

# A case study of the negative effect caused by a mobile phone on blood coagulation and reversed by protective device demonstrated with darkfield microscopy

**Sangitama M. Huebner**

## **ABSTRACT**

*In this case study erythrocytes of healthy people after holding a mobile phone are observed. It has been shown with darkfield microscopy that the radiofrequency emitted by the mobile phone for a duration of five minutes increases the blood clotting levels. This effect was reversed by holding a protective device together with the mobile phone, which creates an energetic field compensating the harmful square and cubic rays with sinusoidal waves, for 5 minutes. A relation of EMR (electromagnetic field radiation) and the electromagnetic field of the erythrocytes are demonstrated using dark field microscopy, and show that the device affects this mechanism in a positive way by reversing the blood clotting. Ultimately, it is demonstrated that EMR alters the blood clotting mechanism, and reversal is possible.*

## **Background**

Many studies concerning the issue if EMR is causing damage to human health was undertaken in the past 25 years with controversial results that may be caused by using partly inappropriate methods for testing the electromagnetic field (Kundi, 2004).

## **Objective**

As darkfield microcopy mirrors directly the electromagnetic status via erythrocytes (Hübner, 2011) and demonstrates the effects of EMR on their electromagnetic balance, this method was used to demonstrate the effect of the electromagnetic field of the mobile phone on the blood coagulation. Hypothesis 1 is that the electromagnetic field of the mobile phone influences the electromagnetic balance of the blood, and hypothesis 2 is that a protective device altering the electromagnetic status can reverse the negative effect.

## **Methods**

At the research institute at the Humaniversity, Netherlands, the following study was conducted in February 2013 on three consecutive days: each morning one healthy person gave a drop of blood on empty stomach, which got examined and photographed with a darkfield microscope. Afterwards the person held a mobile phone for 5 minutes. Blood was taken; the result was examined and photographed again. Same procedure was applied after attaching a protective device to the phone, which the person held for 5 minutes.

## **Results**

The case study shows that the blood coagulation increases within 5 minutes holding a mobile phone with each person to severe levels. When the device got attached to the phone, the negative effect of blood coagulation reversed. The blood de-clotted in each case, and the coagulation level was better than the initial blood taken. A negative effect due to holding a mobile phone and a positive effect by using a protective device on blood coagulation can be demonstrated with darkfield microscopy. Hypothesis 1 and 2 were confirmed.

## **Discussion**

This case study is done on a small scale. The results are homogenous, which is a good starting point for further research in this field.

**Key words:** <electromagnetic field and blood coagulation>, <electromagnetic field radiation> <EMF> <radiofrequency electromagnetic radiation> <health risks and mobile phones>

**Sangitama M. Huebner** Humaniversity Foundation, Netherlands, [clinic@humaniversity.nl](mailto:clinic@humaniversity.nl)

## **1. Introduction**

### **1.1 Studies show no effect of radiofrequency on health**

Research from 2005 raises no health concerns – even not for children (Bernhardt, 2005). Several studies show no effect from GSM and UMTS during sleep on central nervous system (Danker-Hopfe, Dorn, Anderer, Sauter, 2011) and none on event-related potentials and cognitive functions. (Kleinlogel et al., 2008) No effects on blood-brain barrier are measured with 1439 MHz in immature and young rats (Kuribayashi et al., 2005) and with 2.45 GHz (Cosquer, Vasconcelos, Fröhlich, Cassel, 2005). Some studies show effects on blood-brain barriers and others not (Nittby et al., 2008).

### **1.2. Studies show negative effect on health**

Many investigations on the issue of the possible negative effects of EMR were done: research from 2008 states that the increasing number of brain tumors in the past 10 years is related to the increasing exposure to EMR (Hardell, Sage, 2008). Hardell's follow-up with a long-term study confirms these results (Hardell, Carlberg, Hansson, 2012). Studies showed temperature changes with mobile phone use (Kapdi, Hoskote, Joshi, 2008) as well as with passive metallic implants at head region (Vitanen, Keshvari, Lappalainen, 2010). Other studies show that exposure to radiofrequency influences our health by damaging DNA (Kazimierska, 2001), neural functions in humans (Croft et al, 2002), alters reproductive functions including DNA damage (Gye, Park, 2012). Depletion of glutathione, activity of catalase, and GR activity was seen in a study with the earthworm *E. fetida* (Tkalec et al, 2013). One study shows that a three minute exposure causes appearance of circulatory disturbance, decrease in Acetylcholine and appearance of oncogenes (Omura, Losco, 1993).

### **1.3. Studies on prevention of negative effects**

Studies on prevention of phone-induced oxidative stress show positive effects with Ginkgo Biloba (Ilhan et al, 2004), L-carnitine and selenium (Naziroglu, Gümrall, 2009), melatonin (Köylü et al., 2006) garlic (Bilgici, Akar, Tuncel, 2013). CAPE (caffeic acid phenethyl ester), a major component of honeybee propolis, ameliorates oxidative heart injury caused by mobile phones (Ozguner et al., 2005).

## **2. Objective**

Objective of this case study is to demonstrate the effect of electromagnetic fields caused by mobile phone frequencies on blood coagulation, and the reversed and protective effect of a device. We use darkfield microscopy (DFM) to make blood coagulation visible and show immediate changes (Hübner, 2011) due to the influence of the EMR of the mobile phone. Using erythrocytes for demonstration of the effects is an appropriate method as they are highly sensitive to electromagnetic fields. It depends on their surface charge whether they clot or not (Rau et. al., 2007, Krylov, 2010). Other findings confirm that the exposure of human blood to a magnetic field leads to blood coagulation and inhibits fibrinolysis (Kazimierska, 2001), and initiates changes in the electrophoretic mobility of erythrocytes. (Krylov, 2010).

## **3. Materials and Methods**

### **DFM (Darkfield Microscopy)**

The advantage of DFM is that indirect light created by a special condenser focuses on the object and creates a picture with light structures on a dark background. The outlines of the object are better seen than with the usual light field microscope.

**Mobile phone** used for all three case studies: Samsung GT-B3410, Quad Band (850/900/1.800/1.900 MHz)

### **Protective device**

The 'Mobile Floww' device consists of passive electronics in a metal housing with the size of 1,5 cm x 1,5 cm and gets attached to the mobile phone. The focus of the Floww is not on radiation itself, but on the reaction of our cells to that radiation. The body has its own bioelectromagnetic field, and external radiation can directly intervene with it (Federowski, Steciwko, 1998). The Mobile Floww contains this cell-identical frequency and stores it in a carrier substance. Also inbuilt into the device is a sender, which works like an antenna. It

uses the vibrations of the mobile phone and activates the vibration of the cell-identical frequencies stored in a carrier substance in the Floww device, which then send out their vibrational field using the existing radiation to oscillate and resonate. This Floww-field works like a counter-impulse. The body picks up the healthy vibrational field instead of the harmful field, and the result is demonstrated clearly in picture C of each case. This energetic field compensates the harmful square and cubic rays with sinusoidal waves, which are not harmful to the body. The advantage is that the harmful energy field gets used to generate the healthy energy field, which makes it unnecessary to block out any frequencies. The device produces a subtle field of its own, which is supplied with energy from the radiation sources. In our technological environment, we are constantly surrounded by electrical and magnetic alternating fields and electromagnetic waves. The device acts like an antenna that captures these waves. In the coil of the device, a current is produced by an alternating magnetic field which charges a capacitor and, in turn, excites the tuned circuit. (Mayr, 2011). The fact that this device works at an appropriate level – the bioelectromagnetic level - and the darkfield microscopy mirrors exactly this level of the body, makes this particular device ideal for the research.

### **Blood Taking Procedure**

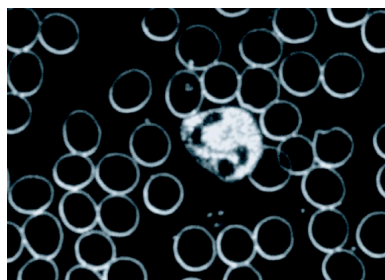
Blood was taken from healthy persons on empty stomach before holding a mobile phone in their hands, after holding a mobile phone (switched on) for 5 minutes in their hand. The test got repeated with a protective device attached to it.

### **Study Design**

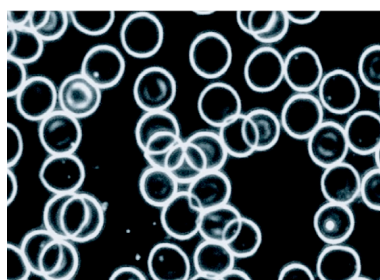
Three cases of healthy persons are presented. Their blood is examined A. before and B. after holding a mobile phone for 5 minutes, and C. after holding a mobile phone with a protective device for 5 minutes. Darkfield microscopy was used to evaluate the effect through blood clotting levels.

### **Levels of blood clotting**

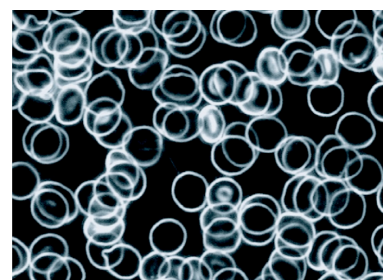
Using DFM we can see five different levels of blood clotting – from light to severe. These levels are used as a standard measurement for this research (Fig. 1–5). To simplify the results no attention will be given to the conditions of white blood cells or plasma. These photos illustrate how erythrocytes can get closer and clump until they form so called “money rolls” (Rau, 2007). Figure 1 shows each erythrocyte as single, unattached cell. It has optimum surface capacity to attach and transport oxygen. Figure 2 shows just a little deviation from the healthy state (Fig. 1): some red blood cells are single, and others are attached to another one. Level 3 shows that self-regulatory functions of the body are getting disturbed, and the clotting of erythrocytes starts to dominate (Fig. 3): each cell is in attached to at least one other cell. Levels 4 and 5 (Fig. 4, 5, respectively) show the formation of “money rolls” and the twisting of “money rolls”. Obviously there is no space for any oxygen to attach or even get transported. When a person has a blood picture like that over a period of time, they suffer from complaints due to lack of oxygen transport throughout the body and are prone to heart attacks and strokes.



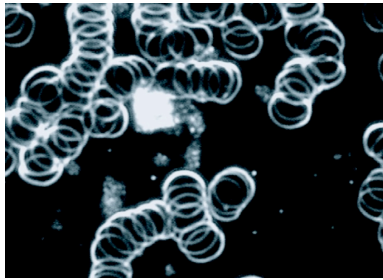
***Fig. 1, Level 1 – no clotting***



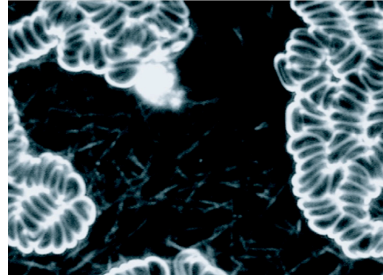
***Fig.2, Level 2 – light***



***Fig. 3, Level 3- medium***



*Fig 4., Level 4 – light severe*



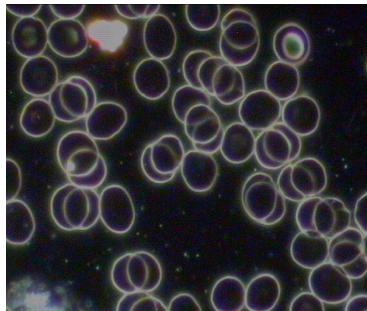
*Fig. 5, Level 5 – severe*

#### 4. Results

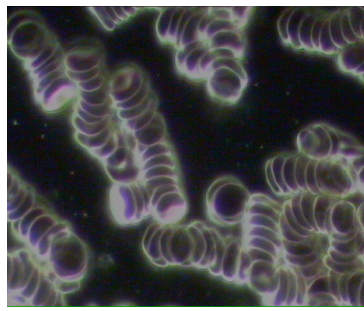
Case 1: Female, 51 years

We can see in figure A. a quite healthy person. Many erythrocytes are attached to each other, but not all. We do not see any compression as well. Figure B.: within 5 minutes the blood clots and “money rolls” as well as a twisting of those rolls, a sign of severe clotting can be observed.

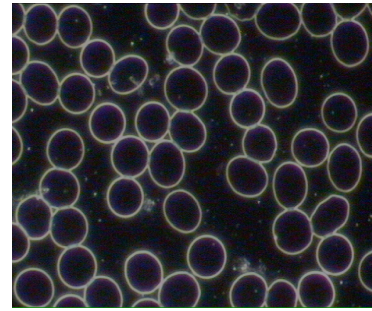
Figure C.: after 5 minutes of holding the phone with device we see that the erythrocytes are less clotted than in picture A. Some erythrocytes are lightly attached to each others. Some are not attached at all.



*Fig A., Level 2 – light*



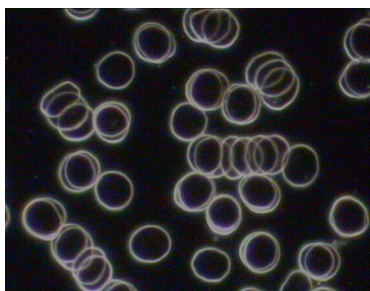
*Fig. B, Level 5 – severe*



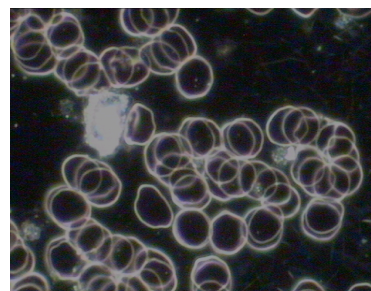
*Fig. C, Level 1 - no*

Case 2: Female, 49 years

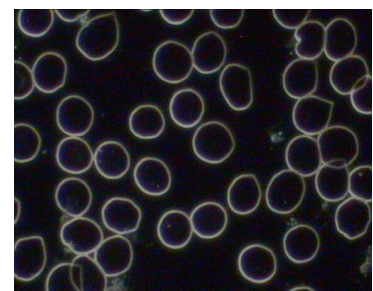
This person shows as well level 2. in figure A. we see the erythrocytes sticking together lightly, and some are also single. After holding the mobile phone the clotting has increased to the next level (Figure B). And after holding the phone the erythrocytes are single detached (Figure C). Figure C has improved in comparison to A. and B. The blood cells are fully able to transport oxygen.



*Fig. A, Level 2 – light*



*Fig. B, Level 3 – medium*

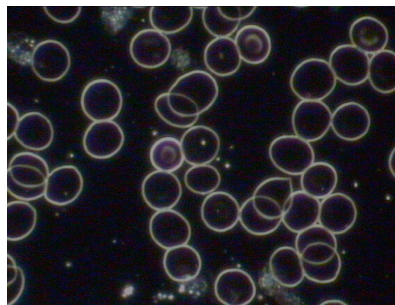


*Fig. C, Level 1 - no*



Case 3: Male, 44 years

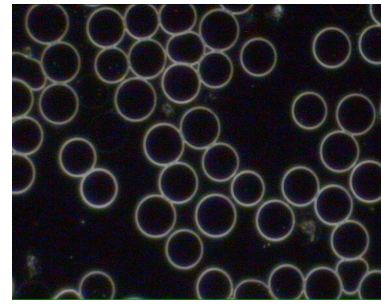
Figure A. shows no compression of erythrocytes, just some light attachments and a few free-floating ones. Figure B. looks drastically different. It shows 'money rolls with twisting' showing that the mobile phone causes severe clotting. And again after attaching the protective device to the phone as seen in figure C. it looks even healthier. The erythrocytes are hardly touching, mostly repelling each other, which indicate an ideal magnetic surface charge.



***Fig. A, Level 2 – light***



***Fig. B, Level 3 – severe***



***Fig. C, Level 1 - no***

In all three cases the level of blood clotting started generally healthy at level 2. The level increased by holding a mobile phone with each person to medium (1 person) or severe (2 persons) levels. When the device was attached to the phone, the negative effect of blood coagulation was reversed. The blood de-cluttered in each case, and the blood level was better than the initial blood taken. None of the cases complained about any discomfort or stress during the experiment.

A negative effect due to holding a mobile phone and a positive effect by using a protective device on blood coagulation can be demonstrated with darkfield microscopy. The radiofrequency of a mobile phone alters the electromagnetic field and causes a neutralization of the surface charge of the erythrocytes, and consequently the blood starts to clot. An optimization of the surface charge must have been achieved by the protective device, as it optimizes the blood level within minutes.

## **5. Discussion**

### **5.1. Causes for clotting**

This case study presents the effects of EMR on erythrocytes. Rau (2007) has discovered that the formation of “money rolls” of erythrocytes is a consequence of a lack of their electromagnetic charge. Erythrocytes are normally positively charged on the surface and repel each other. For them to clump they must become neutralized. Neutralization might be caused by EMR. Then EMR can be understood as a disturbance of the electromagnetic field and demonstrated through blood coagulation. This disruption might express itself as well through modification of the spectrum of their membrane proteins (Krylov, 2010). More research to get a detailed understanding in those mechanisms, which cause the blood to clot, will be needed.

### **5.2. Darkfield microscopy and EMR**

Darkfield microscopy is used for evaluation of the effects of EMR. It is an inexpensive and direct method to measure the effects and see the potential danger. Impressive is that it is possible to demonstrate the immediate effect of EMR on the blood. We need protection from EMR, and to achieve that we need appropriate tests for evaluation of protective devices. Darkfield microscopy is a fast way to test which of the devices offered on the market can keep their claims on the health effect.

### **5.3. Protective Device**

The protective device contains its own interactive receiver for non-ionizing radiation harmonizing the radiation. It works directly on altering the electromagnetic field, which is the appropriate level of action. This system can be applied for entire aereals like offices or hospitals, not just for a mobile phone. The results with darkfield microscopy are promising. Although more research on the mechanisms need to be done to understand its full capacity and field of action, the effectiveness is already demonstrated. For this reason, the Floww system is suggested for further projects.

### **5.4. EMF, hospitals, personnel and patients**

Protective systems need to be evaluated and then applied in places, where they are urgently needed: open space offices, hospitals, police centrals, airports, personal homes etc. The environment of a hospital, where health care professionals as well as patients are exposed to intense electromagnetic field disturbances from mobile phones (Wi-Fi), portable phones and numerous amounts of technical devices and equipment, seems to be absolute priority for such a project.

Blood testing and evaluation with darkfield microscopy can indicate the efficiency of the applied devices. A hospital areal should be taken as a pilot study and model, which can be transferred to other hospital aereals and health care institutions. Again: the prior focus of research should be on preventive strategies to ensure optimal health for personnel and patients. The health condition of a patient is fragile, and EMR might interfere in the healing process. For this particular reason more research and long-term studies should start in this environment.

A survey shows that complaints by EMF-sensitive persons such as headache, sleeping problems, tiredness, concentration problems, memory impairment, stomach- and intestinal complaints, weak immune system decrease when using such a device (Schiisler-van Hees, 2012). A study monitoring the short- and long-term health status of employees and patients in this areal focusing on those symptoms will give more information and be helpful to determine further practical steps in the application of protective devices.

### **5.5. Final conclusion**

This case study shows that the increasing Wi-Fi technology has consequences for our health. More and more technology gets introduced into our lives without proper and thorough research of the impact on our health. Looking at it from the ethical side it should be the other way around: public health and safety is first! In that sense it would be ethical to inform people clearly about the lack of understanding as well as the possible risks of using this technology. Priority is to research and propose options for protection rather than further debates. After more than 30 years of studies in this field, there is no outspoken clarity on the issue if EMR causes damage to the health of humans. One reason may be lack of consistency between the studies in very diverse experimental systems, wide variety of RF-EMF applied frequencies, SARs, field levels and exposure duration, and different parameters measured (Tkalec et al., 2013). Yet many parameters show clearly a negative effect on the health (Tkalec et al., 2013) and long-term studies have confirmed it (Hardell, Carlberg, Hansson, 2013). Resources should be used for research on the effectivity of protective devices and substances. Rather than waiting for the one study that proofs which hypothesis is right: "EMR is damaging to health" or "EMR is not damaging our health", we need to assume that all the results present valuable and correct information. It just needs some work to connect all the results to get a clear picture of where we need to begin with the protection. As the problem presents itself, it is wise to find solutions. Hardell states that the IARC carcinogenic classification does not seem to have had any significant impact on government's perception of their responsibilities to protect public health from this widespread source of radiation (Hardell, Carlberg, Hansson, 2013). In other words: the government needs to step up and be adviser and protector of public health, and needs to give appropriate advice instead of waiting for more results of research before they start to act. Science should have the competence to take the role of an advisor, get practical and apply their findings now.

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