

It is time to bust the myth of physical inactivity and obesity: you cannot outrun a bad diet

A Malhotra,¹ T Noakes,² S Phinney³

A recent report from the UK's Academy of Medical Royal Colleges described 'the miracle cure' of performing 30 min of moderate exercise, five times a week, as more powerful than many drugs administered for chronic disease prevention and management.¹ Regular physical activity reduces the risk of developing cardiovascular disease, type 2 diabetes, dementia and some cancers by at least 30%. However, physical activity does not promote weight loss.

In the past 30 years, as obesity has rocketed, there has been little change in physical activity levels in the Western population.² This places the blame for our expanding waist lines directly on the type and amount of calories consumed. However, the obesity epidemic represents only the tip of a much larger iceberg of the adverse health consequences of poor diet. According to *The Lancet* global burden of disease reports, poor diet now generates more disease than physical inactivity, alcohol and smoking combined. Up to 40% of those with a normal body mass index will harbour metabolic abnormalities typically associated with obesity, which include hypertension, dyslipidaemia, non-alcoholic fatty liver disease and cardiovascular disease.³ However, this is little appreciated by scientists, doctors, media writers and policymakers, despite the extensive scientific literature on the vulnerability of all ages and all sizes to lifestyle-related diseases.

Instead, members of the public are drowned by an unhelpful message about maintaining a 'healthy weight' through calorie counting, and many still wrongly believe that obesity is entirely due to lack of exercise. This false perception is rooted in the Food Industry's Public Relations

machinery, which uses tactics chillingly similar to those of big tobacco. The tobacco industry successfully stalled government intervention for 50 years starting from when the first links between smoking and lung cancer were published. This sabotage was achieved using a 'corporate playbook' of denial, doubt and confusing the public.⁴

Coca Cola, who spent \$3.3 billion on advertising in 2013, pushes a message that 'all calories count'; they associate their products with sport, suggesting it is ok to consume their drinks as long as you exercise. However science tells us this is misleading and wrong. It is where the calories come from that is crucial. Sugar calories promote fat storage and hunger. Fat calories induce fullness or 'satiation'.

A large econometric analysis of worldwide sugar availability, revealed that for every excess 150 calories of sugar, there was an 11-fold increase in the prevalence of type 2 diabetes, in comparison to an identical 150 calories obtained from fat or protein. And this was independent of the person's weight and physical activity level; this study fulfils the Bradford Hill Criteria for causation.⁵ A recently published critical review in nutrition concluded that dietary carbohydrate restriction is the single most effective intervention for reducing all the features of the metabolic syndrome and should be the first approach in diabetes management, with benefits occurring even without weight loss.⁶

AND WHAT ABOUT CARBOHYDRATE LOADING FOR EXERCISE?

The twin rationales for carbohydrate loading are that the body has a limited capacity to store carbohydrates and these are essential for more intense exercise. However, recent studies suggest otherwise. The work of Volek and colleagues⁷ establishes that chronic adaptation to a high-fat low-carbohydrate diet induces very high rates of fat oxidation during exercise (up to 1.5 g/min)—sufficient for most exercisers in most forms of exercise—without the need for added carbohydrate. Thus fat, including ketone bodies, appears to be the ideal fuel for most exercise—it is abundant, does not need

replacement or supplementation during exercise, and can fuel the forms of exercise in which most participate.⁷ If a high-carbohydrate diet was merely unnecessary for exercise it would be of little threat to public health, however, there are growing concerns that insulin-resistant athletes may be at risk of developing type 2 diabetes if they continue to eat very high-carbohydrate diets for decades since such diets worsen insulin resistance.

THE 'HEALTH HALO' LEGITIMISATION OF NUTRITIONALLY DEFICIENT PRODUCTS MUST END

The public health messaging around diet and exercise, and their relationship to the epidemics of type 2 diabetes and obesity, has been corrupted by vested interests. Celebrity endorsements of sugary drinks, and the association of junk food and sport, must end. The 'health halo' legitimisation of nutritionally deficient products is misleading and unscientific. This manipulative marketing sabotages effective government interventions such as the introduction of sugary drink taxes or the banning of junk food advertising. Such marketing increases commercial profit at the cost of population health. The Centres of Disease Control health impact pyramid is clear. Changing the food environment—so that individuals' choices about what to eat default to healthy options—will have a far greater impact on population health than counselling or education. Healthy choice must become the easy choice. Health clubs and gyms therefore also need to set an example by removing the sale of sugary drinks and junk food from their premises.

It is time to wind back the harms caused by the junk food industry's public relations machinery. Let us bust the myth of physical inactivity and obesity. You cannot outrun a bad diet.

Correction notice This article has been amended from the original published on 29th April 2015. The body of the text was slightly edited and a reference removed. Competing interests have been added.

Competing interests SP is a paid member of the Atkins Scientific Advisory Board and has authored books on low carb/high fat diets: *New Atkins and You* and *The Art and Science of Low Carbohydrate Living*; TN is the author of the books *Lore of Running and Waterlogged* and co-author of *The Real Meal Revolution and Challenging Beliefs*. All royalties from the sale of Real Meal Revolution are donated to the The Noakes Foundation of which he is the Chairman and which funds research of insulin resistance, diabetes and nutrition as directed by its Board of Directors. Money from the sale of other books is donated to the Tim and Marilyn Noakes Sports Science Research Trust which funds the salary of a senior researcher at the University of Cape Town, South Africa (research focuses on the study of skeletal muscle in African mammals

¹Department of Cardiology, Frimley Park Hospital and Consultant Clinical Associate to the Academy of Medical Royal Colleges; ²Department of Human Biology, University of Cape Town and Sports Science Institute of South Africa, Newlands, South Africa; ³School of Medicine (Emeritus), University of California Davis, Davis, California, USA

Correspondence to Dr A Malhotra, Department of Cardiology, Frimley Park Hospital and Consultant Clinical Associate to the Academy of Medical Royal Colleges; aseem_malhotra@hotmail.com

with some overlap to the study of type 2 diabetes in carnivorous mammals and of the effects of (scavenged) sugar consumption on free-living (wild) baboons).

Provenance and peer review Not commissioned; internally peer reviewed.

To cite Malhotra A, Noakes T, Phinney S. *Br J Sports Med* Published Online First: [please include Day Month Year] doi:10.1136/bjsports-2015-094911

Accepted 8 April 2015

Br J Sports Med 2015;0:1–2.
doi:10.1136/bjsports-2015-094911

REFERENCES

- 1 Exercise—the miracle cure. Report from the Academy of Medical Royal Colleges. Feb 2015. <http://www.aomrc.org.uk/>
- 2 Luke A, Cooper RS. Physical activity does not influence obesity risk: time to clarify the public health message. *Int J Epidemiol* 2013;42:1831–6. <http://www.ncbi.nlm.nih.gov/pubmed/23356701>
- 3 Brownell KD, Warner KE. The perils of ignoring history: big tobacco played dirty and millions died. How similar is big food? *Milbank Q* 2009;87:259–94.
- 5 Basu S, Yoffe P, Hills N, *et al.* The relationship of sugar to population-level diabetes prevalence: an econometric analysis of repeated cross-sectional data. *PLoS ONE* 2013;8:e57873. [http://www.nutritionjnl.com/article/S0899-9007\(14\)00332-3/pdf](http://www.nutritionjnl.com/article/S0899-9007(14)00332-3/pdf)
- 6 Noakes T, Volek JS, Phinney SD. Low-carbohydrate diets for athletes: what evidence? *Br J Sports Med* 2014;48:1077–8.