

Slimming on the Internet

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SUMMARY

The first 50 websites identified on searching the Internet for 'weight loss diets' were assessed systematically and their content compared with published clinical guidelines for management of obesity. The relevance and quality of the sites varied enormously. Only 3 confined themselves to sound dietary advice. Most promoted dietary supplements or other 'slimming aids', often of uncertain composition and based on dubious physiological principles. Potential hazards—for example, those of very low calorie diets—were rarely highlighted and certain regimens on offer were potentially dangerous.

INTRODUCTION

The genesis of obesity in man was clearly demonstrated over a century ago by calorimetry experiments, and the key to successful management is negative energy balance, ideally achieved by a combination of reduced calorie intake and increased exercise¹. Authoritative guidelines stress the need for individual assessment before prescription of a weight reduction regimen, for reassessment and if necessary modification of the regimen after about three months, for psychological support (e.g. by participation in group activities) and for long-term planning to ensure maintenance of weight loss². Such guidelines identify only limited roles for drastic (very-low-calorie, VLC) diets. Physicians are also generally cautious in the use of drugs such as phentermine that restrict appetite, or the lipase inhibitor Orlistat that interferes with fat absorption from the gut. There is an even more restricted place for surgical procedures ranging from jaw-wiring through stomach stapling to small-intestinal bypass.

Many people who are obese (or believe themselves to be so) seek help from non-medical sources, and the 'slimming industry' is enormous. In 1990 Americans spent some \$33 billion on weight-loss products and services³. The trend has certainly not been reversed since then⁴. One recent and rapidly growing influence on lay medical opinion is the Internet⁵. Advice on slimming features prominently among health-related websites. Serious concerns have been raised about the quality, and indeed the safety, of advice proffered via the Internet^{6–8}. We investigated what a potential slimmer might find on the net and to what extent the information conformed to the physiological principles and the clinical guidelines outlined above.

METHOD

Using a standard Internet access programme (Netvigator v3.01) and search engine ('Excite'), we entered the search string 'weight loss diets'. Almost one million links were proposed and the first 50 were systematically evaluated. The following were recorded:

- Type of product offered for sale or method of weight loss promoted
- The physiological (or other) basis for the product's (or method's) action
- Whether the product or method was promoted in conjunction with a calorie controlled diet
- Any mention of hazards, side-effects or constraints on use
- The cost of the basic programme.

Other relevant points about individual sites were noted in free text.

RESULTS

48 of the 50 sites were based in the US, 1 in Britain and 1 in Brazil. 3 sites were unavailable (either withdrawn or not yet opened), and 2 had little or no relevance to slimming (one was a nutritional board game with a few questions on foods that are good for weight loss).

The main characteristics of the remaining 45 sites are listed in Table 1. 3 sites, 2 independent and 1 supported by a US Government agency, simply offered advice for those wishing to lose weight and included examples of well-balanced controlled calorie intake diets; 11 sites offered programmes of protein drinks (9) or 'energy bars' (1) or low-calorie 'cookies' that swell up in the stomach to give the sensation of fullness (1), usually combined with vitamin,

Table 1 Characteristics of 45 sites

Product or method	No. of sites
Sound dietary advice	3
Diet replacements	11
Vitamin/mineral/herbal supplements	15
Exercise/aerobics programmes	3
Surgery	2
Books on dieting	5
Links to other sites	2
'Holistic' approaches	4

mineral and/or herbal supplements. Typically, the programmes recommended that two meals per day be replaced by protein drinks and the third meal be restricted to about 400 calories. The total daily intake of many of these regimens would be less than 1000 calories—i.e. they are VLC diets. The modal cost for a month's supply of the ingredients of one of these plans was £70. One-third of the sites visited offered vitamin, mineral or herbal supplements. The substances ranged from multivitamin preparations for people on low-calorie diets (with the suggestion that they would otherwise suffer deficiencies), to herbal mixtures that 'dissolve cellulite', 'detoxify the body', 'control and suppress appetite' or 'activate cells creating a thermogenic effect'. Uniquely, this last site made specific reference to the safety of its product, quoting a reassuring 'study' but without specific details. Also promoted were amino acid supplements, four enzymes that 'aid and increase the breakdown of food in the GI tract' and chromium compounds that claim to 'burn fat by acting as insulin sensitizers'. The cost of these supplements varied from £20 to £80 for a month's supply. There was little mention of any potential dangers, nor were the physiological principles on which they might operate explained in any credible form. Many of the plans were, however, supported by glowing testimonials from satisfied customers.

3 sites offered exercise 'workout' routines, typically in the form of videos, accompanied by booklets on nutrition and exercise. 2 sites, funded by private medical insurance groups, proposed major invasive surgery as a method of weight loss. Procedures advertised included gastric plication and jejuno-ileal bypass. Both sites gave some information on side-effects and one mentioned a mortality rate (<0.5%). A wide variety of books were offered for sale.

The sites we categorize as holistic proposed strategies such as 'using the power of the mind to allow oneself to lose weight by overcoming hunger', 'loving yourself slender' and 'dream induction'.

Two sites served effectively as entry points to further information, offering long lists of links to other weight-loss

and dieting pages. The home pages cited recommend a wide variety of methods of weight loss.

DISCUSSION

Although the terms used to initiate the Internet search were chosen to represent what a typical potential dieter might enter, many of the websites identified dealt only secondarily, if at all, with weight-reducing diets. Advice about exercise programmes might be welcome and indeed useful, but offers of surgery will usually be inappropriate. Other search engines might have generated a different selection but the essential random quality of the information thrown up is typical of current Internet searches.

Unsupervised VLC diets raise concerns about safety; and, while many of the vitamin and other supplements on offer are unlikely to be dangerous, we cannot assume that plant derivatives are *ipso facto* completely safe. Some sites identified the composition of their supplements—for example, 'extracts of alfalfa, atlantic kelp, rose hip, echinacea purpurea root and bladderwrack'. Others seemed deliberately vague, advertising, for example, '39 vitamins, minerals and botanicals'. At least 3 sites promoted supplements that included chromium picolinate or nicotinate. One case study has warned that chronic excessive consumption of chromium supplements can cause severe impairment of renal and hepatic function⁹.

The proposed mode of action of some of these alternatives to a calorie-controlled diet is, at best, dubious. Meaningless terms abound. Compounds are 'phyto-active', or 'cell activators loaded with micronutrients give the consumer a natural lift by the botanicals working synergistically together'. One patented product, identified only by trade name, is said to comprise 'a metabolic enzyme activation system'. The chromium compounds are claimed to be 'insulin sensitizers' and to act as 'fat digesters that allow the body to utilise fat stores, break down free fat in the bloodstream and increase lean muscle mass during exercise'. There is, in fact, some evidence that chromium compounds can increase insulin uptake in skeletal muscle cells¹⁰. This could lead to increased glucose uptake, hence improving glucose tolerance in people with non-insulin-dependent diabetes and perhaps increasing muscle stamina. Indirectly, this might encourage exercise but, equally, it could reduce glycosuria and hence promote weight gain rather than loss. As noted above, the therapeutic index for these substances, even if they are effective as slimming aids, is questionable.

The Internet is clearly a very mixed blessing for would-be slimmers and, as in other health-related areas, questions arise about quality control of the information it disgorges. At present there are two possible approaches to 'filtering' of websites. 'Upstream' filtering involves the assessment of

medical material by independent expert panels who award scores or other forms of rating which the site hosts may display. An example is the Health on the Net Code of Conduct (HONCode)¹¹. Of course, such schemes are voluntary and proprietors of search engines may or may not weight their search results accordingly. Browsers obviously make their own appraisal of websites and their judgments may be made more critical through the use of formal evaluation protocols also available on the Internet. At least two such tools have been developed specifically for health-related information. 'DISCERN' (<http://www.discern.org.uk>), produced by the Division of Public Health and Primary Health Care, Institute of Health Sciences, Oxford University and 'IQ Tool' (<http://hitweb.mittek.org/iq/default.asp>) from a consortium of American organizations (The Health Summit Working Group) both take the user systematically through any website, assigning scores in response to a series of questions. The aggregate score gives some measure of overall quality but is, of course, sensitive to the individual assessor's subjective view. DISCERN is designed principally for healthcare professionals while IQ Tool, aimed at the lay public, 'helps you become an educated consumer by helping you ask the right questions'. Both require considerable time and commitment on the part of the user.

A simpler approach, which should commend itself to practitioners wishing to access healthcare information for themselves or to offer guidance to their Internet-surfing patients, is to make use of one of the web 'gateways' which direct the user to a selection of sites evaluated and approved by authoritative panels. Organising Medical Network Information, OMNI (<http://omni.ac.uk>), from the University of Nottingham, yields three hits in response to 'weight loss diets'. Two are patient information guides from divisions of the US National Institutes of Health and the third is a systematic review of interventions in the treatment and prevention of obesity, commissioned by the UK Department of Health from the NHS Centre for Reviews and Dissemination. Not surprisingly, all are soundly based and comprehensive, if less readily presented than many of the un gated sites.

'Healthfinder' (<http://www.healthfinder.gov/>) is a US consumer gateway. Evaluation of sites is undertaken by the Science Panel on Interactive Communication and Health, convened by the Office of Disease Prevention and Health Promotion of the US Department of Health and Human Services. 'Weight loss diets' elicits no hits but 'obesity' generates thirty-seven, including the addresses of several organizations that can be approached for help. At the head of the list are 'Recommendations from the Expert Panel on the Identification, Evaluation and Treatment of Overweight in Adults'. The text is ponderous but the advice is sound.

NHS Direct Online (<http://www.nhsdirect.nhs.uk>) is not simply a gateway. Although it does provide links to other selected sites it aims to present, on a single website, a comprehensive health information source for a concerned lay clientele. 'Weight loss diets' yields a choice of twenty-seven pages, displayed as a menu from which the most relevant headings are easily identified. The information is attractively presented in short, clear segments and, again, adheres closely to physiological principles. Specific explanations of the dangers of crash diets are prominent.

If NHS Direct Online is advertised effectively, it may become for many people in the UK the first port of call for health-related information on the Internet. However, with the rapid proliferation of new sites, it will be extremely difficult for evaluation gateways to keep pace with developments. Whether all health-related sites could be coordinated and subjected to statutory control is a controversial matter¹².

'Downstream' filtering may be the quality assurance scheme of the future^{13,14}. It depends on the inclusion on each website of standardized descriptive 'meta-data' which, though 'hidden', can be screened and assessed by the receiving computer's software. That software may be particularly helpful for nursing or medical practitioners, but it is unlikely to be of great use to the general public seeking medical advice via the Internet. Transcription of meta-data has become possible through the development of PICS (Platform for Internet Content Selection), allowing website authors to embed information providing standardized descriptions of their product in their home page. PICS was originally developed to prevent children coming across pornographic material on the Internet but is now being applied more widely.

CONCLUSION

Both upstream and downstream filtering are in their infancy, and for the medical profession to press for limitations on freedom of access to health-related information might be decried as paternalistic. Nevertheless, as our small study has shown, even in a relatively straightforward area such as weight control the opinions purveyed on the Internet range from the totally sound, through the dubious to the misleading and downright dangerous. Therefore, if the Internet is to realize its potential as a valuable source of medical information, some form of effective quality control will be needed.

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