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Where next for obesity?

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There is a seductive simplicity to the conceptualisation of obesity as a straightforward problem of energy balance—calories in versus calories out. But the physiological, behavioural, and environmental influences on this relation are asymmetrical. Therefore, although the basic arithmetic holds true, in practice it is much easier for people, and populations, to gain weight than to lose it. As Boyd Swinburn and colleagues¹ describe in *The Lancet*, increasing fatness is the result of a normal response, by normal people, to an abnormal situation. This holds true across the globe: although obesity is always thought of as a problem of the developed world, it is increasingly seen in developing nations too.² Supporting and encouraging people to respond more healthily to that abnormal situation is important, but the range of options within which people make their choices is skewed in favour of weight gain rather than weight loss. No approach will work alone, but changing the environments within which those

decisions are made is likely to be far more effective than merely exhorting people to make better choices.³

A rapidly growing body of research is helping us to identify the most effective and cost-effective approaches to tackle obesity. Research within the biomedical paradigm tends to focus on specific topics such as dietary behaviour and physical activity, psychological drivers, or genetic influences; the wider issue of obesity is then constructed from these elements.

Obesity is thus treated as a complicated issue, not a complex one. The distinction is important. A complicated system might contain many different elements, with various interactions, but it is knowable and ultimately predictable: a Saturn rocket is not simple, but plans for it exist, and to calculate its trajectory and send astronauts to the moon and back is possible. A complex system does us no such favours. It is non-linear, subject to unexpected and unintended consequences, contains feedback loops, and displays emergent properties—it is more than the sum of its parts. This kind of wicked³ problem needs a different set of approaches to understand it and deal with it from those needed for issues that are merely complicated.⁴

However, there are structural obstacles to this approach. In *The Hedgehog and the Fox*,⁵ Isaiah Berlin describes how “the fox knows many little things, but the hedgehog knows one big thing”. Berlin was writing about literature, but he could just as easily have been describing academia. The world of scientific research favours subject-specific expertise. Most of us tend to focus on fairly narrow specialisms, with both funding and academic career structures promoting this kind of knowledge—we are hedgehogs. For complex issues like obesity the shortage of foxes, with their breadth of knowledge, presents a major obstacle to progress.



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Notwithstanding some important exceptions, we generally prefer to stay within our own disciplinary boundaries: clinicians tend to promote clinical solutions, nutritionists tend to support dietary ones, and so on. This specialist expertise is crucial, but we also need to understand how the parts all fit together and affect one another, and to be able to step back and see the system as a whole: we need more foxes.

Tackling obesity demands an approach that does not merely coordinate the discrete actions of a huge number of individuals, organisations, and sectors. Those actions need to be integrated, their unintended consequences understood, corrective actions undertaken, ineffective interventions stopped, and effective ones continuously tweaked and improved. We need to move from small steps and single solutions to “big thinking, many changes”,⁶ taking a broad ecological approach.

Complex issues are not merely sets of discrete elements.⁷ If we are to have a genuine and lasting effect on obesity, and other wicked problems such as climate change, we need to change the fox-hedgehog ratio, develop our understanding of complex adaptive systems,

build on the biomedical paradigm, and move beyond linear thinking to create new ways to conceptualise, explain, and address these issues.⁸ The challenge is huge, but the risks of failure are greater.

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I declare that I have no conflicts of interest.

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With maturity comes confidence: EBCTCG tamoxifen update



In *The Lancet*, the Early Breast Cancer Trialists' Collaborative Group (EBCTCG)¹ have updated their meta-analyses of long-term outcomes in 21 457 women with early-stage breast cancer, in 20 randomised trials of about 5 years of adjuvant tamoxifen versus observation or placebo. The EBCTCG should be commended for their commitment to update and investigate a collaborative database with such breadth and maturity (median follow-up is now 13 years). They showed that allocation to about 5 years of tamoxifen reduces the recurrence rate substantially throughout the first decade (rate ratio [RR] 0.53 [SE 0.03] in years 0–4 and 0.68 [0.06] in years 5–9), with no subsequent loss of the gains made during the first decade. Furthermore, yearly breast-cancer mortality was reduced by about a third throughout the first 15 years (RR 0.70 [0.05], $p < 0.00001$). Equally important, the relapse curves do not converge after year 10 (RR 0.97 [0.10] in years 10–14), which means that 5 years of tamoxifen can prevent a high proportion of recurrences and potentially cure many patients, rather than simply delay an inevitable event. These mature and definitive

results allow clinicians to inform women confidently about the effect of tamoxifen on breast-cancer events and overall survival to a timepoint that approaches the remaining life expectancy of many individuals.^{2,3}

Although a 2010 update of the American Society of Clinical Oncology practice guideline on adjuvant endocrine therapy⁴ recommends that postmenopausal women should consider incorporation of an aromatase inhibitor at some point during adjuvant treatment for hormone receptor-positive breast cancer, the longest follow-up available from trials of adjuvant aromatase inhibitors is short compared with those for tamoxifen.^{5,6} Some studies have suggested that tamoxifen also protects against cardiovascular disease,^{7,8} but no net effect on vascular mortality was recorded in the EBCTCG update.¹ Tamoxifen remains an attractive treatment option for many premenopausal and perimenopausal women, because at these ages it carries little risk of endometrial cancer,¹ and aromatase inhibitors are ineffective in women whose ovaries are still functioning.

Published Online
July 29, 2011
DOI:10.1016/S0140-
6736(11)61128-8
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