

Report on a Pilot Study of the Ability of the EMF Harmony Harmonizer+ to Reverse Blood Aggregation Induced by Short Term Cell Phone Use

Submitted by Lisa Tully, PhD, Energy Medicine Research Institute (founder)

April 29, 2019

ABSTRACT

Results presented here utilizing dark field microscope analysis of live blood demonstrate that red blood cell (RBC) aggregation is increased by five minutes of cell phone (**iPhone 8 Plus**) use, which exposes subjects to electromagnetic frequency (EMF) radiation. An increase in aggregation leads to increased viscosity, which decreases blood circulation (a detrimental health effect). This is reversed by using the cell phone with the EMF Harmony Harmonizer+ device attached to it. Results of all subjects tested were nearly identical, showing this reversal and three representative samples are shown here. The ability of the Harmonizer+ to block the effects of cell phone radiation on the blood indicates the value of this product in remediating the harmful effects of cell phone use.

INTRODUCTION

Cell phones and smart phones are powered by microwaves, part of the electromagnetic spectrum, which range from 300 to 3,000 megahertz (MHz). Exposure to this radiation has been documented by many scientific studies to produce a number of harmful effects on biological systems (emf-harmony.com/pages/why). In this small pilot study, live blood analysis was conducted to ascertain the effects of cell phone use on blood and how it is remediated by attaching the EMF Harmony Harmonizer+ to the phone.

Live blood analysis involves the use of a high-resolution dark field microscope to observe live blood cells. This technique provides information on the ecology of the

blood, sometimes referred to as the “biological terrain.” The size, shape, variability, and cellular integrity of the red blood cells (RBCs) can readily be seen, as well as any stickiness and aggregation of the RBCs, which occurs after microwave radiation and during cell phone exposure. Normal, healthy blood has round RBCs that appear uniform in size, are separated from one another and flow easily through the bloodstream to deliver nutrients and remove waste products. RBCs that are stuck together in rouleaux or other aggregates increase the blood viscosity, and this affects the passage of RBCs through the microvessels throughout the body (Mchedlishvili G, Varazashvili M, Gobejishvili L. Local RBC aggregates disturbing blood fluidity and causing stasis in microvessels. (*Clinical Hemorheology and Microcirculation*, 2002, 2, 99-106). Ultimately, an increase in blood viscosity is harmful to one’s health.

This pilot study examined the blood of four subjects after three different conditions (before, immediately after cell phone use and after cell phone use with the EMF Harmony Harmonizer+ attached to it. Results show that the Harmonizer+ reverses the RBC aggregation induced by cell phone use.

METHODS

Four healthy subjects were recruited to test the EMF Harmony Harmonizer+ product. In each subject, a sterile lancet was used to collect a droplet of fresh peripheral blood from the fingertip, which was immediately placed on a glass microscope slide and covered with a glass cover slip. Collected blood was examined under an optical microscope at magnifications from 600 to 1200x. A camera mounted on the microscope records digital photographs of the blood samples. This study utilized a custom-built, Biomedx (<https://biomedx.com>) Olympus dark-field microscope attached to a digital video camera system. Customized software was used to capture and store microphotographs for subsequent analysis. The blood specimen was lit by means of halogen light delivered through fiber optics attached to the microscope condenser to prevent sample heating.

Subjects were given three blood tests associated with three different exposure conditions as described below. A representative example of the general condition of the blood sample was evaluated for the following factors: the shape of red blood cells and membrane distortion; state of aggregation of the red blood cells, including clumping, rouleaux formation (cells stuck together in rolls); and stickiness.

The tests performed on each subject were as follows: (1) initially, prior to cell phone exposure (baseline condition), (2) following a five minute simulated phone conversation (the subject read aloud from the same book, The Way is Within by Ron Rathburn, to eliminate the variable of conversation content) after a cell phone call was placed and (3) a cell phone call under the same conditions as (2), with the Harmonizer+ attached to the cell phone. During the active use conditions, the subjects placed the cell phone next to their heads during phone calls. Blood microphotographs were made for each of the three exposure conditions and examined.

The cell phone used for subject exposure was iPhone 8 Plus (SAR=1.59 w/kg when placed next to the head) and the same network carrier was used throughout the study. No other devices were in the area during the testing that could be significant sources of microwaves.

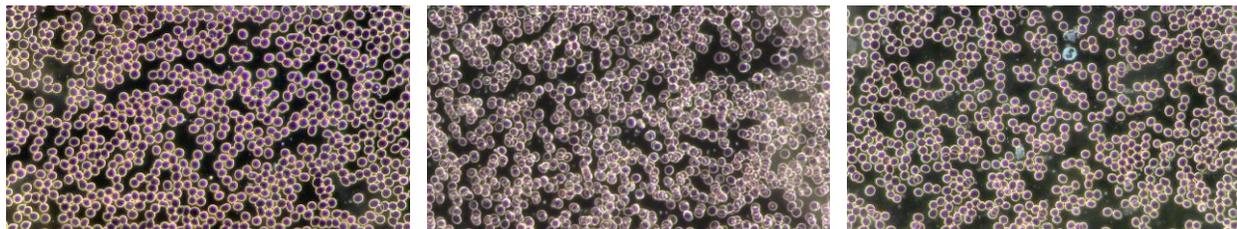
Live blood analysis data was collected by Allyn Orwig, Ph.D.

RESULTS

The baseline blood tests of all subjects revealed normal, healthy blood in all cases. The RBCs were mostly circular and loosely aggregated. Results of all subjects demonstrated that a five minute cell phone exposure produces RBC aggregation and rouleaux formation and this is reversed by the Harmonizer+.

Following are photo micrographs of blood from three subjects taken after each condition. Figure 1 shows results from the first subject under all three conditions. As shown, in the baseline photo (left image), the RBCs appear normal, are loosely aggregated and represent healthy blood. Five minutes of cell phone use induces RBC aggregation and the beginning of rouleaux formation (middle image). The right image shows results after another five minute call on the cell with the Life Force harmonizer attached. The phone use effect on the blood is reversed by the EMF Harmonizer and the RBCs have returned to the baseline condition.

Figure 1. Results of cell phone use with and without the Harmonizer+ from the first subject.



Before cell phone

After cell phone

**Cell phone with
EMF Harmonizer**

Description from left: In normal circumstances (before cell phone use), the red blood cells move around freely (left image). After five minutes of talking on an iPhone 8 Plus, the RBCs are aggregating, or clumping and rouleaux formation has begun (middle image). The right image shows blood after using the phone for another five minutes with the Harmonizer+ attached to the phone.

Following are the blood images from another subject, with nearly identical results. The left image is the baseline measure before cell phone use, which shows healthy blood that has loosely aggregated RBCs with no clumping. The middle photo of blood was taken after five minutes of cell phone use, demonstrating more aggregated RBCs with rouleaux formation. The right picture of the blood was taken after using the phone for

another five minutes with the Harmonizer+ attached. As shown, the blood appears less aggregated than the baseline photo.

Figure 2. Results of cell phone use from a second subject with and without the Harmonizer+.

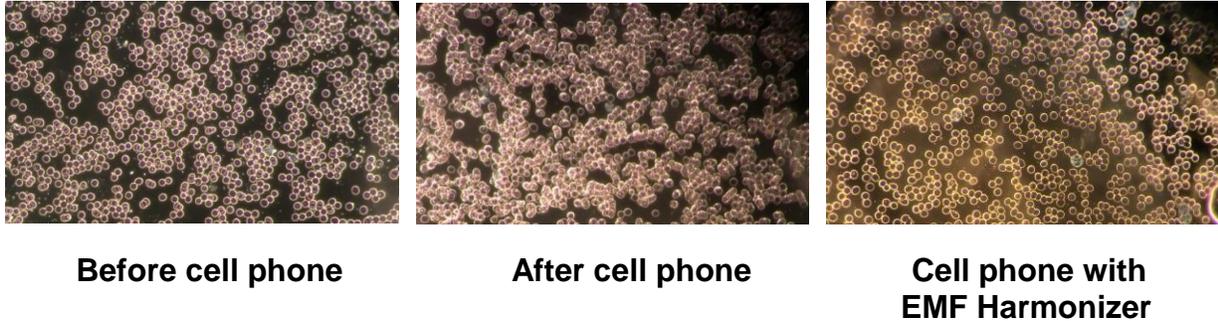
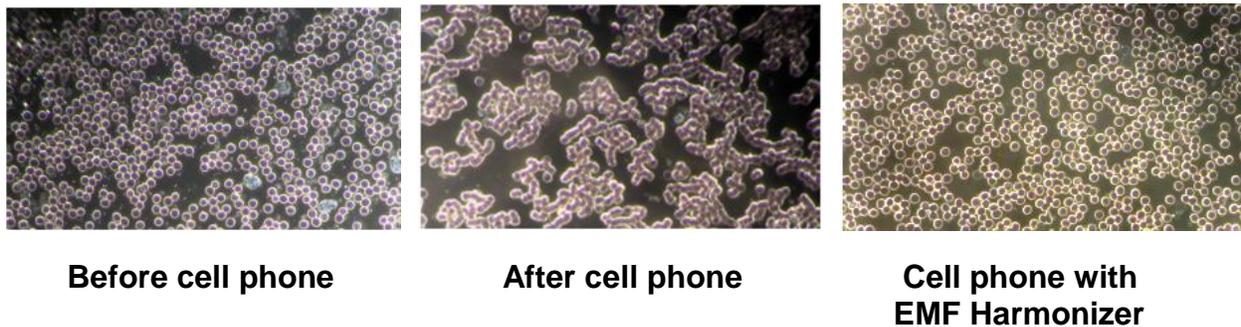


Figure 3 shows results from a third subject under all three conditions. As shown, in the baseline photo (left image), the RBCs appear normal, are loosely aggregated and represent healthy blood. Five minutes of cell phone use induces RBC aggregation and the beginning of rouleaux formation (middle image). The right image shows results after another five minute call on the cell with the Harmonizer+ attached to it. The phone use effect on the blood is reversed by the Harmonizer+ and the RBCs have returned to the baseline condition, with no aggregation or rouleaux formation.

Figure 3. Results of cell phone use from a third subject with and without the Harmonizer+.



DISCUSSION

Results show that a five minute exposure to cell phone radiation induces RBC aggregation and the beginning of rouleaux formation. In the baseline photos of the blood of all subjects, the RBCs are spherical and separated, representing healthy blood. After using the phone for another five minutes (which is double the exposure time to microwave radiation) the effects of the cell phone on the blood are reversed by the EMF Harmony Harmonizer+. This reversal occurs, despite the fact that the exposure time of EMF radiation for each subject is doubled.

Red blood cells are negatively charged, which creates a repulsive electric (zeta) potential between the cells and prevents their aggregation in the blood stream. When this negative charge of RBCs are reduced in blood, which can occur after microwave radiation, blood viscosity is increased. The increase in blood viscosity decreases blood circulation, which in turn decreases nutrient delivery and waste product removal, and this is detrimental to health. As seen in all subjects, after five minutes of cell phone use, the RBCs have a reduced charge, or zeta potential, which increases their aggregation, or clumping. This can create an increase in blood viscosity, which decreases blood circulation.

This effect on the blood by cell phone use is reversed in all subjects by attaching the EMF Harmony Harmonizer+, and in some instances, the RBCs appear less aggregated than in the baseline photo. Furthermore, the effects were substantial, as cells returned to baseline status (or less aggregated than the beginning condition) after the second five minute call, which is double the phone exposure of the first call, and this factor should worsen the condition of the blood. The effects of cell phone use were completely reversed by the Harmonizer+, and possibly more improved than the baseline condition. In addition, when reviewing videos of the blood samples, the “liveliness” of the blood (amount of movement of the blood) was increased noticeably after using the phone with the Harmonizer+ attached to it. This observation of the increase in zeta potential of the RBCs is dramatic. Further work is recommended to substantiate this finding.

CONCLUSIONS

Five minutes of cell phone use increases RBC aggregation, as viewed by live blood cell analysis. This detrimental health effect on the blood is reversed by use of the EMF Harmony Harmonizer+ in all subjects tested, despite the fact that subjects were exposed to twice as much cell phone radiation after the second call with the Harmonizer+ on the phone.