

Get off your butt – and live longer



Sedentary habits shorten your life almost as much as smoking (by 1.8 v. 2.5 years) – even if you exercise regularly.^[1]

These are among the latest research findings presented by internationally-respected University of Cape Town (UCT) kineticist Dr Tracy Kolbe-Alexander, at a health-journalism seminar focussing on non-communicable diseases (NCDs) held at Rhodes University in Grahamstown in August. Kolbe-Alexander was quick to reassure anti-smoking and fitness campaigners that ground-breaking new ‘movement’ research, addressing what she termed ‘a global epidemic of sitting,’ should not outshine or replace vital exercise, anti-tobacco or anti-alcohol abuse messages. She emphasised that a holistic approach is essential to mitigate NCDs, which are responsible for half of all deaths worldwide and aggravated by damaging lifestyle behaviours.

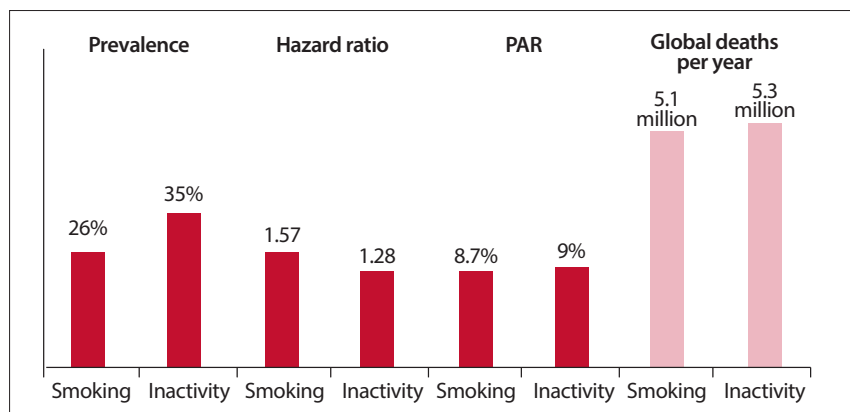
In Kolbe-Alexander’s field, ‘movement, any movement’ is the new game in town. ‘We have an epidemic of sitting, be it commuting, in the workplace, in the home environment or during leisure time,’ she said. The recent *South African Youth Risk Behaviour Survey* by Reddy *et al.*^[2] showed how vigorous physical activity among local youth has dropped, from 45% of those surveyed in 2002 to below 43% in 2008. Moderate physical activity over the same period subsided even further, from 35% to 30%. Meanwhile, the percentage of youths who admitted to being ‘inactive’ grew from 38% to 43%, and the percentage of those who reported watching more than

3 hours of television per day had jumped from 28% to 30%.

Kolbe-Alexander said that, worldwide, 31.1% of adults are estimated to be physically inactive, while more than 80% of adolescents are not meeting the physical activity recommendations of at least 30 minutes per day of exercise or 150 minutes of exercise per week. Like her harm-reduction colleagues fighting tobacco and alcohol abuse and poor diet, she said framing issues in a stigmatising, blaming manner that focuses solely on the individual’s responsibility misses the mark. Over recent decades, environmental opportunities for physical activity have diminished dramatically in areas such as transport, work and home, including the built environment. In stark contrast, opportunities for sitting amounted to a full 15.5 hours of our waking time, from sitting down for meals to sitting at a desk, in a car or in front of the



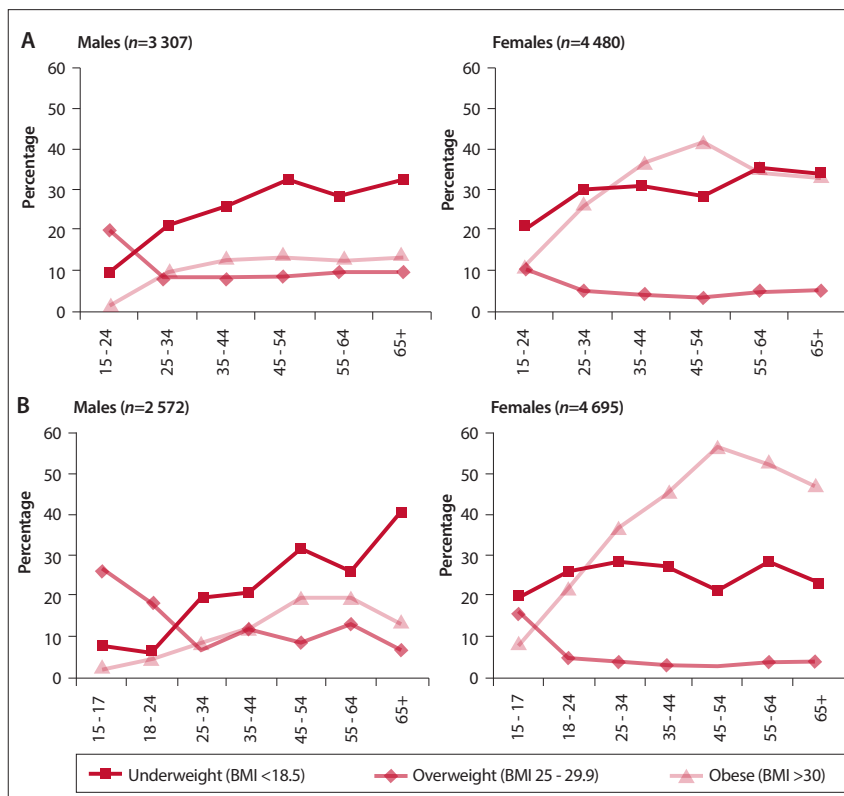
Dr Tracy Kolbe-Alexander, University of Cape Town kineticist.



Sedentary behaviour causes more deaths than smoking. PAR = proven acceptable range.

	Your old way	Calories burned in five days	The NEAT way	Calories burned in five days
AT WORK	Drive to your office and take the elevator to your floor	280	Park five blocks from your office. Take the stairs three flights to your floor	700
	Talk on the phone for an hour	200	Talk on the phone while standing up and pacing	700
	Sit down for a 45-minute lunch	200	Take a 30-minute stroll, then sit down for 15 minutes to eat	500
AT HOME	Order takeout and leaf through mail and catalogues as you wait for food to arrive	150	Stand up and cook a quick meal for 20 to 30 minutes	350
	Call a cleaning service	20	Tidy one room a day for 15 minutes	150
IN YOUR CAR	Open the back door to let the dog out	43	Take the dog for a 30-minute walk once a day	357
	Drive around the mall for 10 minutes to find the spot closest to where you plan to shop	50	Park in the farthest spot in the parking lot and walk 15 minutes to and from the store entrance	400
FOR FUN	Drive your son to his bus stop	30	Walk to and from the bus stop (a 10-minute walk each way)	250
	Eat dinner and watch TV or a movie with your husband	50	After dinner, take a 30-minute stroll (or browse a bookstore, or go bowling)	286
	Surf the internet for an hour	33	Play a board game or cards or do a puzzle for an hour	150
	Total calories burned in five days, your old way	1 056	Total calories burned in five days, the NEAT way	3 843

Increasing non-exercise activity thermogenesis (NEAT) and reducing sitting.



Secular trend for obesity in South Africans over 10 years from (A) 2003 to (B) 2012. (BMI = body mass index in kg/m².)

TV. Research also showed that, on average, every single hour of TV viewed after the age of 25 reduces the viewer's life expectancy by 21.8 minutes.^[3] Kolbe-Alexander punted 'non-exercise activity thermogenesis' (NEAT) as 'key' in thinking about 'the other 23 and a half hours' (i.e. what happens in the time when you're *not* doing your daily 30 minutes of cardiovascular exercise).

Varying by 2 000 kilocalories (kcal)/day, NEAT ranged from sitting and standing to chewing gum (15 kcal/h), fidgeting, stair climbing and walking at various speeds.^[4] Breaking up sitting time had positive health outcomes – independent of total sitting time – and resulted in improved waist circumference, high-density lipoprotein (HDL) cholesterol levels and c-reactive protein levels. She said 'exciting' new research also shows that sitting is an independent risk factor for all-cause mortality and coronary artery disease mortality.^[5]

Kolbe-Alexander's 'get moving' message was backed by her colleague, Prof. Vicki Lambert, of the UCT/Medical Research Council Research Unit for Exercise Sports and Sports Medicine and a fellow global consultant. Citing the results of the first-ever South African National Health and Nutrition Examination Survey (SANHANES*),^[6] Lambert flagged an alarming 15% increase in obesity (defined as a body mass index (BMI) of ≥ 30 kg/m²) among South African women aged 45 - 54 between 2003 and 2012, bringing its current prevalence up to 56%. She described the differences between men and women that SANHANES's snapshot survey of obesity in men aged 45 - 54 last year put prevalence at 18% compared with women at 56%. However, in the same survey the profile changed for overweight people (defined as having a BMI of 25 - 29.9 kg/m²), with prevalence among men at 32% and women at 22%.

Lambert said that the overall prevalence of inactivity made it the biggest single risk factor for death. She praised the National Department of Health for setting 2020 as the target date for reducing obesity and overweight prevalence by 10% and increasing the prevalence of 150 minutes or more exercise per week among South Africans by the same percentage. Like Kolbe-Alexander, she stressed that when it comes to NCDs, most contributing factors are socially determined and out of the individual's control. For example, early childhood stunting is an independent risk factor for a child to be overweight. One study in Khayelitsha township, Cape Town, showed that early life deprivation (childhood hunger), income, education, body image and a role in household decision-making are strong

determinants of obesity in adult women, but not in men.^[7]

'Why don't people have five fruit and veg per day? It may or may not be volitional, so you have to look at lifestyle a little differently,' said Lambert. The term 'food desert' has been coined in North America, because of the way people shape their environment by what they can afford and what they like.^[3] She gave the example of how supermarkets tailor their produce to high- and low-income customers and cited a study showing how prices of fresh fruit and vegetables had soared between 1979 and 2009, compared with more modest increases in the consumer price index, sugar, sweets and carbonated drinks.

Lambert said a key intervention would be placing healthier foods in the cash-register areas of supermarkets instead of the usual fare of sweets, chocolates and fizzy drinks. The best randomised controlled trial globally has shown that discounting healthy food to the value of VAT improved fruit and vegetable buying among disadvantaged communities. This raises the question of whether choice should be socially engineered or left up to the individual. Lambert pointed to a school feeding scheme in Brazil which brings fresh produce from family farms and

co-operatives directly to schools, thus hugely benefitting all parties involved, which she praised as a 'remarkable achievement worth emulating here'. 'If I was in government I'd bring in the Brazilian model,' she added.

Lambert stressed that the youth risk behaviour component of SANHANES was particularly alarming: for the first time in history, the current generation of children is expected to die earlier than their parents. Between 2002 and 2008, obesity rates among South African male adolescents more than doubled, while among their female counterparts they rose from 5% to 7.5%.^[8]

Lambert concluded by quoting Dr Margaret Chan, Director General of the World Health Organization, addressing the 8th Global Conference on Health Promotion in Helsinki this June: 'Not one single country has managed to turn around its obesity epidemic in all age groups. This is not a failure of individual willpower. This is a failure of political will to take on big business.'

*SANHANES was a comprehensive health and nutrition 2012 study that yielded critical information on emerging epidemics of non-communicable diseases. It also analysed the underlying social, economic, behavioural

and environmental factors that drives these diseases in the South African population.

Chris Bateman

chrisb@hmpg.co.za

1. Katzmarzyk PT, Lee IM. Sedentary behavior and life expectancy in the USA: A cause-deleted life table analysis. *BMJ Open* 2012;2(4):e000828. [<http://dx.doi.org/10.1136/bmjopen-2012-000828>]
2. Reddy SP, James S, Sepwaul R, et al. Umthente Uhlaba Usamila – The 2nd South African Youth Risk Behaviour Survey 2008. Pretoria: Department of Health, 2010. http://www.mrc.ac.za/healthpromotion/yrebs_2008_final_report.pdf (accessed 15 October 2013).
3. Veerman JL, Healy GN, Cobiac LJ, et al. Correction: Television viewing time and reduced life expectancy: A life table analysis. *Br J Sports Med* 2012;46:1144. [<http://dx.doi.org/10.1136/bjism.2011.085662>].
4. Levine JA. Nonexercise activity thermogenesis (NEAT): Environment and biology. *Am J Physiol Endocrinol Metab* 2004; 286:E675-E685. [<http://dx.doi.org/10.1152/ajpendo.00562.2003>]
5. Katzmarzyk PT, Church T, Craig CL, Bouchard C. Sitting time and mortality from all causes, cardiovascular disease, and cancer. *Med Sci Sports Exerc* 2009;41(5):998-1005. [<http://dx.doi.org/10.1249/MSS.0b013e3181930355>].
6. Hoosain E, Dwane N, Reddy P, et al. South African National Health and Nutrition Examination Survey. Pretoria: Human Sciences Research Council, 2013. <http://www.hsra.ac.za/en/research-outputs/view/6493> (accessed 15 October 2013).
7. Case A, Menendez A. Sex differences in obesity rates in poor countries: Evidence from South Africa. *Economics and Human Biology* 2009;7(3):271-282.
8. Reddy SP, Resnicow K, James S, et al. Dose-response relationship in overweight and obesity across SES categories. *Am J Public Health* 2012;102(2):262-268. [<http://dx.doi.org/10.2105/AJPH.2011.300222>]

S Afr Med J 2013;103(11):821-823.

DOI:10.7196/SAMJ.7564