CUNY SPS

DATA698: Master’s Research Project

Professor: Dr Paul Bailo

Student: Michael O’Donnell

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Project: The Effects of COVID-19 on Americans’ Exercise and Nutrition

# **Introduction**

The Coronavirus disease 2019 (COVID-19) was declared a global pandemic by the World Health Organization on March 11th, 2020.[1](#_Relevant_Research/Journal_Papers) As a response, the United States declared a national emergency on March 13th, 2020 to slow the spread of COVID-19. The national emergency imposed school closures, nonessential businesses closures, cancellation or large public gatherings such as sporting and entertainment events[2](#_Relevant_Research/Journal_Papers), travel restrictions, quarantines for travelers, and stay-at-home orders implemented by governors and mayors.[3](#_Relevant_Research/Journal_Papers)

Due to the global pandemic and US national emergency, the behavior and attitude of US public changed. Surveys from May 5-12, 2020 showed US citizens avoided groups of 10 or more persons and agreed with rules that prohibited inside dining.[4](#_Relevant_Research/Journal_Papers) Another study showed a drastic decrease in US population movement from state-to-state during March, April and May, 2020.[5](#_Relevant_Research/Journal_Papers) All of this change is continually shaping a “new normal” in the United States.[6](#_Relevant_Research/Journal_Papers)

However, what exactly does and will the “new normal” look like? Some differences are obvious and well-covered, like more working from home[7](#_Relevant_Research/Journal_Papers) and Netflix subscriptions[8](#_Relevant_Research/Journal_Papers). But, what about the non-intuitive differences? The small changes in our day-to-day life?

Well, this project will dig into the “new normal” for exercise and nutrition in the United States. The US national emergency halted the infrastructure of community exercise; gyms closed and team sports were canceled.[9](#_Relevant_Research/Journal_Papers) In tandem, dining out was altered, community/group meals changed, and the US experienced agriculture production changes.[10](#_Relevant_Research/Journal_Papers) How did all this change exercise and nutrition? Were these temporary changes, or will pre-COVID-19 exercise and nutrition changes resume with time? Will gyms be different in 2025? This project will use many datasets to examine these questions.

# **Relevant Research/Journal Papers**

A summary of key journal papers relevant to your work.

1. WHO

Timeline of WHO’s response to COVID-19

World Health Organization, 2020

<https://www.who.int/news-room/detail/29-06-2020-covidtimeline>

Date accessed: September 25, 2020

1. Chowell, Gerado, and Kenji Mizumoto. “The COVID-19 Pandemic in the USA: What Might We Expect?” The Lancet, 4 Apr. 2020, [www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30743-1/fulltext#seccestitle10](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30743-1/fulltext#seccestitle10).
2. Gostin LO, Wiley LF. Governmental Public Health Powers During the COVID-19 Pandemic: Stay-at-home Orders, Business Closures, and Travel Restrictions. JAMA. 2020;323(21):2137–2138. doi:10.1001/jama.2020.5460, <https://jamanetwork.com/journals/jama/article-abstract/2764283>
3. CDC

Public Attitudes, Behaviors, and Beliefs Related to COVID-19, Stay-at-Home Orders, Nonessential Business Closures, and Public Health Guidance — United States, New York City, and Los Angeles, May 5–12, 2020

Center for Disease Control, 2020

<https://www.cdc.gov/mmwr/volumes/69/wr/mm6924e1.htm?s_cid=mm6924e1_w#T1_down>

Date Accessed: September 25, 2020

1. CDC

Timing of State and Territorial COVID-19 Stay-at-Home Orders and Changes in Population Movement — United States, March 1–May 31, 2020

Center for Disease Control, 2020

<https://www.cdc.gov/mmwr/volumes/69/wr/mm6935a2.htm?s_cid=mm6935a2_w>

Date Accessed: September 25, 2020

1. Roberts, Jennifer. “Environments, Behaviors, and Inequalities: Reflecting on the Impacts of the Influenza and Coronavirus Pandemics in the United States.” MDPI, 22 June 2020. <https://www.mdpi.com/1660-4601/17/12/4484/htm>
2. Ahmad, Tabrez, Corona Virus (COVID-19) Pandemic and Work from Home: Challenges of Cybercrimes and Cybersecurity (April 5, 2020). <http://dx.doi.org/10.2139/ssrn.3568830>
3. Dias, Murillo. (2020). NETFLIX: FROM APOLLO 13 TO THE CORONAVIRUS PANDEMIC. 8. 21-35. 10.11216/gsj.2020.08.42678. <https://www.researchgate.net/publication/343445075_NETFLIX_FROM_APOLLO_13_TO_THE_CORONAVIRUS_PANDEMIC>
4. Gentil, Paulo et al. “Resistance Training in Face of the Coronavirus Outbreak: Time to Think Outside the Box.” Frontiers in physiology vol. 11 859. 7 Jul. 2020, doi:10.3389/fphys.2020.00859, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7358585/>
5. J Surg

The socio-economic implications of the coronavirus pandemic (COVID-19): A review

NCBI, 2020

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7162753/>

# **Problem Statement**

The main focus of this research is to use data to answer the following questions:

* Is there a statistically significant change in American exercise behavior between today and this time last year?
* Is there a statistically significant change in American nutritional intake between today and this time last year?
* Will there be the same number of gyms in the US in 2025 as there were in 2019?
* Are there more runners in the US today than there were in 2019?
* By month, did Americans’ exercise more or less during 2020 than 2019?

# **Methodology**

* A statement of objectives, proposed methodology, and the evaluation measure for the performance of the proposed methodology.

For this research, exercise and nutrition data will be collected from many health apps. Podcast production data about exercise and nutrition will be collected from Spotify. Tweets about exercise and nutrition with be collected from twitter. And, exercise datasets will be collected from Kaggle and Google Datasets.

After the data has been collected, statistically significant increases and trends will be evaluated in python.

After the data is searched for trends, a simulation model will map out exercise trends for the next 5 years.

# **Assumptions**

* A conceptual/high-level description includes assumptions, what aspects will be considered in your model/approach, and a study logic.

The main assumption(s) for this research are:

1. Enough historical exercise and nutrition data can be collected from health apps to compare against current data.
   1. May be able to find this data stored online (personal githubs, Kaggle, etc)

# **Datasets**

1. Podcast reviews dataset: <https://www.kaggle.com/thoughtvector/podcastreviews/discussion>
2. Spotify API data: <https://developer.spotify.com/>
3. Twitter API data: <https://developer.twitter.com/en>
4. Strava API data: <http://developers.strava.com/>
5. Garmin API data: <https://developer.garmin.com/health-api/overview/>
6. Statista datasets