

## **“Is food the foundation for good health?”**

Hippocrates, alive over 2000 years ago, understood the importance of the relationship between food and health saying: “Let food be thy medicine and medicine be thy food” (1). However today, in an era where billions are pumped into novel drug therapy, the power of a healthy diet has been left in the shadows.

The concept of good health is described by World Health Organisation declaring it “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” (2). Food can contribute to all three of these facets. It is undeniable that a healthy diet will improve your physical health, with many studies showing it as a risk factor for heart disease (3), and cancer (4). With this relationship already widely discussed, this piece will focus on foods less prominent relationship with both mental and social well-being.

### **Food and mental well-being**

The precise control of our mental well-being is a mystery which science has yet to unravel in its entirety. With over 90% of serotonin, a key neurotransmitter, produced in the gut (5), it is unsurprising that research in nutritional medicine has grown within psychiatry. Work within the field now shows both the effect food can have on our happiness (6) as well as the treatment of mental illness (7).

Depression is common, with an estimated 4.5% of the population in the UK suffering (8). Its cause is multi factorial, and what we eat is being shown to have a role. In the SMILE trial, in which the participants ate a Mediterranean diet, they concluded that whilst small (n= 67), 32% of the study group's depression went into remission vs 8% of the control. Subsequent trials, using similar diets, have showed similar remission rates (9). The changes made to the participants diet were broad hence do not help refine the specific mechanism which caused this result. Moving forward it is important to hone these trials to find if there are certain foods which are producing these results, or whether it is the diet as a whole. The effects of omega-3 fatty acids, B vitamins, zinc, and magnesium are all being heavily researched however no definitive conclusions have been drawn (10). In the future it will be interesting to see whether supplements alone are enough to assist in the remission of depression, or whether a radical change in diet is required.

Probiotics may offer an alternative to dietary change, increasing the levels of certain gut bacteria without changing one's diet. This is based around the concept of a brain - gut – microbiome axis. The theory states that the brain can control the gut and the bacteria within it, whilst the same is true in the reverse (5). This concept has been shown in mouse models with depressed human to mouse faecal transplantation inducing depressive tendencies in the animal model (11). No common composition of the gut microbiome has been established across those who suffer with depression (5), however some strains of gut bacteria, the *Lactobacillus* and *Bifidobacterial* species, have been shown to modulate neurotransmitter levels (12). In depression, it has been shown that the neurotransmitter GABA is dysregulated. These bacteria species can help rebalance this by metabolising dietary glutamate (13). Results have been positive in animal models and healthy patients (14), however no clinical trial has been done looking at its effect on those who suffer with depression (15). This is an example of one of a number of avenues researchers are looking at manipulate mood through diet.

As well as helping with mental illness, new work is showing that certain foods give us a platform to achieve good mental well-being. Whilst many people think of comfort food as items high in fat and sugar, studies in the last decade have shown that a diet high in fruits and vegetables are linked to a higher level of motivation, vitality and happiness (6) (16). Surprisingly whilst the physical benefits of eating healthy choices can take many years to show, the effect on well-being was evident the next day (17). People often to select unhealthy foods when low in mood, however the benefit is short lived dissipating within hours (18). A healthy diet therefore can have a long-lasting impact on how positive we feel.

Through the work above, it is clear that food is the foundation for good mental well-being. Whilst the exact mechanism hasn't been uncovered, the benefits in trials for depression and happiness are profound. In a time where mental health is gaining more attention in the public domain, greater initiative must be taken by public health bodies to champion and help implement healthy diets to help promote these benefits.

### **Social well being**

Social well-being is the extent to which you feel a sense of belonging and social inclusion; a connected person is a supported person in society (19). Food is an emotive topic with people being judged based on their diet i.e. veganism, as well as their physical size i.e. obesity. This judgement is currently a barrier for these people to achieve social well-being due to stigma surrounding these topics. By breaking down myths surrounding topics such as obesity and veganism, it can be ensured that no matter how one eats, they feel part of, and are able to contribute to society.

Obesity is an epidemic in our society with 26% of adults in England now classed as obese (20). In hospitals, the impact on physical health is clear, however one area the impact of over eating is often missed is the effect this has on patients position in society. This relationship between social well-being and food can be seen in children where a vicious cycle involving bullying and obesity can be seen. Being obese gives you a higher chance of being bullied, whilst being bullied promotes your chance of being obese in the future (21). Sadly, this stigma is not just limited to the community, obese inpatients often suffer stigma and poor care at the hands of staff members (22). This stigma especially damaging, as it has been shown that a feeling of social inclusion, through positive human interactions and employment, can improve the adherence to a healthier diet (23). As health care professionals we must understand that stigmatising patients simply fuels the problem. Looking forward we must ensure we are leaders in this area, appreciating that reconnecting these patients with society will not only improve their social well-being, it will also effect on the food they eat, whilst improving their physical and mental health as well (24).

Vegans, amongst other groups, are often stigmatised for the food they eat. Potts and Parry (2010) examined comments published in online articles and personal blogs, and they found that vegans are seen as oversensitive as well as physically and mentally weak (25). Despite their healthy diet, mental health issues are more common in vegan populations. It has been suggested that this may be due to barriers they face in society (26). One example of this is social distancing. This is where those who are not vegan try to distance themselves from those who are to avoid being seen by others in the same negative stigma (27). Acceptance of those who follow diets such as veganism within society will allow bring down the barriers these groups face improving their health. This must come from public health bodies showing that stigmatising groups on their diet is unacceptable.

How one approaches food can affect their role within society, with both populations described above facing preconceived negative stigma. As a community we must become

more aware that integrating people in society will have far reaching implications, including helping to achieve good health.

## Conclusion

New research is being published showing the effects of food on our mental state and also how it moulds our role in society. Getting these messages across effectively to clinicians and the public is critical to capitalise on the benefits. Replacing processed foods within people's diets with wholegrain, fruits and vegetables has been shown to have widespread benefits on one's mental and physical wellbeing. It is important psychiatry embraces these nutritional aids for those suffering. With few novel psychiatric drugs being released, every benefit must be extracted from current knowledge to help treat these patients. Finally, more must be done to break down the barriers created by dietary choices in society. People who are obese, vegan or part of any dietary minority do not deserve to be marginalised. Through this, and the continued push to improve diets for the prevention of physical disease, food can be the foundation for good health, allowing other factors such as exercise and medications to blossom to their full efficacy.

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