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

Pilot Study Report—REVISED JULY 8, 2025 and JULY 9, 2025

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(Original Manuscript August, 2022)

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. This was an exploratory study to look for any visual effects observed using live blood analysis (LBA) with human subjects exposed to an electromagnetic field (EMF) stressor, Wi-Fi radiation, along with any additional effects from an active Leela Quantum Travel Bloc (Travel Bloc) device compared to an inactive sham device. Four healthy human subjects were exposed to 0.1 milliwatts (mW) radiation emitted from a Wi-Fi router. Dark-field live blood analysis, a diagnostic technique that shows various qualitative aspects of the blood not observable by conventional blood testing, was employed to look for morphological changes in the blood, and the results were recorded by microphotography. Three conditions were compared: baseline (no exposure); exposure for 10 minutes to Wi-Fi radiation; and Wi-Fi radiation exposure for another 10 minutes either with Travel Bloc or a sham. Results showed that the active Travel Bloc produced protective effects on the blood, as observed visually and photographed, with less red blood cell (RBC) rouleaux, fewer non-specific RBC aggregates, and reduced early fibrin formation, while sham effects were negligible.

INTRODUCTION

Live Blood Analysis (LBA) is a diagnostic technique that involves examining a fresh drop of peripheral blood under a microscope, typically dark-field or phase-contrast, without staining or fixing the sample. Use of dark-field enhances the contrast in unstained samples, highlighting cellular structures and any motion. In former decades, LBA was used clinically to assess a patient's general health status and to detect signs of nutritional deficiencies. However, as clinical laboratories were established with automation and quantitative testing, LBA was largely rendered obsolete in conventional medicine. Nonetheless, LBA provides useful information regarding health and wellness status and is still used by researchers and alternative health practitioners. Direct examination of the morphology of red blood cells (RBCs) and their state of aggregation provide qualitative information that goes well beyond what conventional automated blood tests can detect.

Previous published studies showed that humans exposed to microwave radiation from wireless technology showed adverse changes in the blood seen using LBA (Havas, 2013; Rubik, 2014). Other previous pilot studies showed that humans exposed to a Wi-Fi modem/router for 10 minutes, switched on, but neither downloading nor uploading data, which provides a repeating pattern of waves over time, showed adverse changes in the blood as seen via dark-field LBA (unpublished--- Rubik, 2021; Rubik 2022).

In this initial study on the Leela Quantum Travel Bloc (Travel Bloc), a purported protective device against electromagnetic field (EMF) stress, we utilize LBA to ascertain visually the effects seen on the blood of persons exposed to 0.1 mW of microwave radiation from a Wi-Fi router under controlled conditions in the laboratory, and again using a Travel Bloc or sham. The research question explored here was the following: does Travel Bloc help protect human subjects from adverse blood changes observed upon short-term exposure to microwave radiation emitted from a Wi-Fi router?

METHODOLOGY

The purported EMF-protective device studied, Travel Bloc, is a commercial device comprised of two parallel anodized aluminum plates suspended by four supporting anodized aluminum poles. The device is unpowered and activated by proprietary technology. It is said to be working when fully assembled and placed in the immediate environment. See Figure 1.

Figure 1: Leela Quantum Travel Bloc fully assembled

The study was randomized, single-blinded, and sham-controlled. LBA, a diagnostic technique, was used along with a customized Nu Life Sciences microscope using lenses ranging from 600x to 1200x, a zoom lens, a dark-field condenser, and analog-to-digital camera system, connected to a PC computer to capture digital microphotographs. Peripheral blood samples taken from subjects' fingertips using a sterile lancet were immediately placed on pre-cleaned glass slides, observed under a dark-field the microscope, and photographed. The size, shape, variability, and membrane integrity of the RBCs can readily be seen, as well as RBC aggregation, if present. The researcher, a trained research microscopist, used a Likert scale to score each of the following parameters: RBC rouleaux, non-specific RBC clumping; RBC membrane distortion; and early fibrin (prior to 10 minutes from blood draw). Likert values were assigned as follows: 0, none present; 1, approximately 25%; 2, approximately 50%; 3 approximately 75%; 4, approximately 100%. 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 and the Likert values estimated, only certain statistics were employed.

The Wi-Fi router used is Linksys EA7500. It was used in idle (beacon) mode, neither uploading nor downloading data. This creates a microwave emission whereby a repeating pulsating signal is emitted consistently over time.

HUMAN SUBJECTS

Subjects were healthy adults consisting of 2 males and 2 females ranging from 43 to 81 years of age, with a mean age of 64 years. An older population was deliberately selected because previously the researcher had discovered that older adults showed greater adverse effects to wireless radiation as observed using LBA (Rubik, 2014). The same 4 subjects had been tested previously in 2021 using the Leela Quantum Bloc device (unpublished, Rubik, 2021). None of the subjects had a diagnosis of electrosensitivity.

PROCEDURES

Subjects arrived by individual appointment, and a baseline blood test was performed using a sterile lancet to collect a small droplet (approximately 5 microliters) of fresh capillary blood from a fingertip. The bioassay was timed from blood draw. The sample was placed immediately on a pre-cleaned glass slide covered with a glass cover slip and examined under the microscope while also digitally photographed. At least 10 microphotographs were taken for each of the 3 conditions: baseline, post-Wi-Fi radiation exposure alone, and post-Wi-Fi radiation exposure with either the sham or active Travel Bloc present. In order to study both sham and active Travel Blocs, subjects had two appointments on different days at the same time of day, and the order in which they were tested was randomized.

The blood specimen was lit by means of light delivered through fiber optics attached to the microscope condenser to prevent sample heating. 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 and other wireless devices for at least 2 hours prior to their appointments. During the fasting period and the experimental session, subjects were allowed to drink only filtered water freely.

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 (6.31×10^{-5} mW, the ambient background level in the laboratory); (2) following 10 minutes of exposure to a Wi-Fi router placed in an adjacent room, 2 meters from the subject, during which the exposure was -10 dBm (0.1 mW); and (3) following an additional 10 minutes of exposure to the -10 dBm level of Wi-Fi while in the presence of either sham or active Travel Bloc device. The researcher took extreme caution to keep the two devices at different locations separated by approximately 10 km, and built the final configuration of each device on site in the laboratory prior to testing. Although the subjects were permitted to see the device in the room, placed approximately 2 meters from them, they were kept blind as to which of the devices was active—i.e., the study was single-blinded, and also randomized (random order of testing the sham and active devices respectively). Ten or more blood microphotographs were made for each of the 3 exposure conditions for each subject.

RESULTS

The baseline blood tests of all subjects revealed healthy blood, i.e., with scored Likert values of 0 to 1 for RBC rouleaux, non-specific RBC clumping, RBC membrane distortion, and early fibrin. All 4 subjects showed adverse blood changes due to Wi-Fi radiation exposure—most notably, sticky red blood cells—rouleaux and non-specific RBC clumping, and larger quantities of early fibrin. The blood microphotographs and the Excel file of compiled data and calculations accompany this report.

Figure 1 compares the results for the active Travel Bloc and sham immediately following the 10-minute Wi-Fi exposures. The values shown are the mean values of the blood parameters of all 4 subjects for each condition.

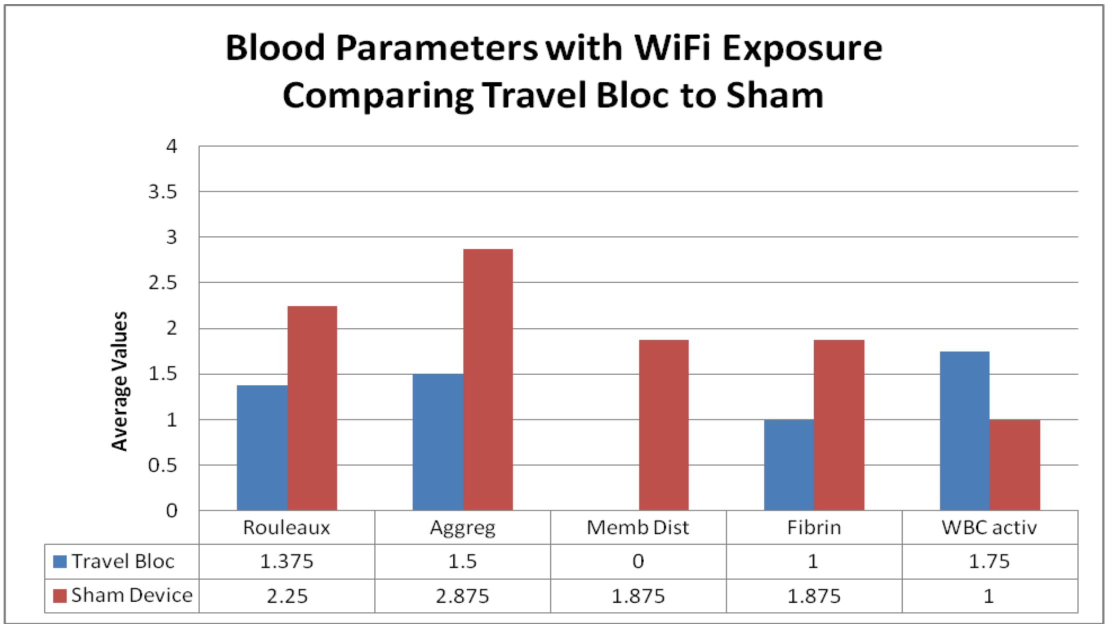

Figure 1: Comparison of blood parameters immediately following Wi-Fi exposure with Travel Bloc and sham. Rouleaux = roll formations of red blood cells; Aggreg = nonspecific aggregates of red blood cells, i.e., clumping; Memb Dist = membrane distortions and irregularities of shape in the red blood cell membranes; Fibrin = formation of early fibrin; WBC activ = relative motility of the white blood cells.

Figure 2 shows the average values of blood parameters for radiation exposure alone compared to exposure with Travel Bloc. The protective effects of Travel Bloc are clear in that red blood cell rouleaux, aggregation, and fibrin formation are reduced. No clear differences in RBC membrane distortion between active Travel Bloc and sham were observed.

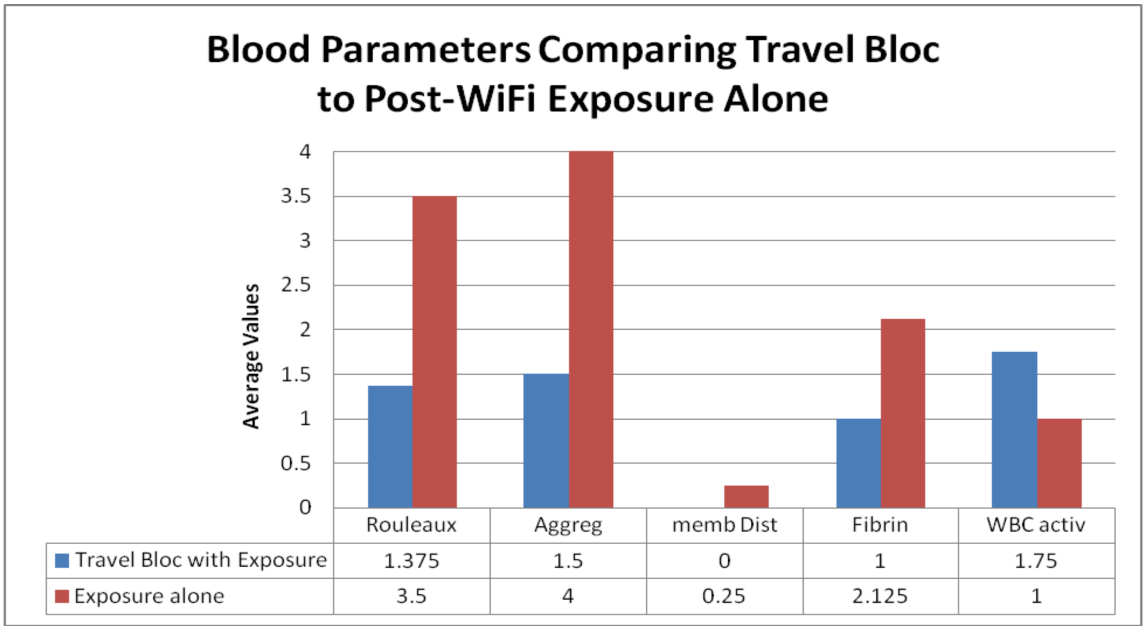

Figure 2: Comparison of blood parameters during Wi-Fi exposure alone and with Travel Bloc immediately following Wi-Fi exposure. Rouleaux = roll formations of red blood cells; Aggreg = nonspecific aggregates of red blood cells; Memb Dist = membrane distortions and irregularities of shape seen in the red blood cell membranes; Fibrin = formation of early fibrin.

Figure 3 shows the average values of blood parameters for radiation exposure alone compared to exposure with the sham device.

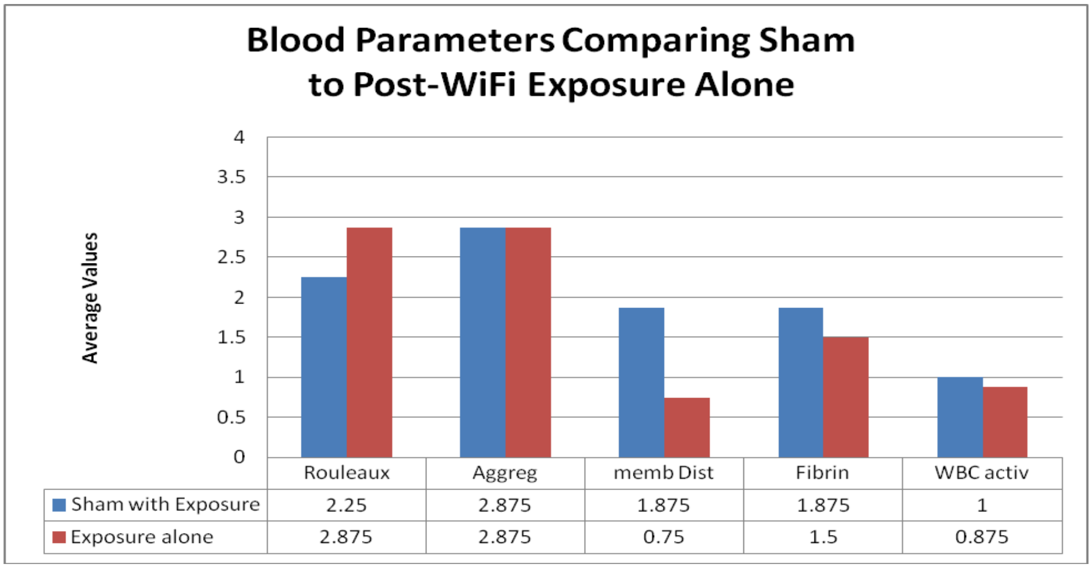

Figure 3: Comparison of blood parameters immediately following Wi-Fi exposure alone and with the sham device immediately following Wi-Fi exposure. Rouleaux = roll formations of red blood cells; Aggreg = nonspecific aggregates of red blood cells; Memb Dist = membrane distortions and irregularities of shape seen in the red blood cell membranes; Fibrin = formation of early fibrin. .

Table 1 shows the calculated values of Cohen's d, a statistical measure of the effect size, comparing the Travel Bloc to the sham device. The largest protective effects of Travel Bloc on the blood of Wi-Fi exposed humans are a reduction in the level of red blood cell non-specific clumping and aggregation, with Cohen's d = 1.744. Smaller protective effects of Travel Bloc were found in reducing the rouleaux formation, with Cohen's d = 0.463 and reducing early fibrin formation, with Cohen's d = 0.749. No statistically significant effect of Travel Bloc over sham on red blood cell membrane distortion was observed.

	Cohen's d	Interpretation
Rouleaux	0.463	Small to medium size effect
Aggreg	1.744	Large effect
Memb Dist	0	No effect
Fibrin	0.749	Medium to large size effect

Table 1: Cohen's d calculated for Travel Bloc compared to sham device for Wi-Fi exposures. Rouleaux = roll formations of red blood cells; Aggreg = nonspecific aggregates of red blood cells; Memb Dist = membrane distortions and irregularities of shape seen in the red blood cell membranes; Fibrin = formation of early fibrin.

CONCLUSIONS AND DISCUSSION

The microphotographs and the associated Likert scores show substantial changes in live blood morphology from short-term exposure to moderate levels of Wi-Fi radiation exposure in all four human subjects. 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 Travel Bloc showed a visible reduction in the stickiness of RBCs with reduced rouleaux formation and especially reduced non-specific red blood cell aggregates (i.e., RBC clumping), as well as reduced early fibrin formation. These results indicate that Travel Bloc has a protective effect on the blood following short-term human exposure to Wi-Fi radiation. By contrast, the sham device had negligible effects on these blood parameters.

This study had important strengths and some limitations. It was a single-blinded, randomized, sham-controlled, microwave exposure-controlled study performed in the laboratory.

Subject fasting and exposure to wireless radiation immediately before each study session was 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 over 25 years of experience utilizing LBA technique. The blood changes recorded by microphotography are objective and visually compelling.

However, it is a small, short-term study with a very small number of subjects (N=4) tested in eight experimental sessions. The Likert scale measures are subjective but developed over 25 years by an experienced research microscopist using LBA technique routinely. The Cohen's d values computed are based on the Likert scale values which are based on human observation and subjectivity. Nonetheless, this study demonstrated a protective effect of the technology on the blood following only short-term Wi-Fi radiation exposure. 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 more significant results using this same research design.

Some have claimed that there is very limited scientific evidence supporting the diagnostic accuracy or clinical utility of LBA. There are no large controlled studied validating LBA for diagnosing nutritional or systemic health issues. However, there is a clear visual difference between single RBCs and RBC aggregates that is indisputable in the photographs obtained. We maintain that the initial findings of this study are still valid in showing some protective effects on the blood in this small pilot study.

Based on this study, further studies are recommended to investigate the effect of Travel Bloc on blood viscosity measures during microwave exposure. Greater blood viscosity is predicted due to increased RBC aggregation, if systemic, when persons are exposed to Wi-Fi radiation. If systemic, increased blood viscosity may also increase blood pressure and alter cardiac activity, and Travel Bloc would be predicted to normalize blood pressure and cardiac activity under Wi-Fi radiation exposure.

In addition, the RBC zeta potentials in humans undergoing Wi-Fi exposure would be expected to change, with loss of the zeta potential leading to rouleaux and other RBC aggregates. Based on the findings of this study, Travel Bloc would be expected to promote greater stability of the RBC zeta potential in the presence of an EMF stressor such as Wi-Fi radiation exposure.

Such followup studies with Travel Bloc on quantitative variables as blood viscosity and RBC zeta potential would further substantiate the results obtained here and possibly lead to a mechanism of action for the protective effects of this technology.

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