Changes in the electrical activity and the cardiac-rhythm
- Intensive sleep disturbances in the form of insomnia. In Germany, up to 50 % of the adult population are to be suffering under sleep disturbances.

Now, we would like to get back to the at the beginning mentioned earthing of the bed in case of radio-waves induced insomnia. On average, a human being is spending a third of its lifetime in bed. It should be constructed in that way that it ensures a recreational sleep. Up until today, original people directly sleep on the earth, which most of time consists of clay or tone containing  $\text{SiO}_2$  which ensures a grounding of the human body. In my childhood, it was an experience for me, when I was allowed to sleep at my grandmother's on a freshly filled straw mattress. In this case too, the grounding was ensured, because it was lying on top of a wooden bed.

Than the spring mattresses came onto the market. 25 years ago, the Munich graduate engineer Gerald Blumrich, evaluated the magnetic field strength and field direction on places to sleep. Here, he examined the intensity and homogeneity of the earth magnetic field by means of a magnetometer. He took measurements 40 cm above the spring mattress, that was positioned in North-South-direction. The metal parts of these mattresses usually get magnetized during production (heat, mill and pull). He was able to proof, that the field intensity of the earth magnetic field gets contorted through the magnetized metal parts of a spring mattress. In Blumrich's opinion the contortion of the geo-magnetical field gets amplified through the weight of the sleeping person and the therewith connected compression of the springing. The more a human being is moving around in bed the bigger the disturbance. Measurements with a metal-free mattress resulted in no magnetic field changes. Figure 4 and 5 convincingly show the results of measurements.

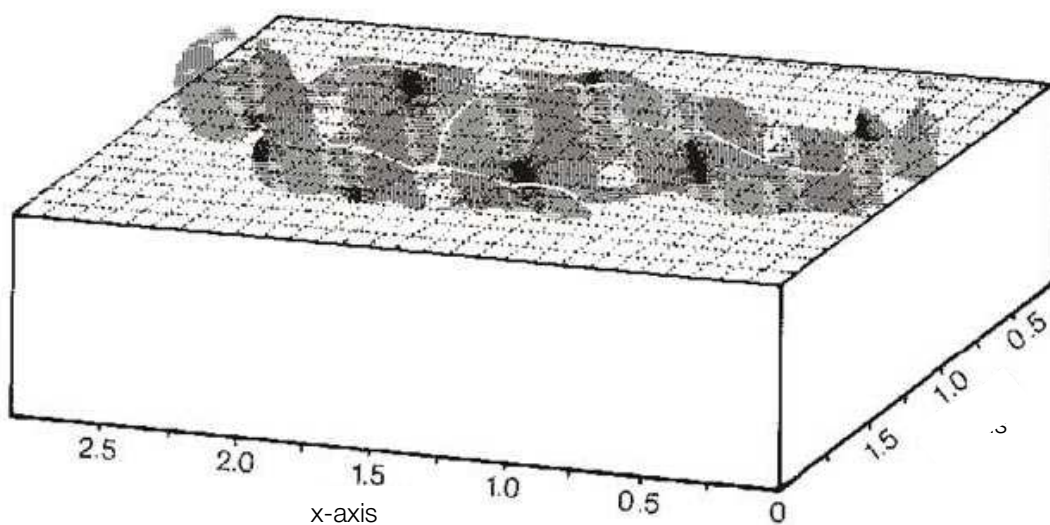


Fig. 4: Lying surface of the bed with natural conditions of the earth-magnetic field. Underlay: slatted frame with metal free mattress [modified according to G. Blumrich, quoted by Hecht 1992]

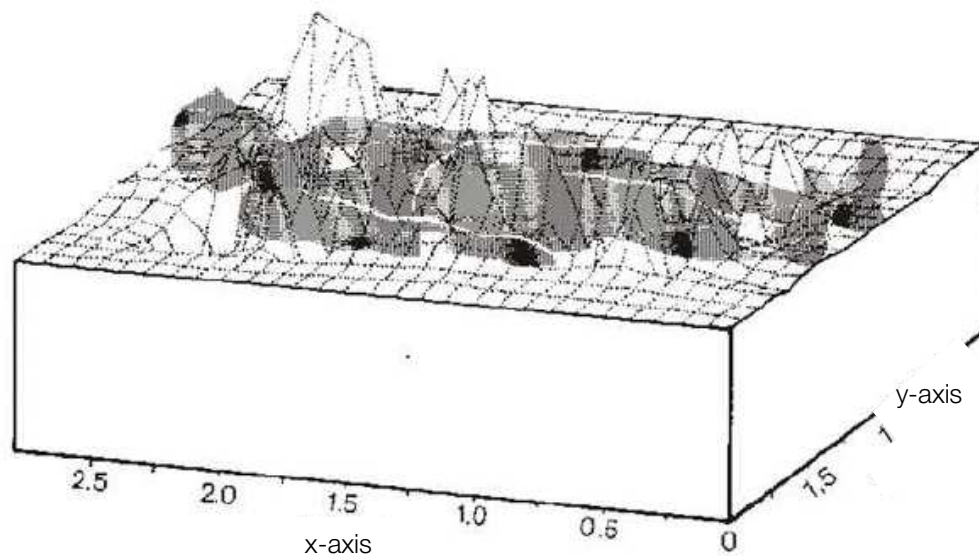


Fig. 5: Lying surface of the bed with natural contortion of the intensity of the earth-magnetic field, initiated by a spring mattress [modified according to G. Blumrich, quoted by Hecht 1992]

The US-American Professor Roger Applewhite [2005] developed a model of the electrical network of a human body during sleep and proved that the sleeping human being has to be grounded to reach a recreational sleep under the current influence of electricity and electromagnetic pollution. A large-scale grounding of the human body during sleep supports the calming parasympathetic function, enhances Alpha-Theta- and Delta-rhythm of the EEG, leads as well to sleep-improvement as to reduction of stress and pain [Chevalier et al. 2006, 2007].

For about five years, I am sleeping on a bed of the company Samina (A) including the Lokosana-earthing-layover, which has the effect of a large-scale body-earthing during sleep. Subjectively, I was experiencing a recreational sleep from the beginning. Being a sleep-medic, I also wanted to know whether it was possible to prove this with measurings. Out of this reason I was carrying out a self-experiment with an ambulatory, automatic, electro-physiologic sleep-analyzer. For eleven nights I was sleeping in a health resort on a normal, unearthed mattress and for eleven nights in my own bed on top of the earthed Lokosana-overlay. I was choosing eleven nights to be able to also analyze a possible weekly sleep-rhythm, that may deliver an important statement about the sleep-quality [Dietrich et al. 1991].

Since biological time series vary a lot mean values are out of the question. But, standard deviations to the mean value can verify extreme variabilities. This makes it possible to make a statement to balancing functions and instable functions [Halberg 1967; Hildebrandt 1961].

Out of this reason, I first analyzed the standard deviations of the mean value from 10 sleep parameters and compared both test series with each other.

Table 1: Sleep-parameters AAESA-measuring. Standard deviation from the mean

"Parameter"	"Lokosana"	"Normal Matress"
"sleep-onset latency"	"3,28 min"	"7,21 min"
"change of state"	"15,47 (n)"	"27,83 (n)"
"efficiency of sleep duration"	"0,02 %"	"0,10 %"
"awaking during night"	"0,02 %"	"0,03%"
"REM-sleep"	"0,05 %"	"0,07 %"
"NREM 1"	"0,03 %"	"0,02 %"
"NREM 2"	"0,06 %"	"0,08 %"
"NREM 3+4 (deep sleep)"	"0,07 %"	"0,12 "
"movements"	"0,005 %"	"0,006 %"
"sleep total"	"26,46 min"	"46,67 min"

As shown in the table above, the standard deviation from the mean of all parameters under the condition of sleeping on a normal mattress compared with the Lokosana-grounding-system is increased. On "sleep-onset latency", "change of state" and "sleep total" even seriously increased. This is evidence of a more quiet sleep with the grounded Lokosana-System and of a fitful sleep on a normal un-earthed mattress. From these parameters I would like to especially draw attention to the change of state which is at high values an indication of a very fitful sleep. This was the case with the normal un-earthed mattress.

The main analysis was that we were putting the parameters into a time series graph and made a third degree smoothing of the data to verify the rhythmical shape. The real data are marked with a continuous line and the smoothing curve with a dotted one.

The following survey informs about the proven rhythmic parameters under different bed-conditions, completed with three examples of the curving shapes.

Table 2: Survey of the periodicity of the single sleep-parameters under different bed-conditions.

Parameter	Normal Mattress		Lokosana-System	
	Periodic Length	Amplitude	Periodic Length	Amplitude
1. sleep-onset latency	-	-	10 days	low
2. change of state	-	-	10 days	low
3. sleep efficiency	-	-	10 days	low
4. nighttime awakening	7 days	very high	7 days	low

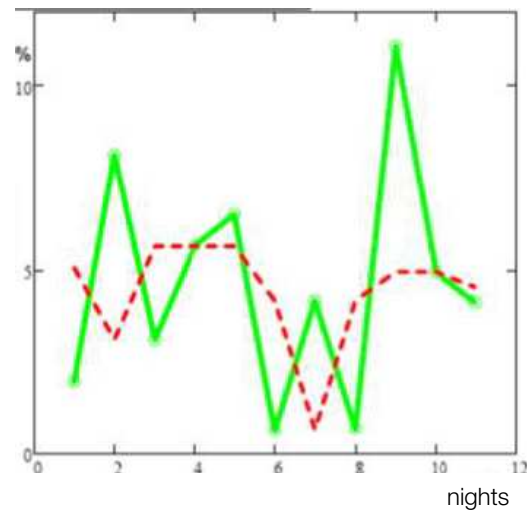


5. REM-sleep	-	-	7 days	medium
6. NONREM 1	7 days	high	7 days	high
7. NONREM 2	4 days (weak)	medium	4 days	medium
8. NONREM 3+4	-	-	10 days	low
9. movements	10 days	very high	10 days	low
10. total sleep	-	-	10 days	low

- Ambulatory, automatic, electro-physiologic sleep-analyzer
- Consecutive 11-nights-examination
- Time series shapes with third degree smoothing
- Nighttime awakening with normal mattress (above) and with grounded Lokosana-System (below)

### Nighttime awakening

normal mattress  
non-grounded



grounded  
Lokosana-System

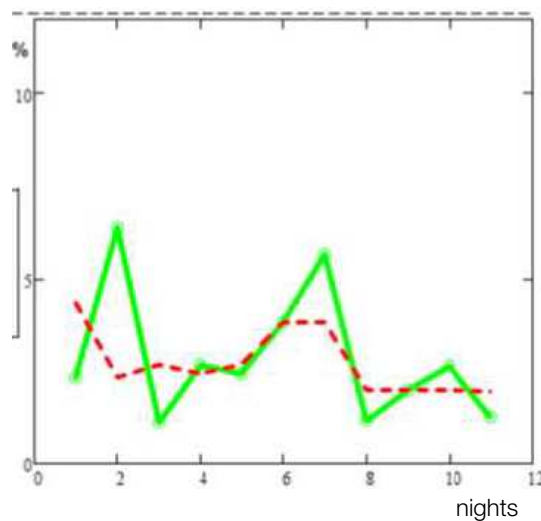
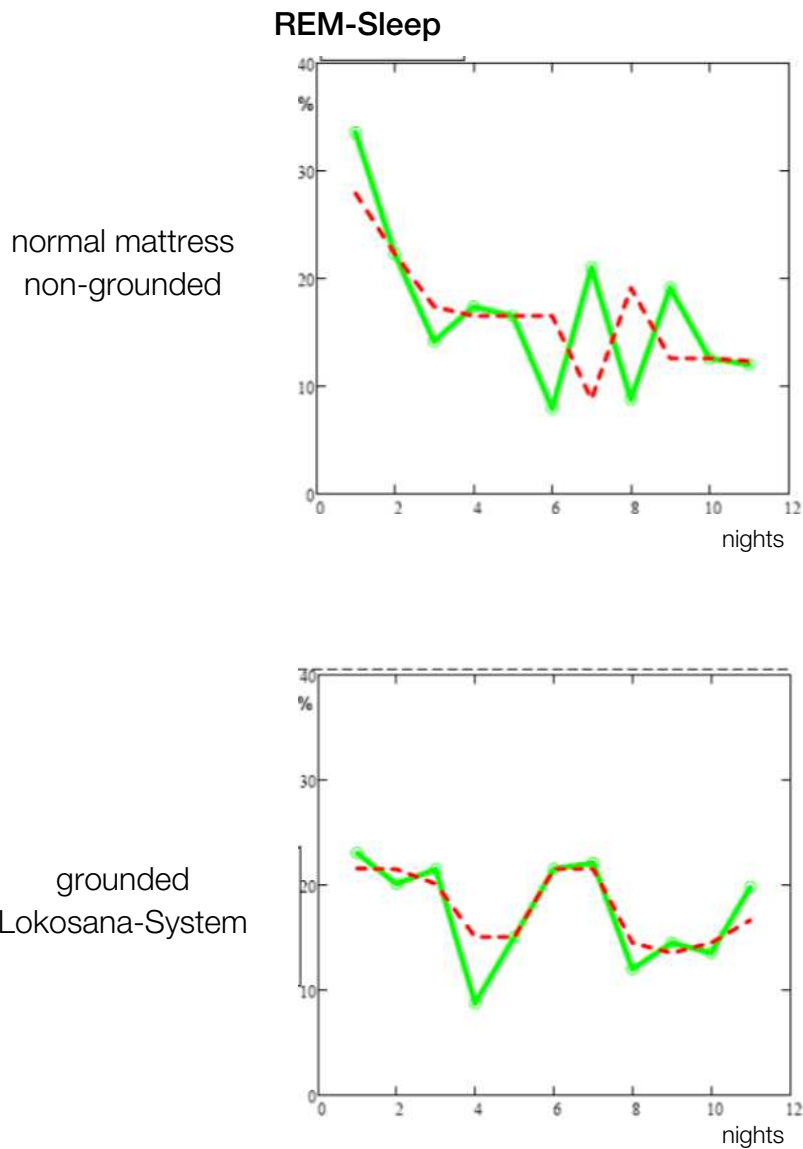


Figure 6

- Ambulatory, automatic, electro-physiologic sleep-analyzer
- Consecutive 11-nights-examination
- Time series shapes with third degree smoothing
- REM-sleep with normal mattress (above) and with grounded Lokosana-System (below)



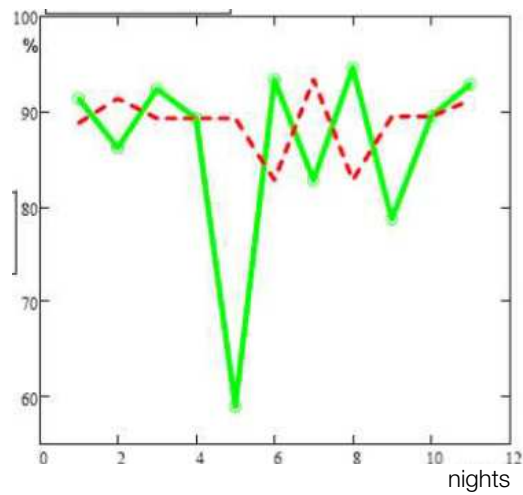
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Figure 7

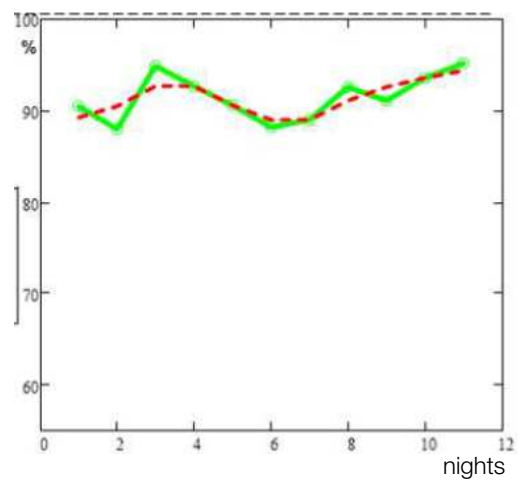
- Ambulatory, automatic, electro-physiologic sleep-analyzer
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### Sleep-Efficiency

normal mattress  
non-grounded



grounded  
Lokosana-System



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Figure 8

## 2. Evaluation of the Findings by Means of the Proved Periods

1. The examined 10 sleep-parameters of sleeping on top of the grounded Lokosana-System are all disclosing a periodicity. Six parameters show a period-length of 10 days, three of 7 days and one of 4 days. Because of the present nomenclature [Halberg 1967] are the following rhythms in existence: once a semicircaseptan, three times a circaseptan and six times a circadecadian rhythm. This is reflecting a harmonical-dynamical regulation, which would show with more specified analyses  $3,5 \leftrightarrow 7,0 \leftrightarrow 10,5$  days normal period-variability [Hildebrandt 1961; Halberg et al. 1967; Hecht 1993; Balzer und Hecht 1993; Hecht et al. 2002]. Under chronobiological and biological rhythm regulation aspects there would exist an approximately normal sleep-regulation process. The low amplitudes reflect a balanced sleep, from one day to the other.
2. When sleeping on the normal mattress without grounding in six of ten parameters it was not possible to prove a periodicity. There is once a weak 4-day-rhythm with medium-high amplitude, twice a 7-day-rhythm with high resp. very high amplitude and once a 10-day-rhythm with a very high amplitude. This implies a disturbed sleep. Its regulation-relations are under a more specified analysis  $3,5 \leftrightarrow 7,0 \leftrightarrow 10,5$  days only weakly formed at about 40 % of the examined parameters. The high amplitudes speak for a less balanced sleep from one night to the other.
3. The grounding effect of the Lokosana-System to the sleep of an after all 85 years old man is clearly visible. A larger study should confirm these findings.

As it has been shown, it is possible to reach a healthy and heal-supporting effect by grounding people – especially during sleep. At the same time, one should also think about the economic effect. The Canadian Psychologists M. Daley and Ch. Morin of the Study Centre for Sleep Disturbances, Quebec, found in their examinations that due to sleep-disturbances only in the province of Quebec arise costs of 3.7 billion Euro. This is equivalent to 1 % of the gross domestic product. Each person that is suffering under an acute or chronic insomnia causes an economic damage of Euro 2.900. The situation concerning this matter is similar in Germany, Austria and Switzerland.

Consequently, body-earthing of the human being during sleep could also have an effect to a considerable economic damage control.