

# Eng121-Intro to Research examples

## Code C119 – Essay 3 Final Copy

These past few decades have been quite a roller-coaster ride in the world of technology. As a society, we went from dial-up internet to 5G and Gigabit connections. We went from having to use multiple floppy disks to run Microsoft Office to storing data online in the cloud. Speaking of the cloud, what is it? The “cloud” is not one, but many servers and machines linked over the internet. Thanks to this new development we are able to use cloud computing, which uses these remote ‘machines’ to perform tasks ordinarily impossible by standard consumer computers. **It comes into play when IT needs a way to increase capacity or to add capabilities on the fly without investing in new infrastructure. (Knorr) Cloud computing is the future of technology for multiple reasons.** Its uses expand beyond the typical consumer use case and greatly helps companies advance as well.

For starters, cloud computing is far more cost-efficient for consumers and businesses compared to the alternative of everyone buying expensive computers for their work. A simple example of this is website hosting. Businesses small and large heavily rely on a company website to advertise and market goods to consumers. This helps the business and the economy grow, but it is very expensive to get started. A dedicated web server can easily cost anywhere upwards of \$1000 to initially purchase which only includes the physical hardware needed to store the information. Today it’s easy to visit a site like digitalocean.com and rent a piece of a server to get the job done at a fraction of the cost. Large data centers with high-end equipment are made for these resource-intensive tasks and businesses save money on costs while the centers also make money on renting out chunks of servers to the world. **Top drivers for the public sector include cost reduction, speed to implement, agility, and access to expertise among other things. (Voss)** Adrian Voss is a Hewlett-Packard solutions architect providing IT transformation solutions and leadership throughout HP’s International Expertise Team.

Additionally, efficiency is very important both in the mind of consumers and businesses. Consumers want the fastest to get their work done, and businesses are always looking for shortcuts and ways to expedite their waiting times to increase profits in the long run. Cloud computing offers an efficient platform for resource intensive tasks. With the recent surge in computer part prices, it is getting very expensive to own and maintain high-end systems. Cloud computing solves some of these problems with a unique solution. **For most applications, the entire user interface resides inside a single window in a Web browser. (Hayes)** Brian Hayes is an award-winning scientist, columnist, and author. This allows companies to invest in a few high-quality machines and let the computer’s web browser communicate with the servers to accomplish tasks quickly. This “tag-team” effort helps reduce wait times by giving businesses and consumers the heavy-duty power they need without physically needing to allot resources to a specific person.

There are plenty of uses outside the civilian level as well. Cloud computing allows advancements in the standard of living for all. **Cloud computing will lower costs and give newfound access to high-powered analytics which wasn’t easily available before. (Vinati).** This

will help the medical field advance by using data from all around the globe in more centralized units. Unlike previous times where multiple places would slowly advance and overcome the same struggles simultaneously, cloud computing would allow multiple groups to work on the same data and advance faster.

When many people think about the future, they think about self-driving cars and robots. None of that would be possible without the combined effort of artificial intelligence and cloud computing. Cloud computing allows for the centralization of data and the resources to compute the data and output results. They provide Artificial Intelligence as a Cloud service in the form of Cloud Machine Learning Platforms and Artificial Intelligence Cloud Services. (Kumar) Kumar is a Tech Associate for HPC at locuz.com. The document outlines how the integration of cloud computing is necessary for artificial intelligence, giving examples like Google's machine learning platform and image analysis.

The days of writing down discoveries and inventions in journals are now over. Thanks to the advancements in technology cloud computing allows people from all around the world connect and perform high-level tasks otherwise impossible to perform on their own. In many areas cloud computing has already been applied creating additional businesses, revenue streams, and helping consumers better their everyday lives. Many college students relate to this as well as the move for computer labs to be linked online has started to expand. Now many colleges like Rutgers and NJIT let you use their expensive machines and computers all from home creating a fast, efficient, and effective work environment for all. Cloud computing is the future and luckily it's here to change things for the better.

## Work Cited

Hayes, Brian. "Digital Library: Communications of the ACM." *ACM*, 2008, [dl.acm.org/doi/fullHtml/10.1145/1364782.1364786](http://dl.acm.org/doi/fullHtml/10.1145/1364782.1364786).

Kamani, Vinati. *5 Ways Cloud Computing Is Impacting Healthcare*, 2 Oct. 2019, [www.healthitoutcomes.com/doc/ways-cloud-computing-is-impacting-healthcare-0001](http://www.healthitoutcomes.com/doc/ways-cloud-computing-is-impacting-healthcare-0001).

Knorr, Eric. *What Cloud Computing Really Means*. Apr. 2008, [skysolutions.co.zw/docs/What\\_Cloud\\_Computing\\_Really\\_Means.pdf](http://skysolutions.co.zw/docs/What_Cloud_Computing_Really_Means.pdf).

Kumar, Mandeep. "An Incorporation of Artificial Intelligence Capabilities in Cloud Computing." *Www.ijecs.in*, Nov. 2016, [www.researchgate.net/profile/Mandeep-Kumar-4/publication/310591511\\_An\\_Incorporation\\_of\\_Artificial\\_Intelligence\\_Capabilities\\_in\\_Cloud\\_Computing/links/58a9c93ca6fdcc0e07982b8c/An-Incorporation-of-Artificial-Intelligence-Capabilities-in-Cloud-Computing.pdf](http://www.researchgate.net/profile/Mandeep-Kumar-4/publication/310591511_An_Incorporation_of_Artificial_Intelligence_Capabilities_in_Cloud_Computing/links/58a9c93ca6fdcc0e07982b8c/An-Incorporation-of-Artificial-Intelligence-Capabilities-in-Cloud-Computing.pdf).

Voss, Adrian. *Voss Cloud Keynote*. Nov. 2010, [www.itapa.sk/data/att/628.pdf](http://www.itapa.sk/data/att/628.pdf).

## D073 – Essay 3 Final Copy

### FinalCopy

Athletes competing at the highest level are always a magnificent sight. They are the cream of the crop. These are the athletes that make it look effortless when they play, such as Steph Curry or. How do they get to this level? They devote hundreds of hours to their skills to be their prime. There are a multitude of things professional athletes must do to become the best. **Professional athletes can be the best in their sport with a combination of proper nutrition, training effectively, and incorporating mental skills to prepare for an event.**

Professional athletes use proper nutrition to perform better in their sport. The world of nutrition can be extremely hard to understand with a multitude of nuances and caveats.. Athletes follow stringent meal plans that work for their body. Andrew Merle has conducted extensive research on professional athletes and has a good understanding of what they eat in a day. Merle is also a sports nutritionist which shows that he has a commending grasp of how nutrition affects the body. Professional athletes all eat “predominantly vegetables, clean protein, and healthy carbs” (Merle). An example of this is NBA (National Basketball Association) player LeBron James. James eats a variety of different foods such as “whole wheat pasta,” “smoked salmon,” and lots of vegetables (Merle). There is also a baseline of what athletes should eat in a day. An especially important aspect of nutrition is hydration. UWHealth, a medical organization, advises that athletes should consume “four to six ounces of fluid every 15 minutes of exercise” (UWHealth). There is also a chart provided by UWHealth that shows how to utilize each macronutrient correctly. UWHealth is a medical organization that has helped many people and is knowledgeable about nutrition. It is clear that with the proper macronutrients and proper meal plan, professional athletes can function more efficiently. This is seen through the likes of LeBron James and other world class athletes.

Professional athletes exercise effectively and listen to their bodies. It is imperative for professional athletes to train properly to have a long and fruitful career. Professional athletes train as hard as they do so they can work as effectively as possible. This is also a place where natural talent and good physical genetics shine through. Most athletes workout multiple times a day and do a variety of different workouts to become better. These workouts may be to increase the athlete’s strength or some stretching in preparation for an event. An example of this is professional cross-country skier, Sami Jauhojarvi. Jauhojarvi says that he exercises twice a day, once in the morning and once in the afternoon (Jauhojarvi). This type of extensive exercising requires dedication from the athlete. He also says that he adjusts his workouts based on how his body is feeling (Jauhojarvi). Jauhojarvi wrote as a guest writer on a website called Firstbeat. Firstbeat is a website that prides itself on the fact that it uses extensive research to formulate its articles. There are also external things that professional athletes do to surpass their peers. Dr. Royan Kamyar has a medical degree and is the founder of Owaves. Owaves uses research and data from customers to curate specific programs to help individuals achieve their physical goals. According to Dr. Kamyar, some professional athletes use the “entourage effect” (Kamyar). The “entourage effect” involves using friends and family members to help train with the athlete

(Kamyar). This is how some of the best professional athletes, like Michael Phelps, are able to stay ahead of the competition. There is also another effect called “manufactured willpower” which entails an athlete’s desire and drive for excellence in their sport (Kamyar). This is how the greats, like Kobe Bryant, have continued to improve their game constantly throughout the course of their long careers. Professional athletes are incredibly hard working and use everything that they can to become the best in their sport. Sami Jauhojarvi is an example of an athlete who incorporates multiple workouts into a day while listening to his body to make sure he is not pushing his body over his limits. The examples that Dr. Royan Kamyar provided are an example of techniques professional athletes utilize to become better than others in their sport.

Professional athletes are able to harness the power of their brain to improve their overall performance. Professional athletes will actively try and train their brain to stay ahead of their competitors. They train their brain by practicing mental skills repeatedly to understand how and when they can use them. Dr. Jack J. Lesyk is a sports psychologist who has worked with many reputable organizations. He works for the Cleveland Cavaliers of the National Basketball Association in addition to working as “the director of the Ohio Center for Sport Psychology” (Lesyk). There are multiple mental skills that professional athletes can train such as “self-talk” and “positive mental imagery” (Lesyk). In addition to that, there are also multiple levels to these skills and different times to use them such as right before a championship game. An athlete would use the aforementioned mental skills to feel more confident. The skills allow for a professional athlete to use their brain in a more effective way. The most important takeaway is that “these skills are learned and can be improved through instruction and practice” (Lesyk). This shows that almost anyone can use their brain to their full potential with some hard work and consistent practice. These skills are used by Olympic athletes as well. The best Olympic athletes use these skills as they are participating in their event. These skills allow athletes to set goals, keep a high level of self-esteem, and control their emotions (Forrester). The author has firsthand experience regarding these skills because she was an Olympic athlete herself (Forrester). Mental skills in professional athletes are very underrated. They are not often talked about and discussed when considering the makeup of a great athlete. Another perfect example of the power of mentality is Kobe Bryant and his iconic Mamba Mentality. Kobe Bryant was known for his fiery attitude towards the game of basketball and was coined as “The Black Mamba”. Therefore, his Mamba Mentality is the constant drive of improving, in any field, throughout the course of a person’s vocation. Kobe Bryant has used this mentality throughout his entire career and achieved great success. Thus, good, well rounded, professional athletes are able to use the power of their brain to improve their overall performance.

It is clear that professional athletes go above and beyond to perform to the best of their ability. Professional athletes follow basic principles consistently to see the results they desire. Professional athletes exhaust their bodies and mind every day for multiple hours a day. They listen to their bodies and do what is right for them as well. It is apparent that there are no shortcuts to being the greatest of all time. Rather, it takes the utmost dedication to keep on going and rise above the rest.

## Work Cited

“Eating for Peak Athletic Performance.” Eating for Peak Athletic Performance | News | UW Health, [www.uwhealth.org/news/eating-for-peak-athletic-performance](http://www.uwhealth.org/news/eating-for-peak-athletic-performance)

Forrester, Nicole W. “How Olympians Train Their Brains to Become Mentally Tough.” The Conversation, 9 Feb. 2020, [theconversation.com/how-olympians-train-their-brains-to-become-mentally-tough-92110](http://theconversation.com/how-olympians-train-their-brains-to-become-mentally-tough-92110).

Jauhojarvi Sami, and Firstbeat. “A Day in the Life of an Athlete: Training and Mind Processing.” Firstbeat, 10 Mar. 2021, [www.firstbeat.com/en/blog/a-day-in-life-of-athlete-training-and/](http://www.firstbeat.com/en/blog/a-day-in-life-of-athlete-training-and/).

Kamyar, Royan. “What I Learned: Over 50 Olympic Athletes' Daily Routines...” Owaves.com, 21 Mar. 2018, [owaves.com/what-i-learned-from-researching-50-olympians/](http://owaves.com/what-i-learned-from-researching-50-olympians/).

Lesyk, Jack J. “The Nine Mental Skills of Successful Athletes.” Ohio Center for Sport Psychology, [www.sportpsych.org/nine-mental-skills-overview](http://www.sportpsych.org/nine-mental-skills-overview).

Merle, Andrew. “The Eating Habits Of The Best Athletes In The World.” Medium, Medium, 16 Dec. 2018, [andrewmerle.medium.com/the-eating-habits-of-the-best-athletes-in-the-world-20fa1462ea1](http://andrewmerle.medium.com/the-eating-habits-of-the-best-athletes-in-the-world-20fa1462ea1).

“Qualifications.” Ohio Center for Sport Psychology, [www.sportpsych.org/qualifications](http://www.sportpsych.org/qualifications)

## #C182 – Essay 3 Final Draft

The first step to home gardening is choosing a crop. To determine a crop several factors must be considered. This might include the growing process, nutritional value of the crop, the crop’s ideal growing season, or even opinion around the use of the crop. Once a crop is chosen the gardening process can begin. First a spot to plant must be planned and it must get enough sunlight for the plants to properly develop. It is not as simple as just placing them in the spot that gets the most sunlight, too much can hinder development. According to J. Benton Jones Jr, author of *Tomato Plant Culture*, “In order to maximize the rate of photosynthesis in the greenhouse, I have found that the tomato plant must be kept in flowing air, moving from below up through the plant canopy” (Jones Jr. 33) Once the crop is planted growth can begin and it must be watered daily. On paper, home gardening might appear to be nothing more than a fun hobby. **In the current pandemic the benefits to home gardening have become especially important to individuals and society.**

There are many reasons as to why people home garden. Through understanding why people have home gardened in the past, more can be incentivized today. The most obvious answer is to grow food, which may be the reason most people start. What is stopping someone from going to a local farmer’s market and purchasing food? Some people who home garden choose to do so because they want their food to be organic. Someone who grows tomatoes will know what the process looked like,

and will know exactly what is being put into any food. Some people who home garden do it for the health benefits. Through using the crops grown, a person could endorse a healthier diet and pursue a healthier lifestyle overall. On top of the benefits seen through the food grown, there are numerous benefits from the physical activity of home gardening. According to a study conducted by a science team from the UK, "A chi-squared test provided overwhelming evidence that frequency of gardening had an effect on physical activity ( $P < 10^{-15}$ ). Perhaps, unsurprisingly, this was primarily seen amongst the individuals who gardened 'daily' suggesting those individuals who gardened less frequently did not make up the level of exercise in other forms." (L.S. Chalmin-Pui et al. 6) Home gardening can be a great source of exercise, especially during the pandemic. The benefits to home gardening have become more important in the current times.

As a result of the lockdown, life at home has become increasingly claustrophobic. Some people go to work and straight home until the next day of work. Some people work from home, causing both life at work and home to become indistinguishable. Some people lost their jobs due to the pandemic and have been waiting for everything to get under control to resume normalcy. Home gardening will not be a solution to problems that arose from the pandemic, but it can offer relief. Citing a study done by a team of psychology professors from the UK, "The strongest associations were observed for self-rated physical health and a composite measure of health. ... To our knowledge, we provide the first empirical evidence of a link between home garden use and greater wellbeing during the COVID-19 pandemic." (J. Corley et al. 5) The findings of this study align with the findings of a previously cited study *Why Garden?*. Both studies prove in writing the benefits to home gardening on a person's wellness. Mental wellness has been severely impacted by the pandemic and home gardening is a great support to help. Home gardening offers a distraction from the mundane routine a person follows. It provides a reason to go outside daily. For some people, home gardening might be the last hobby they consider. By trying something new it allows a person to entertain a new outlook, to consider ideas they had not previously. Going outside and watching the plants grow everyday gives a person responsibility, and something to be proud of. All of this has become very important in the pandemic. Outside of just the ways home gardening can benefit an individual, it provides essential benefits to society.

Home gardening appears to be a fun hobby for some but is essential for others. There exist people who cannot afford food that rely on home gardening. Dilrukshi Hashini Galhena, who has a Ph.D. from the Department of Plant, Soil, and Microbial Sciences at Michigan State University writes "A study of home gardens in Cuba reveals that they were used as a strategy to increase resilience and ensure food security in the face of economic crisis and political isolation [79]. To mitigate recurring food shortage and malnutrition, Cuban households obtained basic staple foods (rice and beans) through rations, but the households relied on their home gardens to obtain additional produce to diversify the family diet [80]." (Galhena et al.) Home gardening provides the fruit and vegetables necessary for a proper diet. Rather than going out to the grocery store every week and buying the same things over and over it can simply be grown. Home gardening will help alleviate any financial worries by providing a steady source of food. The food grown will also provide more nutrients which means that less will have to be eaten. Also, if everyone in a neighborhood home gardens and there is an excess of food then it can be shared. Home gardening can be used within communities to build relationships and create support networks. The more people that home garden the greater the benefits, so what can be done to get as many people as possible involved?

The benefits to home gardening will only grow greater as more people become involved. Something must be done to provide everyone with the opportunity to home garden. There are many obstacles in place. Some people will not have the time to care for a home garden. Some people will not have a way to acquire the knowledge necessary to properly home garden. A lot of people do not live in environments ideal for home gardening. For example, people who live in urban areas. The problem with people living inside of cities is obvious, where can they effectively grow plants? Containers and pots can be placed outside on patios and balconies, or some buildings offer rooftop gardens. A person who lives in a city will have to rely on growing their plants vertically, making use of shelves. Through this they can home garden with ease. The problem with people who live around urban areas is that the soil could be contaminated. In an article written by Rattan Lal, a soil scientist, he states, "Soil contamination by heavy metals [i.e., lead (Pb), arsenic (As), and cadmium (Cd)] and organic pollutants [i.e., polycyclic aromatic hydrocarbons (PAHs), antibiotics, and petroleum products] are among the major constraints limiting the use of urban soils for food production (Menefee and Hettiarachichi 2018)" (Lal R. 874) Although there are things an individual could do to combat the issue, it is one that needs to be addressed at a higher level. For now, awareness is most important.

Through it all, home gardening has significant benefits that are only highlighted in the pandemic. It is a great way for a person who is locked inside from quarantine to get relief. It helps people with both their mental and physical health by providing a healthier diet and keeping them busy outside. It is essential for people who cannot obtain food as easily. In the future, hopefully home gardening is something that everybody will take part in.

#### **Work Cited**

Chalmin-Pui, Lauriane Suyin, et al. "Why Garden? – Attitudes and the Perceived Health Benefits of Home Gardening." *Cities*, vol. 112, 2021, p. 103118. *Crossref*,

doi:10.1016/j.cities.2021.103118.

Corley, Janie, et al. "Home Garden Use during COVID-19: Associations with Physical and Mental Wellbeing in Older Adults." *Journal of Environmental Psychology*, vol. 73, 2021, p. 101545. *Crossref*, doi:10.1016/j.jenvp.2020.101545.

Galhena, Dilrukshi Hashini. "Home Gardens: A Promising Approach to Enhance Household Food Security and Wellbeing." *Agriculture & Food Security*, 31 May 2013, agricultureandfoodsecurity.biomedcentral.com/articles/10.1186/2048-7010-2-8.

Jones Jr, J. Benton. *Tomato Plant Culture: In the Field, Greenhouse, and Home Garden*. CRC Press, 2007,

[books.google.com/books?hl=en&lr=&id=eEy9ftsCqtoC&oi=fnd&pg=PP1&dq=benefits+of+home+garden&ots=duZYF8d7rO&sig=IkyOxK1jH1Qr9rG9MIyZe1gIWio#v=onepage&q=benefits%20of%20home%20garden&f=false](https://books.google.com/books?hl=en&lr=&id=eEy9ftsCqtoC&oi=fnd&pg=PP1&dq=benefits+of+home+garden&ots=duZYF8d7rO&sig=IkyOxK1jH1Qr9rG9MIyZe1gIWio#v=onepage&q=benefits%20of%20home%20garden&f=false).

Lal, Rattan. “Home Gardening and Urban Agriculture for Advancing Food and Nutritional Security in Response to the COVID-19 Pandemic.” *Food Security*, 23 June 2020,

[link.springer.com/article/10.1007/s12571-020-01058-](https://link.springer.com/article/10.1007/s12571-020-01058-3?error=cookies_not_supported&code=be1acc34-4ba8-4f4b-9403-79e6e5dbf254)

[3?error=cookies\\_not\\_supported&code=be1acc34-4ba8-4f4b-9403-79e6e5dbf254](https://link.springer.com/article/10.1007/s12571-020-01058-3?error=cookies_not_supported&code=be1acc34-4ba8-4f4b-9403-79e6e5dbf254).

Menefee, Dorothy S., and Ganga M. Hettiarachchi. *Contaminants in Urban Soils: Bioavailability and Transfer*. CRC Press, 2017.

## Eng122-Research Project examples

These examples are presented to give a preview of what to expect in Eng122 and why we do an “Intro to Research” in Eng121.

### D173- Essay 3 Final Copy

While it may feel like we have been dealing with Covid-19 for ages, in the scientific world two years is not a lot of time to conduct research. Most of the guidance for what types of food can aid in nutritional immunology is on what we already know about the immune system from other diseases. However, the latest research that specifically analyzes the effects of nutrients on the body as it fights this Coronavirus show that **eating a healthy diet can help a person’s immune system fight off a severe Covid-19 infection, and proper nutrition is even more important for recovery after contracting the virus**. Having an adequate intake of certain vitamins and minerals, maintaining a balanced gut microbiota, and following diets that promote a generally healthy lifestyle may not only reduce the risk of serious infection due to comorbidities, but can specifically help the immune system fight and recover against Covid-19.

The body gets energy and nutrients from food, which can be divided into two main categories: macronutrients and micronutrients. The term “macros,” short for macronutrients, would be familiar to those following the popular fad diet of meal prepping which focuses on maintaining a ratio of proteins, carbohydrates, and fats to promote weight loss or muscle growth. Choosing healthy versions of each type of macronutrient can ensure the body is functioning effectively and has enough energy to fight off infections. Immune cells become activated when an infection tries to enter the body. “This activation results in a significant increase in the demand of the immune system for energy yielding substrates (glucose, amino acids and fatty acids) (Calder 77)” as explained by Dr. Philip Calder, of the Faculty of Medicine at the School of Human Development and Health of the University of Southampton, UK. These three forms of energy may sound scientific, but they are commonly found in food. For example, glucose is a type of sugar found in fruit and honey. This simple form of carbohydrates are quickly broken down to provide energy to the body. Amino acids are found in proteins, and they are the building blocks for new cells, so it makes sense that in order for the immune system to create cells to fight off an infection there should be an adequate availability of protein. High concentrations of protein can be found in meat, poultry, fish, eggs, nuts, beans, and dairy. These are also good sources of fatty acids, although some are higher in fats than others. It’s easy to see that a nicely marbled ribeye steak has more fat than a boneless skinless chicken breast. Fat gives food flavor, but it also helps carry nutrients throughout the body. By not only getting a balanced ratio of each macronutrient, but also choosing the foods that have the most concentrations for each category should ensure that the body has what it needs to maintain a strong immune system.

Vitamins and minerals, also known as micronutrients, are vital to overall health and body function. As the prefix suggests, micronutrients are needed in small quantities, so it is important to replace what the body uses every day. Getting enough vitamins and minerals through a healthy diet is ideal, but supplementation can also help the immune system prevent serious infection and fight against Covid-19. While each micronutrient has a role in the body’s processes, Vitamins A, B<sub>6</sub>, B<sub>12</sub>, C, D, folate, zinc, iron, and selenium are particularly important for immune function. In a study on the function of food on the immune system, the same Dr. Philip Calder along with his colleague Samantha Kew at the Institute of Human Nutrition of the University of Southampton, UK, detail the ways that certain vitamins interact in the immune system. They noted the negative effects a lack of nutrients had on immune response, but found that, “providing these nutrients to deficient individuals restores immune function and improves resistance to infection (Calder & Kew 9).” Many of these vitamins can be found abundantly in the food that also provides a balanced source of macronutrients, so it is even more important to choose healthy, whole foods to get the most nutrition out of each meal. While it is preferable to get adequate micronutrients from food sources, taking a daily vitamin supplement can ensure there is enough for the immune system to function properly.

Along with taking a daily multivitamin, studies are showing that increasing the intake of probiotics can be helpful at providing a strong immune response. Probiotics are live cultures of beneficial bacteria that are present in yogurt, buttermilk, and kefir (a fermented milk drink like a thin yogurt). Fermented foods such as kimchi, kombucha,

sauerkraut, miso, and vinegar are also sources of probiotics. Although they help the stomach in different ways than these live cultures, prebiotics are also important for gut health. Prebiotics are simply indigestible fibers that can be found in complex carbohydrates like whole grain wheat and flax seeds, and this fiber helps to stimulate the digestive tract. It may seem counter-intuitive considering how much effort is put into disinfection and personal hygiene to remove any possible Covid-19 germs, however, adding bacteria to the diet in the forms of pre-and probiotics can be beneficial. One study specifically considered the potential that these good bacteria had on improving outcomes from Covid-19 infection. Kamila Sabino Batista, from the Department of Nutrition at the Federal University of Paraiba, Brazil, and her colleagues found that, **“the consumption of probiotics has a potential preventive effect on COVID-19 complications, as they contribute to maintaining a healthy microbiota and reinforcing the intestinal barrier, increasing intestinal motility, and reducing pro-inflammatory states (Batista et al. 8).”** The idea is that the presence of good bacteria competes with harmful germs for available nutrients, and that even some probiotics themselves have the ability to kill the infectious cells. The benefits of probiotic bacteria give another example of the direct connection that food has on the immune system, and how important it is to eat the right foods to stay healthy.

An unhealthy diet not only leads to deficiencies in vitamins, minerals, and other important elements, it can also cause malnutrition. A person is considered malnourished when they have an unbalanced diet and do not get the proper nutrients necessary. It is interesting to note that obesity is considered a form of malnutrition just like being underfed. Malnutrition can weaken a person’s ability to fight off a Covid-19 infection, and it only becomes worse after the effects of infection make it harder to eat anything at all. Consider that hospitalized patients on ventilators cannot eat food; they must rely on IV drips for their nutrients, and as noted earlier it is better to get nutrition from food instead of supplements. Even Covid-positive people who recover at home are at risk of malnutrition. Loss of smell and taste, which are common symptoms of Covid-19, make it hard to maintain an appetite. Fatigue makes it difficult to cook for oneself and being isolated while contagious is a barrier to getting food from outside sources, although thankfully current technology has made home food delivery much easier to access. A recent study took a sample of adults who either recovered at home or were hospitalized and evaluated them for their body’s nutritional composition three weeks after a Covid-19 infection. This study by Luigi DiFilippo, from the faculty of medicine and surgery at the School of Medicine, Vita-Salute San Raffaele University, Milan, Italy, and his colleagues found that among their subjects, **“nearly 30% of patients lost more than five per cent of baseline body weight, and more than half were at risk of malnutrition (Di Filippo 9).”** This is one of relatively few studies to look at the aftermath of a Covid infection, and even fewer to offer any recommendations on how to improve recovery without the use of drugs or other medical intervention by instead highlighting the need for support and guidance for maintaining proper nutrition.

As proven in these studies, good nutrition plays a role in the body’s ability to fight an infection and it can also be an important tool in recovering after contracting Covid-19. However, the typical diet of many Americans is counterproductive to health and wellness, and this increases the chance of severe Covid infection. Ashmika Foolchand, from the Medical Biochemistry Department at the School of Laboratory Medicine and

Medical Science at the University of Kwa-Zulu Natal, South Africa, and her colleagues describe; “a westernized diet, classified by excessive ingestion of red meat, processed food and sugary beverages along with minimal fruit, vegetable and fibre intake, increases the frequency of metabolic diseases like diabetes and obesity, which are linked to systemic low-grade inflammation (Foolchand et al. 4).” There may be no more stereotypically American meal than a McDonald’s cheeseburger, fries, and a large soda. The lack of nutrients in this classically Western meal leaves the immune system deficient and unable to fight an infection as well as it should. This is why having comorbidities like obesity makes getting a Covid infection more dangerous. Alternative diets that feature more balanced macro- and micronutrients, such as the Mediterranean diet or plant-based diets like vegetarianism and veganism, focus less on processed foods and meat and leave more room on the plate for whole grains and vegetables.

While we have a general idea of what foods are healthy, like fresh produce, seeds, and whole grains, if there is conclusive evidence that maintaining a healthy diet can have direct correlation to the body’s ability to fight off a severe Covid infection it will be a compelling reason for people to want to eat healthy to stay healthy. Scientists are continually studying Covid-19 and the effects it has on the body, and as more research is done it will be interesting to see what has proven to be most beneficial. With health and safety top of mind for many, now is a good time to educate people on what foods should be avoided and what foods fulfill a nutritional need, and this may help make the population more resistant to serious infection.

### **Work Cited**

- Batista, Kamila Sabino, et al. “Probiotics and Prebiotics: Potential Prevention and Therapeutic Target for Nutritional Management of COVID-19?” *Nutrition Research Reviews*, 20 Oct. 2021, pp. 1–18, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8593414/>. Accessed 17 Apr. 2022.
- Calder, Philip C. “Nutrition, Immunity and COVID-19.” *BMJ Nutrition, Prevention & Health*, 20 May 2020, <https://nutrition.bmj.com/content/3/1/74>. Accessed 17 Apr. 2022.
- Calder, Philip C., and Samantha Kew. “The Immune System: A Target for Functional Foods?” *British Journal of Nutrition*, vol. 88, no. S2, Nov. 2002, pp. S165–S176, <https://www.cambridge.org/core/journals/british-journal-of-nutrition/article/immune-system-a-target-for-functional-foods/F78BF5CD910E58626D1AF79B47EFCBE9>. Accessed 17 Apr. 2022.
- Di Filippo, Luigi, et al. “COVID-19 Is Associated with Clinically Significant Weight Loss and Risk of Malnutrition, Independent of Hospitalisation: A Post-Hoc Analysis of a Prospective Cohort Study.” *Clinical Nutrition (Edinburgh, Scotland)*, 29 Oct. 2020, [www.ncbi.nlm.nih.gov/pmc/articles/PMC7598735/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7598735/). Accessed 20 Apr. 2022.
- Foolchand, Ashmika, et al. “Malnutrition and Dietary Habits Alter the Immune System Which May Consequently Influence SARS-CoV-2 Virulence: A Review.”

## D100 - Essay 3 Final Copy

### **Mental Health. Discovering Insights from the Altered States of Consciousness Through Psychedelic Therapies**

The use of psychedelic chemicals to enhance the therapeutic process is known as psychedelic therapy. Various civilizations have employed hallucinogenic drugs in holistic treatment and spiritual rituals for thousands of years. The usage of psychedelics was studied extensively during the 1950s and 1960s until they were deemed illegal in the United States. **While psychedelic substances like LSD and psilocybin are currently banned in the United States, they have the potential to cure anxiety, depression, eating disorders, and addiction.** **Investigations into psychedelics have shown how the brain develops temporal and self-consciousness, as well as the use of hallucinogenics to treat mental disorders,** according to Marc Wittmann, (Research Fellow at the Institute for Frontier Areas of Psychology and Mental Health). **If we want to understand more about mental health we must not be scared of stepping out into new territory** (Wittmann).

Over 264 million people suffer from anxiety and depression, according to the World Health Organization. This is a tremendous burden, yet research addressing the problem is at a standstill. Various research in the 1950s and 1960s showed that psychedelics may be used to cure depression. The Controlled Substances Act of 1970, however, made their usage illegal, and research came to a halt. Psychedelic substances can help people who are depressed and anxious in a variety of ways. Some work in a similar way, while others work in a different way. Roland Griffiths, Ph.D., is a Psychiatry and Neuroscience professor at Johns Hopkins University School of Medicine, and his **study on hallucinogenics and especially with a focus on psilocybin has shown that it can aid with depression and anxiety. The treatment appears to be an effective way to improve people's mental, intellectual and social health** (Griffiths et al.). His research found that many psychedelic compounds like LSD, and Psilocybin, when used in concert with psychotherapy, are both safe and effective, even for treatment-resistant diseases.

Anorexia is the most lethal psychiatric condition, with fatality rates of 3–10 percent due to suicide and cardiovascular problems. Bulimia has a high relapse rate of up to 60%. And binge eating disorder, which is defined as out-of-control eating without the purging associated with bulimia, is the most common of all eating disorders, affecting an estimated 2.8 million Americans. Psychedelics appear to be the best treatment for eating disorders because they increase "cognitive flexibility," or the capacity to respond to changing situations rather than following a set of behaviors or thoughts. This is especially true for anorexia, a disease marked by the self-imposition of rigid rules to regulate caloric intake and exercise, as well as uncontrollable anxiety when those rules are broken. **Psychedelic therapy has been shown to be successful in treating a range of mental disorders,** according to Joost J. Brekke, a fundamental connection in the (European) psychedelic area and researcher. **Participants in this study reported reduced**

concerns about eating disorders as well as significant relief from the illness for which they were treated (Breeksema et al.).

Addiction is a condition that demands far more than a person's willpower to conquer. After lengthy and frequent use of drugs, it is sometimes impossible to simply "say no," as people are compelled to re-engage with these substances, even when they are aware of the negative, devastating consequences on their mind, body, and soul. Withdrawal symptoms after an addiction may be severe, and learning new coping methods can be tough, so seeking professional treatment is an important part of the recovery process. Much of the discussion surrounding this potential therapy is around ibogaine, a particular hallucinogenic. Due to its minimal risk of hazardous side effects, ability to help suppress cravings, and capability to assist reduce depression and withdrawal symptoms, this psychedelic offers addiction therapy promise. Experts like Daniel Perkins, an associate professor at Melbourne University, are actively researching how psychedelics might aid with addictions, and the results are encouraging. Much of the studies on ibogaine and psilocybin for smoking, as well as coke and opiate addiction, is centered on these two drugs (Perkins et al.).

There's still a lot to learn about psychedelic healing potential, but what we do know so far is intriguing, especially for those with mental illnesses. As a result, campaigners and lobbyists are seeking to legalize various psychedelic drugs in order to promote access and study. Keep an eye on these therapy alternatives as they change every week. According to Yale psychology professor Matthias Forstman, recent research using rigorous scientific standards has suggested excellent therapeutic outcomes in people with a variety of mental disorders (Forstmann et al.).

## Work Cited

- Breeksema, Joost J., et al. "Psychedelic Treatments for Psychiatric Disorders: A Systematic Review and Thematic Synthesis of Patient Experiences in Qualitative Studies." *CNS Drugs*, U.S. National Library of Medicine, 17 Aug. 2020, <https://pubmed.ncbi.nlm.nih.gov/32803732/>.
- Forstmann, Matthias, et al. "Transformative Experience and Social Connectedness Mediate the Mood-Enhancing Effects of Psychedelic Use in Naturalistic Settings." *PNAS*, 21 Jan. 2020, <https://www.pnas.org/doi/10.1073/pnas.1918477117>.
- Griffiths, R. R., et al. "Psilocybin Can Occasion Mystical-Type Experiences Having Substantial and Sustained Personal Meaning and Spiritual Significance." *Psychopharmacology*, U.S. National Library of Medicine, 7 July 2006, <https://pubmed.ncbi.nlm.nih.gov/16826400/>.
- Perkins, Daniel, et al. "Medicinal Psychedelics for Mental Health and Addiction: Advancing Research of an Emerging Paradigm." *The Australian and New Zealand Journal of Psychiatry*, U.S. National Library of Medicine, 21 Mar. 2021, <https://pubmed.ncbi.nlm.nih.gov/33745287/>.
- Wittmann, Marc. "Altered States of Consciousness." *Book Archive Download*, 4 Sept. 2018, <https://bookarchive.net/pdf/altered-states-of-consciousness-and-mental-health/>

## D064 – Essay 3 Final Copy

According to Dr. Livingston's research, a Chiropractic Physician who received a certification in wellness and nutritional response testing, as well as natural health expert Richard Anderson, N.D., N.M.D., "If you're just over five foot tall you could easily have 25 pounds of poop stuck in your colon. And that estimate is on the conservative side!" (Livingston) **People who are susceptible to developing covid-19 due to weak immune systems should explore the plant-based diet and juice fast due to its ability to detox and nourish the body.** Due to the widespread pandemic, covid-19 has plagued many lives who suffer from a weak immune system. Numerous studies and cases have shown that switching to a plant-based diet improves immune function. Taking it a step further, juice fasts remove tons of waste in the body which helps assist the body's natural immune response.

Plant-based diets have been proven to be of benefit towards symptoms and illness associated with covid-19. With modern medicine stepping in, resources become scarce and facilities run full making scientists look for an alternative method to combat the virus such as nutrition. Usually, hospitals and the traditional approach to health would take precedence, but looking towards diet, specifically plant-based diets, have sprung to the forefront of the conversation. A recent study done by healthcare workers with an enormous exposure to covid patients in six different countries studied the relation between covid-19 and dietary patterns. They found, "Following a plant-based dietary pattern was associated with 73% lower odds of moderate-to-severe COVID-19-like illness". (Storz) The diet affected the emotional and physical part of the body providing it with nutrients and phytochemicals which can advance the body's immune response. Overall, it would at the very least provide health and a reduction in the possibility of contracting the virus.

The majority of Chinese people inside China shifted towards vegetables during the lockdown, and they did it to lose weight and also considered vegetables as a safer choice for food. The lockdown put pressure on everybody to watch their health and in particular what they eat for their health. While meat does have a lot of good protein and other nutrients, it probably isn't best to eat heavy food when you want to avoid a virus and stay light. Yaran You a graduate student from the London School of economics wrote a paper investigating the Chinese's decision to shift to a vegan diet. An online survey done on medical workers in Wuhan, China showed that, "56.1% of participants showed an increase in choosing plant-based meals, and the proportion of participants who did not consume vegetables at all had decreased from 41.46% to 1.22%." (You) This switch showed that vegetables were widely considered the safer option under the pressure of a pandemic.

Throughout the pandemic, Indian people have entirely depended on legacy eating methods to boost immunity such as spices, fruits, vegetables, tea, and honey. Due to financial troubles in

India there is a growing concern of maintaining essential nutrition. People missed work and stores were shut down due to the lockdown which halted the economy. Meeting basic nutrition while also protecting against the virus became the problem. Swapan Banerjee is a dietitian with certifications from Indian as well as International academic Institutions in food, Nutrition, and Dietetics. He outlines in his review article his concern with maintaining essential nutrition on a budget, “The only option to be healthy is by adding immunity-boosting foods which are not only cheap and best but readily available in our daily diet. Here, foods play a significant role by providing the proper nutrition which helps not only to maintain all functions of all the systems of a human body but also strengthen the immunity system to fight against any foreign particles like COVID-19.” (Banerjee) They used basic foods that are already in everyday diets like fruits and vegetables proving yet again that plant-based or vegan diets are effective against the coronavirus.

A proactive measure consisting of: antioxidants, exercise, and fasting can fight the virus through redox balance and bolstering the bodies immunity. Covid-19 has affected primarily the elderly and people with preexisting health conditions such as obesity or diabetes. The environment that obesity creates allows for chronic inflammation and permits viral activity to thrive. One of the best ways to combat obesity and to lose weight is fasting as shown in numerous studies. The data by the Department of Biochemistry from the University of Thessaly and Fotios Tekos who graduated from the University with a degree in Biochemistry and has had lab experience as a member of the Laboratory of Microbiology and Virology for 10 months showed, “fasting plays a significantly beneficial role, and pathological conditions such as obesity and cardiovascular diseases can be significantly altered by changes in food intake.” (Tekos) This prevents future cases of covid and improves the body's natural immunity if afflicted. These basic tenets of a healthy lifestyle can serve to bolster people’s chances against the virus. Another example of fasting being proven effective against the virus is shown in Qiuyun Liu’s research, a doctor from the school of life sciences at the Sun Yat-sen University, “Fasting can halt viral reproduction and relieve symptoms... Multiple episodes of fasting with proper intervals can be conducted to beat pandemic or control viral infection at its infancy.” (Chanyuk) The experiment was done to show that fasting reduced the viral load when contacting someone with the virus every time. But also noted that fasting requires a certain level of health to be performed safely. Overall, the benefits of proper diet and even fasting for intervals throughout the day can alleviate preexisting health conditions and halt viral reproduction such as from the pandemic.

The research has shown that plant-based diets can alleviate poor health conditions such as obesity or cardiovascular disease by alleviating inflammation and strengthening the body's natural immune system. With the pandemic still raging on, people will start to get creative with their defense and this just might be the answer. If plant-based diets do fight and prevail against covid, what other illness can it stop? The body is your temple and cleaning it out with as much waste there is within seems bigger than just stopping a virus. One could only imagine the health wave if everyone banded together on a monthly basis to do a week juice fast.

## Work Cited

- Banerjee, Swapan, et al. "Possible Nutritional Approach to Cope with COVID-19 in Indian Perspective." *Advance Journal of Medicine and Clinical Science*, vol. 6, no. 6, 20 June 2020, pp. 207–219.
- David, Chanyuk L., et al. "Simultaneous Fasting May Contain Sars-cov-2 Infection." OSF Preprints, 17 Apr. 2021. Web.
- Livingston, Dr. Charles. "How Much Poop Is Trapped in Your Body?" *Think Natural First, Perfect Origins*, 7 June 2016, <https://articles.perfectorigins.com/much-poop-trapped-body/>.
- Storz, Maximilian Andreas. "Lifestyle Adjustments in Long-COVID Management: Potential Benefits of Plant-Based Diets." *Current Nutrition Reports*, vol. 10, no. 4, 10 Sept. 2021, pp. 352–363., <https://doi.org/10.1007/s13668-021-00369-x>.
- Tekos, Fotios, et al. "The Importance of Redox Status in the Frame of Lifestyle Approaches and the Genetics of the Lung Innate Immune Molecules, SP-A1 and SP-A2, on Differential Outcomes of COVID-19 Infection." *Antioxidants*, vol. 9, no. 9, 25 Aug. 2020, p. 784., <https://doi.org/10.3390/antiox9090784>.
- You, Yaran. "Shift towards Vegan in China during COVID-19: An Online Behavioral Survey Study." *Proceedings of the 2020 2nd International Conference on Economic Management and Cultural Industry (ICEMCI 2020)*, vol. 30, 2020, pp. 298–303., <https://doi.org/10.2991/aebmr.k.201128.059>.