

Can Electrons Act as Antioxidants? A Review and Commentary

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ABSTRACT

A previous study demonstrated that connecting the human body to the earth during sleep (earthing) normalizes the daily cortisol rhythm and improves sleep. A variety of other benefits were reported, including reductions in pain and inflammation. Subsequent studies have confirmed these earlier findings and documented virtually immediate physiologic and clinical effects of grounding or earthing the body. It is well established, though not widely known, that the surface of the earth possesses a limitless and continuously renewed supply of free or mobile electrons as a consequence of a global atmospheric electron circuit. Wearing shoes with insulating soles and/or sleeping in beds that are isolated from the electrical ground plane of the earth have disconnected most people from the earth's electrical rhythms and free electrons. The most reasonable hypothesis to explain the beneficial effects of earthing is that a direct earth connection enables both diurnal electrical rhythms and free electrons to flow from the earth to the body. It is proposed that the earth's diurnal electrical rhythms set the biological clocks for hormones that regulate sleep and activity. It is also suggested that free electrons from the earth neutralize the positively charged free radicals that are the hallmark of chronic inflammation. A relationship between cortisol and inflammation was established in the pioneering work of H. Selye published in the 1950s. Current biomedical research has led to an *inflammation hypothesis* that is establishing chronic inflammation as the culprit behind almost every modern chronic illness. The research summarized here and in subsequent reports provides a basis for a number of earthing technologies that restore and maintain natural electrical contact between the human body and the earth throughout the day and night in situations where going barefoot on the earth is impractical. It is proposed that free or mobile electrons from the earth can resolve chronic inflammation by serving as natural antioxidants.