

# Lifestyle as medicine – Past precepts for present problems

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Lifestyle principles have been advocated for the promotion of health and prevention of disease since antiquity. More than 2000 years ago, Hippocrates asserted, 'Let food be thy medicine and medicine be thy food'. Predating Hippocrates, Levitical health laws mandated lifestyle practices such as hand washing after touching dead bodies or diseased animals, and avoiding pathogenic substances such as blood and mould. The consumption of animal fat was also forbidden, which is intriguing given that chronic disease was not the major health threat at the time.

Notwithstanding the developments in pharmacological and surgical technologies that have profoundly enhanced healthcare, the authors propose that the historical practice of 'lifestyle as medicine' will become increasingly re-emphasised in future healthcare for mitigating and/or managing contemporary concerns relating to chronic and infectious diseases.

## Lifestyle as medicine for chronic disease

The value of a healthy lifestyle for primary prevention of chronic disease has been unequivocally demonstrated in large-scale epidemiological studies, including the Framingham Heart Study, Nurses Health Study, and European Prospective Study into Cancer and Nutrition (EPIC). Indeed, an estimated 90% of cardiovascular disease and type 2 diabetes mellitus, as well as one in three cancers, are preventable through healthy lifestyle practices.<sup>1,2</sup>

While primary prevention is most desirable, patients are often not motivated by the possibility of future pain (physical or emotional), which may account for why lifestyle as a medicine has not been historically emphasised. However, individuals are motivated by present pain, and a growing body of evidence is showing lifestyle interventions to be efficacious for the management and, in some instances, treatment of chronic conditions. Indeed, intensive lifestyle change has been shown to reduce vascular stenosis and associated disorders,<sup>3</sup> normalise blood sugar levels without the need for medication,<sup>4</sup> and even regress markers of early stage prostate cancer.<sup>5</sup> Hence, the view of therapeutic lifestyle change is shifting from that of a nicety – something that might produce better health in years to come – to a necessity. Of course, facilitating patient receptiveness and long-term adherence to therapeutic lifestyle change can be challenging. However, comprehensive lifestyle interventions have reported high levels of engagement and low levels of recidivism<sup>5-8</sup> by applying an array of behavioural-change strategies, including education, social support, self-monitoring, problem solving and nurturing self-efficacy.

The application of therapeutic lifestyle interventions to influence chronic disease prevention and progression is being referred to as 'lifestyle medicine',<sup>9</sup> promoted by professional organisations such as the Australasian Society of

Lifestyle Medicine, American College of Lifestyle Medicine and European Society of Lifestyle Medicine.

The scope of lifestyle medicine is broad and emphasises not only traditionally identified lifestyle factors such as diet, physical activity and smoking, but also other lifestyle-related health determinants such as stress management, social connectedness and environmental factors.<sup>10,11</sup> With growing evidence that the application of lifestyle medicine interventions can be cost-effective<sup>12</sup> and yield long-term benefits,<sup>13</sup> it seems apparent that lifestyle as medicine will be increasingly relied upon as a countermeasure to combat the burgeoning rise and skyrocketing costs of modern chronic diseases.

## Lifestyle as medicine for infectious disease

Despite advances in the treatment of infectious diseases during the 20th century, they remain among the leading causes of death worldwide. Concerns exist about an escalation in mortality related to infectious disease,<sup>14</sup> especially in the wake of antibiotic resistance.<sup>15</sup> Lifestyle principles, especially hygiene-related practices, have underpinned the management of infectious diseases in healthcare. However, recent evidence suggests that other lifestyle factors, including diet, physical activity and stress, may play an important role in infection susceptibility.<sup>16-19</sup>

In particular, the Western diet – characterised by a high consumption of

refined foods that are low in fibre and phytonutrients, but high in saturated fats, sugar and salt – may predispose individuals to infection and illness by affecting the immune system directly and/or through deleterious effects on the gut microbiome.<sup>16,20</sup> Low diversity and composition of gut microbiota can result in pro-inflammatory responses that have been linked to obesity, diabetes, cardiovascular disease and cancers,<sup>18,21</sup> as well as to a compromised ability to resist colonisation by invasive pathogens.<sup>16</sup> Emerging evidence suggests that adopting a more whole food eating pattern, which is common practice in lifestyle medicine interventions, promotes a commensal gut flora that protects the host from infection.<sup>17</sup>

## Conclusion

We argue that lifestyle as medicine will be increasingly emphasised in the future as awareness grows of its merits to address 21st century health concerns. These merits are especially attractive in view of the general lack of iatrogenic outcomes associated with applying lifestyle as medicine, in contrast to medication-based therapies where the ancient dictum that ‘the dose is the poison’ still applies. Only in extreme cases of excess do health problems occur as a result of lifestyle-based treatments.

If the age-old benefits of lifestyle as medicine are to be more effectively used in general practice into the future, modifications are needed in medical training and clinical practice. A century ago, Thomas Edison asserted, ‘the doctor of the future ... will interest his patient in the care of the human frame, in proper diet and the cause and prevention of disease’.<sup>22</sup> For these words to become prophetic, the teachers must be taught<sup>23</sup> and, presently, most medical training programs place little emphasis on lifestyle education.<sup>24,25</sup>

Lifestyle as medicine is an old concept, but still a good one that has a lot to offer if it is given the opportunity.

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