The vegetables and fruit message

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Everyone seems to know and take for granted that vegetables and fruit are good for you. As a result the health promotion message to eat plenty of vegetables and fruit doesn’t get a voice among the ever-increasing and competing health messages communicated to the public. The reality is that knowledge does not always translate into action and a lack of action in even the most basic of health messages often results in a public health issue.

Market research undertaken by the 5-a-Day for Better Health Trust, a not-for-profit organisation whose mission is to increase the consumption of vegetables and fruit among all South Africans towards attaining better health, shows that when consumers are asked what constitutes healthy eating, they spontaneously name vegetables and fruit first. Yet the MRC South African Comparative Risk Assessment analysis, released in August last year, shows that the average intake of vegetables and fruit in South Africa is just under 3 servings a day, which is considerably less than the recommended minimum 5 servings a day recommended by our Department of Health, equating to the 400 g recommended by the World Health Organization. The MRC ranks low fruit and vegetable consumption 10th out of 17 for deaths attributable to the selected risk factors. For the first time in South Africa we have actual numbers and disease conditions being linked to not eating sufficient vegetables and fruit. In the discussion section of this chapter, the MRC states: ‘Low fruit and vegetable intake makes a significant contribution to the number of deaths and DALYs from ischaemic heart disease and ischaemic stroke, accounting for 35% and 22% respectively, as well as oesophageal and gastric cancer (both 24%).

Globally high cholesterol is estimated to cause a loss of 40.4 million DALYs annually. And yet by simply increasing our vegetable and fruit intake, we could reduce the burden of heart attack by 31%, stroke by 19% and cancers in the region of 15%. In fact, globally the WHO estimates that 2.7 million economically active lives could potentially be saved each year if fruit and vegetable consumption was sufficiently increased. Furthermore, it is predicted that in the next two decades the burden of heart disease will be borne mostly by developing countries, something we often forget with so much attention being given (and rightly so) to the HIV/AIDS pandemic.

A high-level international review of research findings on fruit and vegetable consumption and cancer risk, coordinated by the WHO International Agency for Research on Cancer (IARC), concluded that eating fruit and vegetables may lower the risk of some cancers, particularly cancers of the gastrointestinal tract. IARC estimates that the preventable percentage of cancer due to low fruit and vegetable intake ranges from 5% to 12% for all cancers, and up to 20 - 30% for upper gastrointestinal tract cancers worldwide. It is also estimated that 200 million children under the age of 5, mostly living in sub-Saharan Africa and Asia, fail to reach their cognitive, motor and social-emotional potential because of micronutrient deficiencies and inadequate stimulation – another direct link to the impact of low intakes of vegetables and fruit. Both vitamin A and iron deficiency are also included in the MRC ranking.

Knowledge-behaviour gap

There is no doubt that this low consumption and the gap between knowledge and action need to be addressed on a population level. For once the message is both positive and simple – eat at least 5 servings of a variety of vegetables and fruit every day. Perhaps the message is too simple and the general public are more attuned to receiving the negative or scare messages, whether they are backed with evidence or not, such as ‘Avoid at all costs trans fatty acids’ or ‘Hormones in food are killing you’, and that in itself might contribute to the knowledge/action gap in ‘eating more!’. Perhaps we almost don’t believe the message because it is ‘old’. Remember your grandmother telling you to eat your carrots so you could see in the dark or your mother demanding you drink the glass of orange juice so as to avoid catching a cold. Yet increasingly the nutrition research is showing that what was intuitively believed and passed down the generations by word of mouth is true – eating vegetables and fruit is important.

Scientific base

The scientific base supporting the health benefits of vegetable and fruit consumption is rapidly expanding and our understanding of the complex interactions between the many food components in vegetables and fruit that confer those benefits is also continually evolving. The extensive literature characterising the phytochemicals and other bioactive components in fruits and vegetables reflects advances in science and technology that have made it possible to begin the research journey of identifying how these agents might affect biological processes, using more accurate and sophisticated endpoints. The emphasis has broadened from a focus on overall antioxidant properties of vegetables and fruit to anti-inflammatory and cell-signalling potential. However, our knowledge of the exact components and mechanisms involved with health promotion and disease prevention is in its infancy. Yet it seems that when it comes to the effect of vegetables and fruit on health, the whole may be better than the sum of the parts, and foods and food patterns appear to act synergistically such that the influences of each are additive, and
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possibly more than additive. The WHO is clear in their population goals that form part of the document 'Diet, Nutrition and the Prevention of Chronic Diseases', that the benefit of vegetables and fruit cannot be ascribed to a single or mix of nutrients and bioactive substances. So, in contrast to other goals around fat, protein and salt, they list the food category (fruits and vegetables) rather than the nutrients themselves. The International Fruit and Vegetable Alliance (IFAVA), in its scientific overview on fruits, vegetables and health, supports this when they state that 'the benefits of fruit and vegetable consumption are generally shown more consistently when whole foods and food patterns are considered, favouring a whole-foods approach to diet versus consumption of individual nutrients.' This approach towards the promotion of eating the vegetables and fruits themselves is further supported when one considers the disappointing and even negative outcomes of many of the studies that have looked at the impact of single vitamins and antioxidants or a combination of a few vitamins and antioxidants on disease.

Extensive research into the role of vegetables and fruit on diseases such as cardiovascular disease, diabetes and cancer as well as on the management of body weight consistently highlights the importance of a minimum of 5 servings a day of a variety of vegetables and fruit – a message so often neglected when advising patients.

Now new research is looking into the role of vegetables and fruit on pulmonary health, bone health, ageing and cognition, cataracts and eye health, arthritis, diverticulosis and birth defects. The results thus far are promising. However, the majority of the evidence continues to be observational and some of the data are conflicting. They highlight the clear need for controlled, clinical intervention trials in order to confirm that the consumption of vegetables and fruit reduces the risk of disease as well as more mechanistic studies to characterise the components and processes that mediate protective effects in humans.

There is little doubt that including more vegetables and fruit in the diet is important and is being promoted by the WHO and our own Department of Health: the South African Food Based Dietary Guidelines includes as one of the 11 guidelines ‘Eat plenty of vegetables and fruit every day’.

Multi-sectoral approach needed

The more difficult part of the vegetables and fruit and health message is addressing the knowledge-behaviour gap and persuading South Africans to eat more and to eat a wider variety. The MRC stresses that a multi-sectoral approach that includes public sector and private enterprise initiatives is needed. These are complex and require commitments to education, community interventions, modifying the food supply, changing the environment and introducing economic and agricultural policies.

The reasons why people do not eat enough vegetables and fruit are affordability, availability, taste preference and convenience. It would seem that this is no different from the barriers given in other countries in the world, and that the taste issue is more of a perceived barrier than a reality. There is a huge selection of different types and varieties of vegetables and fruits available in South Africa – people just need to be encouraged to give them a go and generally are surprised by the range of acceptable tastes and textures when they step out and try new foods. The reality however is that fresh vegetables and fruits are not necessarily the most economical in terms of either preparation time or cost. In addition, with growing urbanisation, the public are increasingly reached by the advertising and marketing campaigns of the well-funded food industry.

Convenience foods

Convenience is a global concern, as we live in a world of immediate gratification, where preparation of meals is often considered a chore rather than a pleasure. A study by a behavioural scientist at Leeds University looked at the way the French eat and live compared with people in the UK. It concludes that the French paradox probably has something to do with differing core attitudes to food and eating. French food is ‘real’ food, prepared in the kitchen and eaten at home, with time taken to choose, buy and prepare meals. In other words, there’s space for food in the daily routine. Contrast this with the fact that it is estimated that Americans consume one-third of their energy intake (calories) outside of the home – these meals tend to have more fat, saturated fat, cholesterol and sodium and fewer vegetables and fruit. The economics of this trend are interesting: over half of all American consumer food dollars are spent eating out, an amount equivalent to 4.5% of the US GDP!

Re-assessing priorities

The reality is that we will all need to make some effort to re-assess our priorities and make a commitment to healthy eating. It is the only way we will positively impact on our wellbeing. The key to success is a commitment to changing current behaviour. If we could find the magic bullet to bring about that change, it would be easy and many of the world’s health problems would be solved. However, behaviour modification is not easy and there are no magic bullets, especially when unhealthy eating and lifestyle patterns have been taught from an early age. The gap between what people know and what they do is a chasm that has to be crossed if we are to improve the health status of South Africans.

Recommended reading


International Fruit and Vegetable Alliance: Fruits, Vegetables and Health: A Scientific Overview (www.iffva.org/science_overview.asp)


Sight and Life: Nutritional Anemia publication 2007 (www.sightandlife.org)

South African Food Based Dietary Guidelines (http://www.sahealthinfo.org/nutrition/safoodbased.htm)

