



# RESEARCH REPORT

## PROTECTIVE EFFECT ON HUMAN PERIPHERAL BLOOD LYMPHOCYTES OF A WATER-FILLED METAL DEVICE ("PERSONAL HARMONISER") AGAINST CELLPHONE RADIATIONS AT 1800MHZ.

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### SUMMARY

The objective of this study was to test the manufacturer's claim that a device called "Personal Harmoniser" has a beneficial biological effect on human health. The cell model chosen was the lymphocyte because of its easy availability and its well characterised importance to immune defence against infection and in tumour oncogenesis. Moreover there are a large number of studies reporting sensitivity of lymphocytes to biophysical agents, including electromagnetic fields and radiations (e.g. Lyie, Schechter et al., 1983; Conti et al., 1983).

Viability of lymphocytes following a seven minutes exposure to the device was tested by trypan blue exclusion. It was found that the device had a significantly protective effect against overnight exposure to electromagnetic fields and radiations from a mobile phone on standby, compared both with cellphone-exposed cells not exposed to the device, and with controls. The effect of exposing cells to the device was even more pronounced when cells were maintained in culture overnight without cell-phone exposure. The study provides some evidence that Personal Harmoniser-exposed cultures can transmit their influence to cultures wirelessly over a short a distance, but the mechanism remains unknown and further research is necessary to verify this effect.

### GENERAL INTRODUCTION

Since ancient times mankind has been aware that radiation at remarkably weak field strengths can have important adverse or beneficial biological effects. The modern word *influenza* ("the influence") derives from the mediaeval Italian observation that this illness arrived simultaneously among shepherds in distant pastures and their relatives and friends in towns, for who case-to-case transmission was impossible. Decades ago it was established that pandemics of influenza occur predictably at every peak of the sunspot cycle, when electrical storms on the sun send higher than usual electromagnetic cocktails of radiation onto the earth (Hope-Simpson, 1977). This finding has been replicated by other authors since then and confirmed (Hoyle et al., 1990).

Other studies have reported serious illness repeatedly in buildings located above magnetic subterranean anomalies caused by flowing aquifers ("black streams") which emit erratic electromagnetic fields and radiations (von Pohl, 1987) Three outbreaks of an immune related disorder known as myalgic encephalomyelitis have been chronicled near to such aquifers in London alone in the last forty years ((Ramsay, 1989; Dillon et al., 1974; Acheson et al., 1954).

In recent years there has been increasing concern that the weak radiations emitted by cellphone handsets may constitute a health hazard. A number of epidemiological studies would seem to support this view (see table), and recently the World Health Organisation and other institutions have commenced large research programmes to attempt to verify the extent of risk if any. Meanwhile the number of cellphone users in the UK has risen rapidly and preliminary figures at December 1998 suggest some 12 million UK cellphone users. Of these perhaps 5 percent are using their phones for continuous periods in excess of 20 minutes. The scientific studies so far available indicate that excessive



usage may be an important parameter in increasing adverse health risk (e.g. Mild, Oftedal et al., 1997, 1998). In response a number of firms have begun offering a wider variety of protective devices such as pouches, flaps, buttons, and warning sound devices, and the major cellphone producers themselves have filed patents for low radiation cellphones.

**Table 1: Some human studies/epidemiological studies relevant to mobile phones**

<b>AUTHORS</b>	<b>DATE</b>	<b>MODEL</b>	<b>EXPOSURE</b>	<b>OUTCOME</b>
<b>Szmigielski</b>	1988	Polish army	RF/MW	neoplasms up
<b>Chiang &amp; Yao</b>	1989	phagocytosis in children	proximity to RF/MW	competence down
<b>Thuroczy</b>	1995	EEG rhythms		altered evoked potentials
<b>Reiser</b>	1995	EEG rhythms	GSM phones	altered EEG
<b>Mann and Roschke</b>	1996	EEG rhythms	GSM phones	REM suppression
<b>Burch and Reif</b>	1996	Utility workers	cellphones	melatonin 60HMS down
<b>Szmigielski</b>	1996	Polish military	RF/MW	neoplasms up
<b>Kolodinski &amp; Kolodinska</b>	1996	Skrunda RLS children	450MHz	attention, memory down
<b>Mild, Oftedal et al.</b>	1997	Swedish. Norway phone users	analog/digital cellphones	headache, fatigue up

Source: Coghill Research Laboratories, 1998

Many of these protective devices have not been tested by any rigorous scientific model. Since a number of the symptoms appear to be immune-related, we decided to test the present device using as a cell model human peripheral blood lymphocytes.



## **METHOD & MATERIALS**

Human peripheral blood lymphocytes were isolated from 20ml fresh whole blood drawn from *vena cubitale* into anti-coagulated vacutainers (Becton Dickinson, EDTA, K3), transported into four 5ml sterile test tubes, and differentially centrifuged at 450g. The serum was removed for heat inactivation, and then the buffy coat was detached by micropipetter with as little disturbance as possible of the red blood cells and platelets which were discarded. The collected buffy coat (approx. 2ml) was mixed with an equal amount of density gradient Ficoll-Triosil prepared according to standard procedures, and centrifuged for 5 minutes at 800g. The lymphocytes were removed as the layer between the density gradient and the remaining serum, which contained the platelets. The pellet was re-suspended in balanced saline solution with added glucose, and washed twice by centrifugation at 100g for five minutes. To the final pellet was added a culture medium (RPMI-1640 plus antibiotics and antimycotics). The medium was divided into five samples (A-E) and two of these (A and B) were exposed for seven minutes to a device known as Personal Harmoniser. Another two samples were not exposed to the device (C and D), whilst the final sample (E) served as control.

"Implosion" is the description of the process whereby water is energised by the producers, and the device (see cover) is filled with this energised water and sealed prior to use. The method used to energise the samples A and B was to place the cultures after being sealed into their containers on the device for seven minutes so that the gold wire touched the device. One Personal Harmoniser-exposed sample and one unexposed sample were placed in separate mu-metal boxes and then exposed overnight to a Philips 301 mobile phone on standby, by means of a separate 30cm gold wire leading into each box. For the same period one Implosion-exposed sample and one unexposed sample were also placed in separate mu-metal boxes, into which separate but adjacent gold wires were introduced, but kept in a separate room and not near the cellphone. The final (fifth) sample was enclosed in a mu-metal box and then placed inside a double skinned mu-metal container for the duration of the experiment and maintained at 20 ° C.

On the day following exposure the cells were mixed sequentially prior to counting with trypan blue dye left for 15 minutes and then counted double-blind in a haemocytometer (Brightline, Hausser-Scientific) in accordance with the method recommended by the suppliers (Sigma-Aldrich Co., Poole Dorset, UK). At least 500 cells were counted from each sample. After counting the codes were broken and the results analysed statistically.

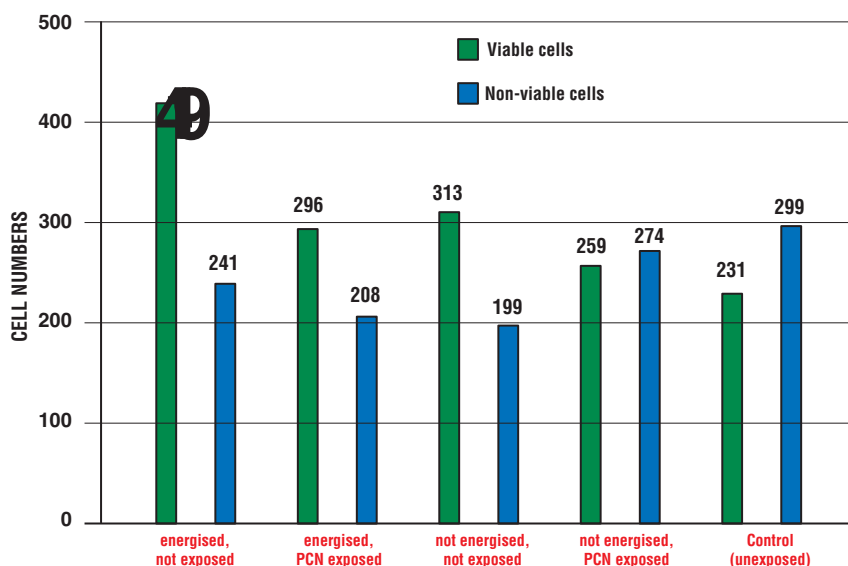


## RESULTS

The results are set out numerically (Table 1) and graphically (Chart 1) below:

**Table 2: Human peripheral blood lymphocyte viability after energising with Implosion device**

Square No.	energised, not exposed		energised, PCN exposed		not energised, not exposed		not energised, PCN exposed		Control (unexposed)	
	viable	non-viable	viable	non-viable	viable	non-viable	viable	non-viable	viable	non-viable
1	27	22	29	34	35	25	34	25	21	32
2	49	27	27	19	29	24	25	23	18	30
3	26	16	38	20	28	26	22	24	20	28
4	51	22	24	25	38	33	21	23	27	42
5	52	29	33	26	29	20	24	29	15	29
6	48	27	25	14	25	17	21	33	25	18
7	39	21	28	20	19	4	33	28	23	29
8	38	29	37	12	41	20	26	23	33	45
9	43	19	31	25	32	12	32	38	27	20
10	46	29	24	13	37	18	21	28	22	26
<b>Total</b>	<b>419</b>	<b>241</b>	<b>296</b>	<b>208</b>	<b>313</b>	<b>199</b>	<b>259</b>	<b>274</b>	<b>231</b>	<b>299</b>
<b>Viable (%)</b>	<b>63.48</b>		<b>58.73</b>		<b>61.13</b>		<b>48.59</b>		<b>43.58</b>	



**Chart: Protective Effect of Implosion on Lymphocyte Viability**



## ANALYSIS

The data may be summarised for comparison purposes as follows:

	<b>Viable</b>	<b>Non-viable</b>	<b>Totals</b>	<b>% Viable</b>
<b>A. Energised, not exposed</b>	419	241	660	63.5
<b>B. Energised, PCN exposed</b>	296	208	504	58.7
<b>C. Not energised. Not exposed *</b>	313	199	512	61.1
<b>D. Not energised, PCN exposed</b>	259	274	533	48.6
<b>E. Control: not energised, unexposed</b>	231	299	530	43.6
<b>Totals</b>	<b>1518</b>	<b>1221</b>	<b>2739</b>	

\* but exposed indirectly by adjacent gold wire. See discussion

These figures permit the two hypotheses that a) Personal Harmoniser-energising improves lymphocyte viability *in vitro* (63.5% against 48.6%), and b) Personal Harmoniser-energising partly protects against PCN exposure (58.7% against 48.6%). The nul hypothesis is that there is no statistical difference between these results. This can be tested by examining the differences between proportions (see Ball & Buckwell, 1991, p151):

a) where

$$SE = \sqrt{\pi \frac{(1-\pi)}{n_1} + \pi \frac{(1-\pi)}{n_2}}$$

and

$$\pi = \frac{n_1 p_1 + n_2 p_2}{n_1 + n_2} = \frac{241 + 231}{660 + 530} = 0.397$$

$$\therefore SE = \sqrt{\frac{0.397 \times 0.603}{660} + \frac{0.397 \times 0.603}{530}} = 0.0285$$

The test statistic (z) is:

$$z = \frac{(0.365 - 0.436) - 0}{0.0285} = -2.49$$

Since z is less than the critical ratio for a one-tailed test (-1.645) we may reject the nul hypothesis.

b) Similarly with hypothesis b), SB = 0.031 and the test statistic (z) is therefore:

$$z = \frac{(0.465 - 0.514) - 0}{0.031} = -1.58$$

Since this is *not* less than z, we cannot reject the nul hypothesis with these latter data, though the factor is not far from significant.



## DISCUSSION

The statistical analysis of these data indicates a significant protective effect when the energised cell culture is compared for viability with the unexposed control. Previous studies of lymphocyte viability showed that there is also a protective effect when similar cultures are exposed to the donor's own endogenous fields, which viability exceeding 70 percent in such conditions. It would appear that the Personal Harmoniser device is in some way able to mimic this beneficial effect, though not completely so. The mechanism of interaction is not known, and any hypothesis of the possible mechanisms must at this stage be considered speculative. It would be useful to replicate this experiment a number of times to confirm that the effect reported here is robust.

A number of possibilities present themselves based on what is known currently of the biological effects of weak energies. For example it is noted that the cell numbers of the energised sample per unit volume were some 27 percent higher than unenergised or control samples, suggesting that cell surface markers leading to apoptosis were not being expressed by the cells cultured in the energised culture.

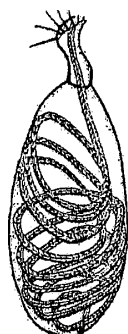
Though research into the protective effects of weak EMF energies is still in its infancy, spurred on to some extent by scientific concerns over mobile phone handset radiations close to the brain, we have noticed in our preliminary work that such radiations appear to diminish the viability of lymphocytes. Though the figures to hand are small the percent decrease was from around 50 percent (for unexposed samples) down to around 37 percent on the first day following overnight exposure, and even more severely down to 13 percent on day two, *without any farther RF exposure*. Considering the present figures against that background one is tempted to wonder, given that immune competence varies even from the same donor at different times, and the viability of the unexposed control was lower than previously at only 43 percent against around 50 percent, if this batch may have been overall somewhat less competent than cells giving rise to the results cited above. One might speculate that the energised sample viability might have been higher, possibly exceeding 70 percent, if the overall batch viability had been stronger on the day of the study.

The sensitivity of lymphocyte viability as a model for testing field exposure, and the protective capability of devices has been impressive. We acknowledge with increasing experience of these studies that extreme care needs to be taken in exposing the cells to fields and radiation, and to avoid inadvertent exposures from organic or artificial ambient sources. As an example of this sensitivity it seems that sample D may have benefited from the proximity of sample B, since unexpectedly its viability is actually higher than the completely unexposed sample in a mu-metal enclosure at the same temperature throughout the study.

The Personal Harmoniser device itself, made of hollow copper tube and filled with water, measures some 25mm by 52 mm in width and length (and about 2mm in cross section). It would if uncurled extend to about 24 cm. long. If the device relies on radiative transmission of electromagnetic energy then its frequency (the frequency of a 48cm wavelength) is 675 MHz, in the UHF band. In this regard it is reminiscent of the multiwave oscillator (MWO) pioneered in the 1931 by Georges Lakhovsky (see photo).

The MWO was able to generate an electrostatic field in which all frequencies from 3m to the infra red could be produced, as well as harmonics. The oscillator therefore provide multiple wavelengths in the field of which "every cell, every organ, every nerve, every tissue, could find its own frequency" . The MWO was used in various Paris hospitals of the time for the treatment of various organic diseases including cancer, and Lakhovsky was able to demonstrate photographically some remarkable cures. In treatment the patient was placed for about 15 minutes between two radiating oscillators separated from each other by a distance of 4-5 feet.



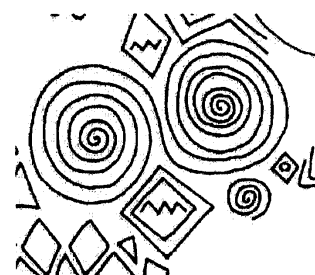


In attempting to explain the principle of his device Lakhovsky pointed to examples of self inductance in nature, for example the *Corynactis viridis* (shown x 1000). "In this marine organism measuring but 0.1mm a number of internal circuits forming self inductance by virtue of the structural spirals, are clearly shown. Here the similarity to a set/induction coil is striking".

"In the living organism the coils may be seen drawing closer together or separating from one another. This results in modifications of the wavelength while altering at the same time both the capacity and the self inductance of this remarkable variable circuit"

### **Corynactis viridis (x 1000) Engraving at Newgrange. Ireland: 3500 BC**

The technique of beneficial radiation for healing purposes may not be a novel discovery/Ancient engravings such as those at Newgrange clearly have purposes no longer recognised in modern civilisation. Indeed the concept of important therapeutic effects from irradiation by subtle weak electromagnetic energies is increasingly featured in alternative medical practice, though often unsupported by tests applying scientific rigour. A review of such literature lies outside the scope of this study.



### **Transfer of energising influence at a distance?**

Sample C was unenergised and unexposed to PCN radiation, but the gold wire leading to this culture sample was deliberately left about 1cm from the gold wire leading to the energised unexposed culture. This was to test a claim by the producers that the energised water can affect unenergised water nearby. In this set up there could not have been any chemical effect, because both cultures were sealed. Therefore the unusually high viability of sample C (61.1 %) needs further consideration, especially since in a number of our previous studies the expected viability should only have been about 50 %. We are aware of only one experiment which might cast light on this curious result. The first was reported by Kaznacheev, Schurin et al., (1976). In that study the authors exposed a tissue culture of chicken embryo infected with five separate toxic external agents (Coxsackie virus type 1-13, adenovirus type 5, F.P. virus known to cause disease in birds, mercuric oxide, and ultraviolet radiation). The tissue cultures were examined at the end of the second day onward at 12 hour intervals, and calculations of the cytopathic effect were based on the number of cells that had died out of the total number of cells counted. Some 1785 experiments were carried out, of which 1327 served as controls. with no cytopathic exposure, and in the remaining 458 experiments one of the cytopathic agents was introduced. The exposure system was via two completely isolated metal containers with a quartz window of thickness upto 0.8mm, permitting optical but not chemical contact.

In 76 percent of the exposed cultures cross infections were noted, (i.e. cells began to die in the non-infected tissue culture) mainly in the quartz not the glass separated systems. By contrast, in none of the 1327 unexposed cultures were any cytopathic effects seen. Because quartz allows the passage of UV the authors concluded that the transfer of the noxious agent was in the UV frequency range. This conclusion did not take into account that the containers used in the study were metallic. They reported that further investigation with a sensitive photomultiplier capable of detecting photons showed that upon infection the cells emitted a series of photonic surges. The nature of the communication code was not uncovered however.

Similar well known experiments were reported by Alexandr Gurwitsch in the 1930s using dying onion tip shoots as the radiative source. Other authors, (e.g. Rahn, 1936; Crile, 1936; Lund, 1947; Backster, 1968) have also investigated these bioelectric effects but mainly on plants. Prior to\_ this Sir Jagdis Chandra Bose had produced voluminous works at the turn of the 20<sup>th</sup> Century reporting "the generality of molecular effects produced by electricity on inorganic and organic matter" (Bose, 1906.1907). We do not know of any other study reporting direct effects of donor-endogenous fields on human cells at a distance *in vitro*.

The ability of water to influence at a distance however has been extensively investigated by Simoneton, Merta and others. Biological effects of radiations conducted via wires has also been reported. Hieronymus reports that plants placed in a cellar in aluminium-lined boxes connected by copper wire to plates outside the building and exposed to



sunlight were able to flourish, whereas those without the benefit of this influence did not. Hieronymus speculated that what caused the development of chlorophyll in plants was connected with sunlight and transmittable over wires.

There is evidently an entire body of relatively arcane literature reporting both adverse and beneficial biological effects on living matter, mainly plants from weak radiation at high frequencies. Some of these studies implicate water (of which living creatures are largely composed) and though the science of weak radiations is scarcely researched it cannot be ruled out as a means of protective influence against noxious frequencies. In this study it would appear that human cells are also sensitive to and responsive to weak electromagnetic radiations at levels far below those likely to induce any thermal effect.

Before coming to any conclusions it is necessary to consider whether these effects may be due to factors unconnected with the device. It is unlikely there was any contamination of the samples, since prior to use all containers were autoclaved at 121 ° C under pressure in accordance with standard procedures, and the handling of culture samples was conducted under a laminar flow hood to prevent any bacterial infection. Moreover the cultures included the standard antimycotics and antibiotics recommended for lymphocyte cultures. All samples came from the same batch. Care was taken to enclose the sealed samples in mu-metal boxes sufficient to exclude ambient radiations and when not being examined these were kept in an additional double skinned mu-metal enclosure. Room temperature (c. 20° C) was identical for the samples. Finally during the application of the trypan blue the cells were exposed for an approximately equal time (about 15 minutes) prior to counting. The haemocytometers were twinned and washed thoroughly between samples. Finally the same counting personnel were used, and their counting routines did not vary during the study, being in accordance with procedures set out by Sigma Aldrich. In summary it is not anticipated that there were any obvious confounding factors affecting these results.

## CONCLUSIONS

Human peripheral blood lymphocytes cultured in Personal Harmoniser-energised nutrient medium *in vitro* remain more viable and more numerous than unenergised or unexposed cells similarly cultivated. The device also appears to exercise a protective effect against radiation from cellphones on standby.

It will be interesting to see if similar effects can be demonstrated *in vivo*. This might involve a sample of human subjects of sufficient size to yield acceptable statistical power, whose blood count before and after exposure to the device and to cell phone radiations is evaluated. It will also be important to establish by replication whether the transfer of the energised influence at a distance to unenergised water noted here is a real effect. An attempt should also be made to characterise the frequencies at which the influence is operating, and the mechanism of interaction.

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#### **About the Centre for Implosion Research**

*The Centre for Implosion Research was founded in December 1997 by Dolly Knight, MBBS, GCHM and Jonathan Stromberg, BSc, MSc, DIC, FGS.*

*The Centre's mission is to realise Viktor Schaubergers goals by developing a type of technology that is antithetical to the conventional polluting and exploitative technologies, in that it is pollution free and works in harmony with Nature.*

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