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Dietary Weight Loss Advice in US Health Magazines and its Relation to Ancestral Diet

Abstract

As rates of overweight and obesity have risen in the US, the public has sought effective strategies for weight loss through dietary modification. A proliferation of processed foods and changing governmental nutrition guidelines have both impacted dietary intake patterns. While physicians are considered respectable sources of weight-loss information, increasingly the public has turned to the media, particularly magazines, for weight loss advice. This study investigated the dietary recommendations found in the five leading US health-related magazines and compared those recommendations to ancestral diets. With a couple notable exceptions, leading health magazines present consistent recommendations for dietary modifications to promote weight loss including reduction of caloric, sodium, carbohydrate, and fat intake. In many regards the prescriptions are aligned with an evolutionary diet. Acknowledgment and clarification of ancestral diet practices in popular magazines may promote increased compliance and sustained weight loss.

Keywords

weight loss, diet, media, magazine

Prevalence of overweight and obesity are currently at epidemic proportions in the US. From the 1960s to 2004, obesity prevalence rates among American adults nearly tripled, increasing from 13% to 32%. Since the 1980s, the prevalence rate of obesity has increased by 50% per decade.[1] Results of a National Center for Health Statistics survey showed that from 2007-2008 over 34% of US citizens 20 years of age and older were overweight, 33% were obese, and close to 6% were extremely obese.[1] Despite national goals outlined in Healthy People 2010 of obesity rates at or below 15%, the number of states with an obesity prevalence of 30% or more *increased* from 9 to 12.[2] By 2012, more than 34.9% of Americans were obese and 68.5% were overweight or obese.[3,4]

In 2012 when the average height was 5'9" and 5'4" for men and women respectively, 43% of all US dieters weighed over 200 pounds.[5] The majority of the approximately 108 million US dieters (83%) report they prefer to personally control their weight loss efforts and most (61%) prefer to purchase their own food while attempting to lose weight.[5] French, Jeffrey, and Murray [6] found that 70% of US adult dieters engaged in at least one of the following dietary behaviors in a four year period in an effort to lose weight: decreased fat consumption (78.7%), reduction in amount of food consumed (78.2%), and reduced total caloric intake (73.2%). Currently, the average American dieter makes 4-5 attempts per year to lose weight, contributing to a weight loss industry valued at approximately \$60.5 billion. Of this, the share of the men's weight loss market, 17%, is worth approximately \$11.0 billion.[5]

Although men and women in the US attempting to lose weight report heavy reliance on lower total caloric intake, from 1971 to 2000 men increased their total energy intake from 2,450 kcals to 2,618 kcals and women increased from 1,542 kcals to 1,877 kcals.[7] Overall, for US adults, from 1970-2010, total kcal intake increased from 2,039 – 2,554.[8] Meanwhile, the percentage of total kcals from fat in the diet decreased from 1971-2000 for both men (36.9% to 32.8%) and women (36.1% to 32.8%).[7] Commensurate declines in percent of calories from protein intake have been found as well (men, 16.5% of kcals to 15.5%; women 16.9% of kcals to 15.1%). However, percent of calories from carbohydrates increased from 1971 to 2000 from 42.4% to 49% and 45.4% to 51.6% for men and women, respectively. Decreased percentage of kcal consumption from fat and increased percent of kcal consumption from carbohydrate reflects changes consistent with government-based nutrition recommendations to reduce total fat intake to below 30% of calories and increase complex carbohydrate consumption to 55 – 60% of total calories.[9]

Whether changing trends in consumption reflect the impact of governmental recommendations or the proliferation of a wide array of inexpensive, convenient, processed foods including those lower in fat, is unclear. Such trends may indicate that the public is substituting processed foods for whole foods with an

eye toward meeting numerical guidelines, is confused about the health benefits of macronutrients in their various forms, and/or is swayed by ubiquitous advertising and availability of cheap, tasty, processed foods. Regardless of how the current state was reached, Britten, Marcoe, Yamini, and Davis [10] noted in providing guidance during the updating of governmental guidelines that,

fruit group consumption would need to at least double for adults, milk group consumption would need to double for adult women and increase by more than 50% for adult men, and vegetable consumption would need to increase by about 50%. Decreases from current consumption of solid fats and added sugars of 50% or more would also be needed for adults to meet recommendations ... the proportion of whole grains would need to increase from about 13% to at least 50% of all grains eaten (p. S89).

As dietary patterns have changed and rates of overweight and obesity have increased, confusion over nutrition advice has persisted and interest in dietary weight loss alternatives including a much less complex evolutionary or ancestral approach to diet, has burgeoned. For instance, Paleolithic diets consisting primarily of animal protein sources (with a high priority on organs and bone marrow), vegetables, tubers, nuts, and limited fruit and honey have become progressively popular.[11] Research also suggests that American dieters prefer a “do-it-yourself” approach [5] to dieting for weight loss rather than intervention by health professionals. Among sources of information dieters consult regarding diet and nutrition, media has been found to be the most influential.[12,13] While older Americans and those with less education prefer information delivered by physicians, McKay, Houser, Blumberg, and Goldberg [14] reported that a large percentage of dieters rely on information from television programs (72%), while those with at least a college education are more likely to turn to magazines and newspapers for nutrition information. Although 90% of Americans state that they trust information received from medical professionals including physicians and dietitians, magazines constitute a very close secondary source (87%) and are generally more accessible and less expensive than consultation with medical professionals.[15] Among written media outlets, health magazines are the principal source of information about diet for 47% of Americans and thus play an important role in educating the public about dietary approaches to weight loss.[15]

Given the prominent role they play in informing the American public on topics related to diet and weight loss, this study sought to assess the content of messages pertaining to diet and weight loss in leading US health magazines. We then assessed the extent to which the information presented in the magazines was consistent with common recommendations in the ancestral diet literature.

METHOD

Among health magazines, the most widely circulated include [16]: *Prevention* (Pr), *Men's Health* (MH), *Women's Health* (WH), *Self* (Se), and *Health* (He). Reader demographics are listed in Table 1. A full-year subscription to each magazine was purchased beginning in the summer of 2012. Most titles run from May or June through April or May. The total number of issues varied and special inserts were not included in the analyses. Earlier issues for Pr and WH were purchased at the newsstand for the purpose of codebook development and were not included in the statistical analyses.

Table 1**Reader Demographics for Leading Health Magazines ¹**

	<i>Men's Health</i>	<i>Women's Health</i>	<i>Health</i>	<i>Self</i>	<i>Prevention</i>
Median age	39	45.7	48	42	57
Median household income	\$82,822	\$54,638	\$55,599	\$81,614	\$63,747
Reader gender Female/ Male	14%/86%	**	74%/26%	95%/5%	81%/19%
Total circulation ¹	1,884,156	1,574,269	1,379,415	1,520,570	2,800,000

¹Data from 2012 online Media Kits for each publication.

** The readership by gender of *Women's Health* magazine was not available online. Multiple requests for this information went unanswered

Reviews of one WH and one Pr magazine, with qualitative notations pertaining to any weight loss advice via dieting in any article or feature, were performed. Based upon this initial process and the emergent themes, a codebook was developed. In addition, researchers discussed individual notations made for each magazine during the codebook development process, culminating in a coding guidebook followed by each research assistant. The codebook was applied and refined using an additional Pr and WH magazine and reliability between raters was

assessed using the remaining PR and WH magazines. During the final coding session, all researchers (the primary investigator and three research assistants) identified and coded the same magazine articles in a manner consistent with one another and with the codebook guidelines. For coding of the subscription-year magazines, every 6th magazine coded by a research assistant was re-coded by the lead author in an effort to assess and maintain reliability and fidelity to the coding guidelines. All investigators met or exceeded the established 80% coding reliability benchmark.[17]

RESULTS

The total number of times certain approaches (e.g, reduced calories/ fat/ sodium) or foods (e.g., vegetables/fruits/fish) were endorsed, cautioned, or both endorsed and cautioned for weight loss in a single article were tallied (see Table 2). Results indicate that a majority of articles recommended lowering caloric, carbohydrate, and sodium intake. Protein intake was endorsed with somewhat higher advocacy for plant-based protein sources. A relative lack of consistency was noted regarding fats in the diet (although a low-fat approach was generally endorsed and saturated fats were generally cautioned against).

An ANOVA was conducted to compare the mean number of articles per magazine (4,53)F=10.057, p<.000. Tukey LSD follow-up tests indicated significant differences between mean number of articles per issue for MH and Se, Pr p<.000 for both; WH and Se, p=.001; Pr, p<.000; and, He and Se, p=.007; Pr, p=.003. There were no statistically significant differences in mean number of articles per issue among MH, WH, and He. Nor were there statistically significant differences between Se and Pr (See Table 3).

Table 2**Endorsed (E), Cautioned (C), and Endorsed/Cautioned (E/C) Weight Loss Approaches and Food Groups**

	<i>Men's Health</i>			<i>Women's Health</i>			<i>Health</i>			<i>Self</i>			<i>Prev</i>		
	E	C	E/C	E	C	E/C	E	C	E/C	E	C	E/C	E	C	E/C
Low-calorie	21	2	-	25	-	-	15	1	1	11	1	-	1	-	-
Low-carb	10	2	-	5	-	-	3	-	-	7	-	-	3	-	-
Whole wheat	1	-	1	2	-	-	2	-	-	-	-	-	1	-	-
Low-sodium	9	-	-	8	-	-	2	-	-	1	-	-	-	-	-
Low-fat	4	1	-	8	1	-	2	-	-	3	-	-	1	-	-
Fat (excl sat and trans)	3	4	1	4	5	-	2	2	-	2	3	-	-	1	-
Sat fat	-	-	-	1	2	-	-	1	-	1	5	-	-	-	-
Non-Animal protein	18	-	-	8	2	-	8	-	-	8	1	-	3	-	-
Animal protein	19	1	1	6	4	-	6	1	-	5	1	-	2	-	-
Fish	3	-	1	1	-	-	3	-	-	1	-	-	1	-	-
Vegetables	10	-	-	13	-	-	14	-	-	5	-	-	6	-	-
Fruit	14	-	-	8	-	-	9	-	-	2	1	-	5	-	-

Table 3**Number of Weight Loss Via Diet Articles in Each Leading US Health Magazine**

	<i>Men's Health</i>	<i>Women's Health</i>	<i>Health</i>	<i>Self</i>	<i>Prevention</i>
Total Number of Issues	10	10	10	12	12
Total Number of Articles	49	42	36	20	18
Average	4.9 ^a	4.2 ^a	3.6 ^a	1.67 ^b	1.5 ^b

P ≤ .01 between ^a and ^b

DISCUSSION

The information the public receives regarding weight loss and diet may be confusing and overwhelming. Articles pertaining to weight loss through dietary modification were prevalent throughout the surveyed magazines with a range of 1.5 - nearly 5 articles per issue. Particularly surprising, given the societal focus on dieting among women, was the fact *Men's Health* evidenced the greatest average number of articles. In addition, rather than the expected inconsistencies regarding weight loss via diet proffered in health related magazines, this study suggests an overall high level of consistency among these periodicals. Aside from *Prevention* magazine, all magazines made similar recommendations. Across the board, the greatest support for weight loss was via caloric reduction. In addition to reduction in calories, magazines generally endorsed low-fat, low- sodium, and low-carbohydrate approaches. Fish, fruits, and vegetables were also consistently endorsed.

It appears as though US health-related magazines have incorporated governmental recommendations regarding reduced caloric intake, reduced fat consumption, reduced sodium intake, and increased servings of fruits and vegetables. Most articles endorsed protein intake so long as the protein was lean or plant-based. Anecdotally, a substantially greater endorsement of protein in the diet of those striving for weight loss was noted in *Men's Health* magazine. Despite these consistent messages, magazines sent a mixed message in endorsing whole grains while advocating for a low-carbohydrate approach. Additional highly mixed messages surrounded fat consumption. Fat intake was discussed in enough substantially different ways to necessitate the development of three separate fat-related categories. The highly conflicting prescriptions are likely a result of recent findings exonerating saturated fat in the development of cardiovascular disease juxtaposed with past governmental recommendations.[18,19] Numerous recent best-selling books geared toward the general public and in many ways contrary to past governmental guidelines, including David Perlmutter's *Grain Brain* [20], William Davis's *Wheat Belly* [21], and Nina Teicholz's *The Big Fat Surprise* [22] may have contributed to confusion surrounding grains and fats in a weight-loss diet.

A determination of how well the advice presented in these magazines reflects the current state of weight loss science is beyond the scope of this manuscript. It should be noted, though, that the recommendations for weight loss presented in the magazines do not diverge greatly from ancestral diets. Studies of fossilized remains and modern hunter-gatherer societies suggest macronutrient energy intake in the ranges of 15-35% from protein, 18-47% from fats, and 22-40% from carbohydrates.[23,24] Early African ancestors likely derived balanced nutrition through the consumption of fruit, vegetation, nuts, and animal product including bone marrow, organs, fish, shellfish, insects, and eggs.[25,26] Recommendations in the leading health magazines, consistent with reports of

ancestral and modern hunter-gatherer diets, reflect the continued value placed on fruits, vegetation, and various protein sources.

While the diet and weight loss advice presented in magazines appears conservative, it is more closely aligned with ancestral diets than is the intake of the typical modern American. On average, wheat and other refined cereal grains, sugar, refined fats, and dairy constitute approximately 75% of calories in a modern Western diet.[27] In fact, in 2010 the US Dietary Guidelines Committee reported that the top sources of calories for Americans consisted primarily of industrial processed foods including (in descending order) grain-based desserts; yeast breads; chicken and chicken-mixed dishes; soda, energy and sports drinks; pizza; alcoholic beverages; pasta and pasta dishes; tortillas, burritos, and tacos; beef and beef mixed dishes; and dairy desserts. [28] Fruits and vegetables are less calorically dense and therefore, less likely to constitute a substantial fraction of caloric intake when compared to desserts and the like. White potatoes and fruit drinks, nonetheless, ranked 17th and 22nd, respectively.[28] In 2013, tomatoes and potatoes were the most frequently consumed vegetables in America primarily in the form of French fries and pizza.[8] Moreover, 31.3 (3.6 gallons) of the total 177 pounds of fruit consumed by Americans in 2013 was in the form of calorically dense orange juice.[8]

Overall, leading health related magazines provide dietary based weight loss advice generally in accord with ancestral diet prescriptions suggesting a widespread recognition and acknowledgment of evolutionary appropriate dietary practices alongside US government recommendations. Rarely are ancestrally-based practices acknowledged as such however, and magazines, which constitute a primary source of health information for many Americans, have therefore missed an opportunity to provide readers an effective conceptualization and framework through which dietary-based weight loss can be approached. Perhaps, a wider promulgation of ancestral themes accompanied by simplified explanations of the disjoint between human evolution and current dietary practices would promote increased compliance and sustained weight loss. Moreover, differences in recommendations pertaining to protein and fat intake between *Men's Health* and the other magazines with primarily female readership, may hint at the emergence of gender specific dietary advice that bears direct relevance to the ancestral health community's appreciation of sex hormones and their role in weight regulation.

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