

Review Article

An overview of Impact of Geopathic Stress on Environment and Human Health

Article History

Eng Siang Tong^{1,2*} & Chee Kei Kong³

Received: 1 December 2020;

¹Department of Social and Preventive Medicine, Institute of Postgraduate Studies, Wisma Research and Development University Malaya, University Malaya, 50603 Kuala Lumpur.

Received in Revised Form:

30 January 2021;

² **Geopathology Research Institute, Singapore**, 14 Robinson Road, #08-01A Far East Finance Building, Singapore 048545.

Accepted: 2 February 2021;

Available Online: 5 February 2021

³ **Department of Primary Care Medicine, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia.**

*Corresponding author: Eng Siang Tong; drtonges@gmail.com

Abstract: Earth' core is dynamic and always fluctuating by the natural variations in its rotation, creating a massive energy field, known as electromagnetic field (EMF). We are continuously exposed to a wide spectrum of electromagnetic radiation from both natural and artificial sources which have adverse effects on the subtle balance in nature's energy fields. Natural geopathic stressors include geological faults, geomagnetic anomalies, ley lines crossing, radon gas and underground water courses. The affected geographical locations are known as geopathic stress zones as these locations exert negative effects upon health. Geopathic stress can affect all living beings including humans, animals and plants. It is primarily associated with sick building syndrome, potentially lead to physical and mental illnesses. It may also cause pavement distress, as well as frequent machinery broke down. Energy from the subsurface of the earth at specific locations or in a built environment can be detected by using ancient techniques like dowsing, and modern devices such as **Spinning Electric Vector Analyzer (SEVA)** and gas discharge visualization (GDV) camera, as well as tests like Vegetative Resonance Test (VRT) and Light Interference Technique (LIT). **It is important that one's bed or workstation is located on a geopathic stress free zone.** There is much that can be done to ameliorate or remove geopathic stress, such as 'Feng Shui', Earth acupuncture, and various other modern Western methods. This paper aims to discuss the potential impact of geopathic stress on the living environment and human health.

Keywords: geopathic stress; electromagnetic field; sick building syndrome; Feng Shui

1. Introduction

1.1. Background

Humans have been experiencing discomfort in certain geographic locations or areas where people suffer from sleep deprivation, low working performance, low energy, irritability and illness or chronic diseases. The knowledge about the influence of the Earth (geos) energies on living beings (bios) is named "Geobiology". By extension, the study of

disease or suffering caused by Earth's energies is called "Geopathy" or "Geopathic", a Greek word literally means suffering or disease (pathos) from the earth (geos)^[1]. This has also been called "Geomancy" by the ancients, with 'mancy' being the suffix referring to the process called earth divination. The term "geopathic interference zone" has been used by dowzers and geo-biologists to define a biological stress zone^[2,3]. Other commonly used terms to describe such phenomena are "disturbed zones" or "location disturbance"^[2].

1.2. Geopathy Energy and Geopathic Stress

The earth is one gigantic magnet, creating a massive energy field (earth's magnetic field) within its core that is dynamic and always fluctuating influenced by the natural variations in the earth's rotation, i.e. the seasons and weather conditions^[1,4]. There are three kinds of earth energies — positive (good), negative (bad) or neutral. Energies emitted by the earth's crust at specific locations that have the ability to **adversely affect the normal human body functions resulting in discomfort and illness, are often known as negative energies; and can include natural grids, earth fault lines and water veins, as well as distorted natural frequencies of the earth^[5-7]**. The term geopathic stress, also known as geostress is used to describe these 'harmful earth rays' that emanate from the earth or in other words, the detrimental effect of exposure to the surrounding earth radiation and electromagnetic radiation on human health^[7,8]. **Geopathic stress is thought to be associated with a number of undesirable effects to human health, from conditions such as sleep disorders or confusion to decreased fertility, autoimmune dysfunction and most dangerously, cancer.** Additionally, geopathy influence is not limited exclusively to human beings but also all kinds of living things, from bacteria to fungi; and plants to animals^[2,8,9].

We have lived with the natural vibrations rising from the earth's mantle for millions of years. The earliest known evidence of the existence of this phenomenon probably dates to the dawn of humanity, at least several thousand years ago^[6]. Geopathic stress can be caused by various kinds of underground formations. For example, naturally occurring water streams such as subterranean water or the underground water stream and specific mineral deposits^[4,8]. It also appears to be associated with above ground bands of interference fields, e.g. electromagnetic pollution in the form of power lines, substations, overhead or underground cables and mobile phone transmission masts^[10]. **There are also a range of sources of energy which remain poorly defined; these are present at specific locations which emit energy through different fault lines and cavities, creating harmful radiations and generating heat which can cause health problems and may affect the person's mind. Many names have been given for effect of these higher vibrations, such as black streams, black lines, Hartmann and Curry line, negative green rays, cancer rays, Radon gas, "Lung Mai" in Chinese or earth meridian, and even ley lines (man-made energy lines) if associated with built environment^[11]. It is, however, more commonly known as the geopathic stress in the recent years^[5,11].**

Geopathic stress can also be induced by man-made features, including new technologies and constructions such as dams, tunnels, road cuttings, land reclamation and sewage

pipes^[11,12]. Often, artificial landscape formations trigger geopathic stress. Transportation facilities including bridges, highway constructions and railroad tracks, high-tension transmission towers including antennas and electrical towers are also related to disruptions in the Earth's energy field, a form of imbalanced EMF and subtle energy^[13]. Sporadically, even the non-injurious intrusions, such as traffic signs or picket fences can trigger geopathic stress under certain circumstances. The Chinese began to avoid building houses on stressful places over 4000 years ago, ever since they harnessed knowledge regarding the potential harm of geopathic stress^[14]. Often, people would be condemned for building on so called 'dragon line', the geomantic dragon vein^[6,14]. Destroying the dragon vein will interfere with the configuration of vital elements of the landscape and thereby damage the ecological balance as well as biodiversity. Recently, as the floods worsen, rumours over the world's largest hydropower plant in China — Three Gorges dam, is drawing fierce rebuttal in the state media and abroad^[15]. The dam has been blamed for triggering severe earthquakes in the region, because it sits near two major fault lines. According to a study from the China Earthquake Administration, there are only 94 earthquake occurrences recorded before the reservoir was filled, but a total of 3,429 earthquakes were recorded after the reservoir was filled in June 2003^[15]. Scientists or geologists argue that this huge water reservoir leads to permeation of water into the rocks underneath can trigger the release of some regional tectonic stress and cause high seismicity of the area. The dam also had a serious geological impact, often associated with frequent landslides and damaging floods and a series of disasters since 2003. Even though scientific evidence is still lacking to prove the association of the Three Gorges dam with its geopathic impact, many believe that the dam cuts through the 'dragon vein' and kills the 'dragon', spreading the destructive effects across vast landscapes.

Geopathic stress has also been linked to the health of a building which also known as sick buildings syndrome. In the western context, initial interest in geopathic stress first arose in Germany in the 1920s stimulated by the work of Winzer and Melzer^[16]. Since then, many studies have been conducted to investigate the effect of geopathic stress on health and the environment. In 1984, the World Health Organization (WHO) reported that between 10 to 30% of all buildings throughout the world were sick, and the number of affected people was unknown^[17]. Despite from the problems with ventilation, lightning and air quality which give rise to unhealthy condition of the buildings, sick buildings are probably affected by geopathic stress too. Geopathic stress can occur in some places where the natural EMF is being disturbed, thus altering the natural environment for living organisms, including people^[18]. People vary in their susceptibility of people to geopathic stress. The most effective way of dealing with geopathic stress is to understand the external forces created by both nature and man. Dowsing is the most common ancient technique to identify geopathic stress zones by locating ground water veins^[14]. At present, dowsing devices such as pendulum, L-rods, Y-shaped twig and more recently, advanced devices such as bio-voltmeter and GSR-2 biofeedback system can easily measure the changes happening in human body^[19,20]. Amidst much skepticism and debate, research studies have been conducted which demonstrate that constant exposure to geopathic stress has a negative effect on human health. This field is of

significant interest, and there is a growing number of pseudo-scientific and quasi-medical reports presenting data which has statistical merit that suggest these geopathic zones have effects on the human body; however, rigorous, scientific work on this subject in peer reviewed publications is sparse. Close review of existing literature does, in actual fact reveal, reports of the numerous harmful effects and the beneficial nature of presumed geopathic zones which were not given much credence until very recently when related studies have received attention and some have even been published in internationally recognized journals. Therefore, by recognizing the possible significance of this newly recognized field, this paper attempts to review types of geopathic stress, sign and symptoms of exposure to geopathic stress, detection methods and prevention of exposure to geopathic stress, the effects and management after exposure to geopathic stress, as well as the history of various research conducted to investigate geopathic stress.

2. Types of Geopathic Stress

Geopathic stress is thought to be earth's vibrations which are distorted by weak electromagnetic fields (EMF) arising from both natural and man-made activities (**Figure 1**). Types of primary natural geopathic stressors usually involve geological faults, geomagnetic anomalies, ley lines crossing, radon gas and underground water courses^[11]. Natural earth vibrations could be distorted and became harmful to living organisms when these vibrations are interrupted by fault lines, subterranean running water, underground plateaux and cavities and areas where certain minerals are concentrated^[6]. Generally, harmful underground water veins, commonly named as 'black streams' and 'Sha Qi' to the European and Chinese respectively, are known to be the main causal agent of geopathic stress^[11]. When running water at 200–300 ft or 60–90 meters below ground level flows through the rocks, an EMF will be generated in the opposite direction to the flow of the water, triggered by mechanical friction through basement geological structural features (fissures, faults, joints and lineaments etc.), which in turn creates a strong and unhealthy vibration^[6,21]. Furthermore, the friction between groundwater and porous limestone rocks creates low-intensity yet powerful electric current (streaming current) and the magnetic field, which is known as the hydrogeophysical phenomenon^[22–25]. Geopathic stress disturbances are caused not only by flowing or stagnant underground water, but also natural calamities (e.g. earthquakes). Shitov (2010) analyzed the impact of geoenvironment on the health of local people living in Altai Republic which is a seismically active region^[26]. Tectonically active regions exhibit intensive variations of gravity, geomagnetic, tectonic stress fields that affects local population at daily basis^[26,27]. The findings showed that long-term influence from active tectonic factors such as terrestrial intrusions (e.g. formation of igneous rock), γ radiation, magnetic anomalies, and active faults are correlated with various nosologies and morbidity in the adult population^[26,28,29]. At the same time, earthquakes can trigger the release of geochemical gases that are invisible to the human eye, known as radon which could have negative impacts on health^[30,31]. Radon is an inert, colorless, odorless and non-ionizing gas particle geopathic stress, formed by radioactive decay of uranium and thorium found in all rocks and soils which emits harmful alpha radiation^[11,31]. Radon gas dissolves in groundwater

and can be transported through your water supplies and released from tap water to the atmosphere inside the building or home. When inhaled, it damages the lungs and potentially causes lung cancer^[32]. Correlation of radon exposure and lung cancer risk and epidemiological studies of lung cancer risk in underground miners have been published since the 1960s^[32].

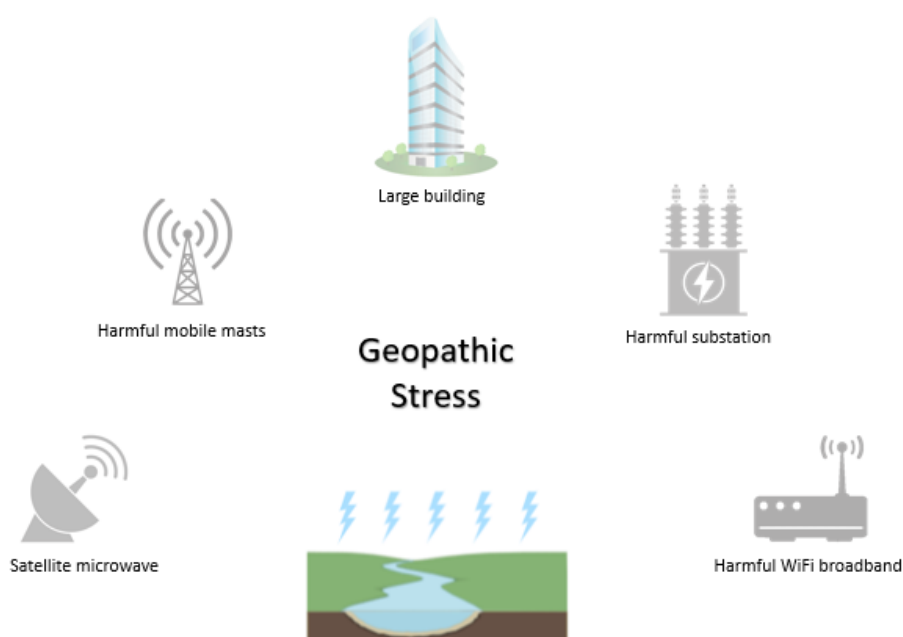


Figure 1. Examples of geopathic stressors: Natural and man-made.

Geopathic stress can be derived from geological and man-made structures. For instance, basalt rock, volcanic lava, limestone, and granite contains metals (e.g. iron, magnesium, etc.) with high electrical conductivity which serve as channels for electric current and disturb surrounding earth vibrations^[25]. Besides, certain rocks like granite possess radioactivity that can interact with human compositions (e.g. water and essential metals) and therefore interfere with these compounds/elements own electromagnetic fields^[25,30]. Man-made geological structures from activities such as large buildings, foundations, mining or excavation, sewage and water pipes, and underground transport systems are associated with emanating ion flow which concentrates an upward flow of either positive or negative ions, as well as geoneutrons^[7,25,33]. Ground electric potential anomalies is another phenomenon associated with geological structures, primarily concerns in the generation of electrical potential from geological structures with different electrical properties^[22]. Another form of geophysical anomalies that is associated with emanations of low energy plasma is known as geoplasma^[25].

Dynamically-changing electromagnetic fields, such as the full spectrum of pulsating AC electromagnetic fields, DC field disruptions, ionizing radiation from industrial and medical sources, and electromagnetic wave transmissions (e.g. microwave and radio wave) resonate with humans, animals or plants, and may well be part of the geopathy phenomenon. Likewise,

electromagnetic fields generated from electrical cables (e.g. overhead or underground), electricity generating stations and phone masts can exert harmful impacts on human well-being. Geological structures with different magnetic susceptibility and electrical conductivity can produce strong local differences in magnetic, electrical, or electromagnetic properties and contribute to geophysical anomalies^[22,28,29,34]. Geophysical anomalies in the form of piezoelectric or piezomagnetic effects happen when mechanical stress is applied on solid materials (e.g. defective crystals, certain ceramics, biological matters) resulting in accumulation of electrical charges^[24,35,36]. Other geopathic stress such as variation of gravitational field intensity related to the change in density of adjacent geological structures produces strong gravitational anomalies^[25,28]. The non-dipolar magnetic field which differs from the dipolar magnetic field from the north and south, is a natural form of energy that penetrates earth's surface and contributes to geophysical anomalies^[25].

3. Signs and Symptoms of Exposure to Geopathic Stress

Geopathic stress is detrimental to the health of people and places. Previous studies have proven that geopathic stress affects built environments. **The prolonged time spent on sleeping and working in the geopathic zone may be stressful to an individual^[8,37].** **Geopathic and electromagnetic energies are capable of seeping through walls, doors and buildings, and impact the mental and emotional state (e.g. may cause irritation, short-temperedness and being 'out-of-sorts') of people who exposed to geopathic stress zones^[37].** Babies are remarkably sensitive to geopathic stress. For instances, if babies cots are located at the site of a geopathic zone, they migrate and sleep only at one corner with the least stress on it or they will not settle at night^[37]. Abnormal behaviour in animals could be a sign of geopathic stress too^[1,38].

Office environments are often considered safe to office goers or building occupants when they are not exposed to potential hazards (e.g. high levels of physical, chemical, or biological compounds) which may affect their health^[39]. However, there are several reports in the literature describe building-associated illnesses, which involve epidemiological cohort and cross-sectional studies, population questionnaire surveys, and experimental studies. Building-associated illnesses are a common concern in modern high-rise buildings and building occupants do often suffer from sick building syndrome with acute effects on health and discomfort over time^[39]. **The WHO named these situations in which building occupants experience one or more adverse health symptoms that appear to be linked to the duration spent inside a building as sick building syndrome^[40].** **Sick building syndrome is an emerging health risk concern which likely impacts thousands of workers on a daily basis^[41].** Reported symptoms linked to this are non-specific symptoms including mucous membrane irritation (eye, nose, and throat irritation), asthma and asthma-like symptoms (chest tightness and wheezing), skin dryness and irritation, neurotoxic effects (headaches, fatigue, and irritability), gastrointestinal complaints and other miscellaneous health concerns as illustrated in Figure 2^[39,41,42]. These symptoms resemble the effects of exposure to electromagnetic emissions, whereby headaches represent one of most commonly experienced of all physical

discomforts in almost all studies^[1,43]. Additional health problems associated include depression, anxiety suboptimal performance, and odd behavior^[44–46]. Onset or exacerbation of the symptoms associated with sick building syndrome typically occur following chronic exposure to geopathic stress zone^[39]. Generally, in most of the cases, sick building symptoms usually subsided and dissipated or disappeared after the affected occupants leave the geopathic stress zone^[47,48].

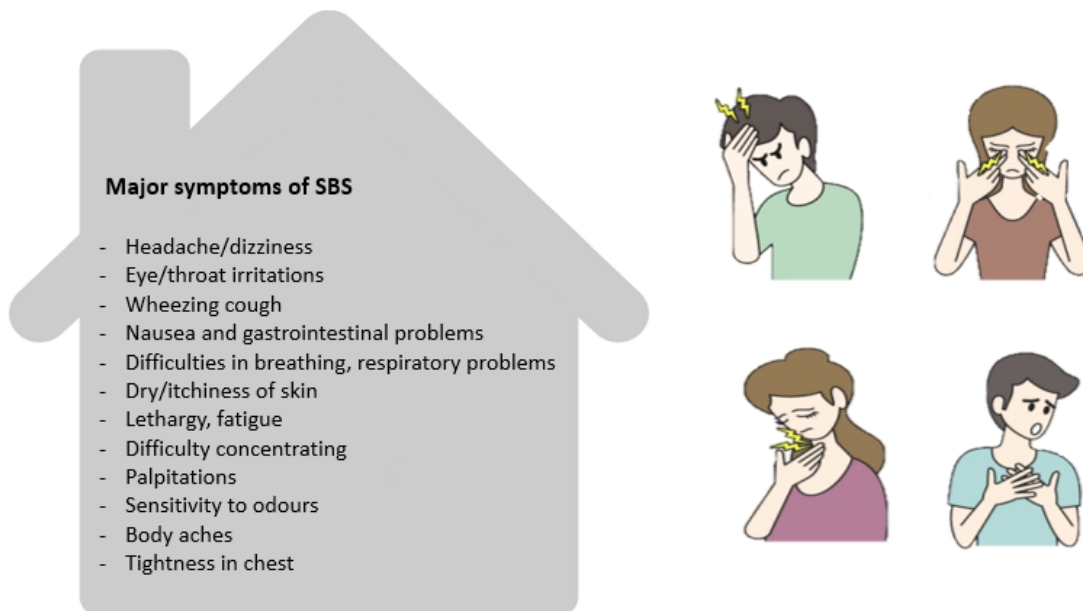


Figure 2. Main symptoms representing the geopathic stress-related sick building syndrome.

4. Effect of Geopathic Stress

The environment can create or reduce stress and cause impacts in multiple ways, with arguably the effects being most crucial for health. Geopathic stress affects all life forms and for human significantly contributes to formation of sick building syndrome^[49]. Humans and all living beings are part of the network of the production, reception, and emission of EMF^[25]. Thus, we are vulnerable to their effects as exposure to geopathic stress could potentially lead to lack of concentration, increased stress, reduced performance, increased rate of accidents, and increased number of sick leaves^[50].

4.1. Human Health

Our mind, body and the body's endocrine system and immune system are controlled by weak and slow-moving electrical brainwaves which crosstalk with other organs — naturally occurring or man-made such as electromagnetic waves and radio waves, with their interaction with electrical brainwaves might potentially creating health hazards^[49]. Research done over the past 40 years suggested that activation of the immune system is accompanied by alterations in the central nervous system (CNS) such as the hypothalamus and limbic system, as well as the endocrine functions, indicating that products of immune system can signal the brain's function^[51]. Nervous system, along with the endocrine and immune systems forming

the nexus of neuroimmune-endocrine interactions which help in maintaining homeostasis with and between the mind and body systems^[52]. The brain integrates the neuroendocrine-immune communication via shared signalling molecules, primarily neuropeptides, and cytokines in bidirectional flow^[53]. Chronic exposure to geopathic stress is detrimental to physical as well as emotional health due to the influence of 'mind' over 'body', and has been linked to the development of certain illness or diseases from weakening of the immune system^[49,52]. Moreover, geopathic stress also delays the healing and recovery of a disease by undermining both the body's subtle energy system (etheric body, chakras and meridians) and the body's electrical system (brain, heart and muscles)^[11]. Prolonged exposure to geopathic stress at the workplace promotes stress and alters physiological status of a person such as high pulse rate, headaches, and affecting the blood circulation^[54]. Besides, one may also have increased susceptibility to various health conditions like tachycardia and cancer if they sleep in geopathic stress zones^[54]. Dharmadhikari et al. defines geopathic zones as places on earth known for causing health problems^[6,20]. They found that skin resistance, systolic and diastolic blood pressure are affected by the presence of geopathic stress.

Many well-documented medical studies reported the harmful effects of prolonged exposure to black streams and showed that geopathic stress affected zones provokes malignant growths, atherosclerotic diseases and psycho-neurological problems. Researchers now believe that the Earth's irradiation contributes to the development of malignancies and other growths resulting from teratogenic and blastomogenous actions^[9]. It has been reported that those who are living nearby power lines are more susceptible to headaches, irritability, allergies, anxiety, depression, and even stress on developing fetus, increased tumor growth or cancer^[55]. In 2005, the WHO assembled a task group of scientific experts to assess the risk of developing diseases from exposure to extremely low frequency (ELF) and EMF, most notably cancer^[10]. In between the 20's and 30's, a German dowser namely Baron Gustav von Pohl conducted a well-documented study on the correlation between geopathic stress and cancer^[11,56]; the study discovered significant correlation between the resting beds of cancer patients and the 'Sha' streams in the town. Subsequently, the experiment was repeated in Grafenau province — the region with the lowest cancer incidence. He reported 100 % correlation and concluded that all human diseases, except gout could be linked to disturbed underground streams^[11].

Furthermore, geopathic stress has been implicated with many other diseases including multiple sclerosis, leukemia, Parkinson's disease, motor neuron diseases, endocrine disorders, other congenital genetic disorders, Crohn's disease, wasting and paralyzing diseases, Down's syndrome and schizophrenia and a series of mental disorders, as well as candidiasis^[11]. Last but not least, disorders that might have been linked to geopathic stress include infertility, sudden infant death syndrome, asthma, eczema, migraine, insomnia and nightmares, arthritis and rheumatic disorders, myalgic encephalomyelitis (post viral fatigue syndrome), and many other chronic conditions arising from depleted immune system^[11].

4.2. Plants and Animals

Interestingly, certain plant and animal species are attracted to geopathic stress and may be a good signal for its existence. Farmers in the early times were good observers of geopathic stress and its impacts on their herds and crops. All plants are sensitive to their environment, and the environmental factors that affect plant growth and survival include light, moisture, soil nutrients and even their magnetic environment (Figure 3) depending on the existence of geopathic stress^[37]. Some gardeners find that many flowering shrubs wither, fruiting trees do not form fruits, beech trees and vegetables fail to thrive for no apparent reason on certain parts of the home or garden, a phenomenon which might be attributed to the presence of geopathic stress^[37]. According to Mamaev, plant intrapopulation variability increases in the least favorable environments^[57]. A more recent study conducted by Boyarskikh and Shitov has shown that fruit plants located within geophysically anomalous areas produced smaller fruits and increased diversity of fruit, and an increase in the expression of recessive traits^[58].



Figure 3. Dead mangrove trees as the evidence of exposure to geopathic stress, i.e. distorted magnetic field produced by high voltage power lines. Pictures taken at Tua Pek Kong temple, Sitiawan, Perak, Malaysia (N 4°09'47.5 E 100°41'18.7).

Similarly, sensitivity to geopathic stress in the environments is seen across many animal species. The species can serve as a sentinel marker of exposure of geopathic stress. Birds are typically most sensitive to geopathic stress as they will not visit and generally avoid nesting on geopathically stressed locations^[11]. Horses, cows, sheep and pigs, however, are more resilient. Dogs generally avoid geopathic stress too, but cats, insects, molds and fungi, parasites, plants in the nightshade family and a number of medicinal herbs, including mistletoe are attracted to geopathic stress^[37]. **Yeagley *et al.* showed that pigeons have a magnetic sensation that allows them to use the geomagnetic field as a compass^[59,60]. Tombariewicz (1996) in her research proved the effect of geomagnetic anomalies on cows' health in the form of reduced levels of zinc, copper, and iron^[61].** A more recent research in

two cow barns carried out by Veterinary Medical University of Zurich (Switzerland) has shown increased quantity of milk cells in tie-stalls milk cows standing above geopathic zones, indicating the cows were experiencing high level of stress level at that particular location^[62]. In the case of extreme sensitivity, morning melatonin sulfate concentrations in their urine were found to be lower when the cows stay at geopathic zones rather than neutral zones. Cows at geopathic zones also appeared to have a higher tendency to manifest catch claw or udder inflammations.

4.3. Soil Properties, Pavement Distress and Road Accidents

Certain types of soil and terrain have the tendency to transmit the geomagnetic field. von Pohl has concluded that geopathic stresses affect 2.5% of the earth's surface and detailed in his book "Earth Currents-causative factor of cancer and other diseases"^[63]. Geopathic stress is the energy emitted from the earth's crust, affecting the road environment which includes soil, pavement, reaction time of driver etc., thereby increasing the risks of road accidents^[4]. The common cause of geopathic stress is the varying mineral concentration, which is usually accompanied by an underground water stream^[18]. Electromagnetic fields produced from the rapid movement of underground water flowing through rock affects the health individuals who live on it^[64]. Besides, geological fault lines — deep cracks in the bedrock, release radiation from deep within the earth and contributes to geopathic stress which caused severe pavement distress as observed by Pimplikar at locations of accident^[65]. However, in structures, soil is an important component while change in geotechnical properties of the soil affects the stability of the structure. Sorate (2013) conducted experiments on geotechnical properties of soil^[66]. He collected numerous samples from both GS zones and normal zones and observed higher moisture, specific gravity, density, liquid limit while lower salt content and conductivity of soil in geopathic stress zones.

Reduced lifespan of pavement is often associated with distresses in the pavements, which commonly manifest in the form of cracking (e.g. longitudinal, transverse, map and corner), spalling, patching, surface deteriorations, joint condition etc. as shown in Figure 4^[7]. On the other hand, the presence of geopathic stress on the road may increase the reaction time of drivers, leading to occurrence of accidents. In addition, severe pavement distress were noticed at the accident sites including newly constructed pavements^[4]. Road infrastructure such as expressways and highways are very important assets for any country and therefore, the planning process that involves choosing location for the roads is crucial to reduce fatality rate. Another research was conducted to examine the relationship between the zones of groundwater and traffic accidents in western Europe and Czech of Republic^[67]. Findings from the work deduced that sensitive drivers reacted strongly and more frequently to the influence of geopathic stress zones such as places with ground waters, mineral ore veins, and geological faults; hence it is widely accepted as one of the causes of road accidents^[67].



Figure 4. Examples of distressed pavement in Malaysia (a) shattered cracks; (b) surface deteriorations; (c) potholes; (d) road patching; (e) corner cracks; (f) longitudinal cracking.

4.4. Building

Studies regarding the comfort in a building focus on the perception of the surrounding environment through the human sensory system including odor, sound, visual, thermal and spatial^[18]. One of the major areas which is often neglected is the interaction between the body and surrounding EMF. **In light of the increasing worldwide health concern among building occupants during the recent years, WHO reported that there are up to 30% of sick buildings across the world, including homes or offices^[17].** This quote by Sir Winston Churchill said that, ‘We shape our buildings; afterwards they shape us’^[68]; thus implying that sick buildings would literally make us ill, whereas a healthy building makes us feel better. However, there are different groups of factors that contribute to sick building syndrome and these factors differ among buildings.

Based on the findings from the research, it is now coming to evidence that geopathic stress affects the built environment. For example, people resting in stress zones are susceptible to cancer and other diseases. The hazardous effects of EMF in hospital settings, houses, offices and schools are limited or not known to many architects and designers. Factors such as uninterrupted fluorescent lighting, low humidity, tinted glass windows, restricted air conditioning and ventilation system, building layout and furnishing materials also contribute to sick building syndrome^[69]. **In addition, the ‘Feng Shui’ form of a building or landscape is associated to geopathic stress where poor ‘Feng Shui’ worsens the side effects of geopathic stress on occupants^[11].** A geopathic stress line that runs through key points in a property, especially area besides the bed (e.g. front door and gate, center of the property), compromises the flow quality of ‘Qi’ entering the property^[11].

4.5. Machinery Breakdown

Geopathic stress zones affect not just health of people but are also linked to mechanical and electrical breakdowns. Machines situated in geopathic stress zones have a higher tendency to breakdown compared with machines of same kind and make located in normal zones^[54,70]. Recurring mechanical and electrical breakdowns would directly impact productivity in industrial premises. Thus, correcting and protecting from geopathic stress are ways of maintaining and improving manufacturing productivity.

5. How to Detect Geopathic Stress

Conventional scientific equipment is unable to detect and measure most of the geopathic energies. Geopathic energies detection can be performed via dowsing (using rods or pendulums), observing animal behaviour, sensing (psychic responses) or kinesiology (muscle testing)^[1]. Dowsing is an ancient art initially practiced in China to determine natural geopathic stress areas and avoid natural radioactive force fields thousands of years ago^[18]. In ancient Chinese beliefs, the world exists with polarity such as the existence of male and female, sun and moon, sky and earth, Yang and Yin (Yin Yang), positive and negative^[18]. The influences of the polarity on all living beings differ, depending on the exposure to the type of radiation, force field (polarity) and intensity. Ancient techniques used for detection of geopathic stress are human oriented and do not give any numerical reading, whereas modern devices are slow and pick up many environmental influences, not all of which are harmful to health^[20]. The most sensitive measuring instrument is the human body. The 'muscle test', technically known as kinesiology, was invented by Dr. George Goodheart in 1964, and is recognised as one of the simple methods to detect geopathic stress in people. The method involves observation of a person's muscle or muscles response to geopathic stress^[13].

5.1. Dowsing

Dowsing, also known as rhabdomancy, is a conventional way of searching for underground water streams, minerals, or other underground or hidden materials by various methods to help identify the geopathic stress lines and determine its flow^[20,71,72]. Dowzers are known to have trained magnetic sense that allows them to detect natural fields using dowsing tools. While dowsing is one of the oldest historical methods, it lacks scientific basis and the underlying mechanism of how dowsing works is not perceived as fully scientifically recognized. Simple objects such as a forked stick, a pendulum, or the most popular L and Y-dowsing rods (Figure 5a), help to locate geopathic stress zones instantly and remain quite popular among modern practitioners^[72]. L or Y-dowsing rods are handled with both hands as shown in Figure 5b, with the middle section pointing forward while the dowser examines the area in a regular grid pattern, systematically covering the whole search area. Upon passing through the earth grids, the rod shows the direction of grid lines by pointing downward and crossing point of knot when geopathic stress zone is detected. Besides, the rod reacts to underground material by twitches or dips as claimed by most dowzers^[72]. Professor Benedict

explains dowsing involves interaction between the bipolar (positive and negative) sides of the body with an emanation stream, manifesting through the dowsing rod^[20]. When the dowser walks over the geopathic stress zone, ‘turning of the rod’ tends to occur as a sign of the existence of geopathic stress^[73]. Many dowsers use the Von Pohl scale to measure the strength of geopathic stress, in which 0 represents the healthy 7.83 Schumann frequency, and 16 an extremely strong locus corresponding to 250 Hz^[11]. Though this technique is simple, fast and inexpensive, and has been very successful based on its statistical success ratios, the skeptical science community continues to create controversy with regard its acceptance^[74]. On top of that, dowsing is still considered a very crude technique as it does not give any numerical value or a reading. Hence a scientific way of study is needed in which the effect of geopathic stress on the human body can be quantified.



Figure 5a. One way to figure out vibrations from the earth or tracing the course of underground pipes is via dowsing without any basis in scientific evidence, using a copper divining rod: Y-dowsing rod (left); pendulum (right).

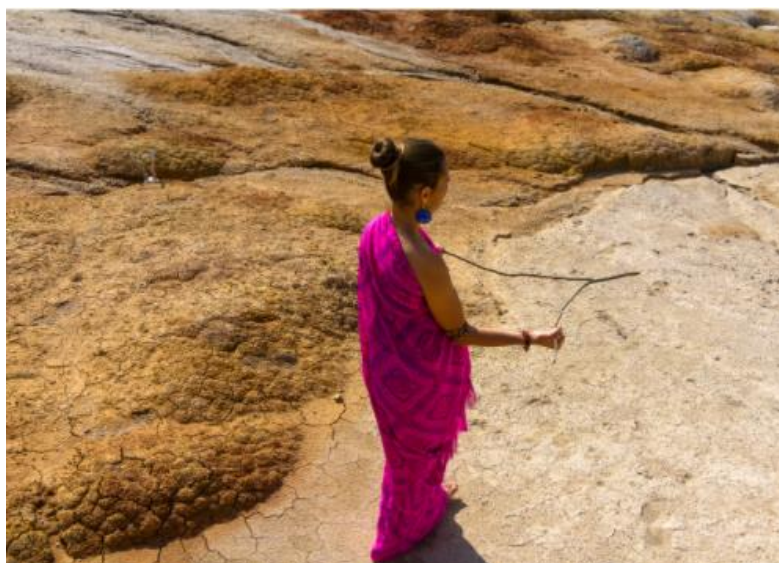


Figure 5b. The Dowser uses a Y stick branch from a tree to assert earth magnetism, water radiations or the other natural phenomenon. Dipping, inclining or twitching of the dowsing rod indicate the discovery is made^[75,76].

5.2. Modern Devices

In fact, some of the traditional techniques described above have been shown to be able to improve the wellbeing of humans. They are found to be great simple and fast easy to operate, along with low cost and high effectiveness — possessing a highly statistical success ratios, however, there is a continued skepticism regarding the presence of geopathic stress^[6]. Therefore, a variety of modern digital measuring devices have been developed to detect the selective components of geopathic stress zones which would be able to generate a quantitative measurement for each of selective electromagnetic energies including impulses electromagnetic fields, geomagnetic field, gamma rays, gravity gradients, ley lines and etc.. Indeed, these devices provide guidance to determine hazardous geopathic stress zones as well as geophysical anomalies or geological hazards by revealing ley lines of the global energy network and the site of their crossing (nodes)^[9].

In the work of Dr. Mark Krinker and Professor Aron Goykadosh, a Spinning Electric Vector Analyzer (SEVA), and an ELF were used to map and detect irregular geopathic zones (e.g. spinning electric fields)^[77,78]. In another effort, a new technique for identifying geopathic stress zone effects on man was developed in Germany by Doctor H. Schimmel called the Vegetative Resonance Test (VRT) or VEGA test in year 1978^[9,79]. It is based on methods of bioresonance and electropunctural diagnostics of human body. Any disturbance on the organism under the impact of various environmental factors, particularly generalized Pareto (GP) loading is detected by the electrical conductivity measurements of a certain biologically active point^[9]. The reaction of human body to VRT is an indication of the existence of geopathic stress at certain locations and evidence of its positive and negative consequences. Hacker *et al.* (2008) also designed a new technique called the gas discharge visualization (GDV) technology which can measure stress^[2]. Principally, the GDV camera, which has high stability and sensitivity, uses pulses for less than a millisecond of high-frequency (1024 Hz) and high-intensity electric field (10 kV) around a fingertip set on the electrified glass plate^[2,80]. In a geopathic zone, the detected areas of glow, or aura surrounding a person showed statistically significant differences with a neutral zone, i.e. smaller and had breaks (Figure 6). Another study made by Dharmadhikari and others (2010) uses Light Interference Technique (LIT) to understand the nature of a pre-detected GS zone^[6]. The instrument consists of two components with a gap, i.e. a laser light source and detector. Interaction between the scattering laser light photons and earth energy anomalies changes the current when earth energy exhibits anomalies in the gap between the 2 components^[6]. A year later, Dharmadhikari *et al.* (2011) further tried to evaluate dowsing phenomenon scientifically by measuring human body voltage, skin resistance, using a very sensitive V-20 bio voltmeter,

the Galvanic Skin Response (GSR)-2 biofeedback system. It was observed that geopathic stress contributes to a significant increase in the body voltage and a decrease in skin resistance^[20].

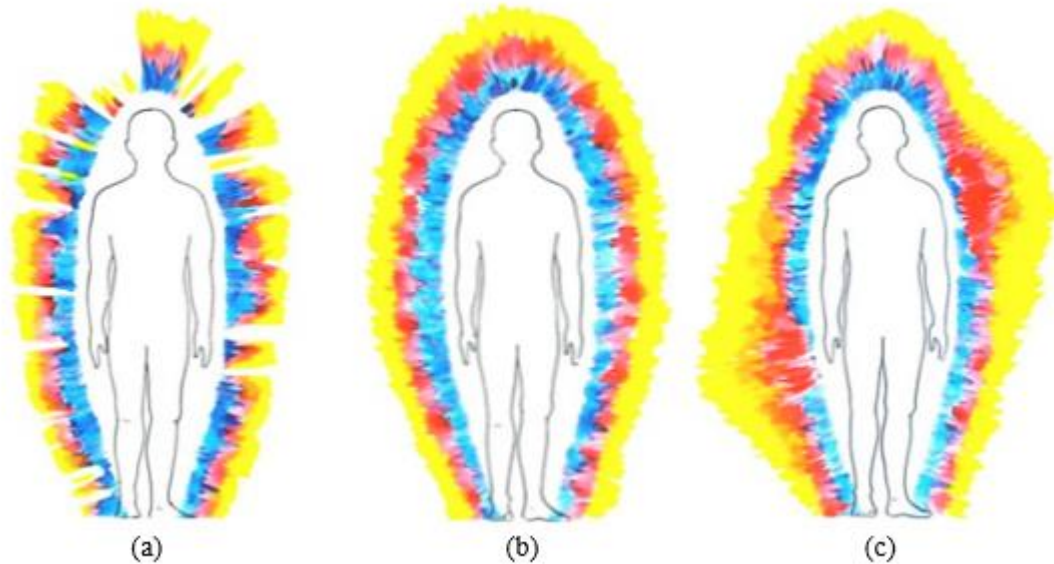


Figure 6. Example of a comparison in between three corona projections (electric field images generated from a GDV camera) of a test person obtained on a geopathic zone (left and right) and from geopathic stress free zone (middle): **(a)** A sick person with breaks aura; **(b)** A healthy person with even emanations; **(c)** A sick person with uneven distribution of energies.

6. Prevention and Management of Geopathic Stress

Generally, the risk of a person by sleeping over in the geopathic stress zone may significant in long run. Imagine a person who remains in the same place for at least 2 years or more, with a minimum daily frequency of 8 hours spent asleep in a static, horizontal manners might result in a cumulative great potential risk of exposure to geopathic stress^[81]. Spending long hours per day in such a region can compromise the body's energy communication systems, weaken the immune system, and eventually leading to development and manifestation of serious illnesses^[82,83]. For this reason, it is deemed to be greatly important that one's bed should not be located on a geopathic zone (Figure 7). One straightforward solution to safeguard an individual from the harmful effects of earth irradiation is to relocate the bed, favourite sitting chair at home, desk or working place which found to be located in the geopathic stress zone^[9]. On top of that, several well-known methods can be used for correcting the detrimental effect of geopathic stress exerting on the environment and individual well-being. The most commonly used are metal sheets, mirrors, quartz crystals, raditech or magnetech instruments^[18]. There is much that can be done to ameliorate or remove geopathic stress. In Britain, case histories and methods of assessing and preventing geopathic stress has been documented and published by the Dulwich Health Society^[84].

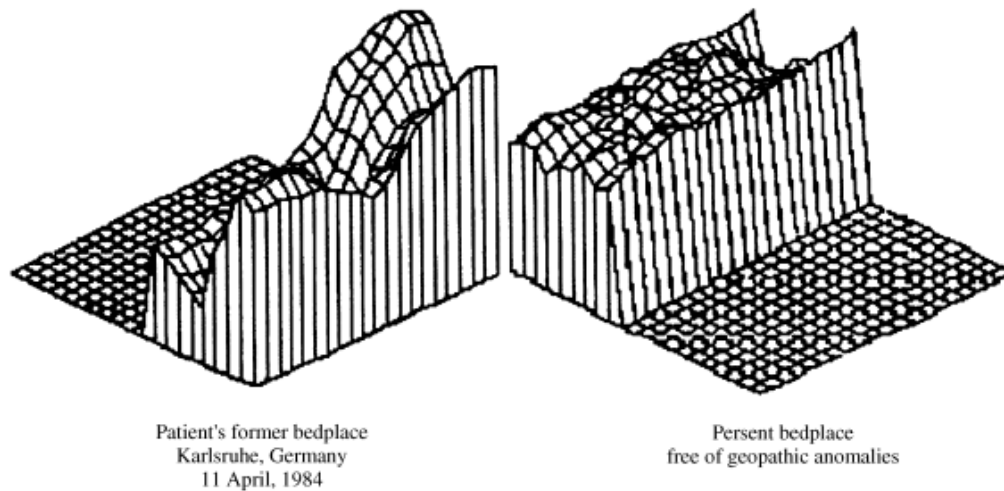


Figure 7. Geopathic stress zones can be detected either traditionally by dowsing or using modern technology via a sensitive recording magnetometer that measures perturbations in the ambient magnetic field and prints out a profile of the magnetic variations in an area such as a room or bedplace. As shown here, the geopathic stress on the occupant was significantly reduced simply by moving the bedplace from one side of a room to another. Note the large peak or ‘hot spot’ in the former bedplace showing an overall geomagnetic anomaly. The magnetic contours in the latter bedplace are very gentle and slightly undulating. Adapted with permission from Oschman (2000) cited earlier in Wooster (1988)^[83,89].

‘Feng Shui’, the Chinese geomancy is another useful remedy in correcting negative energy. It simply means wind (風) and water (水) in Chinese. Originating from China many centuries ago, ‘Feng Shui’ has been globalized, and its popularity has dramatically increased in Western countries^[85]. People have used ‘Feng Shui’ for many years as a design guideline for achieving a harmony and balance in one’s living environment^[85]. It attempts to orient buildings and landscapes and harmonize them with their surroundings. Historically, the Feng Shui practitioner or masters and geomancers were familiar these earth currents, similar to skilled land surveyors and often avoided building on geopathic stress zones^[86]. ‘Feng Shui’ usually involves proprietary devices that can be easily installed into a home or office. The influence on all living beings can be different, either good or bad, depending on the type of radiation, force field (polarity) and intensity. Traditional Chinese devices or instruments can be many things. For instance, the mirrors in specific pattern, known as ‘Yin-Yang Bagua,’ i.e. a octagonal trigram or Eight Diagrams (eight three-tiered configurations of solid or broken lines formerly used in divination), is a kind of special instrument. ‘Yin (陰) and Yang (陽)’ represents the opposite poles of intensity or forces of nature (receptive and expressive). A traditional ‘Bagua’ map in conjunction with a compass are widely used by Chinese to locate and determine stress-free locations to site new or resituated buildings and homes^[18].

Other techniques, such as the “Earth acupuncture” technique are widely used as an integral of esoteric part of the ‘Feng Shui’ practices. Traditional Earth acupuncture can help to promote the flow of ‘Qi’ in a blocked meridian under a house which generally has an instantaneous effect in dispelling the accumulation of radon gas^[11]. Earth acupuncture is similar to human needling and is done by a dowser or geomancer by inserting either metal rods, woods, crystal needles or even stones into the earth at focal or nodal points for a variable time to subtly change the local magnetic environment^[11]. Fire, in the form of burning candles, bon-fire, moxa, sage, or incense may also be employed^[11]. The black streams ‘Sha’ will eventually be transformed into white streams that carry generative and regenerative energy known as ‘Sheng Qi’. A more permanent remedy is necessary with larger meridians, or with geological faults. For example, a permanent needle that is left in place permanently such as stupas, sculptures and statues, moving water features, standing stones, stone cairns (piles), or a specially planted tree ^[11]. Buildings such as pagodas, temples, churches, and cathedrals can also function as Earth acupuncture needles on a larger scale^[86].

Modern Western methods include the placing of crystals, copper rods, coils and ankhs, bottles of salt, a layer of cork tiles or bath mats placed under the bed, or the installation of radionic devices that use Multi-Wave Oscillators or Radionics to establish a shielding field, such as the Helios and Geomack machines, Spiral Of Tranquillity, and Raditech^[11]. These resonators attempt to replicate the Earth’s natural background radiation at 7.8 Hertz, known as the Schumann wave or Schumann's resonances. In 2001, a method of blocking geopathic radiation was invented by positioning a layer of material including mica between a source of the geopathic radiation and the identified location^[87]. Later in 2009, a multi-layered protective and stimulating pad for mattresses was designed and patented to burn the greater part of the voltage oscillations of the earth's radiation for relaxation and undisturbed sleep^[88]. Thereafter, more and more systems and methods for removing one or more streams of distorted high-frequency electromagnetic radiation were developed.

7. The Evidence-Research and Case Studies

Over the years, many countries such as Asian countries and some Western countries, particularly Austria and Germany, are perceiving geopathic stress in quite a serious manner. Table 1 summarizes the significant studies by professional researchers over the years. Research on this subject began from Central Europe in 1922, when Baron von Pohl surveyed the community of Vilsbiburg in Germany. The study revealed an abnormally high rate of cancer in this small town. By comparing the medical records with maps created by dowsers, physicians then discovered that there was a correlation between geopathic stress zones and serious illness, especially cancer^[56]. He developed a scale to rate geopathic stress of 1 to 16,

where zero is 7.83Hz representing a neutral, healthy zone and 16 is a highly geopathically stressed zone (going up to 250Hz), while a combined tally of 9 or above from streams crossing gives rise to cancer^[90]. It was finally proven to the satisfaction of the German medical profession that geopathic stress is very detrimental to human health ever since the first study 80 years ago and involving millions of cases. Another study in Austria conducted in 1989 also yielded similar results. Gordon (2013) observed that in all cases of cancer tumours in geopathic stress affected zones, two or more GS lines crossed, or there was one very strong geopathic stress line directly under one's bedplace (Figure 8)^[91]. Often, two different types of radiation usually crossing in the area of the potential tumour sites.

Table 1. Professional Research on Geopathic Stress in Relation to Illness.

Research team	Location and year of research	Research goal / outcome	References
Baron Gustav von Pohl	Germany (1920s)	The concept of 'cancer houses': 95% in which beds people had died of cancer had connections to GS with a population of 3,300.	[90]
Blanche Merz	Switzerland (1920s)	Correlated GS to cancer, noting full moon variations, as well as correlations of north/south lines to cramps and rheumatism, and east/west lines to inflammation. First to suggest that GS causes the human body to vibrate at much higher frequencies than normal, and can affect the immune system, making people sleeping or working in geopathically stressed locations more susceptible to viruses, bacteria, parasites, and environmental pollution.	[92]
George Lakhovsky	1930s	Described the global geomagnetic grids and their influence on GS and concluded that cancer is a disease of location.	[93]
Ernst Hartmann	Germany (1940s-60s)	Continued on Hartmann's work, describing other global grids and their influences.	[94]
Manfred Curry	Germany (1950s-70s)	Found high incidence of Burkitt's Lymphoma and Kaposi's Sarcoma per 100,000 population.	[95]
Hideyo Itakura and Kan Toriyama	Kenya (1979-1985)	Correlated 90% of all case studies on cancers of the breast, lung, and cervix with GS.	[96]
Ralf Gordon	England (1980s-90s)	Spontaneous healing of 700 terminal cancer patients after they relocated their beds to an area free from geopathic stress.	[84]
Veronika Carstens (wife of former German President Karl Carstens)	Germany (1985)	Clinical trial which included over 462,000 measurements and 6,942 tests to study the effects of GS on heartbeat, breathing, blood pressure, blood sedimentation, blood circulation, electrical conductivity of muscle points and skin resistance. Conducted a survey that included 3,000 apartments and over 11,000 people and discovered 100% correlations between GS and 500 cases of cancer, and 95% correlation with "problem" children.	[97]
Otto Bergmann	Austria (1987-89)		[91]
Kathe Bacheler	Austria (1989)		[98]

Research team	Location and year of research	Research goal / outcome	References
Rudolf Kessler and Andreas Kopschina	Germany (1992)	52 patients demonstrated that chronic or recurrent diseases have a direct correlation to the presence of GS in bedrooms.	[99]
Andreas Kopschina, Wolfgang and Ursula Daun	Germany (1994)	Measured the ability of 8200 patients to recover from chronic illness, regardless of the type of conventional or integrative therapy in 34% of patients who were exposed to significant levels of GS. The study showed that until a person was taken off the geopathic structure, their capacity to heal was greatly impaired.	[100]

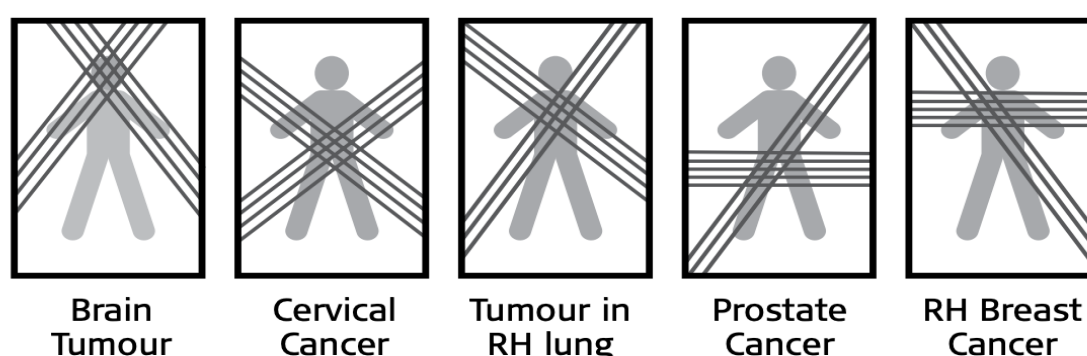


Figure 8. Case studies of geopathic stress lines and cancer. Grid lines are a health burden and the crossing of the grid lines under a bed leading to the development of different types of cancer in patient. Adapted with permission from Gordon (2013)^[91].

8. Conclusions

EMF exist everywhere in our environment but are invisible. It can be unsettling sometimes for the modern, well educated, pragmatic person to believe and understand that there are disturbed vibrations coming out from the earth beneath, which are unseen forces that can be harmful. In modern history, many open-minded scientists and researchers, risking the condemnation of their conventionally minded peers and the medical establishment, have spent decades or lifetimes understanding the nature of proving and documenting geopathic stress. Geopathic stress, while not acknowledged by the medical establishment, is considered by energy-medicine practitioners to be strongly linked to discomforts and diseases. The study of geopathic stress has given us new insight that in fact, geopathic stress might responsible for many diseases. Various parameters can constitute to geopathic stress, among them are intense change in the magnetic and/or gravity field, change in radiation or radioactivity levels, conductivity discontinuity of the ground material, the presence of a fault, and/or subterranean water. The concepts of geopathic stress and EMF pollution challenge our understanding of how the body interacts with the environment. We are more than just a physical body, we are also all that we cannot see, including our subtle bodies. As carriers, we are not allowed to ignore the dimensions that our senses cannot perceive. Thus, consideration must also be given on how these phenomena affect the body's own energy systems.

Author Contributions: E.S.; writing—original draft preparation, C.K.; writing—review and editing. The paper was conceptualized by E.S.

Funding: No external funding was provided for this research.

Acknowledgments: The authors would like to thank all assistances throughout the study.

Conflicts of Interest: The authors declare no conflict of interest.

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