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Keep it off! Maintenance is the real challenge, to benefit from improved weight loss methods

‘Comment’ piece, requested by The Lancet, on the obesity treatments and lack of existing evidence around approaches for maintaining weight loss.

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The world’s first evidence-based national obesity guideline recognised that, in addition to effective government interventions for prevention, support is needed for individuals, both for weight loss and weight maintenance, for which interventions may differ. Both physiological adaptations (reducing metabolic rate and increasing appetite), and persisting obesogenic environments contribute to regain. However, despite popular beliefs, rebound regain to exceed the starting weight is uncommon. Most obese people know how to lose weight and identify the most difficult problem as keeping it off. A systematic review of psychological evidence has highlighted the very high level of stress experienced by those attempting to prevent weight regain. The greatest need is support for long-term weight loss maintenance; rather little is currently on offer and no underpinning theoretical models exist, other than relapse-prevention and correction.

Weight maintenance is the Cinderella component of weight management (Figure 1). Colossal amounts are spent on research, drug development and healthcare for the multiple medical complications of overweight and obesity. Spending on ‘obesity treatment’ has principally been for weight loss, but weight-loss maintenance, the greatest need, has attracted minimal spending. Neither FDA in US nor EMA in Europe have ever approved weight-loss maintenance, as a treatment indication. Medications should only be employed as adjuncts to diet and lifestyle programmes. Legitimising their use for those who struggle to sustain major weight loss would help to shift attention to the general need for evidence-based weight-loss maintenance programmes. That would also justify more intensive interventions for greater weight loss, in line with consumer wishes.

Maintenance only makes sense after effective weight loss. Recent guidelines have promoted bariatric surgery for severe obesity and diabetes, assuming it offers a permanent solution, but ‘metabolic surgery’ does not alter metabolism sufficiently to eat freely without weight regain. Assuming that massive weight loss is better than more moderate loss, most patients suffer
complications, serious enough to require further surgical procedures (at least 5\%)\(^7\). That adverse-event rate would be unacceptable for drug licencing, though most eligible patients actually reject surgery\(^8\). Modern anti-obesity medications are safe and effective, together with a good diet programme, but weight regain occurs soon after stopping. There is a need for new non-surgical approaches to maximise acute phase weight loss. The most efficient weight loss method currently is a period of ‘Total Diet Replacement’ (TDR) using nutritionally-complete low-energy formula diets\(^9\).

These were scorned in the past and misconceptions need to be resolved\(^5\). Thus, rapid early loss leads to less regain and better long-term results\(^10\). Results are the same with a safer, better tolerated, 800-820kcal/day TDR as a VLCD\(^9\). Medical supervision is needed to reduce or withdraw medications for diabetes and hypertension. Adverse events are uncommon with modern formula diets, but regulation is important to ensure that products and programmes are evidence-based and will optimise nutritional status and subsequent maintenance. Currently there is confusion resulting from extrapolation of non-specific evidence. A recent European Food Safety Agency report\(^11\) has inexplicably required formula diets to: a) include choline (which is not accepted as required from foods by adult humans, and in excess may aggravate heart disease, b) reduce magnesium (potentially aggravating type 2 diabetes, c) increase protein to twice the minimum requirement of healthy weight-stable adults. This neglects the reduced protein requirement during weight loss, and makes products unpalatable. These measures seem misguided, given the good results, without clinical problems, using existing TDR\(^9\). The focus should be on improving maintenance, where greater protein intakes and physical activity may contribute.

With well-conducted studies consistently achieving mean weight losses of 12-17 kg using TDR, optimising support for long-term maintenance is vital. Programmes will always be multicomponent, comprising diet, physical activity, pharmacotherapy and surgery, but never strictly prescriptive. Emphasis will vary according to individual skills and preferences. Effective supports to improve maintenance include tailored diet and exercise approaches, behavioural and psychological techniques, meal replacements, and anti-obesity drugs\(^12\). The US National Weight Control Registry, comprising individuals who had lost at least 10% body weight has attributed avoidance of regain over 5 years to low fat (25% energy) diets, and regular physical activity, equivalent to 1 hour of moderate intensity activity daily. More disciplined meal patterns, consistent across weekdays and weekends, and self-monitoring of weight, also contributed. Physical activity contributes more towards maintenance than weight loss, but permanent changes in eating habits are vital.
To generate the best results for the greatest number of patients, programmes must be attractive
effective, to meet consumer expectations), flexible for real-world use, and then affordable and cost-
effective for health services. Not all succeed, but to establish weight maintenance as a clinical goal,
agreed success criteria are needed. Arbitrary figures, eg <3% regain, have been widely used. More
clinically relevant, metabolic benefits from weight loss in type 2 diabetic patients in LookAHEAD
were retained at >10% below initial weight, with <1.5% regain from post-loss weight, and ≥50% of
initial loss. The only known predictor of long-term maintenance results being early loss, ‘stopping-
rules’ using cut-offs of inadequate early weight loss could avoid wasting effort and funds, and
redirect those patients elsewhere. New non-surgical approaches are needed and as with any service
development, maintenance programmes can be improved using closed-loop audit and Continuous
Improvement Methodology, without needing costly, time-consuming, randomised trials.

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Declarations of Interest

The authors received no fees or other inducements to write this Comment. Professor Lean reports research
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References

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Figure 1. Obesity and the components of medical weight management.

Footnote to Figure 1
-------- broken line represents weight gain in adulthood
_______ solid line represents weight stability and maintenance with intervention

History of weight gain and/or stability over months and years, influenced by many factors

Intentional weight loss usually complete in 3-4 months, rarely beyond 6 months.

Weight loss maintenance months and years, ideally life-long. Requires trained, resourced, support for food reintroduction and a structured programme aiming to normalise new food choices and physical behaviours

Optimisation of health and wellbeing, whatever the outcome for body weight. Screen for disease risks secondary to obesity, manage cardiovascular risks while retaining appropriate weight management