The Complete Health Improvement Program (CHIP)

Over 2,000 years ago Hippocrates asserted: "Food and exercise… work together to produce health". Evidence for the wisdom of this Hippocratic council emerged throughout the 20th Century as large epidemiological studies, including the Framingham Heart Study, Nurses Health Study, EPIC (European Prospective Investigation into Cancer and Nutrition) and the Adventist Health Study, highlighted the relationship between lifestyle and disease.

Today it is unequivocally accepted that lifestyle habits such as consuming a healthy diet, being physically active and not smoking, can prevent many chronic diseases including cardiovascular disease, certain cancers and type 2 diabetes mellitus (T2DM). Specifically with regards to T2DM, the Diabetes Prevention Program showed lifestyle intervention to be twice as effective as pharmaceuticals (metformin) for preventing at-risk people with pre-diabetes progressing to established diabetes.

While the role of a healthy lifestyle in the *prevention* of disease is now widely accepted, only in the past few decades has evidence for lifestyle as a medicine in the *treatment* of disease emerged. Studies have demonstrated the potential for regression of heart disease, prostate cancer and T2DM in response to intensive lifestyle intervention (Roberts & Barnard, 2005). Interestingly, one of the earliest studies to show the potential for regression of T2DM was led by an Australian, Professor Kerin O'Dea, who observed normalisation of fasting plasma sugar levels in Aborigines with diabetes following a 7 week return to their traditional lifestyle. Subsequently, several studies have shown that many people with T2DM can reduce or even discontinue diabetes medications through intensive lifestyle intervention. Most of these studies have occurred in clinical settings or in residential lifestyle programs, such as that offered at the Pritikin Longevity Centre, but there are an increasing number of community-based lifestyle interventions that are showing promise for the prevention, management and even treatment of chronic diseases.



THE COMPLETE HEALTH IMPROVEMENT PROGRAM (CHIP)

The Complete Health Improvement Program (CHIP) is an intensive lifestyle intervention targeting the prevention and regression of chronic diseases that is delivered to free-living people in their communities. Originally developed in the United States 25 years ago, the program is now conducted in several countries. An estimated 50,000 people have completed the program world-wide.

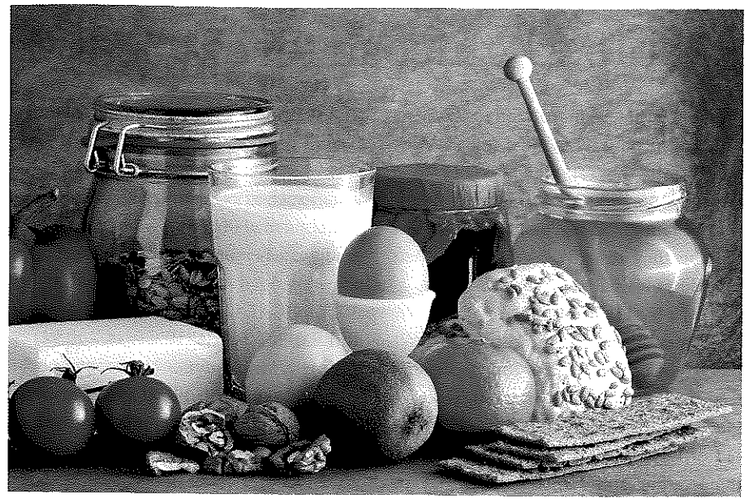
> *"lifestyle intervention can prevent and improve management of T2DM"*

The CHIP intervention involves a series of group sessions (ranging from 8 to 18) in which participants are educated on a lifestyle-related topic, issued an associated behaviour change challenge, and then encouraged to reflect on their experience. Topics explored include: diet (CHIP advocates a distinctive whole-food, plant-based eating pattern), physical activity, substance use, environmental influences on lifestyle choices, stress, and themes from positive psychology.

EVIDENCE-BASE FOR CHIP

CHIP is arguably the most published community-based lifestyle intervention in the literature. Randomised controlled trials have shown CHIP to significantly reduce risk factors associated with heart disease and T2DM, and improve depressive symptoms. Improvements in participant biometrics have been observed 18 months following participation in the program.

CHIP encourages participants to partner with their doctor to move towards intelligent self-care. It is mandated that participants keep regular contact with their doctor throughout the intervention as individuals on medications for dyslipidaemia, hypertension and diabetes commonly require dosage reductions only a few weeks into the program. There are numerous case reports of CHIP participants coming off all medications.



One unique element of CHIP is that it has been delivered by not only health professionals, but non-health trained volunteers. The volunteers, representing community interest groups, undergo two days of group facilitation training and then are resourced with the CHIP intervention to deliver in their local communities. A study of over 5,000 participants who completed one of 176 volunteer-delivered CHIP programs throughout the United States showed comparable reductions in chronic disease risk factors to those achieved by programs presented by health professionals. The results showed that individuals who entered the program with elevated cholesterol levels recorded a mean reduction of approximately 20% within 30 days. Further, 43% of individuals who entered the program with plasma glucose levels greater than 7.0 mmol/L reduced their levels below this value within 30 days.

More recently, a study of over 800 individuals who participated in one of 28 CHIP interventions delivered by volunteers throughout Australia and New Zealand showed similar outcomes to those observed in the United States cohort (Morton et al, In press). Within 30 days, significant overall reductions were recorded in the participants' body mass (-3.8%), systolic blood pressure (-5.6%), diastolic blood pressure (-4.6%), total cholesterol (-14.7%), low density lipoprotein cholesterol (-17.9%), triglycerides (-12.5%) and fasting plasma glucose (-5.6%). A stratified analysis of the data showed that participants who entered the program with the highest classifications of total cholesterol, low-density lipoprotein cholesterol, triglycerides and fasting plasma glucose experienced over 20% reductions in these measures in 30 days. Consistent with that observed in the United States study, over 40% of participants who entered the program with fasting plasma glucose levels greater than 7 mmol/L reduced their level below this after 30 days.

That a volunteer-delivered CHIP intervention can achieve meaningful improvements in participants' health status presents a novel and potentially powerful way forward for combating the growing epidemic of chronic disease in a cost effective manner.

KEY PRACTICE POINTS

- Intensive lifestyle interventions show promise for the prevention, management, and in some cases treatment, of chronic diseases including T2DM.
- CHIP is a lifestyle intervention that has demonstrated meaningful reductions in the risk factors for chronic disease, even when delivered by non-health trained volunteers.

CONCLUSIONS

Programs like CHIP highlight the potency of lifestyle interventions for combating the burgeoning rise of chronic diseases. Indeed, we are witnessing the renaissance of a very old form of medicine: Lifestyle Medicine. Promoted by organisations such as the American College of Lifestyle Medicine and the Australian Lifestyle Medicine Association, Lifestyle Medicine is increasingly being recognised as a clinical and cost effective method for combating many chronic diseases, including T2DM.

Declaration of interest:

Dr Darren Morton has no financial interest in the Complete Health Improvement Program. However, he was involved in the team that redeveloped the intervention to suit the Australian context and the institution to which he belongs (Avondale College of Higher Education) received payment from the owners of CHIP (the Lifestyle Medicine Institute) to provide him with release time during this redevelopment process.

References

1. Roberts CK, Barnard RJ. Effects of exercise and diet on chronic disease. Journal of Applied Physiology. 98:3-30, 2005.
2. Morton DP, Rankin P, Morey P, Kent L, Hurlow T, Chang E, Diehl H. The effectiveness of the Complete Health Improvement Program (CHIP) in Australasia for reducing selected chronic disease risk factors: a feasibility study. New Zealand Medical Journal. In press.



Dr Darren Morton
Lifestyle Education Research Group,
Faculty of Education and Science,
Avondale College of Higher Education.