

# **Does the Leela Quantum Bloc Protect Users from Short-Term Exposure to Microwave Radiation from a 4G Wi-Fi Router as Observed Using Live Blood Microscopy?**

## **Pilot Study Report**

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### **ABSTRACT**

Blood is the essence of life. It is useful to examine live blood under a microscope to look for any changes in reaction to a stressor. In this exploratory study, four healthy human subjects were exposed to microwave radiation from a Wi-Fi router placed in an adjacent room. Their blood was examined under a dark-field microscope to look for changes, if any, compared to baseline (no exposure), after exposure for 10 minutes to the radiation, and again following exposure for another 10 minutes with their hands placed in either a sham (A) or active Quantum Bloc (B) device. This is an exploratory study to look for a protective effect on the blood from the active Quantum Bloc device compared to a sham. Results showed that the active Quantum Bloc did indeed show protective effects on the blood. In addition, the sham device also showed a small protective effect because it was unwittingly partially activated.

### **RESEARCH QUESTIONS**

1. Does the blood as observed under a dark-field microscope change after human subjects are exposed to radiation emitted from a 4G Wi-Fi router for 10 minutes?

2. Does the Quantum Bloc device help protect human subjects from adverse blood changes seen upon exposure to radiation from the 4G Wi-Fi router?

## RESEARCH DESIGN

An exploratory pilot study with 4 healthy adults was conducted to look for an effect of the Quantum Bloc device compared to sham device (placebo). The study was randomized, double-blind, and sham-controlled, which is the gold standard of clinical medical research. A technique called live blood analysis or whole blood microscopy was used. Peripheral blood samples taken from subjects' fingertips were placed on glass slides under a dark-field microscope, photographed, and scored by a trained research microscopist using a Likert scale (0 to 4, with 4 being the maximum). These data were analyzed and compared to determine which of various blood morphologies may have changed in relation to the exposure condition. Because the sample size (N=4 subjects) was very small, statistical tests were not done.

## SUBJECTS

Subjects were healthy adults consisting of 2 males and 2 females ranging from 42 to 80 years of age, with a mean age of 63 years. An older population was deliberately selected because previously the researcher discovered that older adults showed more adverse effects to wireless radiation as observed in the blood. None of the subjects had a diagnosis of electrosensitivity.

## METHODS AND PROCEDURES

Live blood analysis involves examination of a small droplet of fresh capillary blood typically taken from the fingertip. This is observed under an optical microscope at magnifications from 600 to 1200x. A camera mounted on the microscope records digital photographs of the blood samples. This technique provides information on the ecology of the blood, sometimes referred to as the “biological terrain”. It is a research tool sometimes also used in holistic health assessment. 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. The presence and relative number of white blood cells (WBCs) are noted, along with the motility (movement) of these cells. The blood plasma is checked for relative values of platelet aggregates, the formation of early fibrin (< 10 minutes), the presence of microbial and parasitic forms, as well as particulates including cholesterol, crystals, and contaminants.

This study utilized a custom-built, dark-field microscope attached to a digital video camera system with zoom lens linked to a computer monitor. Software was used to capture and store microphotographs for subsequent analysis. The blood specimen was lit by means of light delivered through fiber optics attached to the microscope condenser to prevent sample heating. A sterile lancet was used to collect a droplet of peripheral blood from the fingertip, which was immediately placed on a glass microscope slide covered with a glass cover slip. Oil immersion lenses at the microscope objective and dark-field condenser were used for image optimization.

Subjects fasted for at least 5 hours and refrained from exposure to cell phones for 2 hours prior to individual appointments. They were tested on different days for Device A and Device B. During the fasting period and the experimental session, subjects were allowed to drink only water. Each subject was given 3 blood tests associated with 3 different exposure conditions as described below. Each blood sample was evaluated and scored for different blood morphological factors. These factors include the shape of red blood cells with respect to any distortion (membrane distortion); state of aggregation of the red blood cells, including clumping, rouleaux formation (cells stuck together in rolls), and stickiness; white blood cell shape and motility; and the degree of early clotting factors including platelet aggregates and presence of early fibrin. A Likert scale from 0 to 4 was used to score the blood factors, in which 0 indicates an absence of the blood factor, and 4 indicates the maximum level of the blood factor.

Three blood tests were performed on each subject as follows: (1) initially, prior to Wi-Fi exposure (baseline condition), for which the radiofrequency radiation exposure was -42 dbm (ambient level in the laboratory); (2) following 10 minutes of exposure to a 4G Wi-Fi router placed in an adjacent room, 2 meters from the subject, during which the exposure was -10 dbm; and (3) following an additional 10 minutes of exposure to the -10 dbm level of Wi-Fi while placing their hands inside either the sham or active device. Neither the researcher nor the subject knew which of the devices was active—i.e., the study was double-blinded, and also randomized (random order of testing with Device A or B). Six or more typical blood microphotographs were made for each of the 3 exposure conditions.

## RESULTS

The baseline blood tests of all subjects revealed normal healthy blood. All 4 subjects showed adverse blood changes due to Wi-Fi radiation exposure—sticky red blood cells—rouleaux and RBC clumping, and greater quantities of fibrin. The blood microphotographs and the Excel file of compiled data and calculations accompany this report

The comparison of Device A and Device B for the Wi-Fi exposure conditions is shown in Figure 1. The values shown are the average values of the 4 subjects in the sham and active device condition.

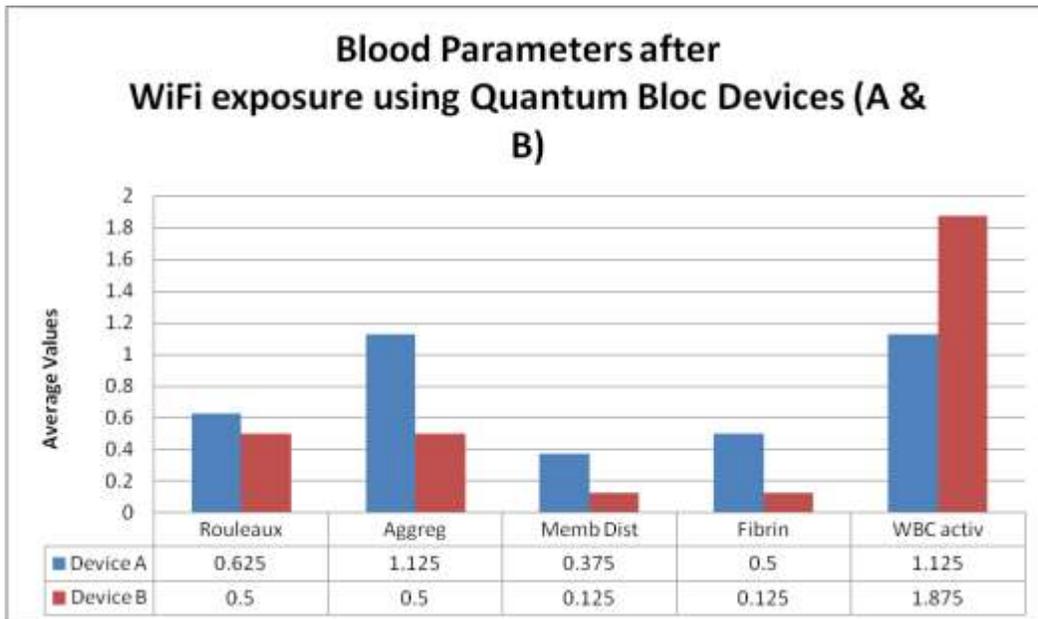


Figure 1: Comparison of blood parameters during Wi-Fi exposure with Device A (sham, partially activated) or Device B (active device). Rouleaux = roll formations of red blood cells; Aggreg = nonspecific aggregates of red blood cells; Memb Dist = membrane disturbances and irregularities of shape seen in the red blood cell membranes; Fibrin = formation of early fibrin; WBC activ = relative motility of the white blood cells.

The data in Figure 1 indicated that Device A was the sham, but in comparison to the exposure session, it seemed clear that it had been inadvertently partly activated. The researcher took extreme caution to keep the two devices at different locations and separated by at least 150 feet, but upon completion of the study, Leela discovered that the sham plates had been inadvertently partly activated at their location. Besides reduction of rouleaux (rolls of red blood cells stuck together) and other red blood cell aggregates, membrane disturbances, and fibrin formation were also diminished by the active device. An additional unexpected finding is that white blood cell motility (movement) was enhanced, especially in the presence of the active device (B).

Figure 2 shows the average values of blood parameters for radiation exposure alone compared to exposure with Device B. The protective effects of Device B are clear in that red blood cell rouleaux, aggregation, and fibrin formation are reduced. The greater activation of white blood cell motility is also noteworthy.

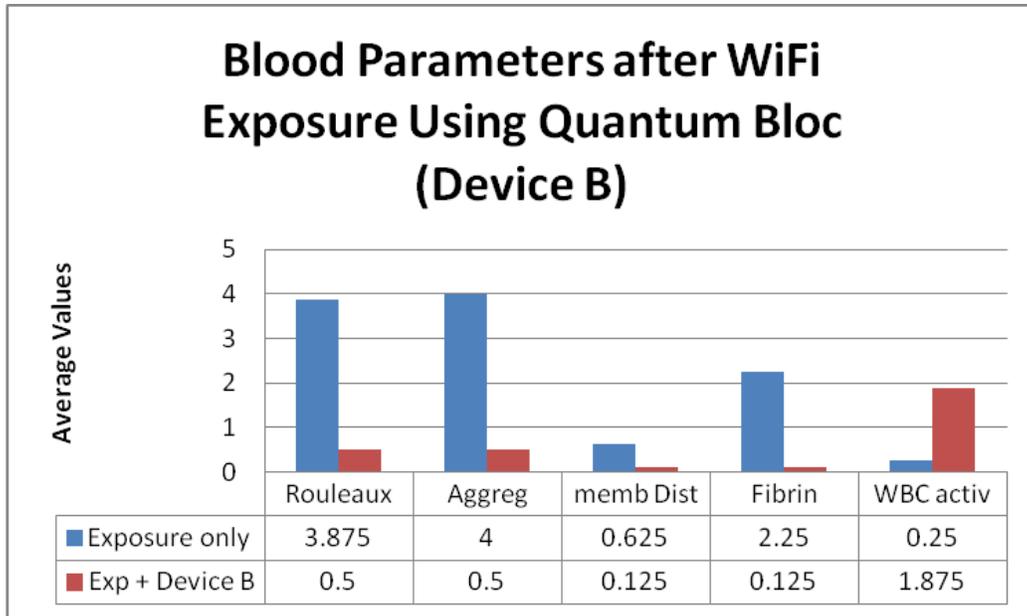


Figure 2: Comparison of blood parameters during Wi-Fi exposure and use of Device B (active device) during Wi-Fi exposure. Exp = exposure; Rouleaux = roll formations of red blood cells; Aggreg = nonspecific aggregates of red blood cells; Memb Dist = membrane disturbances and irregularities of shape seen in the red blood cell membranes; Fibrin = formation of early fibrin; WBC activ = relative motility of the white blood cells.

## CONCLUSIONS AND DISCUSSION

Results show readily observable, substantial changes in blood morphology from short-term exposure to moderate levels of Wi-Fi radiation exposure in 4 out of 4 adults. RBC aggregation and stickiness as well as early fibrin were observed in live blood samples following 10 minutes of exposure to microwave radiation. The active Quantum Bloc (Device B) showed a clear protective effect in preventing the red blood cells from sticking together, reducing early fibrin formation, and increasing white blood cell motility. The latter finding could be followed up with more sophisticated immunological studies.

This study had important strengths and some limitations. It was a double-blinded, randomized, sham-controlled, microwave exposure-controlled study, the gold standard of clinical research. Subject fasting was also controlled, as was the time of day when subjects were assessed. An unbiased method of photographing the samples near the center of the blood specimen was used. The researcher has many years of experience in blood microphotography and developed a Likert scale to reliably score blood factors using a well-trained eye. The blood changes recorded by microphotography are objective and visually compelling.

However, it is a small, short-term study with 4 subjects tested in single experimental sessions. Because the sham device was inadvertently partly activated, it did not allow us to calculate an effect size above a true placebo effect. Nonetheless, this demonstrated a protective effect of the technology on the blood following only a short exposure (10 minutes). Larger studies of this same design using an inactive sham should be conducted to expand on these results. It is estimated, but not definitive, that 12 subjects would probably yield statistical significance using this same research design.

## REFERENCES

Rubik B. (2014). Does short-term exposure to cell phone radiation affect the blood? *Wise Traditions in Food, Farming, and the Healing Arts*, Vol 15(4):19-28. <http://www.westonaprice.org/modern-diseases/does-short-term-exposure-to-cell-phone-radiation-affect-the-blood/>