

Parkinson's Disease

Introduction

Parkinson's disease is a brain disorder caused by the deterioration of nerve cells in the brain that create dopamine. Dopamine is a chemical that the brain produces in order to help control muscle movement but because the nerve cells that create this chemical are slowly destroyed someone suffering from Parkinson's disease loses control of their muscles.

I chose this topic because a member of a swim club where I work during the summer suffers severely from Parkinson's disease. I learned a lot about the disease from him but before I met him I knew absolutely nothing about it or that it even existed. Many people misinterpret his tremors and uncontrolled muscle movements because they are uninformed. One member of the club went to the management and told them that they thought he was drunk and should be removed from the premises. The misinterpretation from uninformed people is what upsets him the most about his disease. However, despite the obvious loss of control he has over his body, when he is feeling up to it he dives off of the three meter diving board. Not only is he an amazing diver, but somehow when he is up on the board he suddenly has control of his body which I find to be extraordinary. I wanted to do this topic so I could inform myself more and therefore inform other people.

Section 1: Background and Problem Statement

- **Web site #1 Name:** National Parkinson Foundation
- **Web address:** <http://www.parkinson.org/parkinson-s-disease.aspx>
- **Background Information:**

Health People 2020 does not address Parkinson's Disease but there are plenty of non-profit and government organizations that provide information, research, and counseling to those who suffer or know someone who suffers from Parkinson's disease. The National Parkinson Foundation is an excellent source for people who want to learn more about Parkinson's or who have been diagnosed with it. It provides new updates, bountiful information about the disease and symptoms, a list of local resources to reach out to for medical attention, discussion forums with physicians and other people diagnosed with the disease, and a chance to participate in clinical trials. According to the National Parkinson Foundation, up to 60,000 Americans are diagnosed each year and four to six million people around the world also suffer from the disease. This organization wants to provide as much information as possible to raise awareness and understanding. This Web site defines Parkinson's disease as a "neurodegenerative" brain disorder that progresses slowly in most people." The Web site points out that a person living with this disease can live with it for 20 years or more after they are diagnosed with it. It is a chronic disease that gets worse as time goes on because the destruction of the nerve cells that create

dopamine happens slowly. Because there are ways to detect Parkinson's disease significantly early, this Web site emphasizes how doctors are trying to catch the disease as early as possible to stop the progression of it.

- **Web site #2 Name: The Michael J. Fox Foundation for Parkinson's Research**
- **Web address: <http://www.michaeljfox.org/index.cfm>**
- **Background Information:**
 - As opposed to the first Web site, the Michael J. Fox Foundation for Parkinson's Research is a non-profit organization dedicated to finding a cure. Its mission states how it wishes to find a cure "through an aggressively funded research agenda." Additionally, this Web site states that it wants to "ensure the development of improved therapies for those living with Parkinson's today". This Web site is titled Michael J. Fox because the widely known actor was diagnosed with young-onset Parkinson's disease in 1991 and now he is dedicated to funding research for the disease. This Web site provides lots of information for those living with Parkinson's and plenty of tips from other people who have also been living with the disease. According to the Michael J. Fox Foundation, Parkinson's is a problem because it affects one in one hundred people over the age of 60 but people can be diagnosed as young as 18. Again, this Web site describes that Parkinson's is a disease caused by the deterioration of nerve cells in the brain that produce dopamine. Diagnosing the disease accurately can be tricky according to this Web site because there is no definitive test such as a blood test to detect it. Instead, doctors take into consideration the initial symptoms the patient is experiencing and the reaction to Parkinson's medication as a way to diagnose the disease. It can be caused by genetics or by environmental factors.
- **Web site #3 Name: Parkinson's Action Network**
- **Web address: <http://www.parkinsonsaction.org/about-pan>**
- **Background Information:**
 - The Parkinson's Action Network is more of a community activist group dedicated to advocating better treatments and finding a cure through educating "the public and government leaders on better policies for research and an improved quality of life for people living with Parkinson's". Instead of just informing the public or the diagnosed like the first Web site or providing funding for research like the second Web site, the PAN is dedicated to government action to speeding up the process of finding a cure by initiating certain acts into law. For example, in 2010 President Obama established a Cures Acceleration Network which seeks to speed the development of new types of drugs and different therapies. Additionally, the PAN wants to make sure funding is being put to the right places such as the Food and Drug Administration.

Section 2: Research

Web site #1 Name: The New England Journal of Medicine

- **Web address: <http://www.nejm.org/doi/full/10.1056/nejmoa060281#t=abstract>**

- **Summary of the research:**
 - This trial deals with a type of treatment for the symptoms of Parkinson's called Deep-Brain Stimulation (DBS). Since drugs become more or less ineffective after the several years of use, scientists use DBS as another alternative to alleviating the symptoms of uncontrolled motor function in Parkinson's. DBS is a brain surgery that administers an electrical stimulation device in a specific part of the brain. In a follow up of this specific trial, mobility was improved significantly and dyskinesia (a different movement disorder) was reduced for up to 5 years. Compared to that of just medications alone, this surgical procedure caused much greater improvements. However, the problem with any brain surgery is the risks that are involved.

- **Web site #2 Name: U.S. National Library of Medicine**
- **Web address: <http://www.ncbi.nlm.nih.gov/pubmed/21953603>**
- **Summary of the research:**
 - In this interesting research trial, scientists sought to investigate the inverse association between caffeine and Parkinson's disease. According to this trial, other epidemiological studies consistently find this association so they designed a trial evaluating the effects of different doses of caffeine in Parkinson's patients. Twenty out of 25 patients tolerated 200mg of caffeine, 17 tolerated 400mg, and 3 tolerated 1000mg. However, the effects of the caffeine intake caused a number of issues including gastrointestinal discomfort, worsening tremors, more emerging tremors, and anxiety. The study found that it was only at 400mg where potential motor improvements were found but the highest dosage for tolerability was between 100 and 200mg but there is some evidence showing that caffeine may improve some motor and non-motor aspects of Parkinson's disease which opens the door for further trials and improvements.

- **Web site #3 Name: U.S. National Library of Medicine**
- **Web address: [http://www.ncbi.nlm.nih.gov/pubmed/15503197?log\\$=activity](http://www.ncbi.nlm.nih.gov/pubmed/15503197?log$=activity)**
- **Summary of the research:**
 - A common question among Parkinson's patients is what is the next step after previous drugs begin to wear off and the symptoms of Parkinson's progress further? A study done here was with the drug called Stalevo, a combinations of 3 different drugs used for the treatment of Parkinson's. This study involved 169 consecutive PD patients who are experiencing the wearing-off of other drugs. It was reported that 14 subjects discontinued the use of the drug and 12 of the 14 discontinued the use because of adverse events. Eleven out of 130 patients developed a new onset of dyskinesia and 17 out of 39 with existing dyskinesia reported a worsening of it. A change of dose occurred and resulted in managed this problem with 21.4% and 10.7% dyskinesias were resolved without that change in dosage. This trial resulted in an improvement among patients and that switching patients to this drug due to wearing-off was "safe, well tolerated and resulted in clinical improvement".

Section 3: Statistics

According to Web sites provided below, statistics show that Parkinson's mostly affects people who are 60 years of age and older. Approximately 60,000 people are diagnosed with Parkinson's each year in America which does not include the cases that go undetected.

- **Web site #1 Name: Parkinson's Disease**
- **Web address:** <http://www.parkinsons-disease.org/best-parkinsons-disease-statistics/>
- **Summary of the statistics:**
 - According to this Web site, Parkinson's disease affects 1 million people in the United States alone. However, about 1.10% of the population has Parkinson's and do not know it. Parkinson's disease is not related to geographic location or economic standing and it affects men slightly higher than women as well as whites more than African Americans or Asians. Most people affected are over the age of 60. The older one gets the more likely they are of being diagnosed with Parkinson's disease. Looking at these statistics alone it is safe to conclude that the problem is mostly a genetic disorder and it is now becoming a common condition. This can be related to the increased research and knowledge of Parkinson's disease and a better understanding of diagnosis. One in 90 people in the United States live with Parkinson's but do not know it and they might not know it until years later when symptoms really start to show themselves.

- **Web site #2 Name: Center for Disease Control and Prevention**
- **Web address:** <http://www.cdc.gov/genomics/hugenet/CaseStudy/PARKINSON/PARKview.htm>
- **Summary of the statistics:**
 - According to the CDC, Parkinson's is the second common neurodegenerative disorder after Alzheimer's Disease. Additionally, first-degree relatives of affected persons have a higher risk of Parkinson's than the general population risks, suggesting that this disease is mostly a genetic one. The CDC also mentions that Parkinson's is associated with Gaucher disease. What stands out with these statistics is that there is a mentioning of people who have a relative with Parkinson's. Many other Web sites just give general statistics based on random evaluation but this Web site included the fact that if one has a relative with Parkinson's then that person is more likely to have it one day, too.

- **Web site #3: The Michael J. Fox Foundation for Parkinson's Research**
- **Web address:** http://www.michaeljfox.org/living_aboutParkinsons_parkinsons101.cfm#q1
- **Summary of the statistics:**
 - The general (but important) statistics are given on Michael J. Fox's Web site. According to this site, 1 in 100 people are affected by Parkinson's disease and many of these people are over the age of 60 but the youngest someone can be

diagnosed is just 18 years of age. At least 1 million people live with Parkinson's in the United States. A staggering number of 5 million live with Parkinson's worldwide. These statistics and the statistics listed before suggest that since the population is living to longer ages, there are more and more cases of Parkinson's disease.

Section 4: Consumer Information

- **Web site #1 Name:** MedPage Today
- **Web address:** <http://www.medpagetoday.com/Neurology/ParkinsonsDisease/25157>
- **Summary of the information:**
 - A very interesting article on the Web site noted a relatively new study suggesting that people who were on ibuprofen for a prolonged period of time were diagnosed with Parkinson's at around a 40 percent lower rate than other participants of the study. However, doctors have noted that they are still nowhere near to the point of telling patients to take ibuprofen as a way to prevent or treat Parkinson's.

- **Web site #2 Name:** Web MD
- **Web address:** <http://www.webmd.com/parkinsons-disease/guide/parkinsons-disease-symptoms>
- **Summary of the information:**
 - The early symptoms of Parkinson's disease are important to know for anyone so that they can have that knowledge to go see a neurologist right away. This Web site gave plenty of warning signs and symptoms of Parkinson's disease for consumer information. A tremor in a body part that is resting is one of the signs to keep in mind as well as stiff muscles. A common sign is a reduced arm swing on one side when a person is walking.

- **Web site #3 Name:** National Institute of Neurological Disorders and Stroke
- **Web address:** http://www.ninds.nih.gov/disorders/parkinsons_disease/parkinsons_disease.htm
- **Summary of the information:**
 - The National Institute of Neurological Disorders and Stroke provided another general overview for the public but included some other important facts to know. One of these facts is that there is no blood or laboratory tests that can be done to detect Parkinson's in a patient. Diagnosis is strictly based on medical history and a neurological examination.

Section 5: Solutions to the Problem (or Issue)

- **Web site #1 Name:** United States Department of Veteran Affairs
- **Web address:** <http://www.parkinsons.va.gov/>
- **Summary of the information:**

- The United States Department of Veteran Affairs is part of the government and in response to the issue of Parkinson’s and United States veterans it has created six specialized centers known as the Parkinson’s Disease Research, Education and Clinical Centers. These government funded centers were established to help an estimated 80,000 veterans living with Parkinson’s Disease with pharmacy benefits, different therapies, and surgical services.

- **Web site #2 Name: Parkinson Study Group**
- **Web address: <http://www.parkinson-study-group.org/parkinson-research/about-us>**
- **Summary of the information:**
 - Parkinson Study Group is a non-profit group more for the use of physicians and other health care providers which aims to “advance knowledge about the causes, disease progression and treatment” through the means of open communication with scientific community, peer reviewed research, etc. Many non-profit organizations are for the community in general but what is unique about this organization is that it is a place for health care providers to work together at accomplishing a common goal.

- **Web site #3 Name: Team Parkinson**
- **Web address: <http://www.team-parkinson.org/about.php>**
- **Summary of the information:**
 - Team Parkinson is another non-profit organization with the main goal of raising funds for research toward finding a cure for Parkinson’s. This organization participates in races throughout the country and the world in order to raise awareness and raise money for the research.

Conclusions

Researching and developing this fact sheet about Parkinson’s was instrumental in helping me understand the disease that my good friend from the swim club suffers from. With all that I have learned about the disease, the symptoms, and potential treatments makes me eager to share to others so that they can gain the knowledge and with the knowledge gain a better understanding of why the symptoms of someone with Parkinson’s may look like the symptoms of being drunk but actually are not.

Back to Betty C. Jung’s Web site	http://www.bettycjung.net
Back to Fact Sheet Directory	http://www.bettycjung.net/Pch202fs.htm