Throughout the years, more and more people are interested in learning more about their genes. Whether it be their own ancestral past, personal health, nutrition, and potential health problems, genetic testing can be a valuable tool to help answer their own questions regarding with their genes. As proof, there is a report that showed that there is going to be a major increase in the purchase of genetic testing from 2023 ($1.9 billion) to 2030 ($8.8 billion). Since there is a rise of people buying genetic testing, some companies are pitching some of their genetic testing to sports and fitness to see what a person can do to become better physically. In addition, there are some sports programs that are using these genetic testing to improve on their performance and workouts. However, there are some controversies regarding if genetic testing is giving valid information to consumers related to sports and fitness.

 Some genes are very predictable for genetic testing to give valuable information to the public. For example, there is a case study relating to genetic testing for women about mutations of BRCA1 or BRCA2 gene. Testing these mutated genes have shown that there is a 60% - 80% lifetime risks for breast cancer. Also, there is a 40% - 50% lifetime risk of ovarian cancer for women who has a mutated BRCA1 and there is a 10% - 20% lifetime risk of ovarian cancer for women who has a mutated BRCA2. However, some researchers like Caulfield, argued that genes are a lot more complexed to even predict; eventually, giving very little information to help make a difference to people’s sports, fitness, and health.

 There were some scientific researches about whether or not how much gene matters regarding with sports and fitness. One of the genetic tests that Caulfield did tested on whether or not he would excel at sprinting. The results showed that he is unlikely to excel at sprinting since he does not have the sprinting gene to allow him to have highly explosive movements. However, Caulfield has competed track and field throughout his childhood and college, and he is very talented at sprinting. Caulfield has also questioned that if the sprinting gene matters, wouldn’t all the Olympic jumpers/sprinters have the gene to have highly explosive movements. Additionally, there are other significant factors that play a part in regarding to sports and fitness performance such as diet, sleep, training, etc. Lastly, scientists have questioned whether or not genetic tests is scientifically valid and accurate. Some researchers, such as Dr. Dylan MacKay, have recognized that when it comes to the actual genetic testing, it is accurate. However, there are problems with genetic testing companies interpreting results. Dr. MacKay believes that the results of these tests are not run by a randomized controlled trials but is based on associations. Also, tests results can be vague or too standard in relation to advices.

 Unlike issues related to genetic testing for fitness and sports, there are still people who are intrigued to buy some of these genetic testing. With the help of technology and the rise of consumerism, we can improve genetic testing and recommendations to those who have a desire to understand their genes with sports and fitness. In return, we can understand more about the relationship between genetics and sports/fitness. Potentially in the future, we can see how well genes can work together with sports and fitness.

Citation:

Cable News Network. (2024, February 6). Can a DNA analysis help improve your fitness?. CNN. <https://www.cnn.com/2024/02/06/health/dna-analysis-fitness-wellness/index.html>

References:

Direct-to-consumer genetic testing market size report. *Direct-to-Consumer Genetic Testing Market Size Repor*t*;* <https://www.grandviewresearch.com/industry-analysis/direct-to-consumer-genetic-testing-market-report.> (2023)

John, R., Dhillon, M. S. & Dhillon, S. Genetics and the elite athlete: Our understanding in 2020. *Indian journal of orthopedics*; [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7205921/.](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7205921/) (2020)

Roberts, C. Uncovering genetic testing in Athletics. *Science for Sport*; [https://www.scienceforsport.com/uncovering-genetic-testing-in-athletics-limits-concerns-and-possibilities/#:~:text=Primary%20findings%20reviewed%3A,profile%20that%20presents%20sporting%20success.](https://www.scienceforsport.com/uncovering-genetic-testing-in-athletics-limits-concerns-and-possibilities/%23%3A~%3Atext%3DPrimary%20findings%20reviewed%3A%2Cprofile%20that%20presents%20sporting%20success.) (2023)

Somasundaram, K. BRCA1 and BRCA1 genes and inherited breast and/or ovarian cancer: Benefits of genetic testing. *Indian journal of surgical oncology*; [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3244237/#:~:text=The%20discovery%20of%20two%20genes,ovarian%20cancer%20(HBOC)%20syndrome](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3244237/%23%3A~%3Atext%3DThe%20discovery%20of%20two%20genes%2Covarian%20cancer%20%28HBOC%29%20syndrome). (2010)