

# Health lifestyle interventions and climate change

## How can we change our lifestyle to help mitigate climate change?

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The recent high-level meeting of the general assembly of the United Nations noted with concern the 'increasing challenges posed by climate change and the loss of biodiversity, and their effect on the control and prevention of non-communicable diseases.<sup>1</sup> This article explores what lifestyle interventions should be promoted in order to mitigate climate change and in particular explores those that also contribute towards preventing and controlling non-communicable chronic diseases.

Health professionals are in a unique position to offer education and counselling on healthy lifestyle as they come into frequent contact with their patients and are viewed as reliable sources of information.<sup>2</sup> As climate change is now one of the major public health challenges of the 21st century we anticipate that health professionals will incorporate appropriate lifestyle education and counselling into their interactions with patients.

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It is estimated that if all the population achieved a middle-class lifestyle at current levels of consumption we would require an average of 5 planets to provide the resources required. Lifestyle change could reduce this to an average of 2 planets, but to bring this down to 1 planet more fundamental societal and structural changes would be required for sustainable development.<sup>3</sup> This article addresses the lifestyle changes that can contribute to this goal at a personal level.

### Non-communicable chronic diseases

Hypertension, diabetes, cardiovascular disease, asthma, chronic obstructive pulmonary disease and some cancers all make a significant contribution to the burden of disease in South Africa.<sup>4</sup> A recent national summit on non-communicable chronic diseases in South Africa noted that: 'In Africa non-communicable diseases are anticipated to overtake mortality from communicable, maternal, perinatal and nutritional diseases by 2030. In South Africa in 2000

non-communicable diseases were responsible for around 40% of all deaths (excluding injury) and around 35% of the burden of disease.<sup>5</sup>

Four lifestyle-related risk factors contribute to the growing impact of these diseases: tobacco smoking, physical inactivity, unhealthy eating and alcohol use.<sup>6</sup> Physical inactivity and unhealthy eating together contribute to levels of overweight and obesity. Fig. 1 shows very high rates of physical inactivity across all age groups in South Africa, with women more inactive than men.<sup>7</sup>

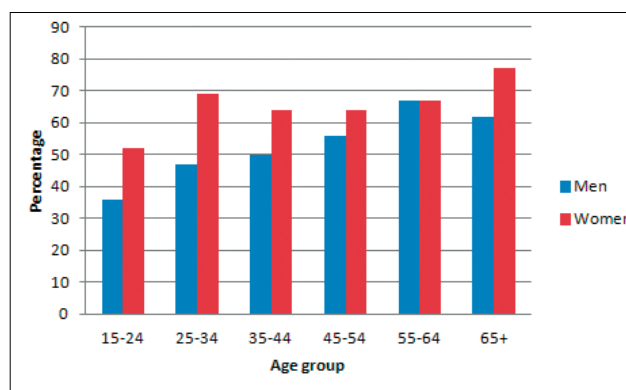


Fig. 1. Levels of physical inactivity by age group.

Fig. 2 shows an increasing consumption of fat in the South African diet over the last 20 years.<sup>7</sup> Unhealthy diets have been characterised as high in 'saturated fat, particularly of animal origin, and an imbalance between the different polyunsaturated fatty acids. This diet is also very high in salt, cholesterol, alcohol, sugar and energy intake, and very low in fibre, vitamin and trace element intake.<sup>8</sup> Daily red meat consumption in South Africa has been estimated at 126 g per person per day on average,<sup>9</sup> compared with a global average of 101 g, the average in developing countries being 47 g and in developed countries 224 g.<sup>10</sup>

Not surprisingly this has been mirrored by increasing levels of overweight and obesity in both men and women. Rates in women however far exceed those in men, as shown in Fig. 3.<sup>7</sup>

### Unhealthy diet

The agricultural sector is an overlooked contributor to greenhouse gas emissions and yet accounts for 15 - 20% of global greenhouse

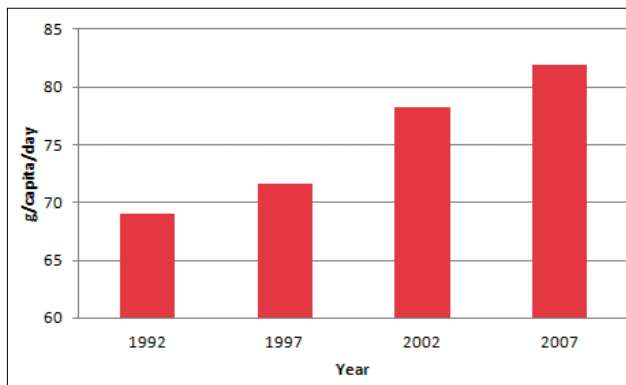


Fig. 2. Supply of fat in the South African diet.

gases – as much as the transport industry.<sup>10,11</sup> Agricultural greenhouse gases, however, are predominantly from nitrous oxide (46%) and methane (45%) rather than carbon dioxide (9%).<sup>11</sup> Methane and nitrous oxide are more potent greenhouse gases than carbon dioxide. Nitrous oxide is released from the use of synthetic fertilisers, while methane derives from ruminant livestock and manure. Livestock production, however, also contributes indirectly through deforestation for grazing land and soy-feed production.<sup>10</sup> Worldwide, the trend is for an increase in meat production, particularly in low- and middle-income countries, from 229 million tonnes in 2000 to 465 million tonnes in 2050.<sup>10</sup> The associated increased consumption of livestock products in transitional countries such as South Africa is reflected in the increased fat content of the diet.<sup>10</sup> Livestock production is

increasing in South Africa and we are now importing soy feed to support the growing industry.<sup>10</sup>

The carbon footprint of the agricultural sector is compounded by the food industry and consumer choices. Food and beverage manufacturers add greenhouse gas emissions through processing, packaging and transporting food over long distances. Food retailers add additional greenhouse gas emissions through distribution and storage. Consumers add greenhouse gas emissions depending on how they travel to shop, and how they dispose of waste and packaging. Every food product we buy therefore has a carbon footprint. A diet that is low in fruit, vegetables and plant protein, but high in animal protein and fat, is not only unhealthy, but has a much higher carbon footprint. The impact of a diet that requires high amounts of animal protein is illustrated by the following observations:<sup>11</sup>

- The use of fossil fuels is 11 times higher to produce 1 kg of animal v. plant protein.
- It takes 6 kg of plant protein to make 1 kg of animal protein.
- Currently, 50% of the world's grain goes to feed livestock and not people.
- Livestock occupy 30% of the Earth's land surface.
- 70% of deforested land goes to grazing.

To put these figures into more a dramatic form:

- 'If everyone in the UK stopped eating meat on one day a week, this would equate to taking 5 million cars off the road.'<sup>12</sup>
- 'A kilogram of steak could be responsible for as many greenhouse gases as driving a car for three hours while leaving all the lights on at home.'<sup>13</sup>

In other words, recommendations for a diet that prevents overweight and obesity and which also mitigates climate change are the same. A low-calorie diet that is designed to assist with weight loss should ideally consist of:<sup>14</sup>

- 50 - 55% carbohydrates, particularly vegetables, fruit, wholegrains and beans
- 15 - 25% lean protein
- 30% fat, particularly unsaturated fats.

When making food choices from a climate change perspective the following principles also apply:<sup>11</sup>

- Eat more plant protein and vegetarian food.
- Buy more unprocessed and unfrozen food.
- Buy foods with minimal packaging.
- Eat more organic food.
- Make use of locally produced and seasonal products.
- Grow your own food.

### Physical inactivity

A sedentary, urban lifestyle characterised by reduced physical activity, is also based on substituting fossil fuel energy for our own physical activity.<sup>15</sup> We aspire to car ownership, and passenger cars per 1 000 of the population have increased by 25% between 1996 and 2006.<sup>15</sup> In 2005, South Africa consumed 328 litres of diesel

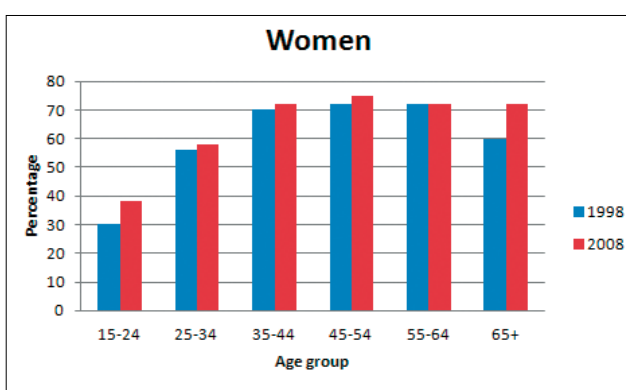
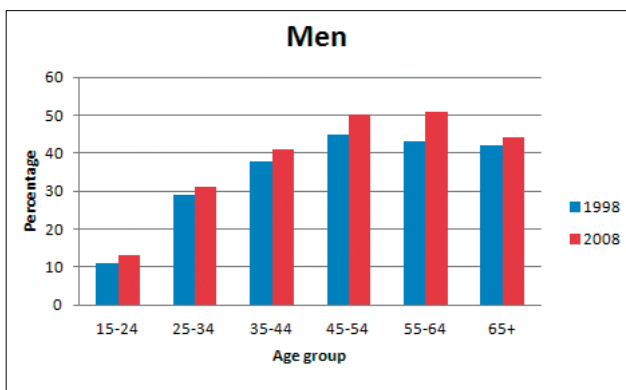


Fig. 3. Rates of overweight and obesity in South Africa.

## Lifestyle interventions

and petrol per person compared with a global average of 283 litres, 12 litres in Ethiopia and 2 135 litres in the USA.<sup>15,16</sup> The increased use of motorised transport is also associated with other health consequences, such as high rates of road traffic accidents (the fourth highest contributor to the burden of disease in South Africa<sup>1</sup>) and significant amounts of air pollution.<sup>15</sup> We use cars to travel even the shortest distance, when walking or cycling would allow us to meet targets for physical activity. In South African cities, collective public transport is underdeveloped and poses serious safety considerations.

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A reduced emphasis on physical activity at school and a lack of access to suitable sport facilities may also be an important

factor. Physical inactivity may also be compounded by fears of safety and a lack of access to green spaces.

Nevertheless, an exercise prescription may be an important part of preventing and controlling non-communicable chronic disease and mitigating climate change. The key principles of an exercise prescription are:<sup>14</sup>

- 150 minutes of moderate-to-vigorous physical activity per week for everyone. This is activity that raises one's heart rate or produces a sweat. Activity should ideally be every day of the week and at least 10 minutes at a time.
- 150 - 250 minutes of moderate-to-vigorous physical activity per week to prevent the typical weight gain seen during adulthood in our society.
- 225 - 420 minutes of moderate-to-vigorous physical activity per week (30 - 60 minutes per day, 7 days per week) to lose weight if already overweight or obese.

It should be noted that physical activity does not necessarily imply organised sport or attendance at a gym. Activity can be incorporated into one's daily life through greater use of public transport (bus, train or taxi), brisk walking or even cycling.

### Electricity use

At the heart of greenhouse gas emissions and climate change is the issue of energy use and consumption. In South Africa the majority of our energy is derived from burning fossil fuels, particularly coal.<sup>17</sup> The health sector is often a major energy user and in South Africa the private sector is likely to have a carbon footprint on a par with high-income countries.<sup>18</sup> At home and work there are a variety of relatively easy ways in which one can reduce energy use, save money and mitigate against climate change:<sup>11</sup>

- Use compact fluorescent lamps (CFL) or light-emitting diodes (LED) for lighting and switch off lights when not in use.
- Buy energy-efficient appliances and switch off appliances when not needed.
- Reduce the geyser temperature and install a geyser blanket.
- Invest in solar water heating.
- Take short showers instead of baths.
- Wash clothes in cold water and use a clothes line, not a tumble drier.

- Install insulation in the ceiling.
- Audit your energy use.
- Offset your electricity use by planting trees.

### Travel

Travel is another major source of greenhouse gases, and health professionals often travel large distances for conferences and meetings. Referral of patients to distant hospitals also contributes to travel-related emissions from health care. At home and work there are a number of personal lifestyle changes that can be promoted:<sup>11</sup>

- Avoid flying whenever possible.
- Avoid driving on your own when you can join a car pool.
- Drive more slowly and maintain your car as this improves fuel consumption.
- Buy a more fuel-efficient car.
- Offset your travel emissions by planting trees.

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### Waste

Landfill and the treatment of waste water are major producers of methane, which is a powerful greenhouse gas, and burning waste in many areas also contributes to additional greenhouse gases. The mantra of waste management is reduce-reuse-recycle:<sup>11</sup>

- Reduce consumption and choose products with fewer hazards when thrown away or less embodied energy in production.
- Reuse items when possible rather than discarding them.
- Recycle items such as paper, cardboard, glass and plastics. Also consider worm farms and other means of rapidly breaking down organic waste into compost.

## Family planning

One additional driver of increasing consumption and greenhouse gases is likely to be global population growth, although it should be noted that many of the countries with the highest levels of emissions also have the lowest population growth.<sup>19</sup> Family planning therefore can make a contribution towards limiting unsustainable population growth, and as South Africa has a huge number of children in need (particularly orphans), fostering, adoption and support of these children is a priority.<sup>11</sup>

## Being the change

The therapeutic relationship between health professionals and patients is central to health care. To be therapeutic the relationship relies on an experience of genuine concern and interest, acceptance of the patient's views, sensitivity, empathy and support.<sup>20</sup> When promoting wellness and lifestyle change there is also a need for congruency between one's own striving for wellness as a health professional and the behaviour change that you are promoting for your patient. Resonant leadership, mindfulness, self-care and reflection have been identified as critical components of this. In other words, who the doctor is as a person and not just their technical skills or

knowledge has an important influence on the therapeutic relationship.<sup>21</sup>

With this in mind it follows that health professionals should strive to manifest the same healthy behaviours that they expect of their patients. It is not about perfection, but about struggling with the same issues and hopefully being a role model for health and wellness. In the realm of climate change therefore health professionals should also strive for more sustainable lifestyles. At a basic level this may involve:<sup>11</sup>

- Learning more about climate change and one's own carbon footprint.
- Reflecting on one's own values and priorities.
- Reducing one's own consumption.
- Encouraging action on climate change through professional organisations, colleagues, friends and family.

## Conclusion

Climate change is a major challenge to public health in the 21st century, and health professionals should include messages about healthy lifestyle and the mitigation of climate change in their interactions with patients. Many of the lifestyle changes, such as increased physical activity and reduced consumption of meat, are also

beneficial in the prevention and control of non-communicable chronic diseases. In addition to these changes, other key areas for change are use of electricity, travel, waste disposal and family planning. Health professionals should be congruent in the way that they strive for wellness in their own lives and promote healthy lifestyles to their patients.

References available at [www.cmej.org.za](http://www.cmej.org.za)

## IN A NUTSHELL

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- Other key areas for change are use of electricity, travel, waste and family planning.
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## SINGLE SUTURE

### *Wine results faked?*

If you thought that all the news reports that wine was good for your health were too good to be true, you could be right. Some of the research was faked, says the University of Connecticut.

A 3-year investigation by the university concluded that Dipak Das, head of its cardiovascular research centre, 'is guilty of 145 counts of fabrication and falsification of data'.

An anonymous tip of possible fraud in 2008 triggered the investigation. The resulting report came to 600 000 pages, drawn from examining more than 100 papers. The university has notified 11 journals in which Das published suspect papers and has begun dismissal procedures.

Much of Das's work centred on the health benefits of resveratrol, a compound found in red wine. Other labs have also reported similar benefits of the compound.

New Scientist, 21 January 2012.