Two thirds of men in the UK carry excess weight and over a quarter of the male population is obese, according to latest data. Obesity is a major public health and clinical issue because of its association with serious chronic diseases such as type 2 diabetes, hypertension and dyslipidaemia, making it a major risk factor for cardiovascular disease and cardiovascular mortality. Obesity is also associated with cancer, disability, reduced quality of life, obstructive sleep apnoea and non-alcoholic steatohepatitis, and can lead to premature death.

According to the NHS Atlas of Risk, obesity is considered to be the fourth biggest risk factor contributing to deaths in England after hypertension, smoking and high cholesterol – although, as it contributes to hypertension and cholesterol, its risk should not be understated. The Health Professionals Study revealed a risk ratio of incident diabetes for men of 42% at BMI 35 compared to normal weight.\(^1\) Heart disease is known to be linked with obesity; the INTERHEART study reported that BMI showed a modest and graded association with myocardial infarction, but preferred waist-to-hip ratio, which showed a graded and highly significant association with myocardial infarction risk.\(^2\) In patients with metabolic syndrome, the prevalence of moderate to severe obstructive sleep apnoea (OSA) is very high, at around 60%.\(^3\) Road traffic accidents have long been known to be associated with OSA, with particular implications for HGV and bus drivers, who are often obese as a result of sedentary lifestyles.\(^4\)

Higher adiposity and weight gain are strong risk factors for gout in men, while weight loss is protective.\(^5\) Obesity adversely affects male fertility and can induce azoospermia, oligospermia and reduced testosterone levels; however, a
recent study following bariatric surgery demonstrated that following post-sleeve gastrectomy, all three conditions improve significantly. Sexual function is known to be problematic in obesity, erectile dysfunction in particular.

Although obesity is linked to an increased risk of several cancers, including colon, gallbladder, kidney, and pancreas, its role in prostate cancer aetiology remains uncertain, with inconsistent data. However, a large prospective study of nearly one million men and 33,314 prostate cancer cases reported a 9% excess risk of prostate cancer among obese men, with a greater risk for men who were obese at age 45. Recent reports that a higher peri-prostatic fat ratio is significantly associated with a higher Gleason Score fit with previously recognised data that aggressive, even fatal prostate cancer is linked with obesity, whereas lower grade cancers are not.

THE OBESITY PARADOX
In recent years, the existence of an ‘obesity paradox’ has increasingly taxed clinicians. Although obesity is known to be a causative factor for certain conditions, such as renal failure, heart failure and even diabetes, the presence of excess weight at diagnosis seems somehow to be protective in terms of prognosis. For example, obesity is a known precursor of cardiometabolic diseases and cancer; however, the co-existence of obesity seems to lower mortality once these illnesses have occurred. It has been said that ‘the idea that a known risk factor somehow transforms into a “protective” agent after an occurrence of a vascular clinical event is both surreal and troubling’.

Raised BMI is one causative factor for the onset of heart failure: for each unit increase in BMI, heart failure risk increases by 5% in men. However, meta-analysis of 28,209 subjects documented a reduction in cardiovascular mortality of 40% and all-cause mortality of 33% with increased BMI. A review of studies involving 250,000 individuals with coronary artery disease found cardiovascular and mortalality outcomes were lower in overweight and ‘mildly’ obese patients compared with ‘normal’ weight. The INVEST study of 22,500 individuals with coronary artery disease and hypertension, demonstrated a lower mortality and fewer major cardiovascular events in overweight and obese individuals compared to normal weight.

Two thirds of men in the UK carry excess weight and over a quarter of the male population is obese. A range of reasons have been advanced to explain the paradox. Adipose tissue may indeed genuinely provide a protective influence through an unknown mechanism; or obesity may lead to individuals becoming identified with chronic disease earlier by clearly being at higher risk, and therefore being treated sooner and more vigorously with, for example, blood pressure lowering agents and statins. One thesis suggests that individuals who only developed heart failure because of excess weight gain, but who would not have succumbed otherwise, are naturally less susceptible to the disease and therefore have a more favourable prognosis. Others suggest that ‘normal’ or low weight might be due to concurrent illnesses or be smoking related, or that BMI is an inappropriate measure of adiposity. However, recent studies have been adjusted for these factors.

The idea of an obesity paradox is still hotly debated. For example, a recent analysis of almost one million primary care patients concluded that obesity is associated with shorter survival plus higher incidence of coronary heart disease and type 2 diabetes in older populations, after accounting for confounders (ie only ‘never smokers’, and subjects free from chronic disease were studied), at least to age 84.

A recent Lancet meta-analysis of over 10 million participants in 239 prospective studies across the world sheds more light on this conundrum. All-cause mortality was minimal at a normal BMI, and increased significantly both below this range and through the overweight range. The hazard ratio for grade 1 obesity was 1.45, 1.94 for obesity grade 2, and 2.76 for obesity grade 3. This seems to suggest that although the paradox may occur in certain discrete conditions, its existence is insufficient to impact overall mortality. It also implies that initiatives to combat obesity should concentrate on prevention, but with an equal emphasis on management of already obese individuals.

THE SUGAR LOBBY
The NHS Diabetes Prevention Programme, aimed at identifying high-risk patients and avoiding the onset of the condition, is a welcome advance, although desperately underfunded. Equally encouraging is the forthcoming Soft Drinks Industry Levy (SDIL) or ‘sugary drinks tax’, which follows the WHO and Scientific Advisory Committee on Nutrition (SACN) reports, both of which recommend a reduction of sugar in the diet. However, less welcome developments include the UK government’s long-awaited obesity strategy, which is weak and offers nothing new, everything relating to the food industry having seemingly been removed; and Public Health England’s new Eatwell Guide, which recommends increasing intake of refined carbohydrate.

History may be repeating itself: a recent paper from the JAMA group documents undisclosed sugar industry interference in scientific literature and guidelines from archival documents, which ‘suggest the industry sponsored a research program in the 1960s and 1970s that successfully cast doubt about the hazards of sucrose while promoting fat as the dietary
culprit in coronary heart disease. Of particular interest in the paper is a précis of a programme known as ‘Project 226’, a literature review on ‘Carbohydrates and Cholesterol Metabolism’ commissioned and funded by the Sugar Research Foundation, published in late 1965, as ‘a [negative] review article of the several papers which find some special metabolic peril in sucrose and, in particular, fructose’. In the same spirit, John Yudkin was vilified for work such as Pure, White and Deadly, which argued strongly that sugar was a dangerous element of the diet, and felt the full force of the sugar industry as those funded by it rained criticism on him. Guidelines continued to follow Ancel Keys’ flawed research from the Seven Countries Study, which pronounced that dietary fat was the culprit in cardiovascular disease.

The last word goes to Credit Suisse, whose recent report ‘Fat: the new health paradigm’ states ‘The conclusion of this report is simple. Natural, unprocessed fats are healthy and key to the evolution of a society that focuses on developing healthy individual. Welcome to the new world of fat.’

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**REFERENCES**

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