Scoliosis

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A tall, slim energetic girl with basketball shorts and a Lakers jersey strolled into the hospital unaware that she would despondently exit as someone totally different.

"Wear your scoliosis brace twenty-two hours a day," assigned Doctor Robinson.

He sat deeply in his chair with his legs crossed sipping his coffee. His ostentatious rings flashed as he adjusted the doctor certificate on his desk. Jane's face contorted with horror and disbelief. Abruptly, she stood up and bellowed,

"What about basketball?" The fifteen-year-old's legs shook as she awaited the feared answer.

"I'm afraid you cannot play with your brace. Therefore, you will have to quit basketball," Doctor Robinson nonchalantly clarified as he bent down to tie his shoelaces.

"But tryouts are in two weeks!" Jane whimpered.

Cheeks grew as red as ripe tomatoes and her muscles tensed. Tears welled up in her eyes and her fists were in ready position to trounce the carefree doctor.

"You are prohibited from participating any sports until I allow you to. It's only 5 years."

"Only five years? That's basically all my life!" shrieked the incensed girl.

Doctor Robinson sighed and wiped his forehead. He glanced at the clock and then ventured, "I have a lot of other patients to see. Please leave and remember to inform your parents to pay to the fee for the brace and the consultation."

“I waited for three hours and you will only speak to me for less than a minute. That’s ridiculous doctor!” exploded Jane.

Jane swiped the doctor’s desk with her arm to show her anger. The mug that once held coffee crashed down to the floor shattered to pieces and the coffee stained the folders and the doctor’s suit. Doctor Robinson ignored her outburst and signaled the nurses to dismiss his uncontrollable patient.

Jane headed toward the gym with her basketball just like every other afternoon. Two things were different today. She was wearing her scoliosis brace which extended from her armpits down to her hips and she was nervous, not excited, about meeting her friends today. What will they think about her? Sweat from the heat of the brace drenched her undershirt as an eerie feeling traveled down her spine. A bulky man hurriedly rushed passed her to cross the road as the traffic light turned red. His elbows bumped Jane’s hand and she watched her precious basketball bounce down the street ahead of her. She pushed her right foot off the ground and departed to run against the autumn breeze. Such swift movement caused the brace to crash into her hipbone and it dug into her upper thighs. Jane’s face suddenly flinched in pain and her once graceful movements came to a stop. She staggered slowly down the crowded street in defeat. As she bent down to retrieve the ball, the upper part of the brace prominently shot up out of her back. The sudden jolt drew eyes from other pedestrians. Embarrassed, Jane quickly walked with her head down. Jane’s heart throbbed at her limitations of movement as she entered the gym.

Squeaks from abrupt twists of the players’ direction and quick and light footsteps filled the gym. The teenage girls’ heavy breathing were the only other sound in the hot, humid gym Jane practiced everyday since summer started. In a split second, the orange basketball traveled to the deft hands of the point guard. She brought up the ball

to her forehead and snapped her hand as the delayed defense rushes to cover. The spinning ball swishes through the basket and three points are tallied to the score. Her teammates hurry to congratulate their grinning and proud point guard. At the sidelines, restrained Jane sat on the bleachers watching her best friend play basketball. She was eager to embrace her friend for her beautiful shot and stood up. Jane's lips wobbled for words and then stopped. She couldn't embrace her friend because her friend would feel the hardness of the scoliosis brace. Defeated, Jane sat back down and covered her face, as the tears of frustration could not be held any longer. She sat alone in the dimly lighted gym where her dreams blossomed and now the dreams seem to have been terminated. How is the future laid out for Jane, a child diagnosed with scoliosis?

I have the same question as Jane and I have decided to find out the answer through research. I will begin with explaining what I know about scoliosis.
To my knowledge, a relatively serious scoliosis can limit the physical movement of a person diagnosed because of the bracing treatment. Bending down and quick motion involving twists of the body is limited. Clothes are also restricted because the prominent brace will show. Not only do tight and small clothings reveal the brace, but also will create holes in clothings. In addition, scoliosis can cause the diagnosed to be more reserved. Since I have been diagnosed with scoliosis last February, I have personally experienced the limits of wearing a brace and the ruins in my clothings. Therefore, I ought to know certain limits I have experienced as a scoliosis patient myself.

I think that the curvature of a spine of 50 degrees or more will cause the ribs to damage organs such as the heart and the lungs. This occurs because of the intensity of the curvature causing the bones to dig into organs. By reading a group discussion on the Internet, I was provided with such an idea of fatal internal injuries caused by

scoliosis. Also, I heard from rumors that the faster you grow, the more chances you will have scoliosis. The rumors mostly originate from the talk I overhear at the hospital waiting rooms where I have spent a lot of time in.

As a scoliosis patients, I may have a shorter lifespan because of the pressure applied onto the organs by the spine is one of my wild guess I made about my topic. There could be a possibility that patients with serious curvature are officially handicapped. Perhaps, old scoliosis patients have a higher chance of hunchback. I believe that I should spend time exploring the possibility of a shortened lifespan.

1. Are any sports or physical activities that are not allowed/not possible for scoliosis patients?
2. What deformities and problems are associated with scoliosis?
3. What are some social detriments scoliosis patients have experienced?
4. How do the different scoliosis braces differ?
5. Does the treatment of scoliosis become a financial difficulty?

The road to the answers to my inquisitive questions is not a short and simple one. In between was a long haul of research and numerous obstacles were stumbled on. The research was an extensive pathway with many crossroads replete with rocks and rivers.

The first obstacle I faced was the lack of websites to my answers. Either the information in websites was too general or unsuitable. For example, the Scoliosis Research Society's website has many pages with detailed information. At first glance, I was delighted. Through deeper reading, I was disappointed that the website was all about raising money for research. What does it have anything to do with my questions? Unfortunately, it has no relevance to my questions. On the Kidshealth website

concerning scoliosis, information about scoliosis was only a page long. How do you expect me to write a research paper with unrelated information or too general information? I explored books and databases to solve my problems. Not everything is right at the tip of your fingers. I found that by physically pulling myself into the library was much efficient than clicking on useless sites on the Internet.

Another obstacle I encountered was my inability to find an interviewee. The ideal interviewee would be my doctor but knowing his busy schedule and endless line of patients, it seemed impossible to get hold of him. I pondered the possibility of the school nurse but decided that she would not be very knowledgeable and be able to answer all my questions. As a result, I explored the possibility of emailing doctors and experts overseas. Through the Internet, I found the director of the Scoliosis Association organization's email. Unfortunately, a reply was not found in my inbox for more than a week. Panic welled up because I-search was due date is inching closer. Unrelenting, I frantically searched for more professors and directors of scoliosis organizations and emailed an additional dozen experts. Consequently, I finally received satisfying replies.

Although my topic cannot really have biased sources, I did encounter occurrences when I had to authenticate the credibility of a source. The information on the "Scoliosis Care Foundation" website seemed to contradict all my other sources. It had showed statistics that infer scoliosis has a major effect on life with 95% of the surveyed scoliosis patients having mood swings. In addition, 70% of the patients experienced digestive problems and 72% experienced deterioration of hand-eye coordination. I found the information to be absurd and impossible! Yet, the site seemed reliable because the site name ended with "org". The general layout of the website was quite professional and contact information was also provided. In order to

clarify its accuracy, I searched on Google the director of the clinical data. From my additional research, I found out that Art Copes was a patent-holding Orthoist and holds a doctor degree. Art Copes is an expert in scoliosis and has helped developed braces. Not only was such data posted on the "Scoliosis Care Foundation", but also numerous other websites have included the same data gathered by Art Copes. Although, I doubted the accuracy of the information at first, I have come to the conclusion that the range of experiences can be very wide and some may have very negative experiences.

On one website, it stated that a scoliosis curve will definitely stop by the end of the growth of a person. This statement confused me because I had read elsewhere something contradicting. Again, I searched the author of the website and found out that his expertise was in fatherhood and parenting. Therefore, I concluded his information was not credible.

In order to clarify the accuracy of all the research, cross-referencing was necessary. My two major sources for my I-search were two books, Stopping Scoliosis and Scoliosis Sourcebook. I felt both books were reliable. I compared the information of both sources and if they matched, I concluded the information was reliable.

One of my specific questions I had decided to pursue at the beginning was "What are some social detriments scoliosis patients have experienced?" I told myself that I had to be aware of multiple perspectives that could answer the question. To some, having scoliosis was a suicidal issue. In contrast, others considered scoliosis was the best thing that happened to them. For the majority, scoliosis was a hard hurdle but not an impossible one. In my Part 4, I compromised the two extremes and included the most common experience.

I have learned a tremendous amount through the I-search project. The EBSCOhost database was an unfamiliar research tool to me before the I-search project was assigned. Previously, my visit to the EBSCOhost database was brief and unproductive because I had the little idea of how to open the articles. I have learned to access the content of the results of the database. In addition, I feel my skills with research in Google have improved. Through Mrs. Hayakawa's lessons, I became aware of the efficient way to find reliable sources. Typing "scoliosis site:org", "scoliosis site: edu" and "scoliosis site: gov" in comparison to entering just plain "scoliosis" has proved to be a very powerful tool in the search engine.

I would recommend future I-searchers to be flexible and seriously use the databases regardless of how much information you already have. The latest newspaper, magazine, and journal articles can be an excellent cross-reference. I also encourage I-searchers to passionately think about their I-search topic. The plethora amount of research and writing can be a pain in the neck if the subject is not something you are not very interested in.

After jumping over high and never-ending hurdles, I finally completed my I-search paper. So how IS the future laid out for Jane and me? There is light at the end of the tunnel and the answer is just before you!

To start off with a general question, what exactly is scoliosis and who has it? Simply, scoliosis is a condition consisting an abnormal lateral curve in the spine (Neuwirth 2). Not simple enough for our deadbeat readers? Allow me to try again. Scoliosis, in its easiest definition, means the spine is curved in a weird way. Although the cause of scoliosis is unknown, doctors have concluded that scoliosis is heredity. When parents have the condition, it is six to ten times more likely for the children to develop a curvature in their spine. In addition, siblings of scoliosis patients have a

higher percentage of scoliosis than the general people (Neuwirth 15). Teenagers make up the majority of scoliosis patients. Ten percent of all adolescents have scoliosis, but many of them thankfully have very minor cases that do not require treatment. Five out of one thousand adolescents have curves greater than 20 degrees and only one in one thousand adolescents have curves exceeding 40 degrees (Neuwirth 15). The rarity of scoliosis exists in my community. In the population of the American School in Japan there have only been a few cases of anyone wearing a brace to school. No wonder people contort their faces with confusion when I tell them I have scoliosis.

Monitoring, bracing, and surgery are the three main treatments for scoliosis. The Milwaukee brace has a plastic pelvic strap that fastens two metal bars that run lengthwise and parallel over the shoulder blades. The two metal bars come as high as the neck and meet with a sturdy piece of metal that encircles the neck like a collar. The pads to correct the curve are inserted inside the brace. The Milwaukee brace dates back a long time. Therefore, it has the best record of preventing deterioration of curves. On the other hand, the Milwaukee brace is the least tolerable brace because of its inability to hide the metal collar and is very difficult to wear. When I saw a Milwaukee brace, I was astounded by how the metal collar resembled a cast for a broken neck because of the corresponding limitation of movement. Unsurprisingly, it is a nightmare for children to wear and many adolescents simply refuse to follow the bracing schedule given to them (Neuwirth 68).

An alternative brace to the Milwaukee brace is the underarm brace also known as the TLSO (thoracic lumbar sacral orthoses) brace or Boston brace. The brace extends from the hip of the patient to the armpits. The less noticeable brace is often custom made with prefabricated plastic molds. Similar to the Milwaukee brace, pads that push the curve are placed inside the brace. Underarm braces are preferable

because it costs considerably less than Milwaukee braces with costs ranging from $1,400 to $2,000. But the underarm brace is not perfect, only ten percent of scoliosis cases have the criteria to wear it (Neuwirth 68).

Scoliosis can cause financial hardships for families without proper medical insurance (Lipin). Depending on the country in which the treatment is being applied and your medical insurance, financial difficulties will vary (Hawkinson). It is considered fortunate if your medical insurance will subsidize the price of your brace. Parents have voiced their complaint about insurance companies refusing to cover even a portion of the cost. The prices of braces range from $1,400 to $2000. Since they will outgrow their old one, it is not unusual for adolescents to go through more than one brace. A single stage surgery will price over $35,000 and the popular two-stage surgery averages $85,000 (Schommer 66). Remembering the throbbing of my heart after seeing the number of zeroes on the bill for my brace and my parents' face of shock, I believe it is absurd for insurance companies to balk the expensive treatment required.

In addition to financial costs, large progression of the curve will result in significant deformities. Firstly, postural imbalance prevents the head from standing directly above the pelvis. Because of the imbalance of the spine, the back muscles are forced to work harder to keep an upright posture. The additional effort of the back muscles often cause pain and muscle fatigue (Neuwirth 8).

Scoliosis is known to increase the possibility with diagnosis with arthritis. Again, the inflammation and enlargement of joints is a result of the unsymmetrical spine. In the most severe cases, spondylosis (arthritis of the spine) would be added to the list of problems associated with scoliosis (Neuwirth 9).

Once the curve in the thoracic region increases to level of serious severity, interference with the lung and heart functions is possible. Restrictive heart disease is when the amount of oxygen sent from the lungs to the heart is decreased affecting the smooth breathing of a patient. Although scoliosis is connected with restrictive heart disease, very few cases occur. Only curves exceeding one hundred degrees are instigators to such fatal disease. The increasingly awareness of scoliosis and the treatment today has prevented curves to progress to that extent (Neuwirth 9).

Not only does critical scoliosis affect imbalance and breathing, but also neurological problems may arise. As nerves exit the spinal canal, a substantial amount of space is needed. The curvature of the spine may compress the space needed for the nerves to function. Nerve-root compression may cause pain, numbness, and/or tingling in the legs (Neuwirth 9).

Previously, doctors believed after growth terminated in adolescence, a scoliosis curve would no longer progress. Now, it is known that if scoliosis is very dominant in your genes, progression is probable in adulthood. Approximately one or two degrees will progress each adult year. Therefore, regular doctor appointments are recommended (Schommer 44).

Scoliosis has little, if any, interference on pregnancies. Alternatively, pregnancy has an unpredictable impact on scoliosis. Numerous curves deteriorate during pregnancy because of the additional weight on the spine. In addition, because of changes in hormones during pregnancy, tissues are loosened. This enables the curve to progress (Schommer 52).

The frequency of X-ray to monitor the scoliosis curve has worried patients and families. Personally, I have taken over twenty x-rays over my brace treatment. Could the painless and abrupt shot of my spine affect me? Not once has it crossed my mind.

A large number of x-rays taken is associated with a higher risk of breast cancer, thyroid cancer and leukemia. In 1979, a study stated that a typical course of scoliosis monitoring and treatment required 22 x-rays, which increased the risk of breast cancer by 110 percent. On the other hand, a study in 1990 has shown that the increased risk is a negligible 0.25 percent. In order to put things into perspective, the basics of radiation should be explained. The unit of measure for radiation is rad, but millirads are often used. If you stay outdoors in New York City all year, you will receive 90 millirads. A confinement in a brick building in New York City 24 hours a day and 365 days a year will total 140 millirads. 500 millirads will be gathered in a year if you live near a nuclear power plant. A dental x-ray exerts 1000 millirads. Lastly, a scoliosis x-ray is only 10 millirads. Therefore, doctors and researchers have concluded that the increased risk of fatal diseases and cancer caused by scoliosis x-rays are very minimal. (Schommer 31)

"Exercise will alter a scoliosis curve" is a frequent misconception. Although doctors advise patients to stay active in sports, there has been no evidence that exercise would further prevent deterioration of a scoliosis curve or cure it. On the other hand, exercise is recommended because of its value in maintaining fitness. Especially for braced patients, it is important to remain flexible and strong. Most sports are encouraged and allowed including tennis, running, biking, baseball, basketball, volleyball, soccer, golf, rowing, dancing, and swimming. Contact sports like football, hockey, and wrestling are discouraged (Neuwirth 47). My hours after school and on school holidays are dedicated to sports. Banned from my favorite activities, I would be like a car without wheels. Luckily, scoliosis does not limit me to be parked at the driveway all my life.

Despite that scoliosis patients are capable of engaging in athletic activities, research have proven that wearing a brace has an adverse psychological impact (Neuwirth 81). According to a Swedish study, more than half of scoliosis patients and families were in denial when first diagnosed. “We didn’t talk about it in our house. It simply did not exist,” says Alison remembering her experience just following her diagnosis. Questions such as “What did I do to deserve this”, “Why me?” are often pondered by teens. Because adolescence is often the time scoliosis is discovered and first treated, self-esteem is a major concern. Countless adolescents have expressed loneliness and isolation their first few weeks in a scoliosis brace (Neuwirth 50).
To many young patients, the concept of scoliosis as a “cosmetic deformity” has been a huge detriment to social life. I have to admit my heart was pounding as I entered the school grounds on the first day with my brace. It’s not easy to face your friends. Through my experience with wearing the brace to school I have realized that my brace had made me differentiate true friends from superficial friends.

How has scoliosis affected my peers? Salome had difficulty deciding if she should tell her friends about her brace. Could she trust them not to spread it around the school? Will one of her best friends tell her twin sister, the blabbermouth? Tired of rejecting invitations to sleepovers and afraid her friends will start to exclude her because of her absence in sleepovers, Salome faced a huge social dilemma her first month in her scoliosis brace (National).

Even when friends accept that you have scoliosis, they may not treat you the same. Ever since Sarah informed her two best friends about her brace, their relationship has changed. Her best friends treat Sarah like a handicap or a baby. Typical gossips and discussions about make-up, boys, and clothes have even

disappeared from Sarah's friendship. Everything revolves around protecting Sarah and her feelings. When will the pity party end? (National)

A common agreement among adolescents who have struggled with going to school with a brace is: real friends will stand up for you and if your friends make fun of you, they are not your true friends. "My real friends helped me stand taller than my brace ever did." says Michelle (National).

A positive attitude has helped many youngsters to develop self-confidence. Marne, a thirteen-year-old girl, explains that many classmates at her school have the slightest idea about scoliosis. When asked about her brace, Marne simply answers them without hesitation. Some kids are fascinated and most of them see Marne as a perfectly normal girl. Most importantly, Marne also feels the brace will not affect her daily activities (Patient).

Early detection and proper treatment is crucial. Virginia Patterson was discovered to have scoliosis at age eleven. An enormous detriment to Virginia's health, her parents did not refer her to the hospital for medical advice and treatment because they stubbornly denied their daughter was "abnormal". Virginia assumed that her unbalanced shoulder blade was a result of poor posture. From her teenage years to her adulthood, she chose her clothing on the criteria of its ability to hide her prominent shoulder blade regardless of the style and color. "Most people probably go through a store rack looking at the front of an outfit. I almost always went through a rack backwards. If I liked something form behind, I'd see if I liked the front", Virginia explained. Fortunately, her co-worker advised her to receive surgery and Virginia sought for medical help for the first time. By then, her spine shaped like a capital "S" wit the top curve measuring 123 degrees and her bottom curve measuring 68 degrees. (Surgery is required for curves 40 degrees or greater while bracing is

necessary for curves 20 to 40 degrees.) Virginia's lung capacity was reduced by 50%. Thankfully, today, she can select her clothing from the front and exercise without having to stop for a breather every minute (Aitcheson).

In conclusion, insufficient treatment for scoliosis will lead to fatal deformities. On the other hand, endurance for surgeries and bracing treatments will lead to a fairly ordinary life. Regardless the severity of the scoliosis curve, the doors to all activities is open except the ones I close myself.

Thorough research has motivated me to continue to wear my brace with the appropriate hours assigned by my doctor. Instead of getting irritated and wave off my mother when she suggest that I put on my brace, I will remember the serious consequences when the curve progresses. Although I find it literally impossible to fall in love with my brace, I will try to keep a positive attitude. I can always look back to the facts and experiences the long haul of research had shared with me and realize how fortunate I am for my early detection and minor case. I may whine about my soggy undershirt drenched with sweat in the summer and complain about the long hours waiting on the hard bench in the hospital. But hopefully, I can proudly lift my chin up high for what I have endured for the sake of my own personal health when the blissful day comes signaling the end of the bracing treatment.

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