‘Let food be thy medicine, and let medicine be thy food’:

Is food the foundation for good health?

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Throughout university, I have become increasingly passionate about lifestyle medicine, plant-based nutrition and fitness, with an insatiable love of dance, martial arts, running and weightlifting. I am eager to educate others about the monumentally positive impact even small changes in lifestyle can have on both mental and physical health and, as a trainee doctor, feel it is my duty to practise what I preach. I also believe it is imperative that patients are made to feel engaged and empowered by their healthcare providers, hence why I aspire to pursue a career in general practice, where I can provide others with evidence-based lifestyle advice and further develop my interests in this exciting, up-and-coming field.

The title for the 13th annual BHMA student essay competition was Is food the foundation for good health? *Our winner, Jessica Frost, impressed the judges particularly with her references to two topical issues – junk/processed/ultraprocessed foods and the Eat-Lancet report on sustainability. They were also impressed by the fact that she took it beyond diet to food's role in lifestyle medicine. The essay is particularly relevant as the Real Food Campaign is launched (see page 4) focusing on food that promotes health, both personal and planetary.*

Food has played a fundamental role within healthcare for centuries, and its use in both preventative and therapeutic medicine has been documented in medical texts dating as far back as the Hippocratic epoch. The quote attributed to Hippocrates himself, ‘let food be thy medicine, and let medicine be thy food’, further reiterates how nutrition and dietetics have been viewed persistently as key to the optimisation of health since ancient times. Health is a dynamic state, described by The World Health Organization as one ‘of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity’ (WHO, 2006). This definition provides the individual facets through which this essay will explore the age-old link between diet and wellness, to ultimately decide whether food today still provides the foundation for good health, or whether such a narrative oversimplifies what is actually a hugely composite healthcare issue.

The foods people consume ultimately define a population’s health, with dietary risk factors one of the biggest contributors to the global burden of disease and responsible for one in five deaths worldwide (GBD 2017 Diet Collaborators. 2017; Afshin *et al*, 2019). Although the health benefits reaped by following a plant-based, Mediterranean diet have long been documented, the obesogenic Western diet has precipitated an impressive peak in chronic disease rates and poses a similarly dire threat to the planet (Sofi *et al*, 2014). Research published by the *BMJ* reiterates these dangers: consumption of more than four servings of ultra-processed foods per day was associated with a 62% higher all-cause mortality rate than consumers of less than two portions per day, plus significantly higher rates of cardiovascular and cerebrovascular disease (Rico-Campà *et al*, 2019). Thus, although diet is irrefutably intertwined with physical health, a comprehensive change in

culture and mentality is required before this relationship becomes symbiotic, including a shift away from the patient as a passive participant to an active advocate for their own healthcare. However, statistics are discouraging and compliance to health-promoting national dietary guidelines remains poor: for instance, although fibre is essential for reducing incidence of and mortality from non-communicable diseases such as diverticular disease, ischaemic heart disease, stroke, type 2 diabetes and colon cancer, only 9% of people in the UK currently achieve recommended levels of the macronutrient per day (Reynolds *et al*, 2019).

A recent study by the GBD 2017 Diet Collaborators (2017), which evaluates dietary factors and non-communicable diseases in 195 countries, further quantifies the terrifying implications of modern food patterns on human health. It declares 11 million deaths in 2017 were due to poor diet: 10 million as a result of cardiovascular disease, the remainder from cancer deaths and type 2 diabetes. Food has thus become undeniably important within preventative medicine. The EAT-Lancet Commission argue that it is, in fact, 'the single strongest lever to optimise human health and environmental sustainability on Earth' (EAT-Lancet Commission, 2019). In contrast to pharmacotherapy alone, a balanced, whole-foods diet wields the power to not only prevent and treat, but also reverse, myriad chronic illnesses including diabetes and high blood pressure. Even simple changes, such as reducing saturated fat, cholesterol and salt intake, and increasing dietary fibre, can have a huge impact on overall health and wellbeing, as well as the prevention of obesity-related disease (WHO, 2003). The emergence of the Planetary Health Diet earlier this year, a global initiative which proposes a plant-based diet as a sustainable means of feeding a population of 10 billion, is a powerful move in the right direction and promises huge health and environmental benefits. By pushing food to the healthcare frontline, its potential as a tool to prevent disease and simultaneously maintain both human and environmental wellbeing can be properly utilised.

The influence of food on health, however, extends much further than our physical state. Research is emerging that highlights the negative corollaries of consuming nutrient-poor, energy dense foods on brain health. Diet, among other lifestyle components, has been repeatedly underlined as contributing to the genesis of mental illness, yet largely ignored in therapeutic approaches. Just as cardio-metabolic diseases depend heavily on diet for primary and secondary prevention, the same may be true for psychiatric disorders. Unsurprisingly, the most common deficiencies occurring in patients with mental disorders are of precursors to neurotransmitters, including B vitamins, omega-3-fatty acids and amino acids (Rao *et al*, 2008). Furthermore, diets low in carbohydrates have been shown to precipitate depression in susceptible individuals, given that the production of serotonin and tryptophan are triggered by carbohydrate consumption (Ghoch *et al*, 2016). Evidence thus suggests a high-carbohydrate, low-GI, plant-based diet, centred around wholegrains, fruit and vegetables, results in long-lasting improvements in the mood and energy-levels of patients with mental ill-health (Rao *et al*, 2008; Lassale *et al*, 2019).

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Other studies assessing the impact of diet as an adjunct to pharmacological and psychological treatment of depression echo the suggestion that dietary changes may be an efficacious means of managing the condition and associated with positive mental health outcomes (Parletta *et al*, 2019; Jacka *et al*, 2017; Psaltopoulou *et al*, 2013; Sanchez-Villegas and Martinez-Gonzalez, 2013). The close correlation evident between the extent of dietary change and the extent of improvement in depressive symptoms reiterates the need for further studies to assess nutrition's potential in the prevention and treatment of mental disorders, especially given the rising rates of mental illness in the UK and the stigma which continues to surround antidepressant use. Furthermore, depression incurs the greatest societal costs in Europe at present, and is a leading cause of disability worldwide (Lassale *et al*, 2019). Thus, it is essential that we begin to accept nutritional medicine as 'a mainstream element of psychiatric practice' (Sarris *et al*, 2015) as it constitutes such an accessible, affordable, efficacious and side-effect free treatment strategy for the general population.

However, despite the unequivocal benefits of food on our health, its limitations must also be considered. As Hippocrates once said, 'in food excellent medicine can be found, in food bad medicine can be found; good and bad are relative'. Like all aspects of clinical practice, if utilised poorly, food can be equally as damaging as it can be remedial. Carb-restriction, juice 'cleanses', 'detoxes', ketogenic and alkaline diets, spuriously promising quick-fixes and dramatic weight loss, are the result of society's simultaneous demonisation and moralisation of food. No single food can cause or cure disease; the key is in moderation, balance, and viewing lifestyle medicine as a collective. However, the obscured view of food as medicine – which unabashedly over-emphasises the health-properties of certain food types – and disregard for the wider panorama of lifestyle medicine – has perpetuated the UK's damaging diet culture. This elusive pursuit of the 'thin ideal' has not only resulted in macro-and-micro-nutrient deficient dietary patterns, especially among young people, but has also contributed to the growing anorexia crisis and recent surge in hospital admissions for disordered eating (Marsh, 2019). Hence, an effort must be made to distinguish between food and medicine, and to appreciate them as separate yet synergistic entities, as

opposed to relying on food as medicine, or as an alternative to it.

Hippocrates also declared that 'eating alone will not keep a man well', reiterating that while a balanced diet irrefutably forms the scaffolding of good health, it is not the only player in a comprehensive lifestyle approach to good health (Berryman, 2012). Exercise is another key modifiable risk factor for chronic diseases such as ischaemic heart disease, stroke and diabetes, and one which has been proven to wield a similar efficacy to pharmacotherapy (Naci and Loannidis 2013). With its ability to reduce the risk of dementia, shrink mortality of depressive disorders, as well as overall risk for the condition, and lower risk of several cancer types, especially colon and breast, it offers a seemingly simple solution to the UK's growing disease burden (Larson *et al*, 2006; Murri *et al*, 2018; Rezende *et al*, 2018). However, despite government recommendations currently suggesting that the most beneficial 'dose' is 150 minutes of moderate intensity physical activity, current figures suggest that 34% of men and 42% of women do not meet these targets (NHS Digital, 2017). This lack of physical activity is thought to result in at least one in ten premature deaths in the UK, with a direct economic corollary of more than £1 billion (Lee *et al*, 2012). Furthermore, we cannot omit stress reduction, good sleep hygiene, minimisation of alcohol consumption and tobacco avoidance from the health equation, as only when all of these factors are considered together can diet be utilised as part of an efficacious method to maximise physical, mental and social wellbeing.

Ultimately, while food in isolation is not a panacea for achieving health and longevity, together with exercise it forms the foundation for good health and constitutes one of our greatest weapons against the global epidemic of preventable chronic disease. Given that most doctors are more comfortable prescribing pharmaceutics than a healthy lifestyle, undergraduate medical training in evidence-based nutrition and lifestyle interventions deserves much more attention than it currently receives. Lifestyle medicine and 'fitness prescriptions' have the potential to slash our burden of chronic disease and ballooning NHS costs, hence why it is paramount that patients are made to feel engaged and empowered by their healthcare providers. A balanced diet may not be as prescriptive as a pill, or as easy to dispense, with doses and formulations for every eventuality, but it is arguably the most powerful, accessible and affordable driver of global wellbeing we currently have at our disposal. We therefore need to use it.

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