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The Rise of Diabetes

Type 2 diabetes (adult-onset diabetes) is a global epidemic that has been increasing steadily each year. As stated in the United States Centers for Disease Control and Prevention (CDC), 2011 *National Diabetes Fact Sheet (NDFS)*, "Diabetes affects 25.8 million people, 8.3% of the United States population" (CDC, "*NDFS*" 1). A study was conducted by the CDC in 2011, documenting the increase in diabetes cases from 1958 to 2010. From 2000 to 2010 alone, the number of diagnosed cases of diabetes in the United States increased from 12.05 million to 20.67 million Americans. This accounts to a 2.91 percent increase in prevalence (CDC, "*Long-Term Trends*" 5-6). Adult-onset diabetes is on the rise from unhealthy eating and lack of physical activity leading to obesity. Contemporary shifts in physical activity levels associated with the adult workplace and popular children activities, along with changes in nutritional food consumption, are responsible for the rising global adult-onset diabetes and obesity, caused by inactivity and unhealthy eating. A change is needed to get this rising health concern under control.

According to *Harrison's Principles of Internal Medicine*, diabetes is defined as, "A group of diseases marked by high levels of blood glucose resulting from defects in insulin production, insulin action, or both" (Fauci et al. 2275). Specifically, adult-onset diabetes generally begins with insulin resistance, where cells do not utilize insulin properly. If unmanaged, the need for

insulin will increase and the pancreas begins to lose its ability to produce it. Adult-onset diabetes is associated with factors such as older age, obesity, and physical inactivity (Fauci et al. 2276). Numerous health concerns have been found associated with diabetes. A direct correlation has been shown between diabetes and elevations in the cases of heart disease and stroke, along with hypertension. Diabetes is the leading cause of new cases of blindness and kidney failure. It accounts for an estimated 44 percent of kidney failure cases each year (CDC, "NDFS" 8).

Changes have been occurring in the lifestyles of adolescents and adults over the last few decades. In the study *Genes, Exercise, Growth, and the Sedentary, Obese Child*, Teran-Garcia, Rankinen, and Bouchard argue that, "Dietary habits have changed substantially...Americans are consuming more sweetened carbonated beverages, fruit juices with added sugars, and fast food and other convenience foods rich in fat, sugar, and salt" (Teran-Garcia et al. 988). Additionally, adolescents and adults are living a more sedentary lifestyle than in the past. Contributing factors of this lifestyle are watching several hours of television daily, video games, and changes in work activities involving more sedentary work tasks. The prevalence of obesity in adolescents has increased by about three times of what it was just a few decades ago, due to these diet and sedentary lifestyle changes. An obvious sign of this change is the rise of adult-onset diabetes in adolescents during the same timeframe (Teran-Garcia et al. 988-89).

Epidemics generally refer to diseases that are constantly increasing over a period of time. In the article *Rate of Diabetes Cases Doubles in 10 Years: CDC*, Steven Reinberg states, "The rate of new cases of type 2 diabetes has nearly doubled in the United States in the last decade... new cases mirror the increase in obesity rates, and obesity is a leading cause of the blood sugar disease" (Reinberg). Obesity and inactivity are the major causes for the increase in adult-onset diabetes. Studies presented in the article indicate that the rate of obesity will continue to increase over the next few decades. According to Dr. David L Katz, director of the Yale University School of Medicine's Prevention Research Center, "Reversing the obesity epidemic is key to cutting the rate of type 2 diabetes" (Reinberg). With current presented trends, the entire adult population could be overweight or obese by the year 2048. This presents a very real danger to the population that cannot be resolved unless action is taken against obesity (Reinberg).

In order to fully understand why diabetes and obesity have been increasing at such rapid rates over the last few decades, the changes to the daily mechanism of diet and physical activity must be explored. It is well known that the rise of technology has played a part in decreasing the physical activity associated with working environments. Additionally, the availability of "fast food" restaurants and their relative affordability have increased the ease at which people can acquire unhealthy meals.

In the article "Obesity in America: What's Driving the Epidemic," the Harvard Men's Health Watch addresses the modern mechanisms of work, eating, and recreation, and how they can impact adult-onset diabetes. Over the last 40 years, obesity in the United States has increased by over 40 percent. The current levels indicate that two out of every three adults are overweight or obese ("Obesity in America" 5). The modern work environment is playing a large role in the increase in obesity. Work environments have changed dramatically from prior decades. Data indicates that in 1960, half of the private sector jobs required moderate physical activity. In 2010, only 20 percent required the same amount of physical work. This decrease can be directly contributed to technological advancements in manufacturing and agriculture ("Obesity in America" 5). Even though less physical activity may correspond to fewer injuries to workers, there is no way around the loss of calories burned per day from lack of physical activity. As stated in the article, "American workers are now burning 142 fewer calories each day than they

did in the 1960s" ("Obesity in America" 5). The burning of fewer calories per day directly contributes to increased weight gain in the worker population.

The decrease in physical activity in the workplace is not the only reason for the trend of increasing obesity. If leisure exercise was increased to offset the lack of calories being burned at work, the trend could stabilize. The problem is that as a modern recreational activity, exercising appears to be lacking in popularity. Only five percent of adults meet the national standards for exercise. This percentage is surprising, considering that only 30 minutes of walking per day is needed to meet the standard ("Obesity in America" 6). If people are not working out in their spare time, then what are they doing? Thanks to the rise of the information age, sitting goes hand in hand with many popular modern activities. Video games, computers, and television are becoming the standard by which the majority of the population derives entertainment. A consequence of the changing work environment to include less physical activity is something that cannot be changed. As technology continues to advance, sedentary work activities will continue to increase. However, activities such as watching television or playing video games during free time are completely voluntary. Including both work and free time, it is estimated that 55 percent of all waking hours are spent sitting down ("Obesity in America" 6). The American Cancer Society conducted a seven-year study to evaluate the potential effects of sedentary lifestyles. The study revolved around watching television. A group that watched more than 3.6 hours of television per day was compared to another group of people watching less than 2.5 hours per day. The results from the study indicated that each additional hour of daily television viewing was linked to a 10 percent increase in diabetes ("Obesity in America" 6).

Changes in the workplace and recreational activities play a major role in the increased obesity rate and subsequent rise in diabetes. They are however, not solely to blame for this

increasing epidemic. Modern food consumption can also be linked to the increase. Researchers from the University of North Carolina evaluated data from four large national surveys that included 44,754 Americans. The research covered a 30-year period from 1977 through 2006, during which time weight gains continued to increase. The average daily caloric intake increased at a steady pace throughout the study. The reason for the increase was directly correlated to increased portion sizes and more frequent eating. The rising popularity of fast food restaurants was found to have the biggest impact on the increases in meal portions. The lower cost and ease to which a meal could be "supersized" paved the way to over-eating. Additionally, over the 30-year period, the study showed that the average number of meals and snacks increased from 3.8 a day to 4.9 a day ("Obesity in America" 7). The results of the study clearly showed that both portion size and eating frequency accounted for the rise in caloric intake leading to weight gain. The increases accrued slowly but steadily over the 30-year span. As mentioned in the results of the study, "The annualized average calorie intake increased by 28 calories a day…over three decades, it adds up to several notches on the typical guy's belt" ("Obesity in America" 7).

It is hard to imagine that such a drastic increase in the prevalence of a disease can be caused by these contemporary changes in work and diet. There is no doubt that the rate of adultonset diabetes will continue to increase, unless lifestyle changes are made. A study conducted by the National Institute of Health provided hopeful information on ways to decrease the epidemic. The study found that modest lifestyle changes consisting of eating less fat, exercising two and a half hours a week, and losing a moderate amount of weight, decreased the incidence of adultonset diabetes by more than half among at-risk groups (Chang). Changing the mindset of companies regarding the availability of workplace exercise facilities and worker health education, along with stricter regulations on the fast food industries, is vital to stopping the rapid

increase of this epidemic. Unfortunately however, much of the responsibility also applies to the individuals. With increasing technological advances at work and at home, it is unlikely that work and leisure activities will become more physical in the future. If society cannot commit to a lifestyle change, then the adult-onset diabetes epidemic will continue to increase, with no end in sight.

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