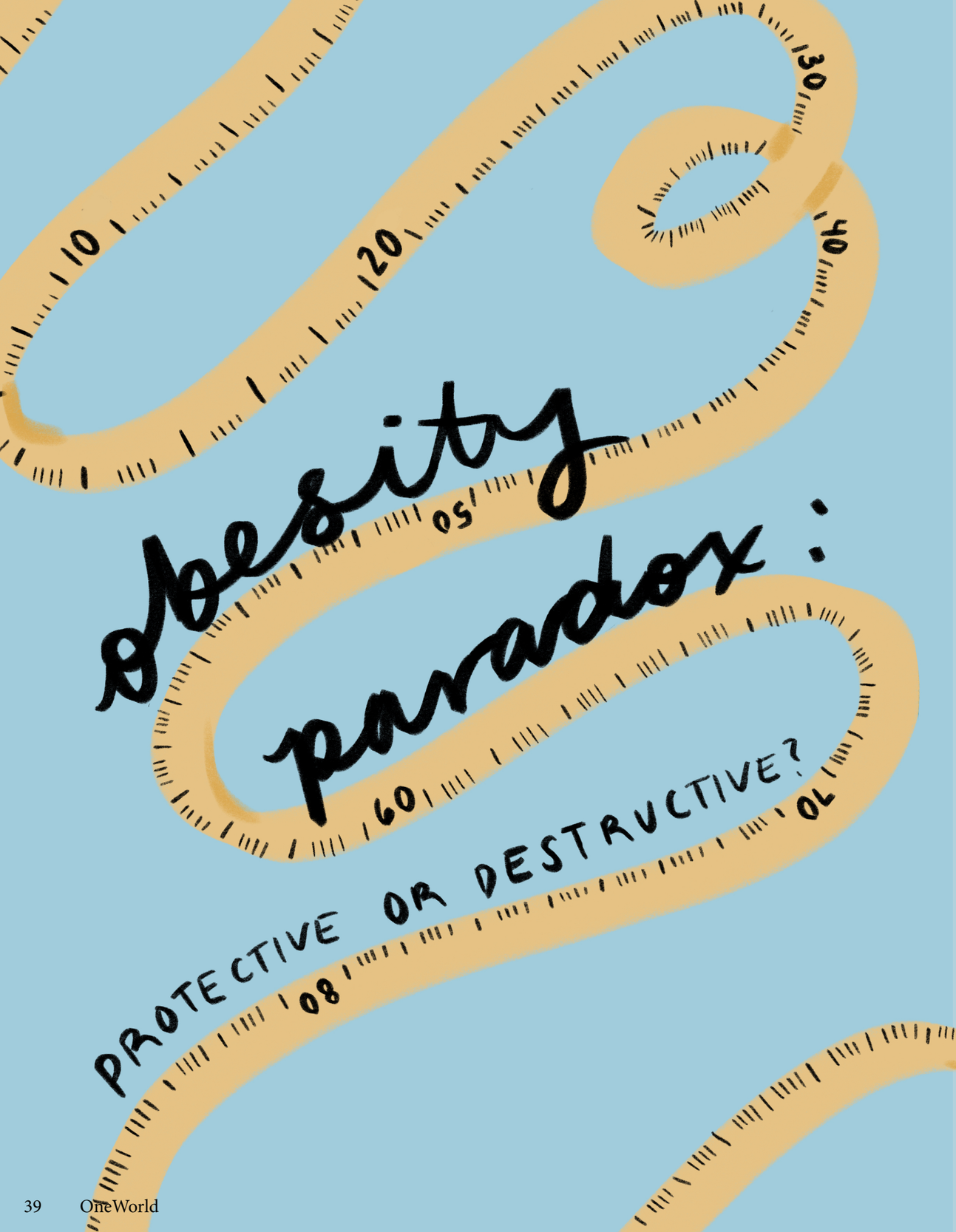

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What used to be an indication of an affluent and healthy individual is now widely viewed in a negative light. According to the World Health Organization, obesity is a disease characterized by excess fat accumulation. This complex health concern can be rooted in behavioral choices as well as lifestyle choices. This medical condition has traditionally had a high degree of negative stigma stemming from unattainable beauty standards projected by western society. This is compounded by the medical community's perception that obesity is the root of many medical complications. However, recent empirical studies have claimed that benefits may be associated with the condition denoted the "Obesity Paradox."

So what exactly is the "Obesity Paradox"? The paradox refers to evidence that found obesity protects the elderly or those with comorbidities (having two or more conditions), increasing life expectancy. A study published in the Journal of American College of Cardiology found that life expectancy was higher amongst overweight and obese individuals with coronary artery disease after undergoing percutaneous coronary intervention (treatment to treat narrowing of arteries) than in the leaner experimental group. A systematic review published by Frontiers in Nutrition revealed that obese individuals had a higher life expectancy when having chronic heart failure, after acute myocardial infarction, peripheral arterial disease, stroke, thromboembolism, and type two diabetes. The data sets that provided these insights were published in the Journal of the American College of Cardiology, the International Journal of Obesity, and the American Diabetes Association. Publications by the Journal of the American College of Cardiology and the American Diabetes Association also found that the benefits extend to patients undergoing more invasive procedures such as dialysis, cardiac surgery and catheter ablation.

The mechanism of these mysterious benefits has been widely disputed. According to a study published in ***Nutrition*** it may be rooted in body composition and structure, wherein excess weight, by providing additional adipose and muscle tissue, may mitigate the adverse metabolic effects of conditions and their corresponding treatments. As for the protectiveness against acute coronary disease, a study published in the Internal Journal of Obesity attributed it to the production of a peptide called N-terminal pro-B-type natriuretic peptide (NT-proBNP). This peptide was found to be in higher concentrations in leaner individuals, indicative of worsening heart failure. According to Cleveland Clinic, levels increase with the development of heart failure and decrease when heart failure is more stable. According to a study published in The American Journal of Medicine, obese individuals also had greater mobilization of endothelial progenitor cells. This promotes the synthesis of new blood vessels, allowing for better blood flow. Others, including a publication in the Journal of the American College of Cardiology, assert that the mechanism may be through lipid metabolism, where excess cholesterol and lipoproteins augment the endotoxin-scavenging effect or the breakdown of harmful substances in the body. Essentially, the higher amount of fat allows for the breakdown of toxins in the body, keeping the body healthy. Benefits can also be explained by cytokines production. According to a publication by the American Diabetes Association, leaner individuals were found to have a higher concentration of cytokines produced by subcutaneous adipose tissue in their body than their heavier counterparts. The increase in the concentration of these cytokines is associated with increased metabolic risk and thus increased risk of heart failure. Obese individuals were also found to have increased ghrelin production and better sensitivity which prevents the development of heart failure, according to a study in the Official Journal of Gulf Heart Association. This is rooted in ghrelin's ability to augment cardiac contractions by improving the function of the heart's left ventricle, allowing for a higher exercise load and less muscle

wasting in congestive heart failure patients. Lastly, a publication in the ***Current Oncology Reports*** found that this same group had less aggressive tumor sizes and were more responsive to cancer treatments. This is rooted in a greater nutritional supply from the excess fat to supplement treatments.

However, the studies that support the presence of this paradox have key confounding variables and innate flaws due to obesity being solely measured via Body Mass Index (BMI). This health indicator is solely based on the weight-to-height ratio of a given individual (kg/m^2). As a study published by the International Journal of Obesity outlined, elements, including muscle and bone mass, are indistinguishable from fat in this calculation. Essentially, a healthy individual with a large muscle mass may be deemed overweight or obese when they may be healthier than their "normal" counterparts. According to studies published in the Journal of the American College of Cardiology and International Association for the Study of Obesity, confounding variables also extend to age. The experiments compared the protective nature amongst a younger demographic to the older "normal weight" counterparts. So to what extent can the aforementioned data be trusted?

Although this recent evidence in support of the paradox is far from conclusive, it has major implications for public perception of obesity. What was thought to have entirely adverse implications and a sign of unhealthiness may be beneficial. Furthermore, BMI is the sole method to determine obesity, which fails to factor in multiple variables, including muscle and bone mass. As a result, we must force ourselves to become more accepting of individuals who may conventionally be called overweight or obese. We must recognize that health is a holistic term, not a ratio. We must accept that there may not be a definitive ideal body type. As a result, we must eliminate the stigma of a health indicator that has been overly exaggerated and criticized.

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