

Plastic: The New Silent Killer

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Outline

- I. Introduction
 - A. Plastic is the new silent killer that is slowly polluting the human body.
 - B. Plastic serves purpose in many areas of life, yet this seemingly harmless material has proven to be toxic.
 - C. Thesis: In exchange for lower costs and convenience, we have adopted a component that poses many health risks. Instead of focusing on areas of production and recycling of plastics, there should be a demand for safer alternatives.
- II. Body
 - A. Background
 - 1. John Wesley Hyatt created the first man-made plastic in 1869.
 - 2. In 1907, Leo Baekeland invented the first synthetic plastic.
 - 3. By 1943, plastic was in mass production in the United States.
 - B. Advantages
 - 1. Plastic offers convenience.
 - 2. Plastic is expensive.
 - 3. Plastic is beneficial in the healthcare industry.
 - C. Disadvantages
 - 1. There are no regulations placed on plastic.
 - 2. Plastic is composed of toxic materials.
 - 3. Health risks associated with plastic.
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 - A. Review of all main points
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At what point did humankind stray from a planet surrounded by nature to a realm bound by plastic? When we look around, it is nearly impossible to identify items that are not composed of some sort of plastic matter. This affordable and convenient material is found in abundance throughout the home, at work, and even in the cars that we drive. Plastic truly serves its purpose in many areas of life, yet this seemingly harmless material has proven to be toxic to the human body. When plastic comes to mind, the negatives are generally associated with ocean pollution and other areas of the environment. Presumably, an easy solution to this problem would call for more recycling, but unfortunately, recycling does not address the fact that plastic is slowly polluting our bodies as well as the planet. While plastic has enhanced areas of medicine and healthcare, it is has truly become a modern day silent killer. In exchange for a lower costs and convenience, we have adopted a component that poses many health risks, such as cancer, heart disease, and developmental issues in children, to name a few. Instead of focusing energy on areas of production and the recycling of plastics, there should be provisions for safer alternatives.

In 1869, John Wesley Hyatt created the first man-made plastic in a lab within his home in upstate New York. Hyatt's newfound invention was called celluloid. It was made from the cellulose in cotton and later used as a building block for combs. Almost 40 years later, the first authentic synthetic plastic, bakelite, was discovered by Leo Baekeland. Baekeland's experiments yielded a highly moldable substance formed by combining by-products from coal and formaldehyde through heat and pressure. By the 1940's, plastic was in mass production in the United States mostly due to World War II (Freinkel, 2011). The military was in need of supplies, and plastic came to the rescue. From soldier's hygiene kits to paratrooper's

parachutes, plastic was fundamental to the existence of these reserves. “Plastics were even essential to the building of the atomic bomb: Manhattan Project scientists relied on Teflon's supreme resistance to corrosion to make containers for the volatile gases they used” (Freinkel, 2011). Needless to say, by the end of World War II, plastic had just begun to make a debut inside and outside of the battlefield.

Plastic has modernized the world through its durable and flexible structure. A material with unique properties such as these has made life easier when it comes to storing food, keeping water on hand, and toting groceries. Any time there are leftovers from dinner, some sort of plastic container is generally the storage method of choice. Products such as Ziploc storage bags, Rubbermaid food containers, and Saran Wrap have facilitated an easier lifestyle. Can anyone really argue that it is not convenient to be able to pop a few leftovers in a plastic container and then reheat it for lunch the next day? On top of the fact that plastic products are extremely convenient, they are also fairly inexpensive. A trip to almost any local grocery store will reveal an aisle filled with plastic products for storing food. Most of these can be purchased for less than five dollars.

The development of plastic has led to many advances in medicine. Once upon a time, glass was used to store blood while rubber was used in the tubing of intravenous bags (IVs). The presence of plastic made it possible to store and transport blood in unbreakable packaging, therefore allowing blood to be kept for usage in multiple blood transfusions instead of just one. In fact, most components of the IV systems used today are still made of mostly plastic. Other advances in healthcare that give credit to plastic include pacemakers, hip and knee replacements, and dialysis machines (Gross, 2011). Of course, these are just a few highlighted

areas where the use of plastic in medical care has been beneficial. Overall, plastic has helped to modernize and simplify medical treatments throughout the healthcare industry.

In the United States, chemicals are not tested for safety before they are utilized. Manufacturers are required to notify the Environmental Protection Agency (EPA) when a new chemical is produced; however, testing the chemical for safety is not a prerequisite (Szabo, 2011). Other than the Toxic Substance Control Act, which has not been updated since 1976, regulations are somewhat nonexistent. “Under U.S. law, chemicals are presumed safe until proven otherwise, and companies are rarely required to collect or disclose chemical-safety data” (Blake, 2014). In fact, when chemicals have come under scrutiny for being potentially toxic, manufacturers have refuted negative findings. This type of response has been viewed as somewhat reminiscent of the way that the tobacco industry continued to endorse its carcinogenic products for many years. For example, Bisphenol-A (BPA) is a chemical that has been used as an additive in plastic since the 1950’s. It took over fifty years for this toxic substance’s hazardous side effects to be brought light. As numerous independent studies began to link BPA to a number of alarming diseases, the plastic industry was able to produce findings that proved otherwise (Blake, 2014). The movement to reform plastic has been on the forefront for years. However, until the laws that pertain to chemicals are reformed, how will we be able to trust any BPA alternatives?

One of the main problems stemming from the great debate on plastic is that plastic’s chemical makeup consists of more than one substance. After a great deal of negative attention, the plastic industry eventually isolated the hazardous chemical BPA and removed it from some of its products. The results of many studies had begun to link BPA to health issues

such as diabetes, obesity, and cancer, to name a few (Nienstedt, 2013). In response to these findings, a “BPA-free” movement was formed in which the chemical industry reformed items such as baby bottles and water bottles (Glausiusz, 2014). In reality, plastic manufacturers have only placed a small bandage over what appears to be a bleeding wound. Other components in plastic have proven to be just as guilty as BPA. Plastics are made in conjunction with a mixture of synthetic substances such as phthalates, polyvinyl chloride (PVC), and polybrominated diphenyl ethers (PBDE). Exposure to BPA, phthalates, PVC, and PBDE have all been linked to serious health risks. Scientists have categorized them into a class known as endocrine disruptors. These chemicals have the ability to mirror hormones such as estrogen. Estrogen is a major hormone in both the male and female body, which is vital to functions of the heart, bone growth, and ovulation. Any offset from the normal levels regulated by our bodies can lead to increased risks of cancer and heart disease, as well as brain and organ development in children (Blake, 2014). As a result, it is not shocking that research points towards plastic as the silent killer of our day and age.

Opposing views claim that plastic has been such an integral part in the advance of today’s healthcare industry that the benefits outweigh the negative. Plastic has undeniably changed the face of healthcare through advancements in medical technology. Unfortunately, many plastic supporters do not realize that the very same material that helped to modernize the healthcare industry is the same exact reason why they may need medical attention one day. Research has repeatedly proven that chemicals in plastic are toxic. Scientists may not have all the answers when it comes to plastic’s toxicity, but we do know there is a link that exists between plastic and health hazards. Others in support of plastic’s innocence consider

plastic to be safe because some of the chemicals in question are found in small amounts in plastic. However, scientists are unaware of exactly how much exposure is required before chemicals in plastic become toxic to the body (Freinkel, 2011). Even if plastic does only contain small amounts of toxic chemicals, that does not change the fact that plastic is found in abundance in our lives.

In today's day and age, we are living in a world surrounded by plastic. Houses, cars, places of employment, and pretty much anything and everything in between contains some form of plastic. While plastic has conformed to many areas of our lives, it has become evident that plastic is harmful to the human body. In the past, plastic has been associated with negative connotations due to its role in pollution. The push for recycling has generally been offered as a solution to this problem. Unfortunately, recycling does not address the issue of plastic polluting the human body. Plastic has become appealing to many because of its low costs and convenient nature. The healthcare industry has benefited from plastic as well. Alternatively, centering our focus on the production and recycling of a questionable product should be redirected towards finding safer alternatives.

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