

Medicine

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Clinic

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**(None of the characters in this story are based off real people).**

Holding my forest green celery juice from Pressed Juicery in my left hand I look up at the street sign, shielding my eyes with my other hand from the blazing June sun. The sign read 9th Avenue, *yep that is the right street*, I thought to myself as I gazed at Harborview Medical Center. *I remember mom saying that the clinic was right by Harborview....*I continued scanning the bustling street in confusion then I found an aesthetically pleasing building hidden behind a moving semi-truck with a bright green sign that read “PM4U Clinic”. I sighed in relief as I rushed over to the building as I was 5 minutes late for my appointment, *that's okay there are probably a billion people there anyways so I am sure they won't be waiting for me*, I justified as I got into the elevator heading to the second floor. But I noticed I was definitely wrong with my assumption as the elevator doors opened to what appeared to be the lobby.

It was a serene setting, with dark blue walls with windows opening to a breath-taking view of the Seattle skyline. In the middle of the lobby alongside the back wall was a receptionist table where only one receptionist sat. I scrunch my eyebrows in confusion as I pondered: *where are all the screaming kids running around? Where are all the bored and burned out adults slouched on the seats? Where is everyone?! What is this place? What if I am in the wrong place?! That would be so embarrassing!* I tried to maintain a calm composure as I approached the receptionist who welcomed me with a warm smile, her chocolate brown eyes twinkling as she said, “welcome Aria! We have been expecting you and are glad you were able to make it!” I attempted to hold back an embarrassed blush since she noticed I was late as I mumbled, “I-uh- got lost on the way here but eventually found it...sorry I am late...” she got up from her desk, “no worries! I will show you to your suite, your breakfast is waiting.” *Wait, what? Suite? Breakfast? What is this...some hotel?* “Okay thank you.”

We turned to the right of the lobby and continued down the hallway with an all glass window on the right wall overlooking the congested street below with a gray wall on the other side. There was a dark brown door to the left that I guessed was my suite. “The doctor will be with you soon, it was nice meeting you!” “You too!” I replied as I opened the door and gasped at what I saw. This suite was nicer than most hotel rooms I have been to and this was a medical clinic! The suite was lined with open glass windows, following the same concept as the hallway with a white wall lining the left side of the room. In the center held a medium sized leather couch with 2

leather chairs and a glass table in the middle on top of a fuzzy white carpet. In front of the seating area was a large flat screen TV with gaming consoles underneath it in a dark brown shelf. I was flabbergasted on how nice this clinic was and I wished that all medical clinics were like this. *Maybe someday they will be*, I hoped. I sat on the couch which was surprisingly comfortable and gazed uninterested at my gourmet breakfast laying on the glass table. The celery juice I threw out before entering the elevator filled me up enough to last until dinner, where I would most likely be drinking another one after I go for a run. I'm not much of an eater if you couldn't tell.

20 minutes passed when I heard a faint knock on the door. Suspecting it was my doctor I yelled, "come in!" He opened the door and introduced himself: "good morning Aria, my name is Dr. Wilson and I will be conducting an ultrasound and measuring your body components today." He noticed my uneaten breakfast and asked, "did you not like your breakfast? I find it to be exceptionally good." I shrugged my shoulders, "I am not much of a breakfast eater." He scrunched his eyebrows with a look of concern and thought for a moment then beckoned me to follow him. On the way to the examination room, I asked, "why is this place so different than other clinics?" He chuckled, "because this is the future of medicine. This clinic stands for personalized medicine for you. It is a new and much more effective way of preventing and treating diseases and takes into consideration that everyone has a different genetic makeup. This is why we recommend each new patient to complete genome sequencing so that my team can accurately examine you and make a treatment and prevention plan personalized towards your genes, chromosomes, and overall genetic makeup. On top of that when a new patient signs up we ask them what their primary care provider is so that we can have all files about you and past illnesses and injuries you've had so we do not waste anytime." Hmmm.. "then what about the fancy suite and meals?" He smiled as he opened the door to the examination room, "because we like to spoil our patients and show our appreciation for them having enough courage to try something new. You can lay on the examination table now please."

The examination table was a dark blue with a white clean paper they have on top like most examination tables but the ultrasound machine looked much different than the typical machine does. Noticing my stares Dr. Wilson stated, "I know this does not look like the typical ultrasound. This machine is called the Philips Afiniti Ultrasound machine where we conduct Point of Care Ultrasounds or POCUS for short. This is a more accurate way to evaluate a patient." I laid down on the table timidly, "but don't we only get an ultrasound when there is something wrong with us?" "Not always. Most diseases such as cancer begin silently, this is when they are the weakest and easiest to manage and cure. With an ultrasound we can see any obscure looking organs that we can further investigate. Back to genome sequencing, if we know of any genetic

abnormalities associated with cancer of specific body parts we can focus on those body parts with an ultrasound to make treatment faster." A flurry of panic ensued in my body, "do I have any risk for cancer?" I asked as I raised my shirt up to prepare for the ultrasound. "You are actually very fortunate with your genes because you are only at risk for colon cancer." I sighed with relief, "that does not surprise me, colon cancer runs on both sides of my family." Dr. Wilson nodded, "I've heard."

He puts the excruciatingly cold gel on my abdomen and begins the ultrasound, starting with an examination on my liver and moving further down my abdomen, until he gets to my colon. This is where he stops and turns the screen to where I can see. "You see here?" He points to what I could barely make out to be a colon. "Yeah, that's my colon...what about it?" He smiled, "it is perfectly fine. But, as you get older the risk for colon cancer increases. Since you have a high polygenic risk score for colon cancer due to genetics and family history I highly recommend you start colon screening preferably through a colonoscopy by the age of 30." My eyes widened in astonishment, "30!" I exclaimed, "but don't you start screening at the age of 45?" He nodded, "however since you have a family history and are at risk it is best to start screening early. Colon cancer can spread rapidly." "Ohhh, I see."

We continue with the ultrasound for the next 30 minutes. He looked at everything; from my colon to my kidneys and bladder. I never knew that my left kidney was scarred. Now I know for future ultrasounds to tell the doctor ahead of time that my left kidney is scarred and not to worry about it too much. Now I am back in my suite, watching E news, you know like typical 17 year old girls do. Dr. Wilson told me when he brought me back here that the exercise physiologist, Raelynn, would be here in 15 minutes. That was several minutes ago so she should be here soon. I was anxious and rather irritated that I have not worked out yet...it has been 4 hours since! I was bubbling with excitement to workout with her, hopefully we would do cardio because I need to burn off the calories I had from consuming my juice earlier.

Right when I could not wait any longer I heard a knock on the door, I rushed to open it. An African American women stood in the doorway with workout clothes on. "Aria right?" I smiled, "yep that's me!" Raelynn turned and headed down the hallway, "follow me, we are going to my 'office' where our session will be conducted today. My name is Raelynn Morris if Dr. Wilson didn't tell you and I am the exercise physiologist, obviously." I was taken aback by her brute honesty, but I shrugged my shoulders and just went with it. We need more honest people in the world. We continued down the hallway, passed the lobby, and then I saw it, the best gym ever! It had an all glass wall overlooking the hallway, and the gym had everything! From barbells, kettlebells and pull up bars, to ellipticals, stationary bikes, and treadmills. It was fantastic!

Noticing my excitement, Raelynn commented, “good huh? All this equipment costs as much as the ultrasound machine you just saw.” “Wow! Really? Thats crazy!” She walked over to a rolling table with her laptop on it, which I’m guessing was her station. “Medical equipment is a lot more expensive than most people think. It’s as much as a Ferrari in some cases.” “Huh, I never knew that.” She wheeled the table over to me, “ready?” I almost bounced up and down in excitement, “absolutely!”

“Okay, just a layout of today’s session; first we will assess your cardio, muscle strength, balance, mobility, and flexibility with various exercises. Then we will move to the COSMED Quark CPET metabolic cart over at the stationary bike to assess VO<sub>2</sub> max, resting metabolic rate, and pulmonary function.” Wow, that was a lot of information to process. “Okay, I will just follow you. As long as I get a good workout in then I will be happy. I’ve been getting irritated since my 5 mile run earlier this morning.” A look of concern flashed in her brown eyes, “how often do you workout a day?” I thought about it for a few seconds, “I am not actually sure...it depends on the day and how much stress I am under. If I am under a lot of stress I typically workout more.”

Raelynn did not say anything more and showed me how to do pushup rows and told me to do 10 so I did, easily, even with lifting a 12.5 pound weight. Clearly impressed she asked, “what sports do you do?” “I’ve been doing gymnastics for about 8 years, and then when I was a Freshman I participated in cross country and have been since then.” She wrote down a few notes into her computer, “oh so thats why this exercise is so easy for you. Typically most people that come here are not able to do push-ups, let alone with weight and 10 in a row. But it makes sense that you can do that, especially with your amazing gymnast upper-body strength I am sure you can do a lot more. Would you like to move on to a more difficult exercise?” I looked at the chin-up bar, “could I do chin-ups?” “Sure.”

After completing 3 rounds of 15 chin-ups we moved on to the treadmill where I ran another 3 miles (on-top of the 5 I ran this morning) then we went through multiple flexibility tests, including showing her all 3 splits (left leg, right leg, middles). Now we are at the metabolic cart testing my resistance and cardiovascular system to accurately determine my overall pulmonary function. I had to wear an oxygen mask and was hooked up with many cords. Additionally, I had a blood pressure cuff hooked to my left arm. After biking for a rough 15 minutes I hesitantly stepped onto the bioelectrical impedance (BIA) analyzer- a scale that measures the exact amount of muscle, fat, and other bodily components- in all honesty I did not want to see how fat I was. Raelynn frowned, “looks like you only have 6% of fat on your body.” I smiled, “really?? That’s good! That means I am not as fat as I thought I was!” I exclaimed with a cheery thrill to my

voice. She scanned my body, "hmm...well you can head into the bathroom now across the hall. Take your time while showering and freshening up after an intense workout."

Anger bubbled in my veins, "what? We are done? I am not nearly satisfied with this workout!" She shot me a look of surprise, then retracted back to her calm composure. "You only paid for an hour and a half, I am sorry but you are out of time." I grunted in anger like a little kid, "fine." Then I stormed out of the gym and into the bathroom. It was a typical bathroom you would see in any home with tan tile, with a shower that contained a glass door also decorated with tan tile. I ripped off my clothes and turned on the shower, I was exasperated from not getting a good workout in. *Well...I guess I will have to just workout another 2 hours when I get home, then maybe I will be satisfied.*

After showering and going back to the suite and chilling there, trying to cool off my anger, I got a knock on the door. I opened it to the receptionist from earlier with a meal tray. "Hi Aria, I came to serve you lunch, so here you go!" She announced cheerily. I looked at the meal tray, composed of cesar salad, grilled chicken, and fruit, with distaste. I smiled, trying to look hungry and grateful. "Looks good, thanks!" "Your welcome!" She replied as she closed the door. I placed the meal tray on the glass table and picked at the salad with my fork. My stomach rumbled as much as an earthquake; hunger ate at my organs but I could not let myself eat. I believed I didn't deserve it...I did not work out hard enough to reward myself by eating. So that is why I just lounged on the couch for the next 45 minutes, watching Keeping Up with the Kardashians, trying not to think about the food or my hunger. Finally, Dr. Wilson arrived at my door and took me into his office for my results and final examinations from today.

He looked grim, his lips sewed in a firm line, as he beckoned me to sit down in a lounge chair in his office. He looked into my eyes somberly as he concluded, "what strikes me the most concerning from observations today is that you did not eat a single food item from your breakfast nor your lunch...even after working out extremely hard for an hour and a half with no breaks." I looked down in shame, knowing what he said was true and that I did have somewhat of an eating problem. "You also have only 6% fat on your body which is 19% below the average amount. Raelynn also told me that you were upset after your workout because you were not satisfied. You also workout 2-3 times a day for a few hours without eating enough food. Most importantly, you only weigh 90 pounds and you are 5'5, 17 years old, and still growing." He added softly.

I could not meet his gaze as I murmured, "so what does that mean?" He huffed out a long breath, "you have anorexia nervosa and exercise addiction. Typically an exercise addiction

stems from an eating disorder, especially anorexia." I was not surprised that I had anorexia. I knew that I had an eating disorder but did not know for sure which one. However, the exercise addiction was surprising. I never knew that you could have an addiction to exercise, but I guess it makes sense as to why I would have one. I workout 4-6 hours a day, sometimes more, and if I do not workout more than 4 hours I am not myself. "So now that I know about my addiction and eating disorder, where do I go from there?" He pulled out a paper from on-top of his desk, "I composed a list of options on where to go from here. Most consist of therapy, I highly recommend bringing this list home and discussing it with your parents because some therapy can be expensive and most do not accept insurance." He pulled out another paper from one of his desk drawers and added, "this is an exercise plan Raelynn came up with to reduce your exercise. It is still great to exercise but in moderation. If you exercise too hard you increase your risk significantly for spraining and straining muscles and ligaments. Additionally, your joints can get inflamed, causing arthritis which is horrible to get at such a young age. You are also at risk for fracturing bones, which is never good."

He handed me the papers, I skimmed over the exercise plan. *Only 2 hours a day of working out?! Okay...this will be a big change for me but if it is for the better I guess I will try my best!* "I also recommend seeing a dietitian immediately. You need to be on a strict eating plan to get your weight up. You are 27 pounds below weight, and need to be at least to 125 by the next few months....it is not good for your organs and heart if you are always hungry all the time. Without food they cannot function properly, in the worst case one of your organs could fail, causing you to go to the hospital and have an expensive and risky organ transplant." I contemplated what he was telling me. Information was bouncing around in my head, it sounded complicated to fix my issues, but with the help and support of him, a dietitian, a therapist, and an exercise physiologist, I should be fine and healthy in no time. Unfortunately....I had my mother to worry about. "I do admit I have a problem and need as much help as I can get. I want to get better, but it seems hard with the pressure I have from my parents, especially my mom."

He frowned. "What do your parents do that make you feel a lot of pressure?" My shoulders hunched over in shame as I admitted how weak I was, "Well...my parents put a lot of pressure on me to get perfect grades, perform well in sports, and get into a good college on top of all that." I took a deep breath as I added, "my mom constantly reminds me how fat I am, and that I should work harder. If I do not work hard that day in terms of school and sports, or if I am slacking in performance, she says that I do not deserve to eat. She does this so often that it is now ingrained in me that whenever I do not feel satisfied in terms of working out or school I do not eat until I do. Sometimes it will be a full day before I eat something again."

Dr. Wilson let out a sigh thick with sadness, it made me blush with embarrassment. I do not like people to pity me. "Well, I guess some family therapy would help. If you want I could look into hospitalizing you at Seattle Childrens until you are well, so that you can relax and not have to worry about your parents. Otherwise, I am very sorry to hear that and I hope that because of this visit today that your parents realize how badly they impact you." He looked thoughtful when he added, "if that option makes you uncomfortable, you could always stay with a friend or another family member, like an aunt or grandparent." I perked up at that idea. "Yeah that would be great! I could stay at my grandparents' house while I recover. They will support me and my grandma always tries to fill me up with fantastic food whenever I come over!" He smiled, "well there we have it! In a few months, when your next checkup with me is, I hope to see that you are much better. Good luck until then and please, if you need any help feel free to give us a call!" I bobbed my head up and down. "Okay, that would be wonderful, thank you so much for all the help I greatly appreciate it!"

And with that I exited the room and headed down the hallway to the lobby. On my way out the receptionist greeted me a friendly goodbye and told me she expects to see me soon. I smiled at that and continued to the elevator and out the building. Once I was out into the refreshingly crisp Seattle air I took a deep breath and finally relaxed in what seemed like years of torment. It felt phenomenal to know that so many people supported me on my rigorous journey to recovery and it was all because of a simple visit to a personalized medicine clinic.

*A year later Aria recovered from anorexia nervosa and exercise addiction. She permanently moved to her grandparents house where she now resides, and is going to Columbia University in the fall where she is going to major in biochemistry. She is avid about advocating for personalized medicine, and still sees Dr. Wilson today. She encouraged her grandparents to go to his clinic and since then they have been more active and healthy overall. Aria has rarely talked to her parents because of the bad influence they have on her health, but hopes to one day repair her relationship with them. She recommends to all to try personalized medicine because it saved her life and sense of purpose in the world.*

## Resources Page

<https://www.boldsky.com/health/diet-fitness/2012/excessive-exercise-effects-290312.html>

<https://www.p4mi.org/3-modalities-of-biological-information>

<https://www.projectknow.com/behavioral-addictions/exercise/>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3210598/>

<https://www.unm.edu/~lkravitz/Article%20folder/exerciseaddictionLK.html>