

Fate, Safety and Toxicity of Nanoparticles Exposure to Human

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A novel class of materials and consumer goods has been introduced by nanotechnology, revolutionizing numerous industries and fields. It has prompted the development of novel materials and equipment. Three categories of nanomaterials exist- naturally occurring, accidentally created, and purposefully manufactured. Nanomaterials can also be categorized as four types- inorganic based, carbon-based, organic based and composite based nanomaterials. The food sector has welcomed the potential benefits of nanoparticles with varying chemical compositions in areas like food packaging and food security. The primary method of nanoparticle introduction into the human body is oral ingestion. Other routes available are-transdermal, nasal, ocular, pulmonary, parenteral. The researchers have shown that because of their particle size, shape, internal structure, surface chemistry, and intermediate stability nanoparticles may be more dangerous to microbiota than bulk chemicals. Despite their distinct benefits and uses in both the industrial and residential sectors, the usage of materials with nanoscale dimensions has brought up concerns about workers, consumers, and environmental safety. Due to their small size and other special properties, nanoparticles can interact through a variety of processes to cause harm to both humans and wildlife. Stricter rules for the approval of medicines may not be necessary in terms of clinical use. Instead, to make safety evaluation assays more suitable for designed nanoparticles, they should be modified. It is imperative to develop methodologies that can assess the short and long-term effects of nanoparticles on humans and the environment, since there is a dearth of data regarding long term human exposures.

Keywords- Nanoparticles, Toxicity, Human, Nanotechnology

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