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## Scientific Research? Child's Play...

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## research narrative

# Scientific Research

Harrison To

# Child's Play...

*Lunchtime is long past due. The cafeteria's indistinguishable chatter has grown weary. The early morning ritual PB & J sandwich mommy fixed for me has been devoured, my Capri-Sun drained, and applesauce inhaled. My yellow Pokémon lunchbox is a pigsty of breadcrumbs, Ziploc bags, empty cartons, and a half-eaten cookie. Time drags by. Anticipation mounts as the teacher approaches. One by one, my classmates rise and line up behind one another.*  
**RECESS TIME!!**

Recess was always my favorite part of the day. It was my chance to escape the uniformity of the classroom where every student read the same books, spelled the same words, and worked the same math problems. During recess time, I was at total liberty to immerse myself in the sand pit where I manipulated my surroundings to dig the deepest trenches or build the biggest forts, castles, caves—whatever my creativity could harness. The jungle gym was a rainforest of equipment—decked with slides, swings, stairs, ropes, and poles—waiting to be explored from every aspect. Grasshoppers, ant colonies, and ladybugs in the field were specimens to be collected and observed. Every fallen branch, mud clot, and pinecone was a resource to personify my imagination. Recess was when I flourished. I dreaded getting older, because I would eventually be forced to relinquish the freedom recess provided me and enter the monotonous realm of sipping coffee all day, talking about the weather, and working in the “grown-up world.”

Having been raised in a small college town where my dad was a biological engineering research mentor, I always felt that performing scientific research was somehow a passage of manhood for me—I hated it. I used to sit in my dad's office each evening after school and overhear his students

conversing with one another about their research as I mined through the puzzles in the latest issue of Highlights or played on my Gameboy.

*“Hey, Tim, how do you plan to handle sustained injuries with the limited healing capacity of the cartilage?”*

*“Well, I figured since the tissue is avascular, the invasion of undifferentiated MSC’s might...”*

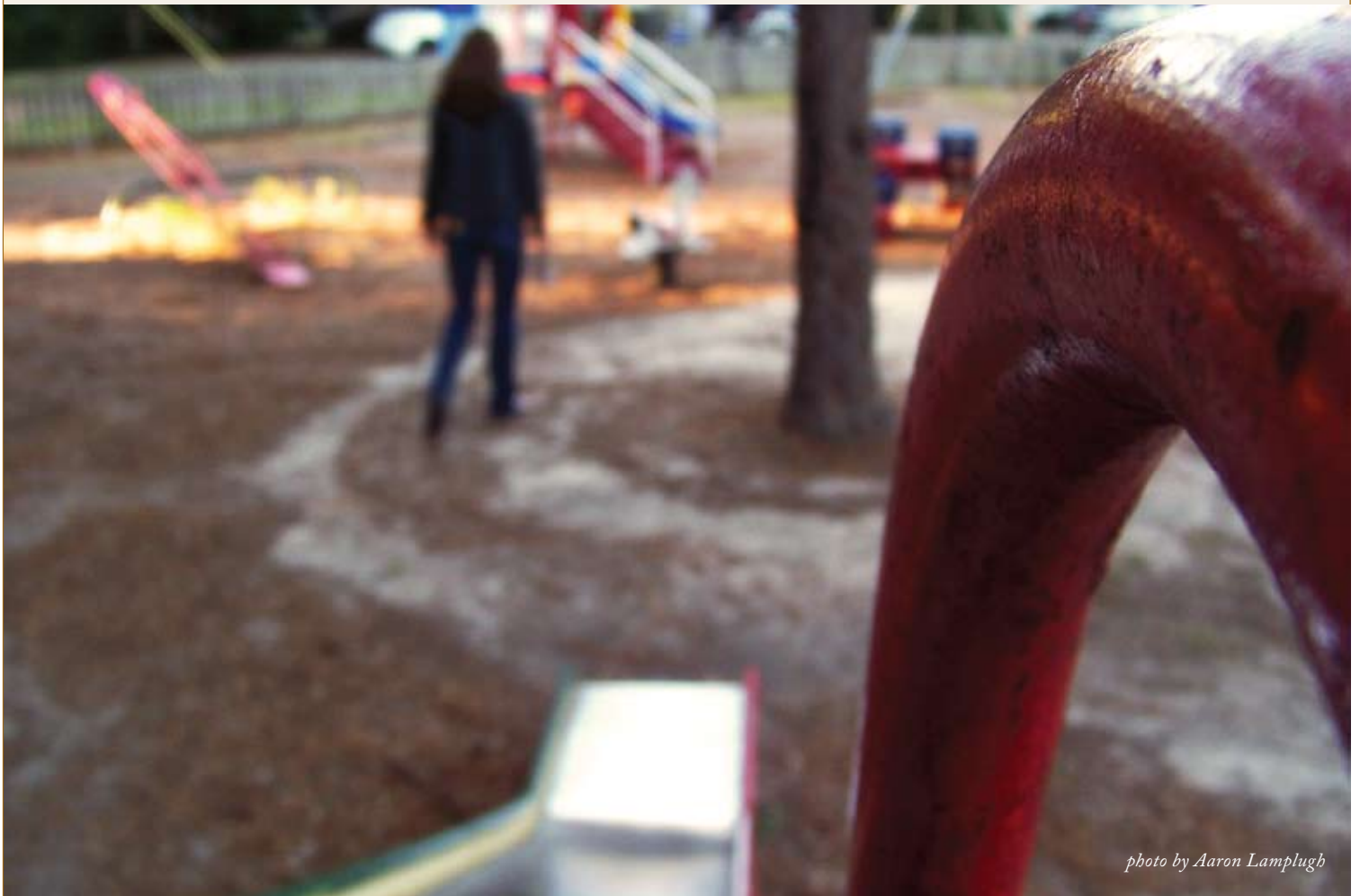
....Blah, blab, blab, blab. As I meandered the hallways warding off the Green-Goblin and ridding the world of evil with my spidey senses and indestructible spider webs woven together in my mind, I often stumbled upon the students’ presentation posters displayed on the wall. *Production of Hyaline-Like Cartilage by Bone Marrow Mesenchymal Stem Cells in a Self-Assembly Model* (Elder, 2008). The diction was a foreign language to me, composed strictly of convoluted words and abbreviations that only left me totally discombobulated and tongue-tied whenever I tried to follow. If becoming of age meant that I had to face that abominable nemesis called Research, I would kindly welcome the Green-Goblin into my life any day.

I’m a freshman in college now, and my passage into manhood has already dawned upon me in the form of neurology. I entered the

lab for the first time bracing myself with the few general science courses I had under my belt, ready to get tossed and turned by the storms of adulthood. The lab was a wreck—maybe the storms had already passed and I could leave. My mentor approached—maybe not. Either way, resignation seemed welcoming. With a wide grin stretched across his face, my mentor greeted me, his pleasant tone immediately throwing my expectation for turbulence off course.

*“Hi, Harrison! I’m Dr. Li. Welcome to the lab.”*

He apologized for the cluttered workbenches, mentioning that they were currently performing their annual inventory check. Dr. Li then blatantly told me that I would not be performing any actual lab work for my first semester. I would simply be reading up on lab-related material and observing the researchers’ techniques and habits so I could begin actual work later on. Good, he was cutting me a break. Maybe I had hope after all. After meeting his research assistants, Dr. Li handed me a stack of research articles to read as an introduction to the lab. For the first time since I came to college, I gazed into the eyes of evil on top of the stack: *Generation and characterization of Dyt1 ΔGAG knock-in mouse as a model for early-onset dystonia* (Dang, 2005). The little optimism I had accumulated from my first minute with Dr. Li was immediately crushed as my childhood horrors resurfaced, plunging me into a sea of despair with nothing but a useless stack of paper



*photo by Aaron Lamplugh*

and a few staples to save me. Those gigantic words seemed just as horrifying as when I was in the third grade, except this time I was actually expected to know, or at least learn, what they all meant. I then looked back up at Dr. Li, forced a smile, and replied, “Thank you.”

uns. My conversations with people might have become a little duller, having been polluted with grueling homework assignments, the weather, and yes, research. However, all those group “study” sessions, spontaneous 3:00 a.m. Waffle House runs, parties not beyond recollection, and endless waves of resulting college drama make my life far from droning. I have yet to learn what it’s

*So now that I'm in college, I guess I'm about to become a part of that grown-up world I always feared entering. Ironically, I feel just as much a kid as I did during my playground days. I still despise the bitter taste of coffee with the passion of a thousand suns.*

Two weeks passed, and I grew more familiar with life in the lab; however, I still loathed my days in the research facility. I attended the weekly lab meetings where the workers presented updates to one another. Each meeting was an epic battle to stay awake as my attention span was burned to ash during the first two minutes of each presentation by seemingly indiscernible diagrams and terminology. I always forced myself to pretend that I learned something in the end so as not to look stupid. I soon gave into my shame as I admitted to myself that I could not maintain this facade for a whole semester. I raised my white flag as I openly confessed to Chad, one of the research assistants, that I had no earthly idea about what was going on in the lab. To my surprise, he simply chuckled and replied, “Neither did I the first two semesters I was here.” I showed Chad the research papers Dr. Li gave me the first day, and he patiently sat with me and broke down each of the papers into their individual units, filling me in with general concepts and common terminology in neuroscience. Gradually, the crashing waves of research and scientific articles that had attacked me my whole life began to recede. Within a few hours the whole research process seemed elementary. All those articles simply said was, “Hey, if I put this disease in a mouse and find changes in its brain activity, maybe I can revert this activity, apply this finding to humans, and find a cure for the disease.” As my time in the lab passed, my understanding of research deepened. I learned that the actual execution of a lab blueprint is an extensive succession of experiments that can take decades to complete. Before a disease can be studied, it must first be placed into countless specimens. Upon having been properly transmitted, the condition must be diagnosed through a myriad of recordings and tests for symptoms both anatomically and physiologically at the molecular level. Next comes the treatment, followed by human studies where the cycle then starts over. Of course, this is all assuming no errors were made in the process. By the end of the day, I was exhausted from having absorbed so much information. But I reigned victorious over a looming enemy finally conquered. So now that I’m in college, I guess I’m about to become a part of that grown-up world I always feared entering. Ironically, I feel just as much a kid as I did during my playground days. I still despise the bitter taste of coffee with the passion of a thousand

like to work for a living, but my experience in the research lab has broadened my horizons tremendously. Do I plan to do research for a living? I don’t know. Do I understand all that complicated diction that baffled me as a kid? Nope—don’t think I will for a while either. Albert Einstein once stated, “The whole of science is nothing more than a refinement of everyday thinking” (Abrajano, 2007). After having been exposed to the world of research, I think I kind of know what he meant and how it can be applied to research in general. The most difficult feat to overcome in performing scientific research is simply obtaining a firm grasp of the concepts and terms in a particular field of science through a procession of education. Once you reach that level of understanding where you are able to freely manipulate your scientific knowledge, the research laboratory that was once an enemy lair becomes a playground. The abyss of mesenchymal stem cells is sand at your fingertips and transgenic mouse breeding a jungle gym. Anticipation mounts. It’s recess time.

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