

# Darkfield Microscopic Evaluation of the Noise Field Polymer on the Reduction of Live Blood Effects Caused by Radio Frequency Radiation

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## **ABSTRACT**

In optimal blood cell formations, the spatial orientation of the erythrocytes is singular, free moving and often colliding with one another. Blood is responsible for the distribution and transport of oxygen from the lungs to the cells of the body and to remove carbon dioxide from the cells and transport it back to the lungs.<sup>1 2</sup> Blood is also responsible for the transportation of nutrients, hormones and wastes, temperature control, pH, electrolyte balance and the immune system function of the white blood cell components.<sup>3</sup>

The ability of blood to carry out these functions is dependent upon a plethora of factors, however abnormal spatial orientations, rouleau and erythrocyte aggregation (EA), are two related anomalies that may significantly inhibit these functions.<sup>4 5 6 7</sup> Erythrocyte aggregation is the tendency of erythrocytes to form aggregates whose shapes change according to normal variations or pathological conditions.<sup>8</sup> Consequently these anomalies cause changes to flow dynamics and predispose the inability to carry out transportation activities and decrease functional capillary density (FCD) or decrease erythrocyte surface area, also decreasing

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<sup>1</sup> McGeown J G. *Master Medicine Physiology: A Clinical Core Text of Human Physiology With Self-assessment*. Churchill Livingstone. Spain. 2004. p.29-30.

<sup>2</sup> Pallister C. *Physiology and Pathophysiology*. Butterworth Heinemann. London. 1994.

<sup>3</sup> McGeown J G. *Master Medicine Physiology: A Clinical Core Text of Human Physiology With Self-assessment*. Churchill Livingstone. Spain. 2004. p.29-30.

<sup>4</sup> Aloisio T. *Blood Never Lies*. Llumina Press. Tamarac FL. 2004;p.37

<sup>5</sup> Coyle M. *Advanced Applied Microscopy for Nutritional Evaluation and Correction*. Petaluma, CA. Elbow Room Publishing. 2000;p.197

<sup>6</sup> Bishop J J, Nance P R, Popel A S, Intaglietta M, Johnson P C. Effect of erythrocyte aggregation on velocity profiles in venules. *Am J Physiol Heart CircPhysiol*. 2001;Jan;280(1):p.222-236.

<sup>7</sup> Das B, Bishop J J, Kim S, Meiselman H J, Johnson P C, Popel A S. Red blood cell velocity profiles in skeletal muscle venules at low flow rates are described by the Casson model. *Clinical hemorheology and microcirculation*. 2007;36(3):p.217-33

<sup>8</sup> Rampling M R, Martin G. A comparison of the. techniques for estimating erythrocyte aggregation. *Clin. Hemorrh*. 1989; 9:p.41-46.

functional efficiency.<sup>9</sup> Functional capillary density is the determination of the number of capillaries in an area that has erythrocyte flow and relates to the subsequent ability of the blood to deliver nutrients, fluid and solute exchange, and waste product excretion.<sup>10</sup> Red blood cell aggregation has a significant impact on functional capillary density.<sup>11 12</sup>

Live blood cell analysis using darkfield microscopy is a well documented method to demonstrate subtle effects that may be caused by nutritional deficiencies or environmental factors such as electromagnetic radiation.<sup>13 14</sup> It is now common knowledge that there are negative physiological effects of cell phone usage.<sup>15 16 17</sup> Darkfield microscopy can be used to document the changes to live blood such as erythrocyte aggregation and rouleau caused by the combination of factors germane to cell phone usage.<sup>18</sup>

A geometric fractal piezoelectric liquid crystal polymer capable of generating a magnetic noise field is used in the construction of a cell phone chip that has been shown to significantly decrease the physiological effects of electromagnetic radiation by altering the waveform of the radiation.<sup>19 20 21</sup>

By examining all live blood samples and comparing the control, non-noise field samples and noise field mediated samples to the standard accepted value for optimum appearance of blood samples via darkfield microscopy, it has been demonstrated that the radiation effects from the combination of the cell phone, carrier wave and information packets cause adverse effects to blood. Subsequent live blood cell evaluation after irradiation with the intervention of the passive noise field polymer has been shown to eliminate these radiation effects. Since radiation effects were reduced in the blood, the benefits of the reduction of the radiation effects by the

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<sup>9</sup> Kim S, Popel A S, Intaglietta M, Johnson P C. Effect of erythrocyte aggregation at normal human levels on functional capillary density in rat spinotrapezius muscle. *Am J Physiol Heart Circ.* 2006;290:p.941-947.

<sup>10</sup> Ibid.

<sup>11</sup> Durussell J J, Berthault M F, Guiffant G, Dufaux J. Effects of red blood cell hyperaggregation on the rat microcirculation blood flow. *Acta Physiol Scand.* 1998;163:p.25-32.

<sup>12</sup> Kim S, Popel A S, Intaglietta M, Johnson P C. Effect of erythrocyte aggregation at normal human levels on functional capillary density in rat spinotrapezius muscle. *Am J Physiol Heart Circ.* 2006;290:p.941-947.

<sup>13</sup> Coyle M. Advanced Applied Microscopy for Nutritional Evaluation and Correction. Petaluma, CA. Elbow Room Publishing. 2000.

<sup>14</sup> Aloisio T. Blood Never Lies. Llumina Press. Tamarac FL. 2004;p.6

<sup>15</sup> Fisher H W. The Invisible Threat: The Risks Associated with EMFs. Wood Publishing. Toronto. 2007.

<sup>16</sup> Gandhi G A. Genetic damage in mobile phone users: some preliminary findings. *Indian J Hum Genet.* 2005;11:p.99-104.

<sup>17</sup> Khurana G. Mobile phones and Brain Tumours- A Public Health Concern. Feb 7, 2008. [www.brain-surgery.us](http://www.brain-surgery.us).

<sup>18</sup> Coyle M. Advanced Applied Microscopy for Nutritional Evaluation and Correction. Petaluma, CA. Elbow Room Publishing. 2000;p.170, 197.

<sup>19</sup> Smirnov I V. Polymer Material Providing Compatibility between Technologically Originated EMR and Biological Systems. *Explore Magazine.* 2006; (15)4:p.26-32.

<sup>20</sup> Smirnov I V. Electromagnetic Radiation Optimum Neutralizer. *Explore Magazine.* 2002;11(1):p.45-50.

<sup>21</sup> Fisher H W, Pisarek S, Smirnov I V. The Beneficial Effect of MRET-Shield on Blood Morphology in Vitro Following the Exposure to Electromagnetic Radiation of Cell Phone. *Explore Magazine.* 2008;

passive noise field polymer to the entire organism must be considered to have occurred simultaneously.

## **INTRODUCTION**

Blood is the most unique organ in the body and all physiological functions are totally dependent on the capability of this diverse fluid to carry out a number of functions. The primary functions of blood involve the distribution and transport of oxygen from the lungs to the cells of the body and to remove carbon dioxide from the cells and transport it back to the lungs.<sup>22</sup> Blood is also responsible for the transportation of nutrients, hormones and wastes, temperature control, pH, electrolyte balance and the immune system function of the white blood cell components.<sup>23</sup>

Currently investigators have corroborated the previous epidemiological research, including the near decade long thirteen-country Interphone study, and have identified an undeniable link between the full spectrum of electromagnetic radiation (EMFs) and a diverse range of diseases such as cancer, leukaemia, neurodegenerative disorders, impaired fertility and hormonal disruption.<sup>24 25 26 27 28</sup> With the inundation of our environment by several pervasive forms of wireless technology, investigators findings have been able to determine a relationship between radio frequency magnetic fields such as those generated by cell phones and their towers and disease related to documented genetic damage to peripheral blood lymphocytes,<sup>29</sup> micronuclei<sup>30 31</sup>, blood brain barrier (BBB) leakage<sup>32 33</sup> and brain tumours.<sup>34</sup> Further research has

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<sup>22</sup> McGeown J G. Master Medicine Physiology: A Clinical Core Text of Human *Physiology With Self-assessment* . Churchill Livingstone. Spain. 2004. p.29-30.

<sup>23</sup> McGeown J G. Master Medicine Physiology: A Clinical Core Text of Human *Physiology With Self-assessment* . Churchill Livingstone. Spain. 2004. p.29-30.

<sup>24</sup> Asanova T P, Rakov A N. Health conditions of workers exposed to electric fields of open switchboard installations of 400-500 kv. *Gig Tr Prof Zabol.* 1966; 10(5):p50-52.

<sup>25</sup> Sadchikova M. Clinical manifestations of reactions to microwave irradiation in various occupational groups in Biological Effects and health Hazards of Microwave Radiation. WHO Symposium. Polish Medical Publishers. 1974;p.261-267.

<sup>26</sup> Stevens R.G, Wilson B W, Anderson L E. The Melatonin Hypothesis: Breast cancer and the use of electric power. Columbus, Ohio. Battelle Press. 1997.

<sup>27</sup> Sadezki S, Chetrit A, Jarus-Hakak A, Cardis E, Deutch Y, Duvdevani S, Zultan A, Novikov I, Freedman L, Wolf M. Cellular Phone Use and Risk of Benign and Malignant Parotid Gland Tumors— A Nationwide Case-Control Study. *Am J Epidemiol.* 2008; Feb 15;167(4):p.457-67.

<sup>28</sup> Agarwal A, Deepinder F, Sharma R K, Ranga G, Li J. Effect of cell phone usage on semen analysis in men attending infertility clinic: an observational study. *Fertil Steril.* 2007. May 3.

<sup>29</sup> Lai H, Singh N P. Acute low-intensity microwave exposure increases DNA single-strand breaks in rat brain cells. *Bioelectromagnetics.* 1995; 16:p.207-210.

<sup>30</sup> Gandhi G A. Genetic damage in mobile phone users: some preliminary findings. *Indian J Hum Genet.* 2005;11:p.99-104.

<sup>31</sup> Tice R R, Hook G G, Donner M, McRee D I, Guy A W. Genotoxicity of radiofrequency signals. I. Investigation of DNA damage and micronuclei induction in cultured human blood cells. *Bioelectromagnetics.* 2002; 23:p.113-126.

<sup>32</sup> Salford L G, Brun A, Sturesson K, Eberhardt J L, Persson B R. Permeability of the blood-brain barrier induced by 915 MHz electromagnetic radiation, continuous wave and modulated at 8, 16, 50, and 200 Hz. *Microsc Res Tech.* 1994; 27(6):p.535-42.

<sup>33</sup> Salford L G, Brun A E, Eberhardt J L, Malmgren, Persson B R. Nerve cell damage in mammalian brain after exposure to microwaves from GSM mobile phones. *Environ Health Perspect.* 2003; 111(7):p881-3.

implicated radio frequency radiation in causing sleep disorders<sup>35 36</sup> and many other physiological anomalies<sup>37</sup>.

Dr. I. V. Smirnov has invented a geometric fractal piezoelectric liquid crystal polymeric passive noise field catalyst that creates an active magnetic noise field in all directions when stimulated by any wavelength or frequency of electromagnetic radiation. It is known as molecular resonance effect technology (MRET). Electromagnetic noise fields have been shown to interfere with the physiological reception of the damaging components of radiation at the cellular level and overall offer a form of shielding and consequently no damage can ensue.<sup>38 39 40 41 42 43 44 45</sup> The MRET noise field catalyst has also demonstrated the benefits consistent with other electromagnetic noise fields.<sup>46</sup>

Live blood cell analysis acts as screening format for haematological status which is representative of nutritional and environmental effects on the health of an individual. The procedure, using a darkfield microscope, is significantly different from standard microscopy. With this technique, light does not travel directly through

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<sup>34</sup> Khurana G. Mobile phones and Brain Tumours- A Public Health Concern. Feb 7, 2008. [www.brain-surgery.us](http://www.brain-surgery.us).

<sup>35</sup> Lean G. Mobile phone radiation wrecks your sleep. *The Independent*. January 20, 2008.

<sup>36</sup> Arnetz B B, Akerstedt T, Hillert L, Lowden A, Kuster N, Wiholm C. The Effects of 884 Mhz GSM Wireless Communication Signals on Self-reported Symptom and Sleep.(EEG)-An Experimental Provocation Study. *Piers Online*. 2007; 3(7):p.1148-1150.

<sup>37</sup> Gandhi G A, Singh P. Mobile phone users: Another high health risk group. *J Hum Ecol*. 2005; 18(2):p.85-92.

<sup>38</sup> Li C, Jiang H, Fu Y. A study on dose-effect of suppression to gap junctional intercellular communication function by 50-Hz magnetic fields] *Zhonghua Yu Fang Yi Xue Za Zhi*. 1998;32(3): p.142-4. Chinese.

<sup>39</sup> Zeng Q, Chiang H, Fu Y, Lu D, Xu Z. Electromagnetic noise blocks the gap-junctional intercellular communication suppression induced by 50 Hz magnetic field] *Zhonghua Lao Dong Wei Sheng Zhi Ye Bing Za Zhi*. 2002;20(4):p.243-5. Chinese

<sup>40</sup> Litovitz T A, Montrose C J, Doinov P, Brown K M, Barber M. Superimposing spatially coherent electromagnetic noise inhibits field-induced abnormalities in developing chick embryos. *Bioelectromagnetics*. 1994;15(2):p.105-13.

<sup>41</sup> Litovitz T A, Penafiel L M, Farrel J M, Krause D, Meister R, Mullins J M. Bioeffects induced by exposure to microwaves are mitigated by superposition of ELF noise. *Bioelectromagnetics*. 1997; 18(6):p.422-30.

<sup>42</sup> Litovitz T A, Krause D, Montrose C J, Mullins J M. Temporally incoherent magnetic fields mitigate the response of biological systems to temporally coherent magnetic fields. *Bioelectromagnetics*. 1994; 15(5):p.399-409.

<sup>43</sup> Yao K, Wu W, Wang K, Ni S, Ye P, Yu Y, Ye J, Sun L. Electromagnetic noise inhibits radiofrequency radiation-induced DNA damage and reactive oxygen species increase in human lens epithelial cells. *Mol Vis*. 2008; (19)14:p.964-969.

<sup>44</sup> Yao K, Wu W, Yu Y, Zeng Q, He J, Lu D, Wang K. Effect of superposed electromagnetic noise on DNA damage of lens epithelial cells induced by microwave radiation. *Invest Ophthalmol Vis Sci*. 2008;49(5):p.2009-2015.

<sup>45</sup> Wu W, Yao K, Wang K J, Lu D Q, He J L, Xu L H, Sun W J. Blocking 1800 MHz mobile phone radiation-induced reactive oxygen species production and DNA damage in lens epithelial cells by noise magnetic fields. *Zhejiang Da Xue Xue Bao Yi Xue Ban*. 2008; 37(1): p.34-38.

<sup>46</sup> Smirnov I V. Polymer Material Providing Compatibility between Technologically Originated EMR and Biological Systems. *Explore Magazine*. 2006; (15)4:p.26-32.

the specimen, but comes in from the sides and only the light which is reflected by the specimen is viewed against a dark background creating a highly contrasted image.<sup>47</sup>

Through the use of darkfield microscopic imaging, the visible haematological effects of radio frequency radiation (RFR) generated by a cellular phone usage were profiled. The introduction of the MRET/ERT polymeric catalyst to the cell phone gave visual evidence of the occurrence of a physiological change: the subsequent reduction and/or elimination of the Radio Frequency Radiation effects.

## **METHOD**

The selection criteria used for subjects was designed to reflect a normal cross-section of the existing population and therefore the only subjects who were rejected were those who had used a cell phone within the two hour period preceding the experiment.

Three samples consisting of one drop of blood each were drawn from each of the subjects in the following manner: A drop of blood was taken from the finger tip of the subject and placed on the specimen slide and covered with a cover slip. The slide was examined under a microscope and designated to be the control sample. A digital camera was attached to record results.

The same subject then used an unshielded cell phone Nokia model 6085 in the standard operating position for fifteen (15) minutes, engaged in receiving sound in some form. A drop of blood was taken from the finger tip and observed under the microscope using the same procedure as listed previously. This was designated to be the unprotected sample. The results were recorded on a digital camera.

After thirty minutes another drop of blood was drawn from the subject to make sure cell phone effects have disappeared and control status had been achieved. If RF radiation effects were still visually apparent, another fifteen minutes were allowed to lapse and the step was repeated. When a control status sample was achieved, the investigator proceeded to the next step.

The subject used a Nokia 6085 cell phone, in the standard operating position for fifteen (15) minutes, engaged in receiving sound in some form. In this stage of the investigation a passive noise field polymer (MRET/ERT) in the form of a cell chip was affixed to the posterior surface of the phone. A drop of blood was taken from the finger tip and observed under the microscope. The results were recorded digitally. All results were analysed and compared.

## **RESULTS**

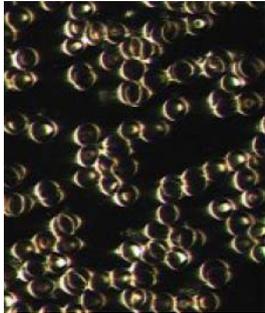
All images were recorded on a digital camera that was affixed to the microscope eyepiece. The microscopic images from the control, unshielded and shielded blood samples are displayed.

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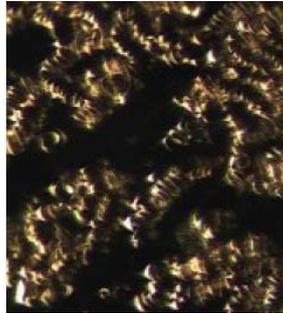
<sup>47</sup> Hayden J E. Adventures on the Dark Side: An Introduction to Darkfield Microscopy. *BioTechniques*. 2002; 32(4): p.756-761.

**OBSERVATIONS**

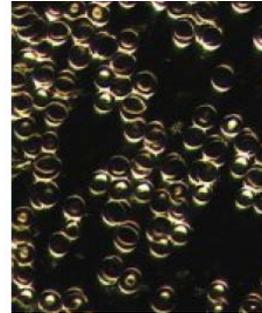
**SUBJECT I**



**CONTROL**

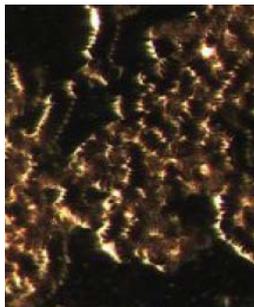


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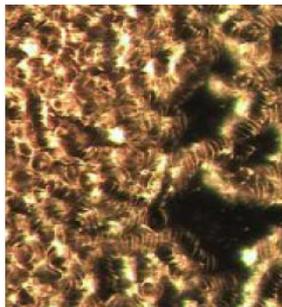


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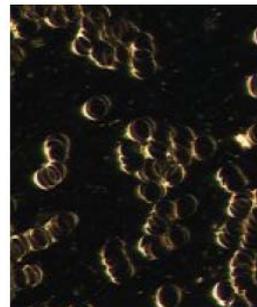
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**CONTROL**



**UNSHIELDED**

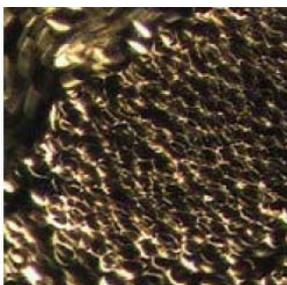


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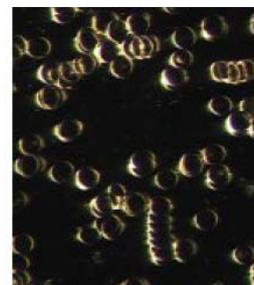
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**CONTROL**



**UNSHIELDED**



**SHIELDED**

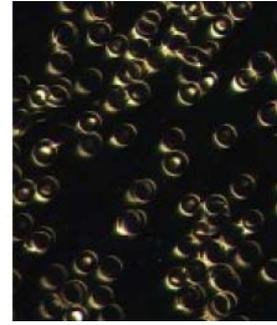
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**CONTROL**

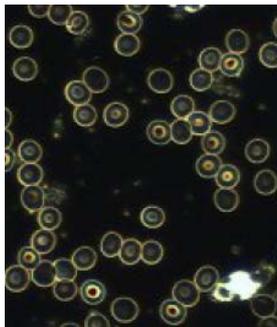


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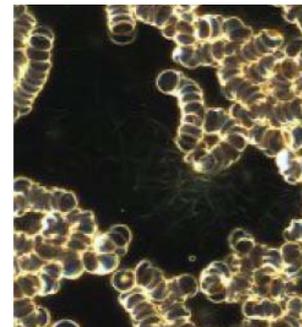


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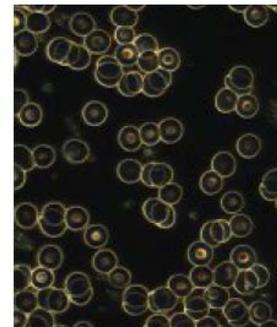
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**CONTROL**

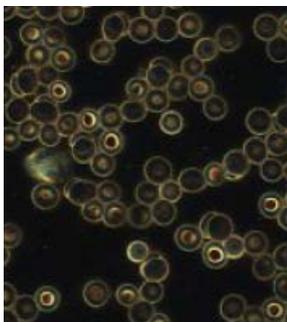


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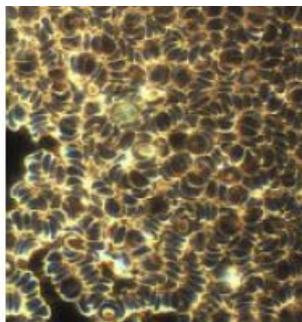


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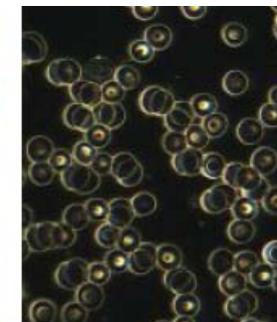
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**CONTROL**



**UNSHIELDED**



**SHIELDED**

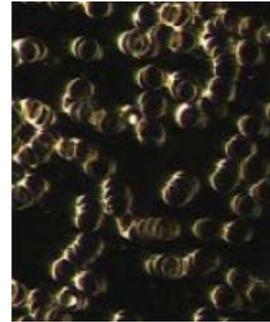
**SUBJECT 7**



**CONTROL**

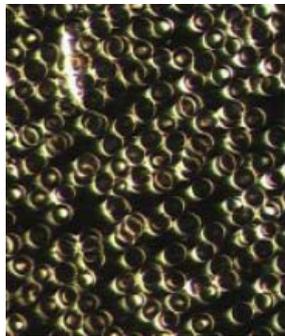


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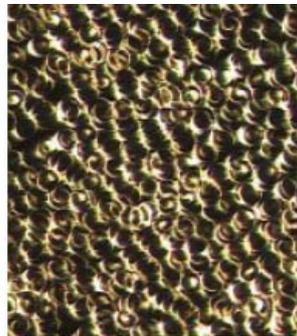


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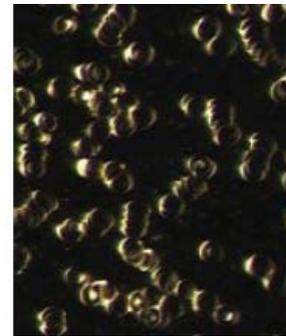
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**CONTROL**

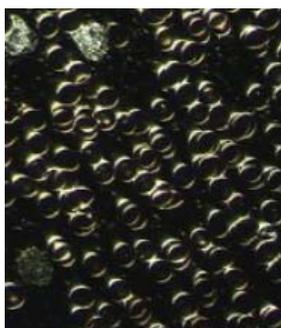


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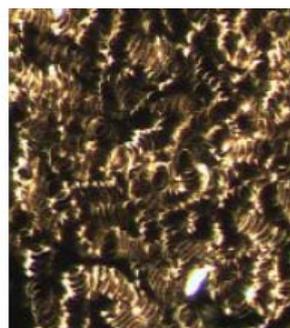


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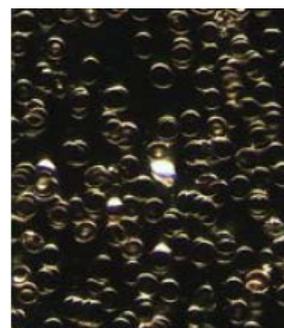
**SUBJECT 9**



**CONTROL**

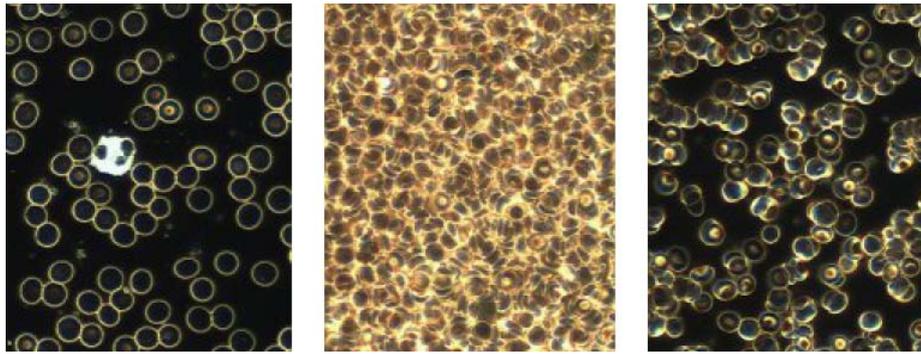


**UNSHIELDED**



**SHIELDED**

**SUBJECT 10**



**CONTROL**

**UNSHIELDED**

**SHIELDED**

## **DISCUSSION**

There are several issues that merit discussion in this investigation since the experimental design intended to examine the effect of radio frequency (RF) radiation emitted by cell phone usage on live blood and the potential intervention of these effects by the use of the noise field (MRET) polymer. Despite the control appearance of all subjects in this investigation, the unshielded cell phone effects consistently led to documented findings of rouleau and erythrocyte aggregation and a far more abnormal haematological appearance. The addition of the noise field polymer (shielded) consistently led to the elimination of these effects and in most cases a haematological appearance that was more optimal than the control. This finding has been corroborated by previous work.<sup>48</sup>

The relationship between function capillary density and erythrocyte aggregation has been established.<sup>49</sup> Therefore one must consider the potential decrease in efficiency of blood to carry out the normal functions when under the influence of cell phone usage due to erythrocyte aggregation. Conversely the subsequent optimization of function or return to homeostasis when the noise field catalyst is in place must be considered. A functional magnetic resonance imaging study involving cell phone usage effects on cerebral-vascular blood flow demonstrated findings similar to the extrapolated findings of erythrocyte aggregation: decreased cerebral-vascular blood during cell phone use and a return to normal (control) blood flow during cell phone usage with the noise field polymer in place.<sup>50</sup> Blood flow achieved a return to control status when the cell phone had the MRET noise field technology in place.

The effects of RF radiation have been linked to many diseases and disorders<sup>51</sup> and a relationship has been established to the potential for even greater physiological

<sup>48</sup> Smirnov I V. Polymer Material Providing Compatibility between Technologically Originated EMR and Biological Systems. *Explore Magazine*. 2006;15(4):p.26-32.

<sup>49</sup> Kim S, Popel A S, Intaglietta M, Johnson P C. Effect of erythrocyte aggregation at normal human levels on functional capillary density in rat spinotrapezius muscle. *Am J Physiol Heart Circ*. 2006;290:p.941-947.

<sup>50</sup> Fisher H W, Smirnov I V. Molecular Resonance Effect Technology: The Dynamic Effects on Human Physiology. Britannia Publishing. Toronto. 2008;p.113-114.

<sup>51</sup> Gandhi G A. Genetic damage in mobile phone users: some preliminary findings. *Indian J Hum Genet*. 2005;11:p.99-104.

damage.<sup>52</sup> <sup>53</sup> Since noise fields function via a mechanism that has demonstrated the ability to alter the damaging radiation wave,<sup>54</sup> one must assume that not only have there been changes mediated by the noise field polymer to the live blood constituents' spatial orientation, but that other effects and subsequent physiological implications and health risks that were not evaluated in the realm of this study were also reduced or eliminated.<sup>55</sup>

There were other individual findings and inclusions in many of the samples related to health related issues that were not present as a result of the cell phone usage and although the appearance of many of them were ameliorated in some capacity through the use of the polymer in conjunction with the cell phone, all findings are beyond the scope of this paper. Bearing in mind that researchers have not been able to determine the actual physiological mechanisms or incubation periods involved in the disease process for many cancers<sup>56</sup>, and the fact that there is a documented relationship between cell phone usage and brain tumours<sup>57</sup>, one must consider that the strategic functions of blood may play a probable cause in this relationship especially if a dynamic change occurs under radio frequency radiation influence.

## **CONCLUSION**

The interpretation of the darkfield microscopic evaluation imaging results verified that cell phone usage causes erythrocyte aggregation and rouleau effects to the blood samples of all subjects in this investigation. The intervention of the noise field polymer (MRET), in the form of a cell phone chip, was responsible for a highly significant if not total reduction of the abnormal erythrocyte effects caused by the combination of emissions emanating from cellular phone use.

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<sup>52</sup> Salford L G, Brun A, Stureson K, Eberhardt J L, Persson B R. Permeability of the blood-brain barrier induced by 915 MHz electromagnetic radiation, continuous wave and modulated at 8, 16, 50, and 200 Hz. *Microsc Res Tech.* 1994; 27(6):p.535-42.

<sup>53</sup> Khurana G. Mobile phones and Brain Tumours- A Public Health Concern. Feb 7, 2008. [www.brain-surgery.us](http://www.brain-surgery.us).

<sup>54</sup> Smirnov I V. Polymer Material Providing Compatibility between Technologically Originated EMR and Biological Systems. *Explore Magazine.* 2006; 15(4):p26-32.

<sup>55</sup> Fisher H W, Smirnov I V. Molecular Resonance Effect Technology: The Dynamic Effects on Human Physiology. Britannia Publishing. Toronto. 2008;p.113-114.

<sup>56</sup> Morgan L L. Interphone Brain Tumors Studies To Date: An Examination of Poor Study Design Resulting in an UNDER-ESTIMATION of the Risk of Brain Tumors. *BEMS, San Diego, 12 June 2008.*

<sup>57</sup> Khurana G. Mobile phones and Brain Tumours- A Public Health Concern. Feb 7, 2008. [www.brain-surgery.us](http://www.brain-surgery.us).