

Nicholas Fabiano: Removing the divide between physical and mental health

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Emerging researcher Nicholas Fabiano, a psychiatry resident at the University of Ottawa, is committed to bridging the historical divide between physical and mental health. After a broken bone from arm wrestling that required surgical repair and led to nerve damage, he discovered firsthand how physical trauma impacts mental wellbeing – and how exercise can aid recovery of both body and mind. Dr. Fabiano's journey sparked his research into lifestyle interventions for mental health, with a focus on the therapeutic potential of exercise for depression. His recent work includes meta-analyses on exercise and suicide risk alongside practical frameworks helping clinicians "prescribe" exercise for patients with depression. Through active science communication and interdisciplinary collaborations spanning nephrology, cardiology, and ophthalmology, Nicholas advocates for an integrated approach recognizing the profound interconnection between physical and mental wellness. In this Genomic Press Interview, he reflects on his path in medicine, challenges the artificial separation of mind and body, and shares evidence-based guidance for implementing lifestyle interventions in psychiatric care.

Part 1: Nicholas Fabiano – Life and Career

Could you give us a glimpse into your personal history, emphasizing the pivotal moments that first kindled your passion for science?

I have always been obsessed with figuring out how things worked. When I was younger, I would take toys and electronics apart to understand their inner workings. My parents used to tell me that I would approach family friends and always ask if they wanted to do "science experiments". This passion continued throughout my early years in school, where I watched science videos on YouTube, such as Veritasium and Vsauce, for hours on end. I wanted to learn everything I could about biology, chemistry, and physics – I could not choose a single discipline to focus on.

Due to my numerous interests, I decided to pursue a university degree where I could study disciplines across the scientific spectrum rather than limiting myself to a specific niche. As such, I pursued an Applied Life Sciences degree at Lakehead University in my hometown, Thunder Bay, Ontario, Canada. In my first year of University, I was recruited to work in a lab led by Dr. Stephen Kinrade, whose research focused on the chemistry and biochemistry of silicon, including applications in materials science, health, and agriculture. My project was titled "Production of Silicon-31 Radiotracers for the Purpose of Autoradiographic Imaging". Essentially, I developed a novel framework for an isotope production protocol using the product neutrons from the $O-18[p,n]F-18$ reaction used in the production of radiopharmaceuticals; the $P-31$ developed silicon-31 $[n,p]Si-31$ reaction using fast neutrons, which was used to image path and accumulation of silicon within plants. In simple terms, I was taking X-rays of plants to see where silicon accumulated. This project was perfect for so many reasons. Firstly, it was a combination of biology, chemistry, and physics; all



Figure 1. Nicholas Fabiano, MD, University of Ottawa, Canada.

of my passions were in one project. Second, I had no idea what I was doing – at first. This might sound wild, but my favorite part of science is the unknown. It forced me to learn new terms, read novel papers, and apply what I learned in real-time.

We would like to know more about your career trajectory leading up to your current role. What defining moments channeled you toward this opportunity?

Continuing from my imaging of plants, I decided that it would make sense for me to continue my career in radiology. As such, I began to do research with an outstanding preceptor, Dr. Matthew McInnes, where I learned about radiology and the intricacies of publication bias, outcome reporting bias, spin, and citation bias on the evidence base. However, as I went through medical school, I found that what interested me the most was not looking at brain scans but instead the mind's inner workings.

Looking back, it was clear. Throughout my medical rotations, I was much more fascinated by how a patient's physical illness may impact their mind – and vice versa. I wanted to get to know all of my patients as people beyond their medical labels. It was not until near the end of medical school that I completed my first psychiatry rotation. I worked with two excellent preceptors, Dr. Jess Fiedorowicz and Dr. Andrew Smith, during an inpatient psychiatry rotation, which confirmed that this was the specialty for me. I was so fascinated by the various manifestations of the





mind – from depression to mania to psychosis. I found myself going home and reading for hours each day out of pure interest and curiosity. I immediately switched all my final year electives to psychiatry and was fortunate to match my first choice at the University of Ottawa for my psychiatry residency. I then began to focus my psychiatry research with my outstanding supervisors, Dr. Marco Solmi and Dr. Jess Fiedorowicz.

Please share with us what initially piqued your interest in your favorite research or professional focus area.

I have always held the belief that the arbitrary line we have drawn between mental and physical health is one of the biggest mistakes in medicine. Coupled with my personal experiences of weightlifting, competitive soccer, and a broken arm from arm wrestling, I became very interested in lifestyle (exercise, diet, and sleep) approaches to mental health. I noticed that throughout medical school and residency, emphasizing my exercise, diet, and sleep habits improved my mood, decreased anxiety levels, and significantly improved my academic performance. This became abruptly apparent when I broke my arm while arm wrestling in my first year of medical school. Suddenly, I was unable to do the things that I enjoyed so much, and it had significant negative impacts on my overall mental state – influencing all aspects of my life. Not only had I fractured my arm, but during the surgical repair, my radial nerve was damaged, leading to a loss of sensation and motor function, and it was unclear if this would ever return. This was overwhelming for me, as I worried that I would never be able to do the things I had enjoyed or return to a healthy physical state. Due to my lack of activity and physical deterioration, I immediately felt the impact on my mental state, mood, and anxiety levels. However, after a few weeks, I went back to the gym (with my arm still in a sling) and began to train, more motivated than ever. After a few months, I had regained most of my motor function and nerve function, and I was in a significantly better mental state. I used this motivation to propel me to levels that I had not even been at pre-injury, and this truly inspired my research on both the overlap between mental and physical health and also on the potential for exercise as a treatment for depression.

What impact do you hope to achieve in your field by focusing on specific research topics?

The main goal that I wish to achieve in my field is to remove the divide between mental and physical health. They are significantly intertwined and influence one another in a multitude of ways. By ignoring one's physical health, you are not thoroughly treating their mental health and vice versa. As such, I have conducted numerous projects with departments outside of psychiatry (such as nephrology, cardiology, and ophthalmology, among others) to foster collaboration between fields more traditionally seen to operate in isolation. A more focused interest that is indirectly aimed at removing the divide between mental and physical health is my passion for exercise, diet, and sleep as a treatment for mental disorders. I hope to contribute to the evidence base for their use across disorders and provide guidance for physicians looking for assistance on "prescribing" these lifestyle measures.

Please tell us more about your current scholarly focal points within your chosen field of science?

Currently, my main interest is exercise as a treatment for depression. I have recently published a paper that corrected the misleading headline that "exercise is 1.5 times more effective than medication or cognitive behavioral therapy," which was widely disseminated to millions across news outlets, podcasts, videos, and blogs (Fabiano et al., *Journal of Physical Activity and Health*, 2024). I have also conducted two meta-analyses (Fabiano et al., *Journal of Affective Disorders*, 2023; Fabiano et al., *Neuroscience & Biobehavioral Reviews*, 2024), which demonstrated that exercise was associated with a reduction in suicide attempts; however, they found no association with suicidal ideation or deaths by suicide. Initially, it was postulated that this occurred since exercise is known to reduce emotional impulsivity. However, I have since written a piece titled "Is exercise a form of self-harm" (Fabiano et al., *Sports Psychiatry*, 2024) which reframed this discussion from a novel perspective. In this

article, I postulated that in some instances, exercise may serve as a socially acceptable form of self-harm, which may explain the observed decrease in self-harm and suicide attempts following exercise in my previous work. This has generated significant online discussion and resulted in some primary studies examining my hypothesis. Beyond this, I noticed that there was a significant gap in terms of guidance in terms of prescribing exercise for depression. Thus, I recently published a framework for physicians to follow when discussing exercise "prescriptions" for depression with their patients (Zhou et al., *Sports Psychiatry*, 2024).

What habits and values did you develop during your academic studies or subsequent postdoctoral experiences that you uphold within your research environment?

Not being afraid to be incorrect. During my early research days, I was afraid to share my ideas or thoughts publicly, fearing being wrong and scrutinized. However, I soon realized that being incorrect is completely okay, leading to greater discussion and discoveries.

At Genomic Press, we prioritize fostering research endeavors based solely on their inherent merit, uninfluenced by geography or the researchers' personal or demographic traits. Are there particular cultural facets within the scientific community that warrant transformative scrutiny, or is there a cause within science that deeply stirs your passions?

There is a growing inaccessibility of science. According to the most recent estimates, between 2019 and 2023, researchers had to pay nearly USD 9 billion to have their work open access and freely accessible. This creates a barrier to open science and, more importantly, inequality for those without the outrageous funds to publish.

What do you most enjoy in your capacity as an academic or research rising star?

The ability to approach a gray area with confidence and curiosity. In psychiatry specifically, there are so many unknowns, which allows me to attempt to answer infinite questions.

Outside professional confines, how do you prefer to allocate your leisure moments, or conversely, in what manner would you envision spending these moments given a choice?

While alone: lifting weights while listening to music. While with friends and family: at the cottage fishing or kayaking.

Part 2: Nicholas Fabiano – Selected questions from the Proust Questionnaire¹

What is your idea of perfect happiness?

A healthy body and mind.

¹In the late nineteenth century, various questionnaires were a popular diversion designed to discover new things about old friends. What is now known as the 35-question Proust Questionnaire became famous after Marcel Proust's answers to these questions were found and published posthumously. Proust answered the questions twice, at ages 14 and 20. In 2003 Proust's handwritten answers were auctioned off for \$130,000. Multiple other historical and contemporary figures have answered the Proust Questionnaire, including among others Karl Marx, Oscar Wilde, Arthur Conan Doyle, Fernando Pessoa, Stéphane Mallarmé, Paul Cézanne, Vladimir Nabokov, Kazuo Ishiguro, Catherine Deneuve, Sophia Loren, Gina Lollobrigida, Gloria Steinem, Pelé, Valentino, Yoko Ono, Elton John, Martin Scorsese, Pedro Almodóvar, Richard Branson, Jimmy Carter, David Chang, Spike Lee, Hugh Jackman, and Zendaya. The Proust Questionnaire is often used to interview celebrities: the idea is that by answering these questions, an individual will reveal his or her true nature. We have condensed the Proust Questionnaire by reducing the number of questions and slightly rewording some. These curated questions provide insights into the individual's inner world, ranging from notions of happiness and fear to aspirations and inspirations.



Figure 2. A pivotal moment captured in black and white – the X-ray of my fractured humerus from an ill-fated arm-wrestling match. While not my proudest moment, this break became an unexpected catalyst for my exercise and mental health research. It is funny how life works – what started as a rather embarrassing injury in my first year of medical school became a profound lesson about the mind-body connection and sparked my entire research direction. For those curious about the “before” that led to my current work in lifestyle psychiatry, this image tells the story better than words can.

What is your greatest fear?

To look back and regret not having done something because I was afraid.

Which living person do you most admire?

Roger Penrose.

What is your greatest extravagance?

Will look into that once I pay off my student debts.

What are you most proud of?

My friends and family.

What is your greatest regret?

Nothing, since everything is a learning opportunity.

What is the quality you most admire in people?

Grit.

What is the trait you most dislike in people?

Arrogance.

What do you consider the most overrated virtue?

Intellect, as it will never replace hard work.

What is your favorite occupation (or activity)?

Fishing on the lake with my family.

Where would you most like to live?

On the lake at my cottage.

What is your most treasured possession?

The plate and screws that hold my arm together.

Innovators & Ideas: Rising Star
Nicholas Fabiano

When and where were you happiest? And why were so happy then?

Today. I feel so fortunate to be in my current place in life, surrounded by so many great people. I am also so excited by the numerous opportunities that await me, which I work so hard towards each and every day.

What is your current state of mind?

Perpetually curious.

What is your most marked characteristic?

Dedication.

Among your talents, which one(s) give(s) you a competitive edge?

I am not afraid to be wrong or embarrass myself, which leads to fruitful discussions, new ideas, and extensive learning opportunities.

What do you consider your greatest achievement?

Overcoming the mental and physical hardships after breaking my arm and sustaining nerve damage.

If you could change one thing about yourself, what would it be?

I am constantly trying to improve by looking up to people who inspire me.

What do you most value in your friends?

Loyalty.

Who are your favorite writers?

My latest read was Brain Energy by Chris Palmer.

Who are your heroes of fiction?

Rock Lee.

Who are your heroes in real life?

My parents.

What aphorism or motto best encapsulates your life philosophy?

Hard work beats talent when talent does not work hard.

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Nicholas Fabiano¹

¹University of Ottawa, Department of Psychiatry, Ottawa, ON K1H 8L6, Canada

✉ e-mail: nfabio26@uottawa.ca

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