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# NATURAL SCIENCE

RESTORING AND HEALING THE WORLD THROUGH RESPONSIBILITY AND COMMITMENT, IN ACCORD WITH NATURAL AND DIVINE LAW



**MICROWAVE COOKING?**

**IT'S THE KISS OF DEATH!!**

*.... and, what is more, it's A PROVEN RECIPE FOR CANCER!!*

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# Are Microwave Ovens a Source of Danger?

**Microwave ovens, one of the many dubious technical achievements which were brought to Europe from the United States, have become increasingly popular in the last decade. Clever advertising campaigns of industry and trade have made sure that consumers are well informed of the advantages of microwave ovens. Microwave cooking is time-saving, simple and more convenient as well as energy-saving, are the main sales arguments. Children in supermarkets are even offered ice cream with microwaved raspberry topping. Are these devices really safe, and is microwaved food really harmless?**

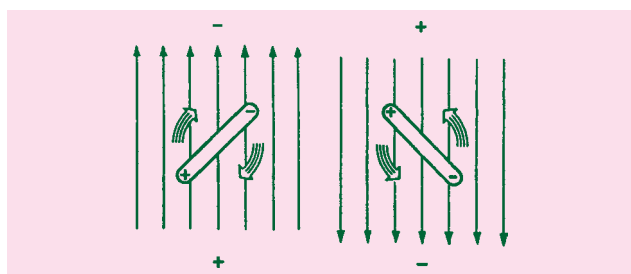
THE USE OF MICROWAVE OVENS in industrial, commercial, domestic and other premises has increased substantially over recent years. The food industry has been using the “quick wave” even since the 1960s. In many medical practices patients are informed that microwaved food is practically free of micro-organisms and is therefore recommendable. In a book about cancer and nutrition the *Swiss Cancer League* states that “gentle cooking” in a microwave oven allows “only little mutagen formation.” However, recent findings in research paint quite a different picture. An increasing number of consumers is beginning to suspect that microwaves are anything but harmless.

## —HOW DO MICROWAVE OVENS WORK?—

THE PHYSICAL PRINCIPLE of the microwave oven is quite simple: in the microwave oven an electronic tube, the so-called *magnetron*, generates an alternating power field. The molecules within the food—especially the polar water molecules, but also amino acids, lipids and proteins—are forced to align themselves with the rapidly changing alternating electrical field. They oscillate around their axis in response to reversal of the electric field that occurs up to 5 billion times per second. This oscillation creates considerable intermolecular friction that results in the generation of heat. Thus, the food is heated from the inside outwards leaving the dishes and the oven itself cold, because they are not directly heated by microwaves. This is contrary to conventional heating of food, in which heat transfers convectionally from the outer to the inner. In order to avoid interference between different applications of high frequency radio waves, a frequency of 2.45 GHz, which equals a wavelength of approximately 12 cm, was laid down for industrial and medical use—this includes microwave ovens for household use.

The phenomenon of frictional heat caused by microwaves was discovered accidentally in 1946 (if not earlier) during an experiment with a magnetic field tube. One of the researchers, Percy Spencer, noticed that a piece of chocolate he had been

carrying in his jacket pocket had melted although he had not been aware of any heat. The discovery triggered the development of kitchen appliances in the U.S.A. utilizing this heating effect. As early as 1952 a microwave oven, adapted for domestic use, was placed on the U.S. market—under license to *Raytheon Company*.



Oscillation of a polar molecule in an electric field.

## —THRESHOLD VALUES AND MICROWAVE EMISSION—

IN THE WESTERN PART of the world the detrimental effects of microwaves on biological systems have at least been known since their first application during the last world war. Russian scientists had already conducted research in the 1930s on the effects of microwaves on the nervous systems of humans and animals. Their findings led to very strict safety measures which, however, were not taken seriously by western scientists who in the 1960s still used threshold values a thousand times higher than those of the Russians.

In the late 1980s a study on domestic microwave ovens was conducted in Washington, DC, as well as in two other states. It revealed that microwave emission during the thawing, cooking and grilling processes was one quarter higher than the official threshold value of 10 mW/cm<sup>2</sup> laid down by the electrical industry. A product test revealed that 24 out of 30 of the tested microwave ovens were considered too dangerous and had to be withdrawn from the market. Microwave emission of these ovens reached values of up to 20 mW/cm<sup>2</sup>.

A hearing of the American Senate Committee started a controversy between science and the industry on the safety of

cooking with microwaves which still continues. The largest manufacturer of microwave appliances, the *Raytheon Company*, which also supplies industrial enterprises and canteens with cooking and drying appliances, assured the committee that all their devices were fitted with ample safety measures, and furthermore it was "in any case clear that microwaves, unlike X-rays, don't have a cumulative effect."

However, a renowned university professor sent the following statement to the committee:

*"We have proven beyond doubt that microwaves hitting the eye have the following damaging effect: repeated short microwave radiation which in itself is not painful and shows no ill effects in the beginning, leads in the case of frequently repeated exposure to lasting eye damages. Thus this non-ionizing radiation has a dangerous cumulative effect."*[1]

The same also applies to domestic microwave ovens. A housewife unknowingly exposed day by day to microwave emission from an oven installed at eye level may acquire serious eye damage or even go blind. Those areas of the body with low circulation, respectively with a low cooling effect, generally react more sensitively to microwaves because the rise in temperature is greater than in areas with good blood circulation. The most sensitive part of the body is the lens of the eye.

A special safety interlock switch stops the generation of microwaves immediately if the door is opened. In Switzerland the doors must withstand at least 100,000 open and close operations without damage. All commercial models have to pass this test. There is, however, no guarantee that there is no microwave leakage while the microwave oven is running, especially as far as older devices are concerned, and the consumer has no way of testing.

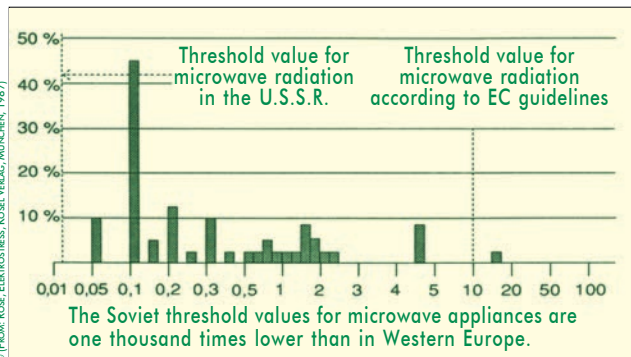
However, in 1992 the *Swiss Federal Office for Public Health* stated: "Microwave leakage from properly run microwave ovens which are in perfect working order is not hazardous to human health, not even to people requiring special protection, e.g. pregnant women and infants. Fire and gas are much more dangerous in comparison."[2]

### THERMIC AND NON-THERMIC EFFECTS

**I**N ADDITION TO THERMIC EFFECTS, i.e. caused by frictional heat, athermic effects of microwave radiation must also be taken into account, meaning interaction between microwave radiation and structures in living organisms not caused by frictional heat. In Russia the non-thermic effects are also taken into consideration when laying down standards, while in other countries, such as Germany for example, only the thermic effects are taken into account. Compared with

other countries, Germany is the most liberal as far as exposing its population to radiation is concerned.

Scientists declare that the quantum energy of microwave radiation is some orders of magnitude less than required to dissociate covalent bonds and to trigger chemical reactions. It is therefore assumed that no chemical effects can be detectable in microwaved nutrients. Thus, according to scientific research, proteins, fatty acids, vitamins, etc.



Microwave emission (leakage of radiation) of 101 tested domestic microwave ovens.

are not changed. Nevertheless, histological studies with microwaved carrots and broccoli have revealed that the molecular structures of nutrients are deformed by high frequency reversal of polarity, even up to the point of destroying the cell walls, whereas in conventional cooking the cell structures remained intact.[3] Microwaving may even result in the development of new, hitherto unknown substances. The microwave induced reversal of the polarity causes the cells of the nutrients to become destructively polarized, thus free radicals can be created. All radicals have a strong tendency to cause reactions. They can interact with enzymes thus causing a disruption of biological processes.

In addition, through induction the food itself becomes a carrier and secondary source of technically generated radiation. Studies regarding the luminous power of luminescent bacteria revealed a highly significant association between the amount of microwave energy in the test foods and the increased energy in the blood serum of test persons who ate that food. The luminous power of luminescent bacteria exposed to serum from these test persons was significantly greater than that exposed to serum of those persons who had eaten conventionally heated food or raw food, respectively. This led the authors to the conclusion that such technically derived energies may be passed along to man inductively via ingestion of microwaved food.[4,5]

In a report published in 1980 by the *Institute of Radiation Hygiene of the German Federal Office of Public Health* (BGA) 16 studies were comparatively evaluated with regard to thermic and non-thermic effects of microwave radiation [6]:

- ◆ Decrease in enzyme activity and influence on enzyme-catalyzed processes;
- ◆ Influence on the thyroid gland, suprarenal gland and their hormones;
- ◆ Effect on composition and function of blood components respectively;
- ◆ Influence on cell growth, and structural changes in chromosomes;
- ◆ Cataracts;
- ◆ Influence on concentration, blood constituents, and hormones in the brain respectively.

At the end of the 1970s a Forensic Research Document was released in the United States containing alarming findings on the destruction of the nutritive value of foods, development of cancer-causing agents, and direct biological effects of exposure to microwave emissions on humans.<sup>1</sup>

=CONSEQUENCES OF MICROWAVE RADIATION=

THE MAIN EFFECT of microwave treatment is, of course, quick heating of food compared to conventional heating methods. This quick heating of food-substances can lead to uneven and non-calculable heat distribution in the food—causing so-called “cold spots” and “hot spots” respectively. Thus germs are often not sufficiently inactivated and eliminated. Short heating periods of microbiologically contaminated food are a serious health hazard.[7] At the *Department of Medical Microbiology, Leeds University, England*, the uneven heat conduction was also studied: two British scientists reported that the salt content in a defined portion of mashed potatoes influenced the temperature inside—the greater the salt content, the lower the temperature. The authors came to the conclusion that “the poor penetration of microwaves into the test food with high ionic concentrations may result from the induction of electrical/ionic flow in the surface of the food. This would also explain why commercial food heated in microwaves commonly boils on the surface but is cool on the inside.”[8] This may result in salmonellosis and listeriosis through insufficient cooking of, for example, chicken.

The anthroposophist A. Bohmert reported the following discovery in one of her presentations: water samples were heated, some in a microwave oven and others conventionally, and then left to cool down before use. These water samples were used to bring grain to germination. The grain in contact with microwaved water was the only one that did not germinate.

In 1973 two American scientists, P. CZERSKI and W. M. LEACH [9] proved that microwaves cause cancer in animals. The *American National Council for Radiation Protection (NCRP)* announced at the end of the 1980s that children of mothers exposed to using microwave ovens were found to have an increased rate of malformations.

Early in the 1990s a hospital in Minneapolis, Minnesota, distributed pamphlets warning people against using microwave ovens to heat infant formulas because they altered the food. In 1991 a patient in a hospital in Tulsa, Oklahoma, died of anaphylaxis after receiving a blood transfusion for which the blood had been warmed in a microwave oven. Apparently the microwave irradiation had altered the blood, causing the patient’s death. In that very same year the *New England Medical Center* in Boston stated that the structural and functional integrity of erythrocytes (red blood cells) remained unaltered by microwaving. But then what killed the patient?

=MILK AS A WARNING EXAMPLE=

ESTABLISHED SCIENCE has yet to prove that no qualitative changes take place in irradiated matter, e.g. impede the characteristic vital-energy field, as was probably the case in the experiment with the germination of grain. An interesting research method was published by *Le Laboratoire associatif pour l’application des tests sensibles (LAPATS)*. A special crystallization method for test-suspensions makes it possible to draw conclusions as to the kind and origin of food-substances, e.g. biological or conventional production, irradiated or not, and the heating method used. The crystallization method reveals that food becomes denatured through irradiation. Microwaved milk was denatured to such a degree that it was not considered fit for consumption.

A group of scientists at the *Stanford University School of Medicine* in California discovered that microwaving breast milk at high temperatures (72°C to 98°C) caused a marked decrease in activity of all the tested anti-infective factors. *E.coli* growth at ≥98°C was 18 times that of control human milk. Microwaving at low temperatures (20°C to 53°C) had no significant effect on total IgA, but did significantly decrease lysozyme. Even at 20°C to 25°C, *E.coli* growth was five times that of control human milk. Because microwave radiation lead to a significant loss of the immunological properties of milk, the authors concluded that microwaving is definitely “not a suitable heat treatment modality.” They assumed that non-thermal as well as thermal effects of microwave radiation must play a decisive role because “the adverse effects on anti-infective factors are difficult to explain on the basis of hyperthermia alone.”[10]

A further study on milk, conducted in Vienna, showed that microwave treatment induced high racemization rates in food proteins which was not observed after conventional cooking. In particular, D-proline and *cis*-D-hydroxyproline were reported to have been found in significant amounts in microwave-heated infant milk formulas. Normally, L-proline is found in biological matter. LUBEC et al. [11] warned that “the conversion of *trans* to *cis* forms could be hazardous because when *cis*-amino acids are incorporated into peptides and proteins instead of their *trans* isomers, this can lead to

<sup>1</sup> EFFECTS OF MICROWAVES ON HUMANS (INS No.2, pp 42-43)

structural, functional, and immunological changes.” Moreover, in animal experiments D-proline was found to be neurotoxic. Renowned scientists did their utmost to discredit these findings. Shortly afterwards the *Nestlé Research Centre* declared food microwaving “as good as and sometimes better than the conventional heat treatments.” In fact, Lubec himself “revoked” his findings in 1990, yielding to pressure from industry and trade.

MAN AND MICROWAVED FOOD

HOW DOES MICROWAVED FOOD affect the human organism? Whether it is detrimental and to what extent can, at present, only be observed by its effects on living organisms. In 1992 the *Swiss Federal Office for Public Health* (BAG) categorically refused to support experiments feeding animals solely on microwaved food to study the effects on health on the following grounds: “As far as we know today they are not necessary and must be rejected for reasons of animal protection (so-called ‘unnecessary’ animal experiments).”

In 1989 the Swiss biologist Dr. H. U. Hertel proposed to the *University of Lausanne* to conduct extensive research on the effects of microwaved food on human organisms. Together with Prof. Bernard Blanc he developed a program which was submitted to the *Swiss National Fund*. The overall costs for the research program were estimated to be approx. 150,000 Swiss francs. However, the National Fund was not prepared to support the study, arguing that there was no need for research in this particular field of science. The two scientists were not prepared to give in so easily and decided to scale down their experiment and bear the costs themselves. Their study on the effects of microwaved food on human beings in comparison to conventionally prepared food proved that food which had been cooked in a microwave oven caused significant changes in the blood immediately after incorporation by the test persons.[4,5] The authors noted that these changes, some of which could be called highly significant, indicated the beginning of a pathological process, e.g. the beginning of cancer.

Examples of microwave application in the food industry:

- Thawing  
meat, fish, butter, fruit, berries
- Cooking  
bacon, potatoes, pies, fish, meat, poultry
- Drying  
pasta, onions, rice cakes, seaweed (kelp)
- Vacuum-drying  
citric juices, grain, seeds

CONSUMER PROTECTION

THE CONSUMER is led to believe in the safety of these devices, which is based on threshold values and standards laid down by so-called experts. The research findings presented to support their issue do not withstand closer scrutiny and prove, more often than not, to be nothing but eyewash. Firstly, these experts are, for the most part, not independent researchers and therefore their decisions are biased by pressure on the part of industry; and secondly, in modern science it no longer seems commonplace to be committed to searching for the truth.

In Germany, for example, the safety standards are laid down by the VDE Committee which is made up of 18 members, and 15 are representatives of industry! It is therefore possible that the health of the populace could be sacrificed to economic interests in a flippant and irresponsible manner. It is no easy task to prevail against a lobby, which deceives consumers by claiming that there was no real evidence that microwave ovens are a health hazard, when there were more than enough studies proving the exact opposite, and even stoop so low as to forge experts’ opinions in their favor as well as indulging in other forms of fraud.

REVERSAL OF THE CAUSATION PRINCIPLE

CASES SUCH AS THESE are increasingly becoming the focus of public attention. Scientists as well as the persons affected are coming to the conclusion that: “These and other problems could be solved by reversal of the causation principle. The affected persons would no longer have to fight against the industry with their hand-picked lawyers and experts. The responsible party would have to prove that their products or methods are indeed harmless and can, if necessary, be held liable for damages. Entrepreneurs and experts should at least be prosecuted for deliberate deception and violating their duty of care. Negligent and deliberate damage to people should be treated as a criminal offense.”

YOU DON’T BITE THE HAND THAT FEEDS YOU

“The measurable effects on man through ingestion of microwaved food, unlike untreated food, are blood alterations, that can also be found at the beginning of a pathological condition, as also indicative of a beginning cancerous process.”

(EXCERPT FROM A LETTER PROF. DR. BERNARD BLANC SENT TO DR. HANS (J. HERTEL.)

On 28 January 1992, during a TV interview in *Kassensturz* and in front of the press, Prof. Blanc [former member of the *University Institute for Biochemistry, Swiss Federal*

*Institute of Technology (ETH) Lausanne*] formally disassociated himself from his earlier interpretation of the results of the research he had done together with Dr. Hertel. Although, in February of 1992 he had admitted in an interview with the *Basler Zeitung*: "This doesn't mean that no further research should be conducted, because the changes in the blood do indicate that irradiated food causes a reaction in the body." However, in a private letter to Dr. Hans U. Hertel, the co-author, he admitted that he feared consequences and that the safety of his family was more important to him than anything else. Do we call that freedom of science and research?

### TRUTH CAUSES A STIR

**S**ELDOM HAS A REPORT caused such a stir as did the Swiss study on the hazards of microwaved food. Journalists, microwave opponents, trade, and industry started a battle which is still in full swing today. The *Swiss Association for Electroapparatuses for Households and Industry (FEA)* filed a complaint against Dr. Hertel for violating the Law Against Unfair Competition. The court upheld the complaint and sentenced Dr. Hertel. Prof. Michael Teuber, head of the Department of Food Microbiology at the ETH Zurich, who was called as an expert witness by the industry, stated that he hadn't even seen Hertel's study, however, he was of the opinion that it was not scientific and would not withstand closer scrutiny. In his comment of 29 February 1992 on the safety of microwave ovens he wrote: "The publication can, according to the present state of knowledge and considering all known effects of microwaves, at best be described as irresponsible and tendentious panic-making for no verifiable reason."

He told the court of a thesis his institute was preparing for which he as consultant was responsible. This thesis would prove beyond doubt the harmlessness of microwave irradiation, as first results had already shown, he assured the court. The thesis was presented almost unnoticed in 1994. It describes tests on the thermic effects of microwaves on bacteria, focusing especially on possible DNA structural changes and enzyme activity.[12] It is not surprising that this study has quietly disappeared from the scene. Prof. Teuber obviously missed the point in court.

*Tele 5* and *RTL plus* (German television) interviewed Dr. Hertel live. The magazine *Journal Franz Weber* first published a condensed version of his studies which were followed by various other publications. However, an interview Thomas Ohmer of *Tele 5* did with Dr. Hertel on 3 January 1992 met with the greatest response. At the end of the show Thomas Ohmer advised viewers to take their microwave ovens and put them in the cellar.

Traders bore the brunt of the reactions: Customers flocked back to the shops to return the microwave ovens they had received as Christmas gifts. The traders in turn stirred up

the rebellious feelings of the producers, who then complained to *Tele 5* and requested a further—this time objectively conducted—talk show. The following experts were invited to take part in the second round: Prof. Dr. Horst Pichert, head of the Institute for Household and Nutrition, *University of Weihenstephan*, Dr. Matthes, Institute for Radiation Hygiene, subdivision of the *Federal Office for Radiation Protection*, Neuherberg, and Mr. Hess, *Bosch Company*, Department for Development of Microwave Ovens, all from Germany. However, Prof. Pichert did not appear in the show, claiming health problems. The discussion, which was unfortunately not objectively moderated, ended—as most talk shows do—with a lot of unanswered questions and no solutions. The viewers were left bewildered which could, however, be the first step to searching for the truth.

### MICROWAVED FOOD CAUSES CANCER

**O**NE SINGLE MEAL heated in a microwave oven does not kill us, but after a prolonged intake such microwaved food will cause so many blockages in the body that it will start to rebel. **One day the world will wake up to the fact that microwaves do cause cancer, and are even worse than cigarettes.** Microwaved food causes a slow death. In the beginning, superficially, we save a little time in heating up our morning coffee in the microwave oven—but the time we 'save' we are cutting off our own lives. There is no cure in the world to prevent or heal it as long as the *cause* remains in our homes, and we continue to use these devices.

mcw 

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# Microwave Ovens: A Hazard to Health

ALARMING RESULTS OF A SCIENTIFIC STUDY

**Dr. Hans U. Hertel**

Bern, Switzerland

**Electrosmog, nowadays globally widespread, is a deadly threat to life. The effects of electrosmog are still greatly underestimated, for they occur insidiously, and the consequences are not immediately recognizable. The connection between the electromagnetic stress on an organism and a health impairment arising from it remains a controversial issue in today's science. Moreover, strong economic interests are at stake which impede the discovery of the truth. For several years now also microwave ovens, as well as the food prepared in them, are suspected of being hazardous to health and even causing cancer in case of regular exposure.**

**M**ICROWAVE OVENS, like other electrical devices, operate on alternating current whereby the so-called "magnetron," the core of the oven, generates microwaves which penetrate into the food and cause water molecules within the food to vibrate at a frequency of approx. 2.45 GHz. This gives rise to friction, caused mainly by the high oscillation rate of the water molecules in the electromagnetic field. Materials containing moisture, such as foods, absorb microwave energy and the friction produces heat which then spreads towards the outer parts. By conventional heating methods, such as on a cooking plate, the thermal diffusion process is just the other way around. There the heat is dissipated from the outside inwards, corresponding to a natural conduction of heat.[1]

## —IS MICROWAVED FOOD A HAZARD TO HEALTH?—

**I**NTERESTINGLY ENOUGH, up to about 15 years ago there were very few scientific studies carried out in the U.S.A. and Europe on the safety of microwave ovens, although they have already been on the market for around 40 years. Meanwhile it is known that microwaved food undergoes certain changes, including physical and chemical modifications thus reducing their bioavailability. In order to find out if microwaved food could possibly be detrimental to health, the author approached the *University of Lausanne*, Switzerland, at the end of the 1980s proposing they should make a joint scientific investigation on this matter. However, the *Swiss National Fund* turned down the request for economic support stating there was no necessity for research in this field. Not wishing to abandon the project completely,

the decision was taken to carry it out on a much reduced scale and to finance it privately.

A summary of the original research findings [2] was published in 1992 in *raum&zeit* [3] and in the *Journal Franz Weber* [4]. Without any consideration for the overall statements the paper was dismissed as being unscientific and the results were questioned. The author, however, is still of the firm conviction that microwave radiation and microwaved food causes cancer—despite being subjected to pressure.

## —SCIENTIFIC RESEARCH ON THE SUBJECT—

**T**HE STUDY WAS CARRIED OUT under strict testing conditions with a small group of carefully chosen voluntary test persons (five women, three men, 20 to 35 years old; one member of the team in charge of the experiment, 61 years old). During the time the test was carried out the test persons lived for about two months in a Swiss health resort and kept to a strict macrobiotic diet. They avoided any kind of stress during this period in order not to distort the results of the experiment.

Every two to five days they were given raw or cooked food on an empty stomach—milk and various vegetables that had either been cooked conventionally or defrosted or cooked in a microwave oven. It was a blind test where the test persons did not know how the food had been prepared. The test was carried out with the following foodstuffs:

- ◆ fresh untreated milk from organic farmers
- ◆ fresh untreated milk from organic farmers, heated conventionally
- ◆ pasteurized milk from Intermilch Bern, heated in a microwave oven
- ◆ raw vegetables (carrots and fennel) from organic farmers
- ◆ vegetables from organic farmers, cooked conventionally
- ◆ frozen vegetables from organic farmers, defrosted in a microwave oven
- ◆ vegetables from organic farmers, cooked in a microwave oven

Directly preceding and then 15 minutes and 120 minutes after food intake, blood samples were taken from the test persons and different parameters were analyzed. The hematological analysis followed immediately after drawing the samples. After natural sedimentation the serum was subjected to several vital energy tests in the course of the same day.

The following parameters were analyzed (Table 1): the number of erythrocytes (red blood corpuscles), the hemoglobin level (red blood pigment), the hematocrit (the number of cellular particles in the total blood volume), the number of leukocytes (white corpuscles), the number of lymphocytes (minute white corpuscles), and the cholesterol level, specifically the HDL concentration (high density lipoproteins).

	MILK				VEGETABLES			
	raw	conventionally cooked	indir. past. not homogen.	microwave-cooked	raw	conventionally cooked	microwave defrosted	microwave-cooked
Red blood cells	-	0	0	0	0	0	+	0
Hemoglobin	-	0	0	---	0	0	0	---
Hematocrit	---	0	0	0	0	0	+++	+
Leukocytes	0	0	0	+	0	0	+	+
Lymphocytes	-	0	0	0	0	0	-	-
Cholesterol	---	0	0	0	0	0	+++	+++

### ALARMING FINDINGS

**I**N THE COURSE OF THE STUDY it became evident that microwaved food had a definite influence on the blood of the test persons: the hemoglobin level decreased significantly after an intake of microwaved food (Fig.1) and the hematocrit increased after consumption of vegetables defrosted or cooked in a microwave oven (Fig.2).

After each food intake the leukocyte values (Fig.3) and the HDL values were found to be increased. Contrary to expectations fresh untreated milk caused a significant decrease in the cholesterol level. After an intake of food out of the microwave oven the number of leukocytes showed a

more distinct temporary decrease than after eating all the other variations of food.

On the other hand, raw or conventionally cooked food, with the exception of fresh milk, caused no changes in the blood count. Stress is always accompanied by a greater or smaller increase in the number of leukocytes. Even consumption of healthy food can mean short term stress for the body. The tests carried out on the test persons who consumed microwaved food showed, however, distinctly higher values than for those who had eaten conventionally prepared food.

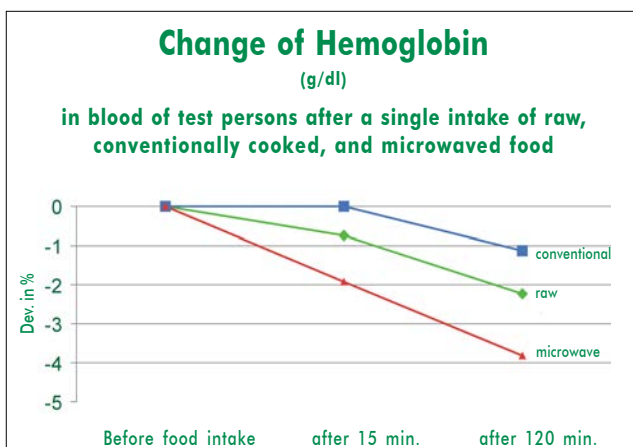


Fig. 1: Significant reduction of the hemoglobin level of blood after consumption of conventionally cooked, microwaved and food eaten raw, measured each time before food intake, and both 15 and 120 minutes later.

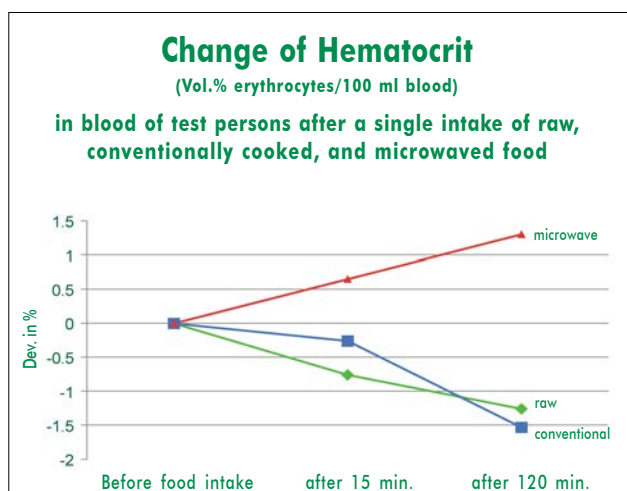


Fig. 2: Hematocrit value before and both 15 and 120 minutes after consumption of microwaved, raw or conventionally cooked food. Whilst raw and conventionally heated food reduced the hematocrit in a 120 minutes period, there was an increase after consumption of microwaved food.



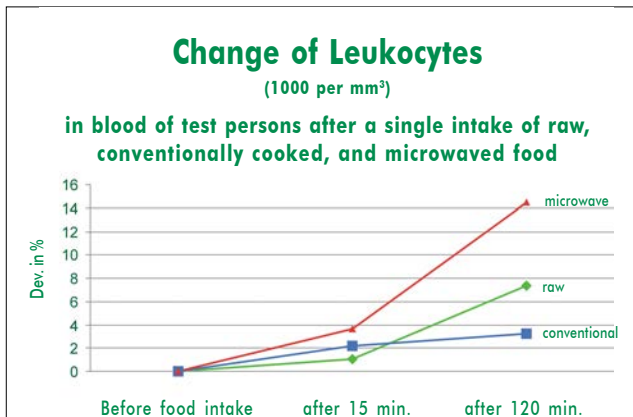


Fig.3: Increase in number of leukocytes both 15 and 120 minutes after intake of conventionally cooked, raw or microwaved food. Highest increase after consumption of food prepared in a microwave oven.

The number of red blood corpuscles remained unchanged except for a tendency to an increase after eating vegetables defrosted in a microwave oven. The stress situation did not apparently last long enough to bring about a mobilization of red corpuscles out of the reserve depots. The cholesterol level, especially the level of HDL lipoproteins, increased significantly after an intake of microwaved vegetables. (Fig.4)

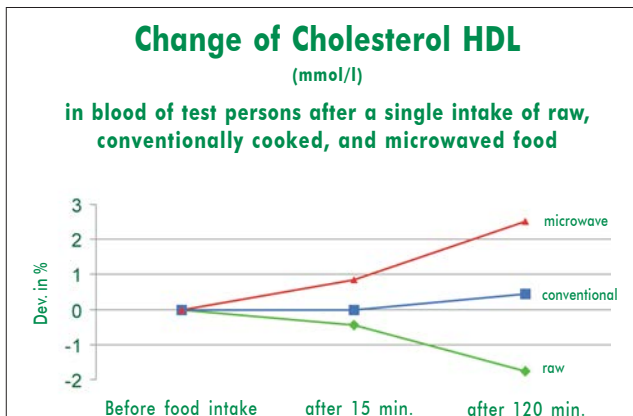


Fig.4: Change in HDL concentration measured both 15 and 120 minutes after intake of raw, conventionally cooked or microwaved food. Significant increase after consumption of microwaved vegetables.

This is especially interesting since vegetables, in contrast to fresh milk, contain as little as no cholesterol. The question poses itself why the cholesterol level of the blood is increased after an intake of microwaved vegetables, whilst it decreased—in fact significantly—after drinking fresh milk. The cholesterol level of the blood is indeed much less dependent on the consumption of fat in foodstuffs than has so far been supposed and has been maintained for decades by the margarine producers. In a healthy organism there is an interchange between the cholesterol taken in by foodstuffs, the decomposition of cholesterol and the cholesterol synthesis, so that the blood's cholesterol level is kept in balance. Stress, however, raises the cholesterol level temporarily. The tests revealed that raw and conventionally cooked vegetables caused no change

in the cholesterol level, while vegetables, defrosted or cooked in a microwave oven, led to a significant rise in lipoproteins (HDL). This is apparently a stress reaction of the organism responding to the radiation the food underwent.

THE EFFECTS OF MICROWAVE RADIATION ENERGY?-

IT HAS BEEN PROVEN that microwaves damage the structure of the food while it is still in the microwave oven. But what effect does microwave energy itself actually have? Does the microwave energy accumulate in the food, and does it pass from the food into the blood? Vital energy tests on the blood serum were conducted to provide answers to these questions. The importance of this matter becomes especially clear when we consider that all functions of a living body are dependent on its energy balance. The energy which allows a body to maintain and control its functions is derived from sunlight, and is absorbed directly from the sun's rays as well as indirectly, i.e. by means of food. If this energy is changed, such as in the case of microwave radiation, then it retains its destructive quality in the food and consequently in the blood of the body that consumed it. The problem then lies not only in the fact that the destructive energy remains hazardous in the food, but also that it damages the body afterwards in the same way.

Using a bioluminescence method it was possible to detect and measure the transfer of microwave energy into the blood via food. In order to do so a standardized suspension of luminous bacteria was added to diluted milk, diluted vegetable juices and serum samples, and every stimulation or inhibition of the luminosity was measured. Figure 5 shows that a temporary increase in energy in the blood serum occurred with a food intake. The absorption rate resulting from microwaved food was, however, in every single test case higher and lasted longer than with food that had not been exposed to microwaves.

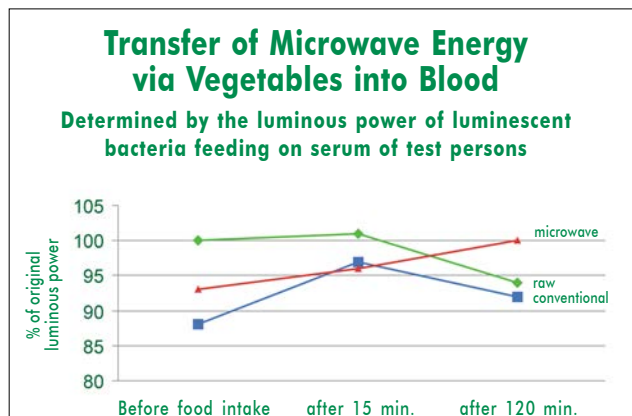


Fig.5: Absorption of energy from raw vegetables, conventionally cooked vegetables, and vegetables exposed to microwaves. Measurements of bioluminescence of luminous bacteria before and both 15 and 120 minutes after consumption. 15 minutes after food intake the luminous reaction increased in all samples. At testing time 120 minutes a further increase in luminosity was registered in the serum of test persons who had consumed microwaved food, whereas a decrease was evident after consumption of raw or conventionally cooked food.

WHAT DOES THE STUDY IMPLY?

AS PART OF THE IMMUNE SYSTEM, the blood reacts extremely fast and sensitively to stress in the organism, whether it is of a physical or psychological nature. It was realistic to presume that microwaved food could have an effect on blood. In the course of the study it became evident that food cooked or defrosted in a microwave oven leads to recognizable tendencies and even to significant reactions of the blood, although the stress was relatively slight and only effective for a short time, since the food was consumed only once per person in order not to endanger the health of the test persons. The results would certainly have been considerably more distinct if the test persons had been given microwaved food a few weeks longer. The objective of the study was to determine whether a change of quality would take place in the blood at all under the influence of microwaved food, and not primarily to what extent this would be the case. The measured effects of microwaved food on the human organism, compared with non-irradiated food, led to changes in the blood of test persons indicating an early pathological process, just as is the case in the beginning of a cancerous process.

In addition, direct changes were evaluated in microwaved milk. The protein stability got overstrained after irradiation. Milk becomes denatured when microwaved, and it coagulates to such an extent that it can no longer be properly digested. Yet microwaved milk does not only lose food value, but it also becomes toxic. A decrease in the folic acid of the milk was discovered. Folic acid is a vitamin of the B group and is essential for hematopoiesis. The analysis of the milk proved an increased acidity after exposure to microwaves. Acidity, nowadays a general problem also in nature, is a signal for a pathological process. It should be taken more seriously than is currently the case, for there will be no survival on this planet if the balance is not restored.

The results of the study suggest that technically generated energy, such as microwave energy, can be transferred inductively to the human body by means of microwaved food. It is easily imaginable what would happen in a human body if such energy were absorbed over a long time period. The immune system would sooner or later be weakened and even break down. If that happens it only takes an additional physical or psychological shock for a latent cancerous process to develop into an acute stage.

The results of this short term study carried out on a small scale are alarming enough to be a warning for consumers, scientists, and doctors. The author would be pleased if his work had laid a foundation for further investigations on this subject.

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# Are Microwave Ovens Exempt from Criticism?

ON 19 MARCH 1993 the *Canton Bern Commercial Court*—following a complaint filed by the *Swiss Association of Dealers for Electroapparatuses for Households and Industry* (FEA)—sentenced the scientist Dr. H. U. Hertel:

“1. The defendant is prohibited, under punishment of up to 5000 Swiss francs, or up to one year in prison (Art. 292 StGB and Art. 403 ZPO), to declare that food prepared in microwave ovens is dangerous to health and may lead to pathological changes in the blood as also indicative for the beginning of a cancerous process;

2. The defendant is also prohibited, under the same punishment, to use symbols of death or other symbols to this end in connection with microwave ovens.”

The Swiss Federal Court in Lausanne confirmed this verdict on 25 February 1994.

UNFAIR COMPETITION?

THE SWISS FEDERAL COURT bases its verdict on the law on Unfair Competition. This law concerning unfair competition can be breached when a person utters discriminating, untrue, misleading and unnecessarily harming statements against a supplier or his products (Art. 3 lit. a UWG). While, before the amendment of this law, a person could only be prosecuted for unfair competition when he was also a competitor, today's law applies to everybody. The Federal Court is not even interested in whether there is an intention behind it and whether it really conflicts with competition. It suffices if an utterance could possibly have an influence on competition.

THE SWORD OF DAMOCLES HANGING OVER THE PRESS

THIS KIND OF FEDERAL JUDGEMENT has led to an unbearable uncertainty in the Swiss press. Any criticism on anything like a product can immediately involve prosecution. The freedom of speech in Switzerland, which is talked of so highly everywhere, is being sacrificed on the altar of market economy and its managers. A number of journalists were condemned, because of criticizing the economy; recently the *Kassensturz* of the Swiss Television was also sentenced to pay a fine of more than half a million Swiss francs to a pharmaceutical company.

BLINDNESS IN THE FEDERAL COURT

THE BOW OF THE SWISS FEDERAL COURT before the microwave lobby means nothing other than that even the highest court in Switzerland succumbed to the maelstrom of worshipping the so-called free market economy. Hereby it overlooks the fact that in a market economy the adjective “free” has nothing to do with the Right for Freedom but is only meant to fool people about the fact that market economy is in reality a dictatorship of the parvenus, the powerful. In its judgement of 25 February 1994, the Federal Court puts the functionality of competition on the same level as the freedom of expression. It is such misjudgements which lead, as in the quoted court case, to the total suppression of even the Bernese scientist’s moderate criticism of microwave ovens, while the producers of such devices, linked together in a cartel-like association, could advertise them in press and television and sell them for many years, of course, without pointing out their danger for health. The judges being party with the lobby of the microwave ovens is all the more tragic, since the Bernese scientist is by far not the only scientist whose findings proved those devices to be a hazard for health.

PATRONAGE OF CONSUMERS

ANYBODY WISHING TO BUY or use a microwave oven should first be clear in his own mind about the dangers involved in this product. He will compare the findings of that Bernese scientist with the arguments of the trade and thus form his own opinion. If the Swiss Federal Court involves itself by silencing the Bernese scientist, it interferes with the forming of public opinion, and at the same time takes over the role of patronizing the consumers, whose ability to form their own opinion is apparently questioned. Such a trend of patronizing the people must be categorically rejected.

Such judicial censorship, especially in cases where good motives are behind a criticism, is highly detrimental. Also the *Journal Franz Weber* has no intentions of getting involved in competition when it makes such studies public. The only reason for publicizing it is to make people more aware about protecting their health. Should the judges continue with such intolerable practices, the time will come when pig farmers or animal transport firms will sue any person who dares to criticize them. In our pluralistic democracy the freedom of expression would quickly be done away with.

THE ROAD TO STRASBOURG

I, AS THE LAWYER OF DR. HERTEL, appealed to the *European Commission for Human Rights* at Strasbourg, on 13 September 1994. I requested the Commission to determine whether Switzerland, through its censorship regarding the Bernese scientist, violated the guarantee of free expression of opinion according to the 10<sup>th</sup> article of

the *European Convention for Human Rights*. In addition I requested that Switzerland should compensate the damage done and pay a sum to make up for it.

The representatives of the Swiss Federal Court defended the questionable judgement of the Federal Court with unbelievable and fervent arguments. They even tried to bring arguments into the court totally insignificant for the pending case, just to put the defendant in a poor light. In one point especially, the Swiss representatives made themselves really ridiculous. They stated that in a democratic society—in their eyes—this prohibition against the Bernese scientist was justified and even necessary. However, the first instance, the European Commission for Human Rights was of a different opinion. With its judgement on 9 April 1997, it considered the prohibition as not in accordance with Article 10 of the European Convention for Human Rights. Thus the door to the European Court was opened.

THE PROCESS OF 25 MARCH 1998

SWITZERLAND BELONGS to those countries which signed the *Treaty of the European Convention for Human Rights* 24 years ago. This convention contains different guarantees on human rights e.g. the right to live, prohibition of torture, freedom of person, right for fair trial, prohibition of discrimination and as already mentioned, freedom of speech. Contrary to many other Conventions for Human Rights, this Convention incorporates a Court to which any individual person can call if necessary.

Thus it is possible that even a country may be summoned to defend itself. Each country which signed the treaty delegates a judge to the European Court for Human Rights. Because all complaints have to go first to the first instance where about 95% of all complaints are rejected, only a few have a chance to be brought before the Highest Court. Within the 24 years Switzerland has been a member, only 34 Swiss cases became legitimate for judgement, 19 of which ended with Switzerland having violated the Convention for Human Rights.

On 26 March 1998, Switzerland had to defend itself for its prohibition of the free expression of opinion regarding microwave ovens. Twelve out of 34 judges drawn by lot were elected to handle this case—a judge from the countries of Germany, Austria, Greece, Switzerland, Andorra, Slovakia, Luxembourg, Sweden, the Czech Republic, Russia, Turkey and Great Britain. The representative of the Commission and I as the plaintiff’s lawyer had the opportunity to put forward our arguments in this most solemn atmosphere. Representatives of the Federal Council of Switzerland defended the Swiss Federal Court. It is expected that we should know by the end of June 1998, what decision the European Court has made.

*Rudolf Schaller, Lawyer*

(FROM: JOURNAL FRANZ WEBER, NO. 44, APRIL–JUNE, 1998)

RESOLUTION OF THE EUROPEAN SUPREME COURT OF HUMAN RIGHTS

On the 25<sup>th</sup> of August 1998 the European Supreme Court for Human Rights in Strasbourg decided by 6 votes to 3 in favour to the petitioner Dr. Hans U. Hertel:

Verdict (Quotation):

1. The Swiss Federal Court in Lausanne was charged with violating the Article 10 of the convention.
2. The defence of the Federal Supreme Court's decision is completely turned down.
3. With 8 to 1 votes it has been decided that Switzerland has to pay CHF 40,000 to the petitioner for cost and expenses.

(Note from the editor: The total cost of the trial alone amounted to CHF 120,000 for the petitioner being sued by the *Professional Association for Electronic Sets of Household and Trade, Zurich.*)

4. Unanimous passing of the remaining claims.

The petitioner Dr. Hans U. Hertel was thus in opposition to the decree of the Federal Court, completely granted justice, and was now given the opportunity to publish his scientific findings about the carcinogenic effect of microwave ovens without any personal disadvantage.

The decree enables the petitioner to plead for reconsideration at the Federal Court in Lausanne.

REQUEST FOR RECONSIDERATION AT THE FEDERAL COURT IN LAUSANNE

The request of reconsideration has been decided by the Federal Court on the 2<sup>nd</sup> of March 1999 as follows:

Verdict (Quotation):

1. The appeal is partly approved. The verdict of the Main Court Bern from the 19<sup>th</sup> of March 1993 that had been kept protected by the Federal Court will be changed as follows:

The defendant under the direction of the sentences of Art. 292 StGB and Art. 403 ZPO (custody or penalty up to CHF 5,000 and in severe cases prison up to one year) is prohibited to give statements, addressed to any further section of the population, without any reference to the current controversy, that food being prepared in the microwave oven is harmful to one's health as scientifically proven and leads to changes in the consumer's blood that indicates pathological changes presented in the blood picture that could contribute to the beginning of a carcinogenic process.

As for the rest the verdict of the Commercial Court is confirmed. (Editor's note: Commercial Court Bern, 19<sup>th</sup> of March 1993).

2. Further applications for revision are rejected.
3. The court fees of CHF 5,000 are imposed to the amount of CHF 3,500 to the petitioner and CHF 1,500 to the opponent.
4. The petitioner has to compensate the opponent for the appeal procedure to the amount of CHF 2,500.

So the Swiss Federal Court in Lausanne did not follow the decree of the European Supreme Court of Human Rights.

Dr. Hertel is still legally, and under threat of penalty, prohibited to say that food being irradiated by microwaves causes cancer, unless he describes his own scientific research as not scientifically valid. With this decree he has once again been denied the right of compensation payment which he is entitled to receive from the prosecutor, the *Professional Association for Electronic Sets of Household and Trade, Zurich.*

PETITION TO THE EUROPEAN SUPREME COURT OF HUMAN RIGHTS IN STRASBOURG

As a consequence the unexpected, and in essential points objected, decree of the Federal Court led to the petition in front of the European Supreme Court of Human Rights on the 28<sup>th</sup> of September 1999 to bring about a revival of the court case. When or if the European Supreme Court will once more take on the case must be awaited.

