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# The Effect of Wireless and the Nano-Network Devices on Health

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## ABSTRACT

The effect of wireless devices and nano-network devices on health, as Internet devices negatively affect health, and the health implications of nanotechnology are the effects that result from the use of nanomaterials and devices and their impact on human health. As the field of nanotechnology is an emerging and new field, there is a great deal of debate regarding the impact of nanotechnology, whether it will benefit or pose risks to human health. Nanotechnology and its effects on health can be divided into two parts first, the possibility of nanotechnology to have medical applications to treat disease through certain innovations that can be used for this purpose, and secondly, the potential health risks resulting from exposure to nanomaterials. The health and safety risks of nano- and nano-electronic materials include the potential toxicity of different types of nanomaterials, as well as fire and dust explosion hazards. Given that nanotechnology is a recent discovery, the health and safety effects of exposure to these nanomaterials, and what levels of exposure may be acceptable, are topics of ongoing research. Among the potential dangers, inhalation exposure appears to be the most concerning, as animal studies show lung effects of some nanomaterials such as inflammation, fibrosis, and carcinogenesis. Skin contact, exposure by ingestion, and dust blast hazards are concerns.

**KEYWORDS:** Nano electronic; Nano device; Nano network; Wireless

## INTRODUCTION

The tremendous technical development was the unique feature in the twentieth century, which we bid farewell to a few years ago, and experts have agreed that the most important technical development in the latter half of this century is the invention of silicon electronics or the transistor and electronic laboratories, whose development led to the emergence of the so-called microchips, which It led to a technical revolution in all fields such as communications, computers, medicine, and others. Until 1950 there was only black and white television [1-4], and there were only ten computers in the world. There were no mobile phones, digital watches, or the Internet, all of these inventions are thanks to the microchips, which increased demand for them led to lower prices in a way that facilitated their entry into the manufacture of all consumer electronics that surround us today. And over the past few years, a new term has come to the limelight that has thrown its weight into the world and has become the focus of great attention [5,6].

This term is "nanotechnology". This promising technology heralds a huge leap in all branches of science and engineering, and optimists believe that it will cast a shadow over all areas of modern medicine [7], the global economy [8], international relations [9] and even the daily life of the average individual. In an unimaginable way and at the lowest possible cost, let us imagine high-performance computers that can be placed on the heads of pens and pins [10], and let us imagine a fleet of medical nanorobots that we can inject into the blood or swallow them to treat blood clots [11-13], tumors and incurable diseases [14-18].

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### Effect of Nano-Network Devices on Health

There are two main approaches that use nanotechnology: it is the "base" that is the building materials and tools of molecules held together by chemical elements that use the principles of molecular recognition; The other "top-to-bottom" that opposes is the nano-building of larger sub-atomic entities. Momentum nanostructures stemming from a new interest in resinous sciences add a new generation of analytical tools such as atomic force microscopy (atomic force microscopy) and scanning tunneling etching microscopy (mechanism-up).

Common and refined processes such as electron beam and lithography these two tools in the deliberate manipulation [19] of nanostructures in turn led to the observation of phenomena new nanoparticles can also be described as emerging technical developments associated with sub-dimensional microscopy. Despite the great promise of numerous nanotechnologies such as dot size and nanometers, real applications have come out of the lab to the marketplace and are primarily using the advantages of colloidal nanoparticles in most form such as suntan lotions and lotions [20].

Cosmetic and protective coatings and stain resistance clothing. Scientists believe that nanotechnology will solve a set of challenges facing humanity, such as diseases, the provision of clean water for all, as well as cheap space flights that are not affected by radiation. The origin of the word "nano" is derived from the Greek word "nanos", which is a Greek word meaning dwarf and means everything small, and here it means nanomaterials technology, microscopic technology, or miniature technology.

Nanoscience is the study of the basic principles of molecules and compounds whose size does not exceed 100 nanometers. A billionth of a meter, a thousandth of a micrometer. To bring this definition closer to reality, the diameter of a head hair is approximately 75,000 nanometers, and the size of a red blood cell reaches 2000 nanometers, and the nano world [21-23] is the boundary between the world of atoms and molecules and the world of the macro.

### Effect of Nano-Electronic Devices on Health

Animal studies and tests indicate that nano-electronic interfaces and nanomaterials as well as carbon nanotubes and carbon nanofibers can cause pulmonary effects including inflammation, granulomas and pulmonary fibrosis, and are of similar or greater capacity when compared to other known fibrotic materials such as silica and asbestos. and ultrafine black carbon. Some studies in cells or animals have demonstrated genotoxic [24,25], carcinogenic, or systemic cardiovascular effects from pulmonary exposure. Although the extent to which data from animal studies may predict clinically significant pulmonary effects in workers is unknown, the toxicity seen in short-term animal studies indicates the need for precautionary action for workers exposed to these nanomaterials.

As of 2013, more research was needed in long-term animal studies and epidemiological studies [26-29] in workers. No reports of actual adverse health effects on workers using or producing these nanomaterials have been reported as of 2013. Titanium dioxide (TiO2) dust is a risk factor for lung cancer, with high-resolution (nanoscale) particles having a significant potential on mass compared to fine TiO2, by a secondary genotoxicity mechanism that is not limited to TiO2 but is primarily related to particle size and surface area [30-33].

Some studies indicate that nanomaterials can enter the body through intact skin during occupational exposure. Studies have shown that particles less than 1μm in diameter may penetrate mechanically bent skin samples, and nanoparticles with different physicochemical properties were able to penetrate intact pig skin. Factors such as size, shape, water solubility and surface coating directly affect the ability of nanoparticles to penetrate the skin. At this time, it is not fully known whether penetration into the skin by nanoparticles will lead to adverse effects in animal models, although topical application of raw SWCNT to nude mice has been shown to cause Skin irritation, and laboratory studies using primary or cultured human skin cells have shown that carbon nanotubes can enter cells and cause the release of prion flammatory cytokines [34-36], oxidative stress, and reduced survival. However, it is still not clear how these results can be extrapolated to reveal the potential for occupational exposure. Additionally, nanoparticles may enter the body through wounds, and migrate to the blood and lymph nodes, Figure 1.

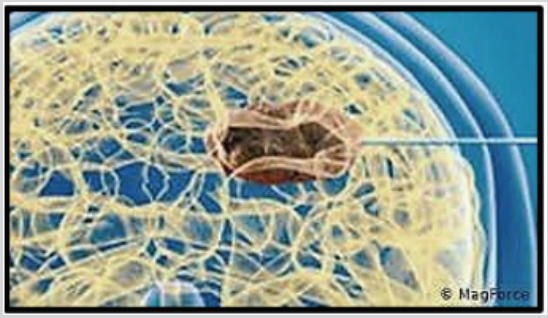


**Figure 1:** Nano-electronic in medical treatment.

## CONCLUSION

Guidelines have been developed to control risks that are effective in minimizing exposure to a safe level, including the replacement of hazardous materials with safer nanomaterials, engineering controls such as proper ventilation, and personal protective equipment as a last resort. For some materials, functional exposure limits have been developed to determine the maximum safe concentration of airborne nanomaterials, and exposure can be assessed using standard industrial hygiene sampling methods. A workplace health monitoring program can help protect workers.

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