INTRODUCTION

During recent years, the prevalence of mobile phone users has increased, and concerns have been raised that the use has increased dramatically without sufficient understanding of the potential adverse health effects. Mobile phones are used by almost everybody today. Kids, adults, old people, all are using mobile phones. One of the most common sights we see these days is that of people with their mobile phones next to their ears. A boon for better communication! But are we aware about the dangers these mobile phones cause to our health? Are we carrying a hazard with us everyday? The erection of mobile telephone base stations in inhabited areas has raised concerns about possible health effects caused by emitted microwaves. During the last decade, use of radio frequency (RF) applications like mobile phones and other wireless devices, has increased remarkably. This has triggered numerous studies related to possible health risks due to the exposure of RF electromagnetic (EM) fields.

What is RF Energy and How Can It Affect the Body?

RF energy, also called radio waves, is a form of electromagnetic radiation. Electromagnetic radiation can be ionizing (high-frequency) or non-ionizing (low-frequency). RF energy belongs to the non-ionizing type of electromagnetic radiation. It is known that ionizing radiation, such as that produced by x-ray machines, can present a health
risk at high levels of exposure. However, it is not yet known whether non-ionizing radiation poses a cancer risk (FDA, 2003).

The most important use of RF energy is for telecommunications (FDA, 2003). In the United States, cellular telephones operate in a frequency ranging from about 1,800 to 2,200 megahertz (MHz) (Ahlbom et al., 2004). In that range, the radiation produced is in the form of non-ionizing RF energy. AM/FM radios, VHF/UHF televisions, and cordless telephones (telephones that have a base unit connected to the telephone wiring in a house) operate at somewhat lower radio frequencies than cellular telephones; microwave ovens, radar, and satellite stations operate at somewhat higher radio frequencies (FDA, 2003). RF energy produces heat, which can increase body temperature and damage those parts exposed to it (FDA, 2003 and Ahlbom et al., 2004). It is generally agreed that the amount of RF energy encountered by the general public is too low to produce significant tissue heating or an increase in body temperature. However, it is also agreed that further research is needed to determine what effects, if any, low-level non-ionizing RF energy has on the body and whether it is dangerous to people (FDA, 2003).

Various studies indicate that the emissions from a cell phone can be extremely harmful, causing genetic damage, tumors, memory loss, and increased blood pressure and weakening of the immune system. On the other hand, the manufacturers of this technology confirm that they are strict to the recommended low levels of healthy exposure and no health hazards can result from exposure. But the fact that this technology radiation is invisible, intangible, and enters and leaves our bodies without our knowledge makes it even more intimidating.

So, the following pages will try to expose the scientific facts with or against the health risk of this technology without any conflict of interests.

HEALTH HAZARDS OF CELL PHONE BASE STATIONS

The erection of mobile telephone base stations in inhabited areas has raised concerns about possible health effects caused by emitted microwaves. Hutter et al. (2006) studied the Subjective symptoms, sleeping problems, and cognitive performance in subjects living near mobile phone base stations. Results showed that the Total high-frequency electromagnetic fields (HF-EMF) and exposure related to mobile telecommunication were far below recommended levels (max. 4.1 mW/m2). Distance from antennae was 24-600 m in the rural area and 20-250 m in the urban area. Average power density was slightly higher in the rural area (0.05 mW/m2) than in the urban area (0.02 mW/m2). Despite the influence of confounding variables, including fear of adverse effects from exposure to HF-EMF from the base station, there was a significant relation of some symptoms to measured power density; this was highest for headaches. Perceptual speed increased, while accuracy decreased insignificantly with increasing exposure levels. There was no significant effect on sleep quality. It was concluded that despite very low exposure to HF-EMF, effects on wellbeing and performance cannot be ruled out.

Several surveys have found increases of symptoms depending upon proximity to electromagnetic sources such as mobile phone base stations. A 2002 survey study by Santini et al. in France found a variety of self-reported symptoms for people who reported that they were living within 300 metres (984 ft) of GSM cell towers in rural areas, or within 100 m (328 ft) of base stations in urban areas. Fatigue, headache, sleep disruption and loss of memory were among the symptoms reported (Santini et al., 2003). Similar results have been obtained with GSM cell towers in Spain (Navarro et al., 2003), Egypt (Abdel-Rassoul et al., 2007), Poland (Bortkiewicz et al., 2004) and Austria (Hutter et al., 2006). It is, however, important to note that these surveys do not show