A healthy well-balanced diet should include macronutrients like protein, fats, and carbs since it gives the body the fuel and nutrients it needs to function. Carbs are known to be the primary source of energy as it supplies the body with glucose, which provides energy for the body's function and physical activities.<sup>1</sup> Healthy carbs are found in foods like whole grains, beans, fruits, and vegetables. Fats are considered to be the secondary source of energy as it is supplying energy that can use immediately or "stored for later when the energy from carbs is depleted."<sup>2</sup> Healthy fats can be found in foods like nuts, seeds, and oils, which are stored in the body to provide insulation, protect organs, regulate cholesterol levels, and carry fat-soluble vitamins.<sup>2</sup> Protein has many different functions in the body and can be obtained from various sources. Over the last few decades, especially in the 1970s and 1990s, these macronutrients have been subject to various forms of vilification, where one or more components got labeled as "bad" or "unhealthy." Due to the defemination of certain macronutrients, like fats and carbs, there has been a rise in popular diets that promote restricting or avoiding a particular macronutrient, like low-fat and low-carb diets. Carbs have been vilified due to weight gain and obesity, and fats have been condemned because of their negative impacts on health. Protein has not been vilified like the other macronutrients due to its ability to increase satiety, promote weight loss, and build muscle mass, and the lack of evidence linking protein to negative health outcomes.

The vilification of carbs and fats has been a prominent trend in nutrition and dieting, with a focus on low-fat and low-carb diets. In the 1980s, there was a belief that high-fat (low-carb) diets could lead to heart disease based on the study by Ancel Keys: the Seven Countries Study. It was found that there was a correlation between the consumption of saturated fat and heart

<sup>&</sup>lt;sup>1</sup>Keith Pearson. "What Are the Key Function of Carbohydrates?" Healthline. Healthline Media, 2017. <u>https://www.healthline.com/nutrition/carbohydrate-functions</u> (website)

<sup>&</sup>lt;sup>2</sup>Carolyn L. Todd. SELF, 2019. <u>https://www.self.com/story/what-fat-does-in-your-body</u> (website)

disease, where the men in countries with high consumption of saturated fats had high rates of heart disease and low consumption of saturated fats had low rates of heart disease.<sup>3</sup> This study led to the idea that a low-fat and high-carb (low-fat) diet was the best way to prevent heart disease. By reducing dietary fat intake, cholesterol would decrease, which decreases the risk of heart disease. The low-fat diets got promoted by emphasizing lowering cholesterol levels to prevent heart disease, which was assumed to be linked with consuming fat.<sup>4</sup> This marketing strategy led to a variety of low-fat food, like low-fat snacks and dairy products without added fat. While people were lowering their fat intake, their carb intake seemed to be increasing as fats got replaced with carbs. While carbs are the body's main source of energy, excessive consumption of high-carb foods like sugary drinks and processed foods can lead to weight gain as they tend to be calorie-dense and often consumed in large quantities. As people started to realize that low-fat diets have high-carb leading to weight gain, they started to follow low-carb diets to manage their weight and improve their health.

Low-carb diets gained popularity in the early 2000s as people started to focus on weight loss – the diet emphasized reducing carbs intake, especially from refined and processed sources, and increasing the consumption of protein and fats. In the 2004 study, it was discovered that "more than 60% of adults and 30% of children and adolescents were being classified as overweight or obese."<sup>5</sup> This study shed light on the impacts of obesity, such as the increased risk of chronic health issues like heart disease and diabetes. People started to follow specific diets, like Atkin's diet, to lose weight – they followed "a very low-carb/high-fat diet that included

<sup>&</sup>lt;sup>3</sup>Denise Minger. Primal Nutrition, 2014. (pg. 98 – the graph "Dietary Fat vs. Mortality from Heart Disease, 1957") <sup>4</sup>Gina Kolata. New York Times, 1990. <u>https://www.nytimes.com/1990/02/28/us/report-urges-low-fat-diet-for-everyone.html</u> (website/newspaper)

<sup>&</sup>lt;sup>5</sup>MS Westerterp-Plantenga, et, al. International Journal of Obesity, 2002. (pg. 50 – the table "physical characteristics and hunger and satiety scores)

ample quantities of meat, dairy, and eggs."<sup>6</sup> Some people follow low-carb diets to manage conditions like diabetes and epilepsy. These kinds of diets involve consuming foods high in protein and fat and lowering carb intake, which makes the body go into a state of ketosis: burning fat for fuel instead of carbs.<sup>7</sup> These diet trends led to marketing efforts for low-carb diets focused on the potential for weight loss and improved self-image, using before and after images to promote the benefits of the diet (products).<sup>8</sup> The oversimplification of the importance of carbs and fats has led to confusion among the public about which foods to eat and avoid, resulting in a shift towards processed and low-fat or low-carb diet alternatives. The vilification has led to a shift in focus toward protein's role in nutrition, which plays an important part in maintaining overall health.

Protein is an essential macronutrient that plays a crucial role in the body's function. Between the 1940s and 1950s, the US government emphasized the importance of having protein by promoting meat and dairy products as part of their effort to support the agriculture and meat industries to ensure a steady supply of food.<sup>9</sup> This led people to associate protein-rich animal products with strength, health, and prosperity. During the 1970s, the rise of the fitness industry and bodybuilding culture popularized the idea that high protein intake was needed for building muscle and achieving a lean physique. Since most people were following low-fat diets around this time to reduce the risk of heart disease, it was easier to market high-protein, low-carb diets as healthier alternatives.<sup>10</sup> In the 1990s, the population of low-carb diets contributed to the belief

<sup>&</sup>lt;sup>6</sup>Gyorgy Scrinis. New York: Columbia University Press, 2013. (pg. 122)

<sup>&</sup>lt;sup>7</sup>Valencia Higuera. Everyday Health, 2022. <u>https://www.everydayhealth.com/diet-nutrition/ketogenic-diet/ketosis-what-it-its-safe-how-achieve-it-symptoms-more/</u> (website)

<sup>&</sup>lt;sup>8</sup>Amanda Schaffer. Slate Magazine, 2004. <u>https://slate.com/technology/2004/11/misleading-marketing-of-low-carb-products.html</u> (website)

<sup>&</sup>lt;sup>9</sup>Wilson J. Warren. University of Iowa Press, 2018.

<sup>&</sup>lt;sup>10</sup>Molly O'Neill. New York Times, 1990. <u>https://www.nytimes.com/1990/11/28/garden/the-new-nutrition-protein-on-the-side.html</u>. (website/newspaper)

that consuming more protein helped with optimal health and fitness. While the importance of protein as a macronutrient has always existed, having a diet that is balanced and has variety is important to prevent protein overconsumption.

Protein is necessary for various functions in the body, like building and repairing tissues, producing enzymes and hormones, maintaining muscle mass and bone density, and supporting a healthy immune system. It can be obtained from animal sources, like meat, fish, eggs, and dairy products, and plant sources, like nuts, seeds, legumes, and grains. The body needs about twenty different types of amino acids to function, and nine of those are considered essential amino acids that are obtained from protein since the body can't produce them on its own.<sup>11</sup> While animal-based proteins contain all nine essential amino acids, it is possible to obtain them from plant-based sources by combining different types of plant protein.<sup>11</sup> The amount of protein required depends on various factors, such as age, gender, weight, and physical activity level – the recommended daily protein intake is "0.8 grams of protein per kilogram of body weight,"<sup>12</sup> although athletes require higher amounts.<sup>13</sup> As protein consumption is essential for a well-balanced diet, it has led to the rise of high-protein diets, which prioritizes protein intake over carbs and fats.

The amount and quality of protein in someone's diet can have a significant impact on overall health and well-being, including the effects on muscle mass, bone health, weight management, and disease prevention. A high-protein diet has numerous benefits, like an increase in "muscle mass and strength, improving bone health, and aiding in effective weight

<sup>&</sup>lt;sup>11</sup>Jane E. Brody. The New York Times, 1978.<u>https://www.nytimes.com/1978/01/25/archives/a-thinking-bodys-guide-to-protein-personal-health-personal-health.html</u> (website/newspaper)

 <sup>&</sup>lt;sup>12</sup>Harvard Health, 2022. <u>https://www.health.harvard.edu/blog/how-much-protein-do-you-need-every-day-201506188096</u>
<sup>13</sup> New York Times, 1980. <u>https://www.nytimes.com/1980/03/19/archives/recommended-daily-dietary-allowances-designed-for-the-maintenance.html</u> (website/newspaper)

management."<sup>14</sup> Eating more protein can help control appetite and promote feelings of fullness, leading to reduced calorie intake and weight loss. However, there are risks associated with high-protein diets. It can "put a strain on the kidneys and increase the risk of kidney damage, especially in those with pre-existing kidney problems."<sup>15</sup> Excessive protein consumption can lead to an imbalance in macronutrients as too much protein can replace the importance of other nutrients that are also important for a well-balanced diet. Moreover, it can increase the risk of heart disease, like "atherosclerosis and lesion complexity,"<sup>16</sup> and digestive issues, like "bloating, constipation, and diarrhea."<sup>15</sup> High protein diets can be high in saturated fat when the primary source is animal-based, which can increase the risk of heart disease. While there are benefits and risks to following a high-protein diet, the benefits often overshadow the risks.

Protein has not been vilified due to its numerous health benefits and the lack of evidence linking it to negative health outcomes. Scientific evidence has shown that an adequate amount of protein consumption can improve heart health, blood sugar control, and weight loss.<sup>17</sup> It can increase satiety and reduce calorie intake, which is helpful with weight loss and blood sugar control. Having protein in the diet is important for muscle mass and bone density, which is important when doing intense physical activities,<sup>18</sup> as weightlifters and bodybuilders often promote protein products and how having protein in their diet helps them grow muscles. Even though there has been evidence showing that high-protein diets can lead to an increase in the risk of heart disease, the evidence is inconsistent as other factors like carbs and fats intake, diet quality, and lifestyle habits play a more significant role. Overall, the positive health benefits

<sup>&</sup>lt;sup>14</sup>Kris Gunnars. Healthline, 2019. <u>https://www.healthline.com/nutrition/10-reasons-to-eat-more-protein</u> (website) <sup>15</sup>Emily Cronkleton. Healthline, 2023. <u>https://www.healthline.com/health/too-much-protein</u> (website)

<sup>&</sup>lt;sup>16</sup>Xiangyu Zhang, et, al. Nature Metabolism 2, 2022.

<sup>&</sup>lt;sup>17</sup>Jennifer Clapp and Gyorgy Scrinis. Globalization, 2016. (pg. 579)

<sup>&</sup>lt;sup>18</sup>Gretchen Reynolds. New York Times, 2018. <u>https://www.nytimes.com/2018/02/07/well/move/lift-weights-eat-more-protein-especially-if-youre-over-40.html</u> (website)

associated with protein intake and the lack of evidence linking it to negative health outcomes have prevented protein from being vilified in the same way as fats and carbs.

The vilification of carbs and fats, as unhealthy and detrimental to health, has led to a shift in focus towards protein's role in nutrition, which is essential for various functions in the body, like maintaining muscle mass and bone density, and supporting a healthy immune system. Protein has not had the same treatment as carbs and fats due to its ability to increase satiety, promote weight loss, and build muscle mass, and the lack of evidence linking protein to negative health consequences. While excessive protein intake may have negative health effects, like putting a strain on the kidneys leading to dehydration and increased risk of kidney damage, an adequate amount of protein is important in a diet to be well-balanced. While it is vital for people engaging in high levels of physical activity to follow a high-protein diet, it is not the case for the general public. The positive health benefits associated with protein intake prevented it from being criticized the same way carbs and fats.

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