

CONTENT AND THEMATIC ANALYSES OF CALCIUM AND WEIGHT
MESSAGES IN CANADIAN WOMEN'S MAGAZINES

BY

TALIA HASSAN

A Thesis submitted to
the Faculty of Graduate Studies
In Partial Fulfillment of the Requirements for the Degree of

MASTER OF SCIENCE

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ABSTRACT

Osteoporosis affects 1.4 million Canadian women over 50 years of age. Maximizing bone mass by age 30 may reduce this risk. Both reduced calcium intake and weight loss are associated with compromised bone mass. Over 50% of Canadian women do not consume recommended amounts of milk and over 60% of women report dieting.

The purpose of this study was to determine the nature of calcium and weight information offered in Canadian magazines. This focus was chosen because over 70% of Canadian women have reported magazines as a source of nutrition information. American magazines have been studied, but not Canadian. Therefore, this study used quantitative and qualitative research methods to examine the frequency and content of calcium and weight messages in 24 issues of *Flare* and *Chatelaine*, published in 2000 and 2001.

In the quantitative content analysis 286 messages were identified, of which 38% focused on calcium and 62% on weight. *Chatelaine*, marketed to women over 30 years of age, had significantly more calcium messages than *Flare*, marketed to women from age 18 to 34 years ($W=0$, $p<0.0001$). Over the two years examined, *Flare* had only eight messages on calcium. Contrary to expectation, *Chatelaine* had more weight messages than *Flare* but this did not achieve significance.

Qualitative thematic analysis of calcium items revealed messages that contained practical advice for optimizing bone health. There were six themes: *milk as a nutrient-rich food*, *alternative sources of calcium*, and *inhibitors of calcium absorption* focused on calcium intake. The importance of *exercise* and *taking charge*

of your own health was encouraged. Most calcium messages were directed to women beyond the prime age for maximizing bone density, however some of these were age-appropriate because they provided advice for their *children*. Messages focusing on weight emphasized weight loss through the theme of *promoting the thin ideal*. *Achieving the thin ideal* provided strategies to achieve thinness including diets/diet products, food choices, exercise, and changing appearance in some way. *Preventing obesity* was touched on, while some messages promoted *self-acceptance*.

Generally, *Flare*'s messages concentrated on weight while providing limited calcium information. This inadvertently promotes a lifestyle that may increase risk for osteoporosis.

DEDICATION

I dedicate this work to my children, Liat, Danit, and Eidan, to inspire you. This project exemplifies the notion that anything can be achieved, at any point in life, when goals are set and the desire is within. I also dedicate this thesis to my husband, Ami, whose unrelenting support was so appreciated. On the most stressful of days, when quitting seemed like a simple solution, your encouragement allowed me to continue to pursue my ambition and achieve my goals.

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CHAPTER 1

Introduction

Statement of Problem

Osteoporosis affects 1.4 million Canadian women over age 50. Osteoporotic fractures impact greatly on Canada's healthcare system, costing an estimated \$1.3 billion per year (Osteoporosis Society Web Site, 2001). This vast sum underlines the need to improve prevention efforts and increase women's knowledge of how to reduce the risk of osteoporosis.

It is well documented that by age 30 – when peak bone mass has been attained – the opportunity to form new bone is reduced (Atkinson et al., 1997). Dietary calcium intake is one of the factors affecting peak bone mass accretion (Heaney, 1993). Dieting has the potential to affect calcium intake but weight loss is an independent risk factor for osteoporosis. Since many young women do not consume enough calcium (Starkey et al., 2001) and are dieting (McVey et al., 2004; Jones et al., 2001), they risk failing to achieve peak bone mass. This may increase their risk for developing osteoporosis.

More than 50% of Canadian females do not consume enough milk products (Starkey et al., 2001). Approximately one-quarter (23-29%) of Canadian teens report dieting at any given time (McVey et al., 2004; Jones et al., 2001), with almost half (49%) of a British Columbia, Canada, sample reporting dieting in the past year (The McCreary Centre Society, 2004).

Mass media often promotes body concerns and idealized body standards that contradict principles of healthy weight (Field et al., 1999; Wertheim et al., 1997).

Various studies show that 59-77% of Canadian, American and Australian young women frequently report using magazines, in particular, as their source of nutrition information, with the data showing little change between 1983 and 2002 (American Dietetic Association, 2002; Barr, 1987; Lambert-Lagace, 1983; National Institute of Nutrition, 1997; Novascone & Hertzler, 1986; Radimer & Harvey, 1995; Thomsen et al., 1988). These statistics suggest that nutrition and health educators should be aware of the content of magazine messages.

There are limited studies of calcium and weight-related content of Canadian magazines and few studies anywhere have examined magazine content for their calcium messages. Korinis (1996; Korinis et al., 1998) examined the frequency of calcium and weight loss information in American women's magazines but did not analyze the content of messages. The current study extends this work by examining calcium and weight-related messages contained within Canadian magazines to determine their foci and whether these differ in frequency or content in magazines marketed to young and mature women. Given the cut-off age of 30-35 years for peak bone mass accretion for women, it was important to investigate whether they are being offered the calcium message at the time when they have the increased opportunity to absorb and retain calcium. The answers to my research questions may increase nutrition educators' awareness of the extent to which the calcium message – that young women need to take action now in order to reduce the risk of developing osteoporosis later – is reinforced, or contradicted, by print media (Barr, 1989).

Statement of Objectives and Research Questions

The purpose of this study was to examine calcium and weight-related messages in Canadian women's magazines. Both frequency and content of these messages were compared for a magazine marketed to women less than 30 years-of-age (to be referred to as "young" women) and for a magazine marketed to women over 30 years-of-age (to be referred to as "mature" women). Both quantitative and qualitative approaches were used to more fully explore the data.

I proposed the following research questions:

1. Are there fewer calcium messages in magazines marketed to young women as compared to magazines marketed to mature women?
2. Are there more weight-related messages in magazines marketed to young women as compared to magazines marketed to mature women?
3. What are the calcium and weight-related messages in Canadian women's magazines?
4. Are these messages different, thematically, in magazines marketed to young women and mature women?

Overview of Thesis

The next chapter will review the literature in the area of calcium and weight-related research. Given my interest in the possible connection between calcium intake and weight loss, a discussion of bone health emphasizing these two factors will be delineated first. The latter part of the review focuses on other studies of magazine content and their potential influence on young women. Chapter 3 will describe the

methodology utilized to conduct the current study. This methodology consisted of a combined approach of quantitative content analysis and qualitative thematic analysis to determine the frequency and content of calcium and weight messages in Canadian women's magazines. Results of the content analysis, the quantitative component of the study, will be presented in Chapter 4. Descriptive statistics detail the quantity of calcium and weight messages, sources of these messages, and patterns by month and year. Chapter 5 describes the qualitative examination of the resulting calcium themes and messages. Examples under each theme are provided in order to reflect the nature of magazine content focusing on calcium. Chapter 6 similarly provides the qualitative examination of the resulting weight-related themes and messages. A discussion of the 'thin ideal' will reveal the overwhelming focus of attention given to thinness through weight-related messages. The thesis concludes by summarizing the findings and discussing their implications.

CHAPTER 2

Review of Literature

Bone Health

Osteoporosis has been referred to as “a juvenile disease with a deferred outcome” because it usually manifests itself late in life while possibly originating in early life during the period of skeletal growth and peak bone mass accretion (Heaney, 1995). It affects 1.4 million Canadians (1 in 4 women and 1 in 8 men over the age of 50) with an estimated 2 million more at risk of developing osteoporosis (Osteoporosis Society, 2000). Women are more prone to osteoporosis because reduced levels of estrogen after the onset of menopause cause their bones to “dwindle” at a rapid pace (Rolfes et al., 1998).

Although bone loss occurs naturally, it may be possible for individuals to stave off its serious effects by maximizing bone mass accretion before the age of 30 years (Rolfes et al., 1998). Studies with young adults have found that peak bone density has been achieved even up to the age of 35 years (Masi & Bilezikian, 1997; Smith & Gilligan, 1994). Several factors are thought to relate to the development of peak bone mass including a 70% contribution from genetics (Johnston et al., 1992). The remaining 30% of peak bone mass may be attributable to environmental factors such as dietary calcium intake (Heaney, 1993), physical activity (Brahm et al., 1997), body weight (Edelstein & Barrett-Connor, 1993) and oral contraceptive usage (Cromer & Harel, 2000).

Because this project examines the calcium and weight messages in women’s magazines with specific reference to osteoporosis prevention, this literature review

initially focuses on bone health, with particular attention to calcium intake and weight loss. The latter part of the review concentrates on other studies of magazine content and their potential influence on young women. As there is so little literature on calcium, this review examines how nutrition more generally has been covered.

Dietary Calcium Intake

Awareness of nutrition and health has never been higher (Goldberg, 1992) yet this has not been translated into dietary practice (Story & Resnick, 1986). For example, over 50% of Canadian females are consuming inadequate servings of milk products (Pasut, 2001). Along with infants, adolescents have the highest requirements for calcium (Matkovic, 1991). Yet women between 12 and 19 years-of-age consume less calcium daily than they need (Weaver, 1995), and throughout life their average calcium intake tends to stabilize at a lower level while recommendations increase (see Figure. 2.1).

According to Amschler (1999), reduced consumption may be due to girls' common belief that milk and dairy products will make them fat. A recent study, however, concluded that calcium-rich diets do not cause unwarranted weight gain in pubertal girls (Lappe et al., 2004). Ironically, the consumption of soft drinks often replaces milk as a beverage (Forshee & Storey, 2003; Rampersud et al., 2003). Some adolescents do not rank healthful eating high enough to worry about because of preoccupation with school, family and friends (Neumark-Sztainer et al., 1999). Finally, of equal importance, is the limited knowledge of the risk factors for osteoporosis and the role of dietary calcium in the prevention of the disease. A recent

study explored female adolescents' (n=107, grade 6-10 students) knowledge of bone health promotion behaviors and osteoporosis risk factors and found that although participants knew that osteoporosis was primarily a women's disease and that dairy products and exercise decreased the risk of osteoporosis, they lacked specific awareness of risk factors, were unable to identify calcium-rich foods and dietary calcium recommendations, and were unable to name the type of exercise that is specifically beneficial to reduce the risk of osteoporosis (Martin et al., 2004).

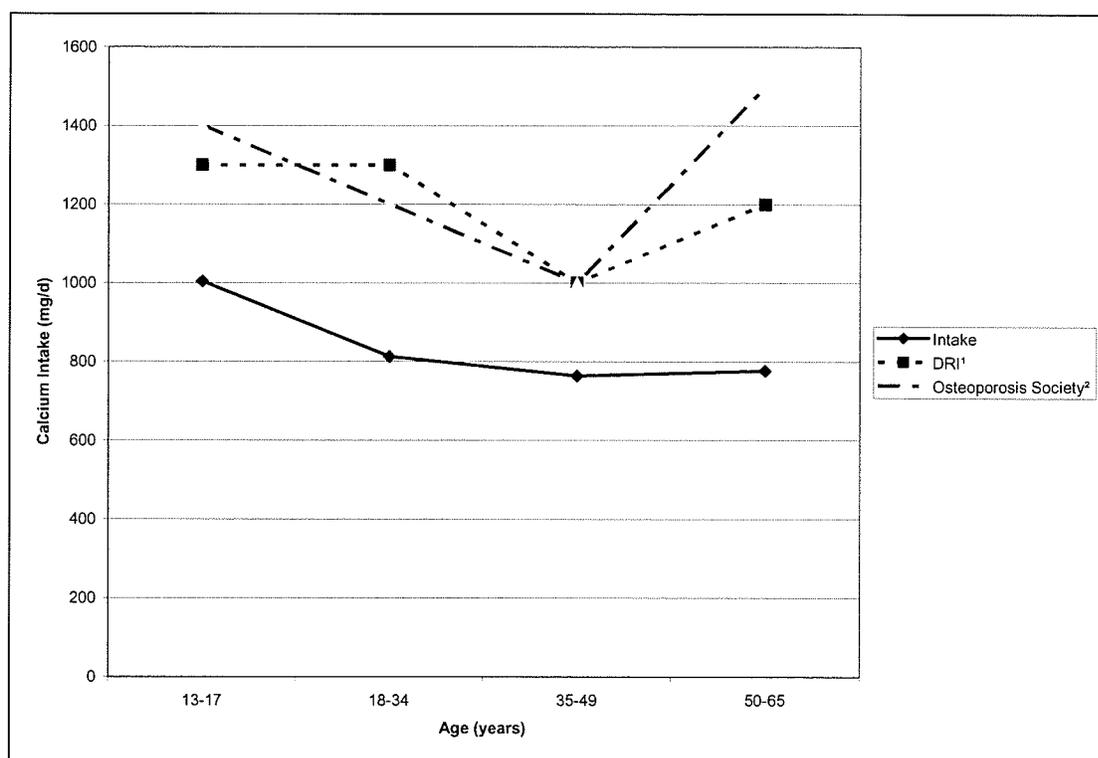


Figure 2.1. Daily calcium intakes of females compared to their Dietary Reference Intakes (DRI) and Osteoporosis Society of Canada recommendations. Note. Intake source: Pasut, 2001. ¹DRI for ages 18-34 ranges between 1000-1300 mg/d. DRI, Adequate Intakes. Source: Atkinson, 1997. DRI for ages 18-34 ranges between 1000- 1300 mg/d. ²Source: Osteoporosis Society of Canada website: www.osteoporosis.ca/OSTEOD02-01b.htm1#howmuch. Osteoporosis Society of Canada recommendations for ages 13-17 range between 1200-1400 mg/d, for ages 18-34 between 1000-1200 mg/d and for ages 50 to 65 between 1000-1500 mg/d.

Weight Loss

Some evidence indicates a relationship may exist between bone mass and weight loss. Studies with women aged 18-years-and-older have demonstrated that low body weight may be associated with low bone mass (Aloia et al., 1985; Harris & Dawson-Hughes, 1996), however, research literature does present some conflicting results.

Compston et al. (1992) found that a mean weight loss of 15.6 kg resulting from a very-low-calorie-diet (405kcal/d) was accompanied by a statistically significant reduction in bone mineral density (BMD). Others have also found a possible association between dieting/weight loss and reduction in BMD, suggesting that diet-induced weight loss may be linked with rapid bone loss (Chao et al., 2000; Holbrook & Barrett-Connor, 1993; Jensen et al., 2001; Van Loan et al., 1998,). However, Andersen et al. (1997) failed to find significant reductions in BMD in women aged 29- to 47-years losing 18 kg on a calorie-restricted diet. They suggest a less severe caloric restriction (925 to 1,500 kcal/d) than previous studies may explain the different finding.

Evidence is more compelling when calcium restriction is introduced. A 5% reduction in calcium intake resulted in significant losses in BMD when combined with modest dietary restriction (minimum of 1150kcal/day) in moderately overweight women aged 18 to 44 (Ramsdale & Basse, 1994).

Although no studies have been located that specifically measure the association between weight loss and bone mass in the adolescent age group, loss of bone mass has been associated with caloric restriction in women as young as 18

years-of-age (Ramsdale & Bassey, 1994). Jensen et al. (1994) argued that observed bone loss of patients aged 19- to 70- years may be attributed to physiologic readjustment toward normal that accompanies weight loss in overweight individuals having a larger bone mineral content (BMC) than average people. Others are uncertain whether observed decreases in BMD are genuine or are artifacts resulting from technical limitations and inaccuracies (such as effect of thickness, composition and distribution of surrounding soft tissue) of dual energy X-ray absorptiometry (DXA), the instrument used to assess BMC and BMD (Fogelholm et al., 2001; Van Loan et al., 1998). Yet, a study of 39,000 middle-aged Norwegians found high weight variability was associated with increased risk of hip fractures (Meyer et al., 1998).

An interesting phenomenon, the female athlete triad, reinforces the notion that the association between low body weight (secondary to weight loss) and bone mass may exist. The triad comprises the coexistence of three medical conditions, disordered eating patterns, amenorrhea, and premature osteoporosis, seen with increasing frequency in young female athletes (Donaldson, 2003; Golden, 2002, Kazis & Iglesias, 2003; Papanek, 2003; Sabatini, 2001). Menstrual dysfunction causing decreased estrogen levels combined with decreased calcium intake secondary to disordered eating lead to premature decreased mineralization of bone with increased stress fractures and, ultimately, osteoporosis. This, combined with excessive athletic training puts young women at risk for this dangerous syndrome (Bass et al., 2001; Kleposki, 2002).

The results of the above-mentioned studies are controversial but the possibility remains that a relationship between these two factors may exist, and if it does, then weight loss by young women may be detrimental to their bone status. As well, dieting girls consume less milk (Nichter et al., 1995) which itself may result in compromised peak bone mass.

Weight Concerns of Young Women

Body and weight concerns are compelling issues for many young women. Alarming, these concerns are so common they are considered a “normative discontent,” the phrase coined by Rodin et al. in 1984 that continues to be appropriate. Children, as young as five, report weight concerns (Davidson et al., 2002). Sixty-six percent of girls reported they were terrified of gaining weight and responses on questionnaires indicated they were preoccupied with weight and dieting (Casper & Offer, 1990). Among 2,476 female high school students, 44% stated they were trying to lose weight (Serdula et al., 1993). Another study examining the dieting practices of high school students found that 74% of females answered ‘yes’ to the question “have you ever tried to lose weight,”(Calderon et al., 2004). Of 7,200 women aged 18 to 29, 40% reported they were attempting weight loss at the time of the survey (Serdula et al.).

In Canada, McVey and colleagues (2004) found that 29% of grade 6 to 8 female students answered ‘yes’ to the question: “Are you currently trying to lose weight?” Seventy-six percent of post-pubescent girls (age 14.4 ± 0.2 years) chose a smaller body shape as their preferred body type suggesting, according to Thompson

and Chad (2000), a preoccupation and dissatisfaction with their body weight and shape. Forty-seven percent of 12- to 18-year-old girls reported feeling some degree of unhappiness about their weight while 23% reported they were currently dieting to lose weight (Jones et al., 2001). An adolescent health survey found that 57% of female participants were not satisfied with their appearance, 22% of healthy weight girls thought they were overweight, and 49% of girls said they had dieted in the past year (The McCreary Centre Society, 2004).

These statistics suggest a preponderance of weight concerns among young women with pervasive attempts to lose weight. What's more, normal weight women with body image concerns were willing to use potentially harmful weight loss products despite recognizing that such products carry significant health risks (Whisenhunt, 2003).

Dieting at such a young age can compromise nutritional status and may negatively affect linear growth and bone development (Pugliese et al., 1983). There may be increased risk of developing eating disorders (Patton et al., 1990) and dieting may be associated with low self-esteem and depression (Rierdan et al., 1987). Dieting prepubertal girls may be at increased risk for fatigue and irritability (Wertheim et al., 1997), and they may show hyper-emotionality and impaired concentration similar to what adult dieters experience (Polivy & Thomasen, 1988).

Media Influences on Young Adults

In the United States, 75% of female high school students (Thomsen et al., 1988) and 59% of college students (Novascone & Hertzler, 1986) reported that

magazines served as their most important source of nutrition information.

Respondents (44%) of the national Nutrition Trends Survey said television was the source of most of their nutrition information, followed closely by magazines (39% of respondents). Yet only 17% stated that information received from television was of any value (Derelien, 1995). In a U.S. national media involvement study using a random probability sample, 41% of 960 consumers reported that magazines provided more specific information on nutrition than other form of media (Magazine Publishers of America, 1991). According to Moore and colleagues (1992), 40% of respondents placed magazines either first or second as the most significant source of food and nutrition information. Additionally, 64% of women over 25 years-of-age identified magazines as a source of nutrition information (American Dietetic Association, 2002).

In Montreal, Canada, 70% of women aged 18 to 39 (Lambert-Lagace, 1983) and up to 77% of university students in Vancouver, Canada (Barr, 1987) stated they obtained their nutrition information from magazines. Findings from the Tracking Nutrition Trends report indicate that 72% of Canadian women reported magazines as their most frequently selected source of nutrition information (National Institute of Nutrition, 1997). Australian women (74%) also identified magazines as their preferred source of nutrition information (Radimer & Harvey, 1995).

Chow (2004) found that teen magazines promoted catching a man, losing weight and looking attractive as the primary goals to achieve in life. Mass media, including magazines, have been accused of promoting idealized body standards that are unrealistic and likely impossible to achieve (Nemeroff et al., 1994). Thin images

found in fashion magazines suggest our society values a thin body type as the ideal, as body size for fashion models on magazine covers decreased significantly during the 1980s and 1990s (Sypeck et al., 2004). Cultural stereotypes are believed to pressure women to conform to the current societal standards for beauty that overemphasize thinness (Furnham & Alibhai, 1983). Researchers have concluded that 5th and 6th grade girls have internalized the sociocultural ideal based on their stated goal to try to model themselves on the appearance of women in the media (Sherwood & Neumark-Sztainer, 2001). According to Field et al. (1999), 69% of 548 girls sampled from 15 public schools in Boston, Massachusetts reported that magazine pictures had an impact on their perception of the perfect body shape, and 47% stated magazine pictures influenced their decision to want to lose weight. Girls who frequently read fashion magazines were two to three times more likely to agree that they diet because of a magazine article than girls who read fashion magazines infrequently. While this self-reported cross-sectional data does not indicate that media causes girls to diet, it does suggest that reading fashion magazines may reinforce some girls' dieting tendencies.

Advertisers appeal to consumers by emphasizing taste, convenience, and quality of food products and ease of participation and enjoyment of activities or programs. Magazine advertisements and articles have been found to influence decision-making regarding the purchase or consumption of certain foods or participation in weight loss programs, by emphasizing, for example, the product's or program's health benefits or risks (Pratt & Pratt, 1995). There is, however, disagreement among researchers as to the impact of nutrition information on the

consumer. Consumers rated products advertised with more nutrition information as being more nutritious (Asam & Bucklin, 1973); subjects attended to nutrition information for some products but this information was not processed further and did little to change their attitudes towards the food (Brucks et al., 1984). Mackenzie (1986) suggests that when advertisers emphasize particular attributes, it may increase perception of the products' importance. Thus, increased promotion of the benefits of calcium could enhance perception of its importance. The milk mustache campaign is an example of how information impacts on consumers' attitudes. Milk had little appeal to consumers but since the campaign, 70% of consumers surveyed now consider milk to be a "cool, contemporary" drink (Rubel, 1996). However, as noted in the introduction, milk consumption is decreasing, so these conclusions do not apply to behaviour.

Studies Investigating Nutrition in Magazines

Several investigators have studied nutrition and food claims in magazine articles and advertisements, particularly examining trends over time and the approaches and focus of advertising. I will first examine nutrition messages, in general, in order to provide context for my investigation of calcium and weight specifically.

Reviewing *Ladies' Home Journal*, *McCall's*, *Good Housekeeping*, *Glamour* and *Seventeen*, Snow and Harris (1986) found that there was an increase in frequency of advertisements for diet products from 1950 to 1983. An examination of food advertising trends in *Chatelaine*, a Canadian women's magazine, found changes in

the types of products being advertised between 1928 and 1986 (Barr, 1989). There were more advertisements for non-nutritious beverages, and high-fat and high-sugar foods proliferated by 1986 compared to 1928. Nutritionally positive food choices were not portrayed and by 1986 few messages promoted general health and nutrition. Researchers found that advertisements in women's magazines such as *Good Housekeeping*, *Better Homes and Gardens*, and *McCall's* between 1960 and 1987 had significantly more health and weight loss claims in the 1980s (Klassen et al., 1991). Guillen and Barr (1994) studied *Seventeen* magazine, regarded as the "best friend" of high school girls (Katz, 1987), to assess changes in nutrition- and fitness-related information presented to adolescent women. They found that between 1970 and 1990 nutrition coverage did not change however fitness coverage increased.

Hickman et al. (1993) observed a progressive increase over time in nutrition claims in American women's magazines, many of which reflected topics addressed in dietary recommendations. For example, in magazines published in 1975, 14% of the advertisements had at least one claim reflecting these recommendations. The percentage of advertisements reflecting recommendations increased to 43% in the magazines published in the 1990s. Interestingly, manufacturers of food products that are highest in fat and/or cholesterol may be exerting the greatest effort to convince consumers that their products should be part of a healthful diet (Hickman et al.).

Researchers have also indicated changes in the approach and focus of advertising. Advertisements increasingly focused on avoidance messages (eg. of calories, fat, additives and preservatives, sugar and caffeine [Barr, 1989]). Although messages using the avoidance approach in advertising may be influenced by Nutrition

Recommendations for Canadians (Murray & Rae, 1979) they are not promoting the selection of foods on the basis of their positive nutritional features (Barr, 1989). Hickman et al. (1993) reported an increase in the proportion of claims referring to absence of specific dietary substances, such as fat, from 20.2% in 1975, to 30% in 1982 to 45.8% in 1990. According to Hill and Radimer (1996), “young” women’s magazines focused on avoiding fat and energy content (“light/lite” was commonly promoted in ads) while “mature” women’s magazines specified reducing total fat, sugar and salt intakes. As well, Hill and Radimer noted “mature” women’s magazines (eg. *Women’s Day*, *Family Circle*) focused on a wide variety of foods usually consumed as part of meals, while “young” women’s magazines (eg. *Cleo*, *Cosmopolitan*) promoted “nonmeal” or “extra” foods, encouraging an unbalanced diet based on snack foods. Advertisements in the “young” women’s magazines often linked images of food to social or sexual success (Barr, 1989; Hickman et al., 1993; Klassen et al., 1991). The increased frequency of taste and quality claims may imply to teens that the primary reason to select particular foods is for their hedonic qualities and not necessarily for their nutritional benefits (Barr).

The above review illustrates the context in which weight and calcium messages are embedded. I now turn to these specific areas. Research on weight suggests that the promotion of weight loss proliferates in magazines (Snow & Harris, 1986). The focus of advertising in *Seventeen* magazine was on body shape and physical attractiveness, and nutrition messages were related to dieting. Fifty percent of nutrition-related articles in *Seventeen* magazine focused on a weight loss plan and the main reason for encouraging adherence to a nutrition or fitness plan was to

become more attractive (Guillen & Barr, 1994). Hertzler and Grun (1990), from their review of magazines read by college-aged females, reported that advertisements implied that women could not be beautiful if they were anything but slim. These messages focusing on physical appearance suggest that slim is the best way to be and, therefore, weight loss is encouraged. Barr (1989) observed that weight loss was also highly encouraged in *Chatelaine* magazine, targeting more mature women. But, Hickman et al. (1993) had a different perspective on weight-related advertising that does not focus on physical attractiveness. They suggest that advertisements that increasingly use nutrition claims reflecting dietary recommendations may be trying to capitalize on consumers' concerns with body weight by reinforcing the message that excess body weight may be a risk factor for chronic diseases.

The influx of conflicting messages may have a confusing effect on young readers. On one hand, what they see in magazines are diets dominated by desserts and foods high in fat and/or sugar and beverages such as alcohol and coffee (Barr, 1989). On the other hand, readers are exposed to weight loss programs which promise to help them achieve the ideal figure. The importance of eating food from all food groups is rarely mentioned (Guillen & Barr, 1994).

Research on calcium information in magazines is limited. Hill and Radimer (1996) found that in 72 issues of magazines published in 1992, 13.6% and 10.2% of advertisements in "mature" and "young" women's magazines, respectively, used a promotional statement that emphasized minerals. In both magazine types, 60% of mineral-specific claims related to calcium, including 5% for supplements. In

“mature” women’s magazines, 10.6% of food advertisements were for the milk group category as compared to 7.4% in “young” women’s magazines.

Korinis (1996) looked at calcium and weight loss information together, in teen-focused versus women-focused magazines. She reviewed 128 issues over two four-year periods (1986-1989 and 1991-1994) to determine the frequency with which these topics received coverage. She found that the calcium message was most often offered to women who were past their best opportunity to maximize bone mass. Ninety percent of the calcium messages occurred in the older women’s magazines even though typical readers of the women’s magazines were past the age where they could accumulate bone mass. Weight loss occurrences were more common in the advertisements and articles (62% of all weight loss occurrences) in the teen-focused magazines, sending the message to the young reader that weight loss is encouraged.

Despite the findings the above-mentioned studies contribute to our knowledge base, some studies do have methodological limitations. For instance, while a relatively long time span (33 years) was reviewed in one study, only two issues per magazine per year were analyzed. Although a content analysis was conducted of three women’s magazines and two teen magazines, a comparison was not made between the two age-focused groups of magazines (Snow & Harris, 1986). Barr (1989) reviewed a period of time spanning 58 years. While this lengthy time frame is more likely to reveal changes in advertising over time, it also reflects changes in scientific knowledge about nutrition. As scientific discoveries evolve, advertising would focus on these new discoveries. In later decades, the emphasis on specific

nutrients declines because they are no longer 'new' and advertising follows accordingly.

Previous studies examined trends in advertising over time, approaches to advertising and frequency of diet and weight loss products. Korinis (1996) focused on the frequency of calcium and weight loss messages in magazines but did not examine the messages for their content. There are limited Canadian studies in the areas of calcium and weight-related issues as well as research comparing the content of magazines marketed to young versus mature readers. No previous research was found that examines the content of calcium messages. Consequently, this study examines calcium and weight-related coverage in current Canadian magazines. A thematic analysis of messages in women's magazines aimed at two age groups builds upon previous research in this area. As previously stated, the research addressed the questions:

- 1) Are there fewer calcium messages in magazines marketed to young women as compared to magazines marketed to mature women?
- 2) Are there more weight-related messages in magazines marketed to young women as compared to magazines marketed to mature women?
- 3) What are the calcium and weight-related messages in Canadian women's magazines?
- 4) Are these messages different, thematically, in magazines marketed to young women and mature women?

CHAPTER 3

Methods

The goal of this research project was to identify frequency and content of calcium and weight messages in magazines marketed to young and mature women. Korinis (1996) looked at the frequency of calcium and weight loss messages in American magazines and found that the calcium message was most often offered to women who were past their best opportunity to maximize bone mass, while young readers were commonly sent the message that weight loss is encouraged. I wanted to see if Canadian magazines were different – whether Canadian magazines marketed to young women would offer the calcium messages more or less frequently and promote weight messages to young readers more or less pervasively. This research was done by using both quantitative and qualitative methods to better understand the issue. The quantitative analysis was adapted from the study done by Korinis (1996), with a qualitative thematic analysis added.

Selection of Magazines

Only one Canadian magazine marketed to women within the age range to achieve peak bone mass (<30years of age) was located. *Flare* targets young women between the ages of 18- and 34-years (M. Hylton, personal communication, June 13, 2001), the median age of its readers is 28 years and 62% of its readership is below the age of 34 (G. Toby, personal communication, June 15, 2001). According to published data, *Flare* has an age 12-years-and-older readership of 908,000 (2000), 80% of which is female and 1,814,000 (2001), 78% of which is female (see

Appendices A, B). Using Statistics Canada population figures as a basis for comparison, with the supposition that these statistics are accurate, *Flare*'s readership in 2001 constituted 10% of the Canadian female population (Statistics Canada Web Site, 2002).

Of several Canadian magazines available on the market for mature women (for example, *Canadian Living* and *Elm Street*), *Chatelaine* was chosen because its target group falls approximately above 30 years-of-age, the DRI age differentiation for peak bone mass (Atkinson et al., 1997). *Chatelaine* targets adult women between the ages of 25-and 49-years. Its readers' median age is 43 years, and 79% of its readership is above the age of 25 (C. Poirier, personal communication, June 19, 2001). Circulation data for 2000 and 2001 indicate a 12-years-and-older readership of 1,766,000 (81% female) and 4,792,000 (75% female), respectively (see Appendices A, B). Again, using Statistics Canada population figures as a basis for comparison with the supposition that the statistics are accurate, *Chatelaine*'s readership in 2001 constituted 25% of the Canadian female population (Statistics Canada Web Site, 2002).

Both magazines have features on health and/or fitness. *Flare* and *Chatelaine* stated they do not have a strict policy requiring articles on nutrition and health to be written by dietitians, but usually they are. Occasionally, freelance writers who have a great deal of experience in nutrition or health issues, such as nurses, contribute articles (M. Hylton, personal communication, June 13, 2001; C. Poirer, personal communication, June 19, 2001). Advertising material is provided directly by advertisers and is not regulated for content (M. Hylton, personal communication, June

13, 2001; C. Poirer, personal communication, June 19, 2001). This is a common practice, as many publications have no formal, written policies regarding advertisements (Parsons et al., 1987).

Korinis (1996) specifically chose her study time frame around the release of the 1989 calcium Recommended Dietary Allowances (four years of magazine issues published prior to 1989 and four years of magazine issues published post-1989). Knowledge of the historical context for this study suggests no new nutrition recommendations on calcium and weight during the time frame of the study. Although the *Health at Any Size* conceptual framework, shifting the focus to promoting healthy lifestyle and self-acceptance rather than weight loss, has been pioneered in the 1970s and continues to advocate a paradigm shift in the nondiet approach (Berg & Marchessault, 2000), there were no new major statements or recommendations about calcium or weight in the years 2000 and 2001 that might have influenced the messages *Flare* and *Chatelaine* offered and, subsequently, the results of this study. Even more important, there is no evidence that historical context might have influenced one magazine's content more than the other's during this time period.

Data Collection

All magazine issues for 2000 and 2001 were analyzed. Twelve issues per year were examined to include seasonal variations. A review of consecutive months allowed for tracking of annual trends in advertising.

The representative magazines were backordered directly from the publishers, ensuring that none of the pages were missing. Magazine content mentioning calcium and weight was identified and coded. Each 'occurrence' was scrutinized to ensure it met the criteria for inclusion in the study. The presence of keywords served as the inclusion criteria. Table 3.1 lists the 12 keywords/terms. These particular words were chosen because they were directly related to the research questions and had the potential to reveal some insight into the magazine coverage relevant to the issue. Implicit messages (those containing calcium and weight content but which did not use the key words) from advertisements portraying cheese, milk and trimming or toning the body, for example, or textual items focusing on the same have the potential to influence readers as well and were, therefore, included in the data collection. (The magazines had an abundance of pictures of thin people but only pictures that were associated with calcium and weight issues were included.) The items containing implicit messages were deemed relevant because of the possible impact they may have on readers. The advertisement for *Viactiv Soft Chews* (alternative source of calcium) pictured in Figure 5.8 is an example of an advertisement from which an implicit message related to weight can be inferred; the calcium supplement is being promoted using a slim model which may speak directly to readers who would consider taking supplemental calcium in order to avoid having to consume the calories contained in a glass of milk. Korinis (1996) did not include items with implicit messages; the focus of her study was on items containing an explicit message with inclusion of 'occurrences' based on pre-established key words.

The explicit and implicit messages were coded separately in order to allow for a tally of the 'explicit items' only. This allowed a direct comparison to be made with results found by Korinis (1996). Results of 'explicit items' are presented in Chapter 4. When combined results of explicit and implicit items were analyzed, overall results were similar to those of 'explicit items' only and are, therefore, not discussed as part of this text but rather included as Appendix D.

Table 3.1

Keywords for Inclusion in the Study

Calcium Items	Weight-Related Items
Calcium	Weight
Bone	Burn calories
Osteoporosis	Trim (body)
Cheese	Tone (body)
Yogurt	Diet
Milk	Firm (body)

Predetermined exclusions, based on those set by Korinis (1996), included advertisements that used words such as 'calcium' in an unrelated manner, for example, in an advertisement for calcium-fortified nail polish. Also excluded were advertisements, articles and columns (including bullets) that focused on low-fat diets

to reduce the risks of diseases other than those associated with bones and osteoporosis, such as the promotion of low-fat diets for lowering heart disease. Korinis did not include National Dairy Board promotions, for example, if the advertisements did not include key words. This would eliminate some implicit messages that I included as relevant to the study.

Data were coded on a collection sheet (see Appendix C) under the following categories: calcium advertisements, calcium articles, calcium columns (including bullets), weight-related advertisements, weight-related articles, and weight-related columns (including bullets). An occurrence was designated an 'advertisement' if it was a feature which emphasized desirable qualities that are intended to lead readers to purchase the product or service promoted (Korinis, 1996; Merriam-Webster's Dictionary, 1993). Advertisements that were shorter than 1/16 of a page were not counted. (Korinis included advertisements of all sizes.) An item was designated an 'article' if it was a full length piece of writing and a 'column' if it was an abbreviated article varying in length from 1/4 to 1/2 page, placed horizontally or vertically on the page. Short segments consisting of a few lines that were less than 1/4 page but were part of a column or article dealing with a general topic were referred to as 'bullets' but counted as columns. An example of this would be a short paragraph on a celebrity's weight loss regime as part of a full-length interview. Korinis did not define criteria used to identify varying lengths of articles and columns; bullets, as established specifically for this study, were not distinguished from columns.

The number of occurrences was tallied to determine the total number of items found, with a separate tally for 'explicit items' and 'total items' (explicit and implicit

combined). Page numbers where each occurrence was located were included to facilitate crosschecking results between the first and second scanning of the magazines. Items that focused on both calcium and weight-related content were only counted once in the total number of items found, but were considered separately in order to determine the frequency of calcium messages and the frequency of weight messages. For the thematic analysis, messages arising under multiple themes were counted in all categories raised to determine thematic prevalence.

Back-to-back items were photocopied and then all occurrences were clipped out of the magazines. To reduce the risk of bias from influencing my coding, *Flare* and *Chatelaine* magazines were surveyed in a random order from front to back. Each occurrence was located and coded on the coding sheet. All occurrences coded were included in the census. Four weeks later, to allow sufficient time for 'forgetting' the magazine content, a second scanning, again in a random order of selection, took place, back to front, that served as a crosscheck for errors or omissions. Intra-coder reliability was calculated based on discrepancies between first and second coding for each variable (initial identification, concept-explicit/implicit, focus-calcium/weight/both, type-advertisement/article/column/bullet). Coder reliability (CR) was calculated as the number of agreed decisions divided by the total number of decisions (Kassarjian, 1977). A CR of at least 80% was predetermined to be satisfactory.

In order to determine inter-coder reliability, an external coder examined 10% (6) of magazine issues. These issues were randomly selected so as to yield a 'spot

check.’ This was a check for consistency of coding the same items into the same categories between the principal coder and an external one (Kassarjian, 1977).

Both explicit and implicit messages were used for the thematic analysis.

Data Analysis

Data analysis utilized a combined approach. An empirical, quantitative content analysis was used to compare the distribution of calcium and weight-related items between magazines marketed to young and mature women. A qualitative approach used a thematic analysis in order to explore the content of the calcium and weight-related items for the messages they convey. These are discussed in turn below.

Content Analysis

The main part of the study is qualitative in nature but given that items needed to be identified and classified, the quantitative content analysis was done first. Assessing whether there were fewer calcium messages and more weight-related messages in magazines marketed to young women as compared to magazines marketed to mature women required an empirical, quantitative approach.

Content analysis is defined as the “study of information contained in written and/or visual materials (Paisley et al., 2000). Magazine content communicates messages to readers and content analysis directly studies those messages (Weber, 1990). Content analysis from a quantitative perspective involves coding and counting of items. Using explicitly formulated guidelines to promote objective and systematic

coding and counting of occurrences reduces the risk of analyst's subjective predispositions influencing the results (Holsti, 1969).

The Wilcoxon Signed Rank Sum test (WSRS) (Analyse-it™ General & Clinical Laboratory Statistics, 1997-2000) was used to test whether there was a significant difference in the number of calcium and weight-related messages in magazines marketed to young women as compared to magazines marketed to mature women. The WSRS test was used to test for differences between the medians of the samples, namely *Flare* and *Chatelaine* magazines. This test is the non-parametric equivalent to Student's paired t-test when the assumption of normality is invalid; the results of the data collection process were not normally distributed requiring a nonparametric test to statistically analyze the data. Furthermore, the WSRS test was appropriate since the data used in the statistical analysis was rate data - there was a significant difference between the number of pages in *Flare* and *Chatelaine* thereby requiring a conversion to rates in order to facilitate comparisons. The Chi square statistic was not used because *Flare* magazine had zero occurrences in several issues, rendering the test unreliable.

One-tailed tests were used except to test differences in frequency of messages between years one and two of the study and differences in sources of information between advertisements and editorial content. Initially explicit messages only were tested, allowing for a comparison to be made with results found by Korinis (1996). Statistical testing was subsequently repeated using all (explicit and implicit combined) messages. As already mentioned, this analysis is presented in Appendix D because it produced similar results.

Thematic Analysis

The purpose of the thematic analysis was to examine the content of calcium and weight messages in *Flare* and *Chatelaine* magazines. The items cut out of *Flare* and *Chatelaine* were reviewed for content and separated into thematic classifications. Iterative reading of advertisements, articles, columns (including bullets) was a fundamental component of the interpretive process. The process, initially involving descriptive coding, continued until familiarization with the data allowed for recognition of themes (topics covering one specific area) and concluded when no new thematic categories emerged (Pope & Mays, 1995; Paquette & Raine, 2004). If an item was found to contain two or more themes, it was photocopied and filed under the relevant thematic classifications. The number of items under each theme was tallied to identify the degree of attention, or lack thereof, given by the magazine to a particular theme. Calcium themes are presented in Chapter 5 while Chapter 6 examines the themes focusing on weight.

A qualitative analysis entails describing the messages, that is, the idea being conveyed. Throughout the process, reflective notes were written to describe themes and messages. As ideas become elucidated through writing, theoretical framework was developed to integrate the results into a meaningful whole (Chapman & Maclean, 1990). Quotes from editorial content and pictures of advertisements will be used to help illustrate themes and messages and to allow readers to judge the appropriateness of the analysis, given the inherent subjectivity of this analytical process.

Strengths and Limitations

All studies have limitations, including this one. However, the utilization of two research methods (one quantitative and one qualitative) provided an opportunity for the strengths of one method to offset the limitations of the other. In this way, the two methods complemented each other and a balance was struck between the shortcomings of one method and the merits of the other.

Bias is one factor that impacts study results (Krippendorff, 1980). Given that I was the principal coder, it must be acknowledged that occasionally bias may have influenced my coding decisions. However, remaining cognizant of the potential for bias, helped to control it. Furthermore, in the thematic analysis component of the study, bias may have had a positive effect on the research; remaining mindful of the potential for bias also focused my investigation on calcium and weight in reference to peak bone mass and helped highlight interesting contradictions that presented themselves through the messages. For example, numerous items related to the theme of self-acceptance were found amongst the many items focusing on changing your physical appearance to achieve the thin ideal. As well, in an effort to minimize errors in coding, an external coder conducted coding spot checks. High inter-coder and intra-coder reliability (approximately 95%) should assist the reader to evaluate the extent of my bias.

The possibility exists that I may have misclassified an article for a column, I may have misinterpreted what I read in an article or advertisement, or I may have missed something critical altogether. It is quite possible that including all the implicit images of thin women would have changed the results of the weight-related

analysis for total items (explicit and implicit combined). Ongoing evaluations with the study supervisor and peers helped to ensure that as many possible interpretations had been addressed.

Critics may argue that qualitative thematic analysis may lack rigor. Numerous examples were presented in this report so that the reader can make the final decision on face validity (Paisley et al., 2000). Because most of the analysis is descriptive in nature and is presented in a narrative format (Chapman & Maclean, 1990), readers can make a judgment regarding the study's credibility and comprehensiveness (Giacomini & Cook, 2000). Analysis and interpretation is described accurately and "thick," exhaustive and thorough description will allow the reader to determine the transferability of the findings (Paisley et al.).

In this analysis, only one magazine marketed to young women and one marketed to mature women were compared. Using more magazines from each age group and/or analyzing a greater time period would have improved generalizability. However, the number of magazines marketed to young and mature women in Canada is quite limited, and due to financial and time constraints, a time frame of only two years was chosen for study.

What sets content analysis apart from other research methods is that it studies the message itself, not the communicator nor the audience (Kassarjian, 1977). Compared with other qualitative research methods such as interviews which describe subjects' world in their own words and, participant observation in which the researcher observes the subjects' world first-hand (Chapman & Maclean, 1990), content and thematic analyses of published material are unobtrusive techniques that

do not influence the sender or receiver of the message. It should be noted, however, that there is the possibility that the message the analyst (researcher) received may differ from the one the receiver (magazine reader) perceives.

Using a combination of both quantitative content analysis and qualitative thematic analysis strengthens this study because the two methods complement each other and “allow access to different levels of knowledge” (Pope & Mays, 1995). The qualitative analysis provides an understanding of what messages young women are exposed to, and the quantitative analysis documents to what degree, resulting in a broader understanding.

* * *

The above outlines the methodology applied to obtain the data for this study. Strengths and limitations of this study were acknowledged. The following chapter will present the content analysis, that is, the quantitative results of the data collection process, thereby providing context for the thematic analysis of the messages in subsequent chapters.

CHAPTER 4

Content Analysis

The data collection process was started with categorization and coding of calcium and weight-related items. This chapter will present the quantitative analysis of that process. The results demonstrate that there were fewer calcium messages but no significant difference in the number of weight-related messages in magazines marketed to young women as compared with magazines marketed to mature women. First, reliability of the coding will be investigated to determine the confidence one may have in the research findings. Descriptive statistics, based on messages per-100-pages, will follow detailing the quantity of calcium and weight-related messages, sources of these messages (advertisements, articles, columns including bullets), and patterns by month and year. Results are presented for 'explicit items' to facilitate a direct comparison with the study undertaken by Korinis (1996). The results of 'total items,' that is, items containing explicit and implicit messages, proved to be similar and will therefore not be discussed. (Please refer to Appendix D for results of the analysis of 'total items.')

Discrepancies due to the inclusion of implicit items will be highlighted in the discussion.

Analysis of Reliability

The overall intra-coder reliability between the first and second coding of the magazines was 96.65. The inter-coder reliability for a 10% sample was 94.88. Both were based on initial identification of items, whether the concept was explicit or implicit, whether the focus was calcium or weight or both, and the format of the item.

Results of these analyses are indicated in Table 4.1. Minor difficulties were experienced in determining if the concept was implicit and in assessing type of item, particularly bullets of varying lengths or when there was more than one bullet within an article. The coder reliability in both cases was well above the pre-determined goal of 80% and provides confidence that results were coded consistently.

Table 4.1

Coder Reliability for Initial Identification, Concept, Focus, Type and Overall

Category	Intra-coder	Inter-coder
Initial identification	96.68	95.45
Concept (explicit/implicit)	95.15	95.45
Focus (calcium/weight/both)	97.96	93.18
Type (advertisement/article/column/ bullet)	95.61	94.45
Overall	96.65	94.88

Descriptive Statistics

Flare had a total of 3,802 pages in 24 issues, with a mean of 158 pages per issue; *Chatelaine* contained 4,313 pages with a mean of 180 pages per issue (W=64.5,

$p=0.0069$). A review of the 48 issues of both magazines yielded a total of 267 items, 19 of which focused on both calcium and weight-related information, resulting in a total of 286 messages. Overall, 28% (79) of the messages were found in *Flare* with an average of 2.08 messages per-100-pages. *Chatelaine* contained the remaining 72% (207) of messages, averaging 4.80 messages per-100-pages.

Quantity of Calcium and Weight-Related Messages

When the 286 messages were examined for their foci, it was found that 38% (109) dealt with the subject of calcium, 62% (177) with weight. Figure 4.1 illustrates this distribution of messages within each magazine.

Ninety-three percent of the calcium messages were found in *Chatelaine*. There were 101 messages (2.34 messages per-100-pages) in *Chatelaine*, compared to 8 messages (0.21 messages per-100-pages) in *Flare*. There were significantly fewer calcium messages in *Flare* compared to *Chatelaine* ($W=0$, $p<0.0001$).

Sixty percent of the weight-related messages were found in *Chatelaine*. There were 106 messages (2.46 messages per-100-pages) in *Chatelaine* compared to 71 messages (1.86 messages per-100-pages) in *Flare*. Although *Chatelaine* had more weight-related messages than *Flare*, this did not achieve statistical significance ($W=76$, $p=0.9913$ NS).

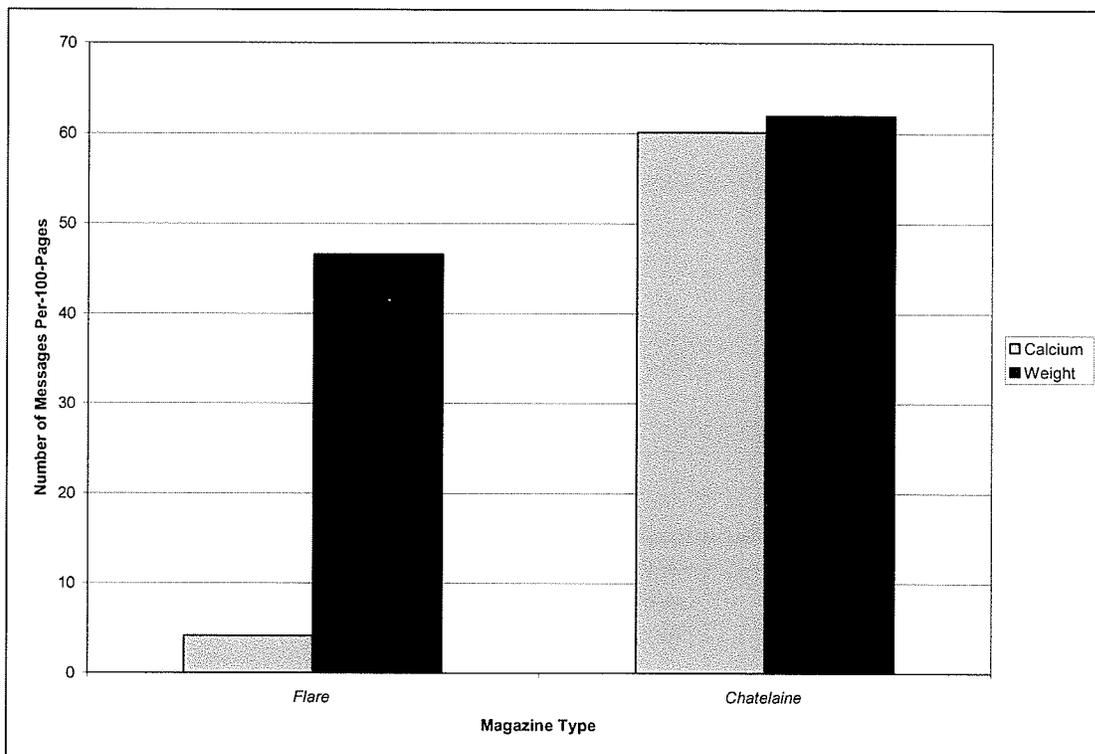


Figure 4.1. Frequency of explicit calcium and weight-related messages by magazine.

Sources of Information

There was a significant difference found between advertisements and editorial content of calcium messages. Advertisements were the primary source of calcium information in both magazine types comprising 64% (69) of the identified messages. Articles and columns (including bullets) each comprised 18% (20) of the remaining calcium messages ($W=197.5, p=0.0033$). Figure 4.2 illustrates this distribution.

Conversely, the majority of weight-related information was conveyed through editorial content. Advertisements comprised only 30% (54) of the weight messages identified, while 32% (56) of weight messages were in the form of articles and 38% (67) as columns (including bullets) ($W=22, p=0.0003$). This distribution can be seen in Figure 4.3.

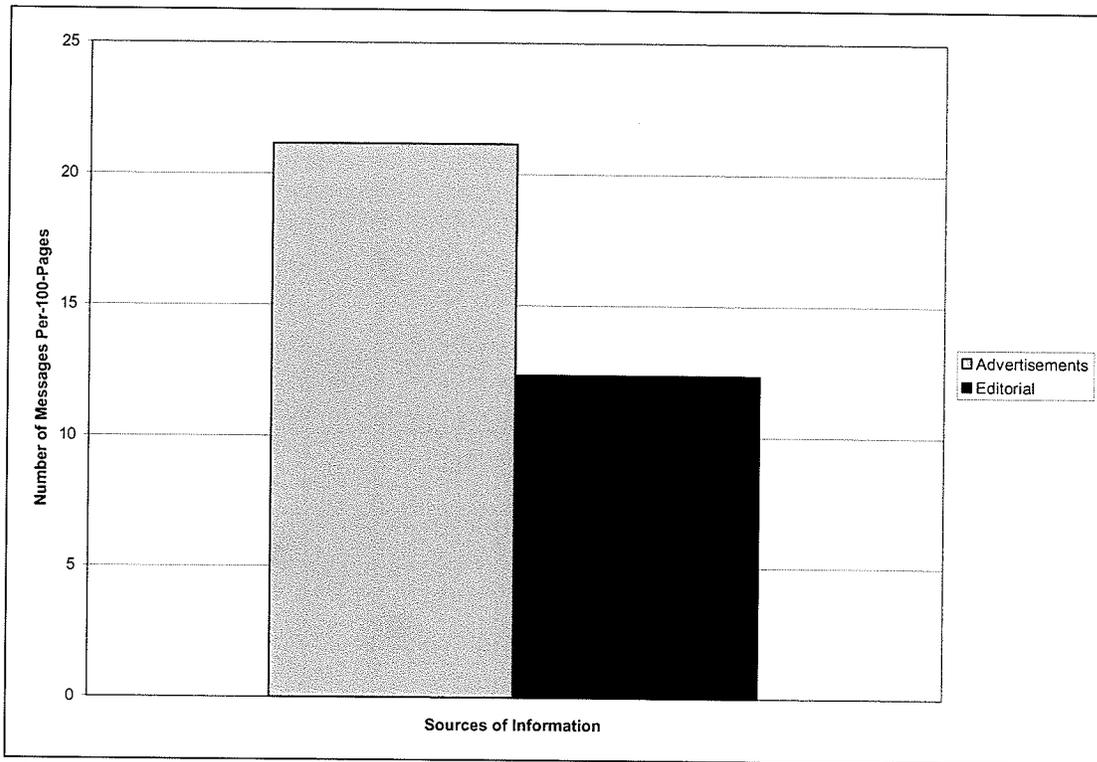


Figure 4.2. Distribution of calcium messages by type.

Patterns by Month and Year

Figures 4.4 and 4.5 illustrate, by month, the calcium and weight-related messages per-100-pages collected from *Flare* and *Chatelaine* magazines. There were no significant differences in the number of calcium messages between 2000 and 2001 in *Flare* ($W=4$, $p=0.4375$, NS). *Chatelaine* had significantly more calcium messages in 2001 compared to 2000 ($W=3.5$, $p=0.0034$). Therefore, the data are presented over the 24-month period.

Results for weight-related messages for years 2000 and 2001 are combined and presented over 12 months as year 2000 was not statistically different from year

2001 in either magazine (*Flare*: $W=41$, $p=0.9097$ NS; *Chatelaine*: $W=32.5$, $p=0.6772$ NS).

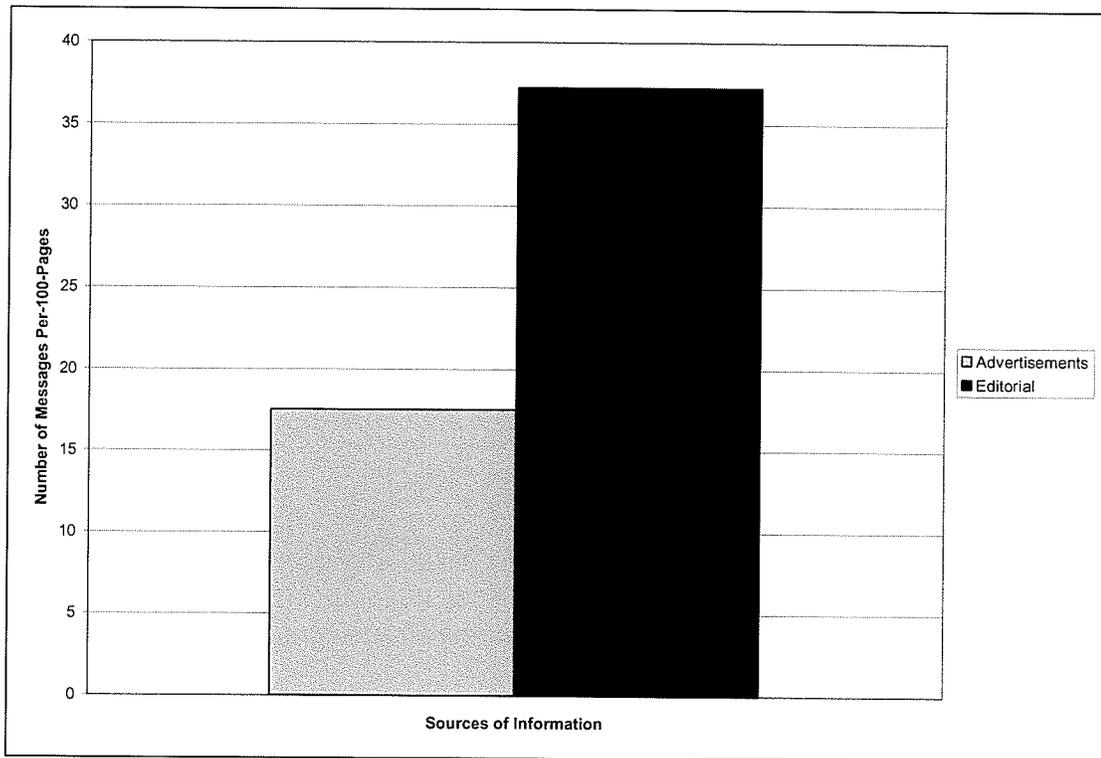


Figure 4.3. Distribution of weight-related messages by type.

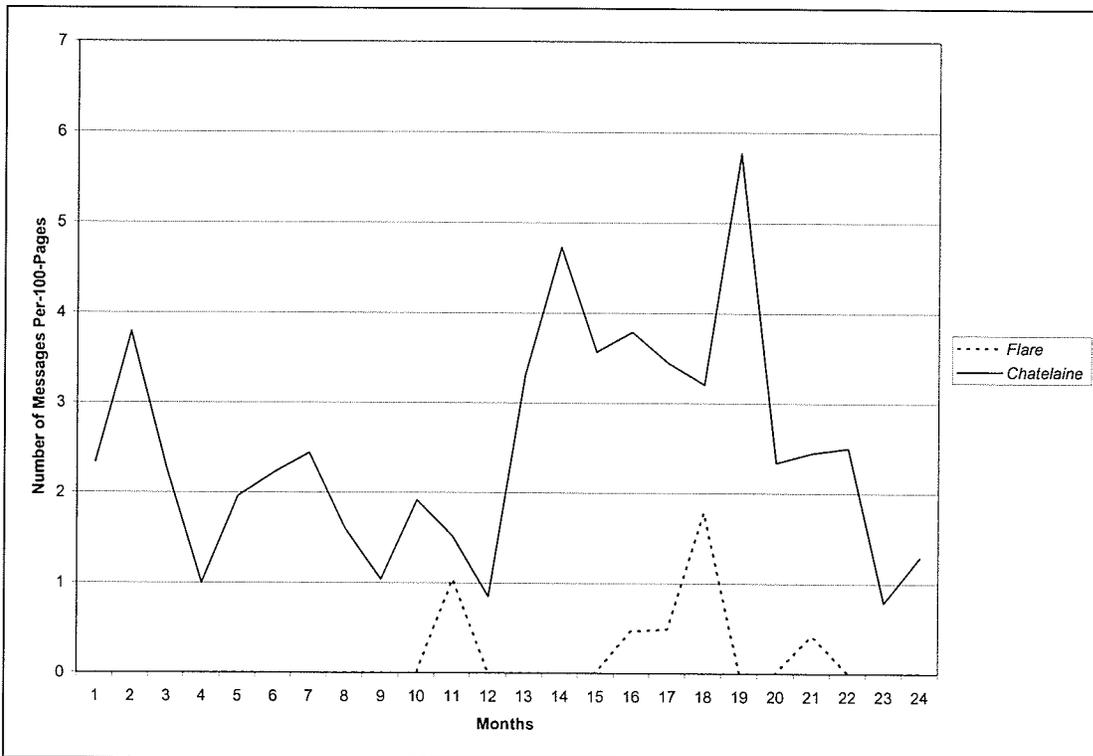


Figure 4.4. Pattern of calcium messages distributed by month.

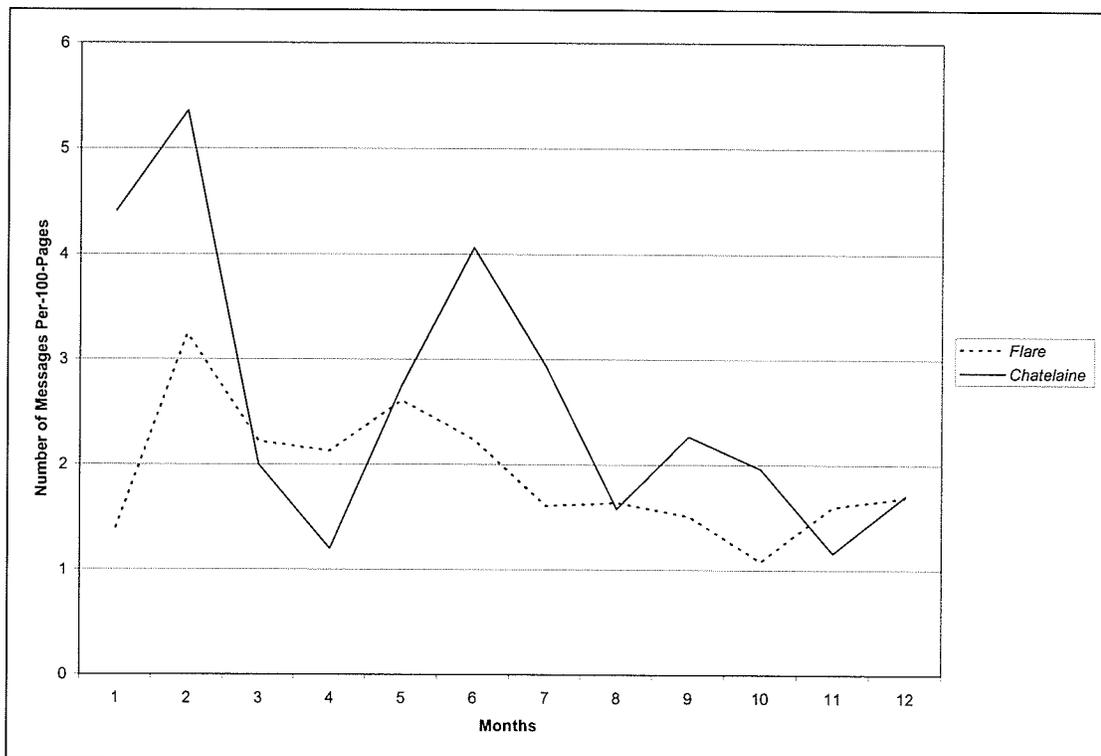


Figure 4.5. Pattern of weight-related messages distributed by month.

Discussion

There were significantly fewer calcium messages in *Flare* than in *Chatelaine* ($W=0$, $p<0.0001$) and no significant difference in the number of weight-related messages between the magazines. The primary source of calcium messages was advertisements while the majority of weight-related messages were found in textual content. Most items conveyed their messages through explicit content.

The 286 explicit messages were more than the 200 messages anticipated. Korinis (1996) found 611 occurrences of calcium and weight loss messages in 128 magazine issues. Given that I reviewed approximately 1/3 the number of issues, I anticipated finding 1/3 the number of messages. Some of these differences may be

due to differences in identification of items for coding (subjectivity) and to the method of selecting magazines for the study. Some advertisements in magazines were repeated consecutively for several months, for example, an advertisement for *Lactaid Chewables* appeared in *Chatelaine* magazine in the April, May and June 2000 issues and an advertisement for weight loss supplements was found in consecutive issues of *Flare*: January, February and March 2000. Korinis would not have captured such a high number of occurrences since she looked only at quarterly issues. My inclusion criteria contained 12 key words/terms while the criteria established by Korinis consisted of 9. Both studies included the words/terms: calcium, bone, osteoporosis, burn calories, trim (body), and diet. Korinis used the terms weight loss and weight control while these were not included in my list of key words. Words that I chose to add to my list of keywords included: cheese, yogurt, milk, weight, firm and tone (body). These additional words may have, again, created increased opportunity for more items to be coded. As well, Korinis did not define what constituted an article and there was no indication given of how textual items of shorter lengths (that is, columns and bullets) were handled. As previously mentioned, my study defined textual content of varying lengths with articles and columns, including bullets, being counted. Finally, I coded items that conveyed messages related to weight in general including weight loss, healthy body weight and excess weight, while Korinis focused on weight loss solely. Granted, the vast majority of items focusing on weight were related to weight loss, but several were not. There was less than one message per issue emphasizing self-acceptance, however, these messages did contribute to the increasing tally.

When items were examined for their foci, it was found that almost twice as many messages per-100-pages focused on weight-related messages (62%) than calcium-related ones (38%). Moyer et al. (2001) state that weight loss is the single most common health-related topic that receives coverage in women's magazines. This may be true for the magazines surveyed in this study as weight-related items proliferated in both magazines. Korinis (1996) found in her study that the vast majority (83%) of occurrences dealt with weight loss.

There were fewer calcium messages in magazines targeting young women as compared with magazines targeting mature women. In fact, almost all of the calcium messages (93%) were found in *Chatelaine*, the mature women's magazine. Korinis found that 90% of calcium items were in the mature women's magazines.

Korinis also found 62% of weight loss messages in teen-focused magazines while the mature women's magazines conveyed a weight loss message through 38% of items collected. Contrary to Korinis' results, 40% of weight-related messages occurred in *Flare*, the young women's magazine, and 60% in *Chatelaine*, the mature women's magazine. Not only did this distribution not achieve statistical significance, as stated above, the results were opposite to what I anticipated. It is important to mention that *Flare* magazine had a profusion of thin images of women throughout its contents. These implicit images were not included in the coding if their presence in an item was not related to the calcium and weight key words. (For example, an elongated caricature of a woman featured in an advertisement for laundry detergent was not included in the collected data.) Thus, it is necessary to consider that *Flare* might have had a greater emphasis on weight-related messages with different results

of the weight-related analysis if these images were included in the implicit count. Because they were not included, it appears that *Chatelaine* had more weight-related messages than *Flare*, although without significance.

When looking at explicit items only, advertisements were the primary source of calcium information ($W=197.5$, $p=0.0033$), followed by columns (including bullets). Fewer items conveying these messages were in the form of articles. *Flare* had a mere eight messages focusing on calcium, six of which were advertisements and two were bullets. There were no articles or columns written on calcium topics in *Flare*, the young women's magazine. In contrast, Korinis (1996) found that articles were the primary source of calcium information in teen-focused magazines. Coverage of calcium in *Chatelaine*, the mature women's magazine, was dominated by advertisements, followed equally by articles and columns (including bullets). Korinis also found in her study that advertisements were the primary source of calcium information in mature-women's magazines.

As previously stated, weight-related messages were more equally distributed between both magazine types, with columns, (including bullets) as the primary source of information. Almost two-thirds (69%) of the weight-related information, in fact, was textual with the remaining approximately one-third as advertisements ($W=22$, $p=0.0003$). *Flare*, specifically, had fewer advertisements (37%), articles (34%) and weight-related columns (including bullets) (48%) as compared with *Chatelaine* in which articles (66%) dominated weight-related messages, followed closely by advertisements (63%) and columns (including bullets) (42%). Korinis (1996) found

that both teen-focused and mature women's magazines favoured advertisements as the source for weight loss information, followed by articles and columns.

It is interesting that columns (including bullets) are used frequently to disseminate messages. This suggests that editors may be attempting to avoid "information overload" by providing short segments of text to deliver information. There is, however, great controversy surrounding the issue of information overload. It is argued that providing consumers with an excessive amount of information can lead to increased time spent processing the information, resulting in less attention being paid to relevant details (Jacoby, 1984; Malhotra, 1984). Indeed, the editors of *Flare* and *Chatelaine* may have decided to limit the extent of items to columns rather than lengthier articles that have the potential to provide more detailed information to the reader and influence knowledge and behavior. Korinis (1996) suggests that adults are more likely to retain information when it is delivered through smaller bits of information, such as advertisements or bullets, as compared with lengthier texts such as articles.

Figure 4.4 depicts the calcium messages distributed by month, revealing that there were more calcium messages in 2001 than 2000, for *Chatelaine* ($W=3.5$, $p=0.0034$). It seems that the lowest frequency of calcium messages in *Chatelaine* was in December of 2000 and November 2001. It is interesting to note possibly reduced attention given to milk - with its added vitamin D - at this time of year when Canadians are lacking exposure to sunlight during winter months. A representative of Dairy Farmers of Canada (I. Neiderer, personal communication, October 18, 2004) stated that with November being Osteoporosis Prevention Month, their advertorial in

Chatelaine during that month focuses on calcium and vitamin D. This does not explain the reduced calcium content by other advertisers or editorials. Neiderer also stated that for December issues, Dairy Farmers of Canada selects “lighter” topics because people are often “not receptive to nutrition messages” at Christmas time. Christmas content, in general, may be crowding out informational advertisements and educational content. February 2000 and July 2001 had the highest calcium coverage in *Chatelaine*. Dairy Farmers of Canada suggests that increased coverage in February may be associated with New Year’s resolutions to eat healthier, including consuming increased calcium. The possible peak in July 2001 cannot be easily explained according to Dairy Farmers of Canada, as the milk supply is constant throughout the year. Thus, there was not more milk for farmers to sell in July 2001 that would warrant increased exposure in that issue. *Flare*, as mentioned, was lacking in calcium items, with too few items to note a pattern. Korinis (1996) observed that calcium coverage, albeit limited similarly, was very stable in teen-focused magazines and showed little change by month or by year; coverage in women’s magazines did reveal fluctuation in calcium items by month and year. The December issues in her study also had the lowest calcium coverage while March and September had the highest. And, years 1986 and 1994 had increased calcium coverage while 1987 had the lowest.

Weight-related information, in both magazines, fluctuated throughout the year with a pattern of decreasing frequency of items as the year progressed, as seen in Figure 4.5. Not surprisingly, both magazines peaked in February as one would expect there to be a proliferation of diet information to counter the traditional excessive

eating related to holiday meals. But the frequency of items trended downward as fewer weight-related messages were found as time passed. Both magazines appeared to peak again in May/June. This is expected as an influx of weight-related information in preparation for bikini weather is timely. A lower peak seemed to be evident in August/September. Weight-related items at this time of year may serve as a reminder of the importance of focusing on weight-related issues as summer is not over just yet. A final peak was observed in November/December which may serve as a pre-holiday effort at promoting weight loss in preparation for the holiday feasts. Korinis (1996) found that advertisements followed a seasonal pattern in teen-focused magazines with June having the highest frequency of weight loss advertisements and December having the lowest. Mature women's magazines, however, did not reveal fluctuations in weight loss items and remained stable throughout the year.

There were fewer calcium messages in *Flare* than in *Chatelaine*, and while *Chatelaine* had more weight-related messages than *Flare*, the result was not statistically significant. Advertisements were used most frequently to convey calcium messages while most messages related to weight were found in editorial content. Despite some of the differences found between results of my study and those of Korinis (1996), the outcomes are similar: magazines targeting young women are lacking in calcium information while a great deal of coverage is given to weight-related issues. These findings are important because young women, who often turn to magazines for their nutrition-related information, are not being offered sufficient calcium information to educate them about the timeliness of maximizing bone mass. Concurrently, weight-related messages proliferate throughout magazine content. This

combination inadvertently promotes a lifestyle that may increase risk for osteoporosis. Thus, it is important to understand the content of these messages because the quantitative content analysis does not fully provide an understanding of the findings. The value of the quantitative results becomes apparent with the interpretation of the number of calcium and weight-related messages found. As explained above, the number of weight-related messages may have been different had I included all the implicit images of thin women. Furthermore, although a statistically significant difference was found, *Chatelaine's* message density was only 2.34 messages per-100-pages, indicating minimal calcium content marketed to mature women as well. An analysis of the content of the messages will reveal what these messages are, whether the calcium messages are useful, whether the weight messages are appropriate to the age of the magazine's readership. Chapter 5 will thematically analyze the calcium messages while Chapter 6 will similarly provide a thematic examination of the weight-related ones.

CHAPTER 5

Thematic Analysis of Calcium-Related Themes

Content analysis of calcium-related messages has been outlined in the previous chapter, with a comparison to Korinis (1996) extended where appropriate. I reviewed the data collected from *Flare*, the young women's magazine, and *Chatelaine*, the mature women's magazine, and sorted it into several themes related to calcium. This chapter will present those themes in an effort to better understand the calcium messages in Canadian women's magazines. This thematic analysis will encompass both explicit and implicit messages so as to provide examples that reflect the nature of magazine content more comprehensively.

As reported in the last chapter, there were 109 messages focusing on calcium in the 48 issues of *Flare* and *Chatelaine* magazines. Of these, 93% were found in *Chatelaine*. *Flare* had only eight items focusing on calcium, the majority of which were advertisements (6). Although there were not very many calcium-related messages in *Flare*, the messages seemed to emphasize the importance of bone health similarly in both magazines.

The calcium-related messages were categorized into six themes listed in Table 5.1. There were 22 items that had more than one theme. These were included in both categories. The table also indicates the presentation format of the themes. Most of the calcium content was conveyed through advertisements. Three themes were common to both magazines: *milk as a nutrient-rich food*, *alternative sources of calcium* and *exercise*. The remaining three: *taking charge of your own health*, *inhibitors of calcium absorption* and *children* were only found in *Chatelaine*.

Chatelaine stood out for its abundance of informative items focusing on calcium and osteoporosis, and the importance of taking charge of one's own health to prevent osteoporosis. *Chatelaine* contained many items that focused on food choices germane to reducing the risk of osteoporosis. As well, several advertisements focused on children's bone health.

Table 5.1.

Form and Frequency of Calcium-Related Themes by Magazine Type

Themes	<i>Flare</i>					<i>Chatelaine</i>				
	Ads	Articles	Columns	Bullets	Total	Ads	Articles	Columns	Bullets	Total
<i>Milk as a Nutrient-Rich Food</i>	4	0	0	4	4	42	2	0	2	46
<i>Alternative Sources of Calcium</i>	1	0	0	1	2	43	9	0	11	63
<i>Inhibitors of Calcium Absorption</i>	0	0	0	0	0	0	2	0	3	5
<i>Exercise</i>	1	0	0	1	2	5	2	0	0	7
<i>Take Charge of Your Own Health</i>	0	0	0	0	0	3	2	0	2	7
<i>Children</i>	0	0	0	0	0	14	0	0	2	16
Total	6	0	0	2	8	107	17	0	18	144

Note. The 22 items that had more than one theme were included in both categories.

The theme of *milk as a nutrient-rich food* was covered 46 times in the two-year period of the studied *Chatelaine* magazines, while only four times in *Flare* during that same time period. Given this high frequency of occurrences, almost

exclusively in dairy industry advertisements, and the importance of milk as a primary source of calcium, this theme will be delineated first in the subsequent discussion.

Milk as a Nutrient-Rich Food

The theme, *milk as a nutrient-rich food*, is presented first in this review because of the frequency of presentation and its provision of an overview of milk's role in calcium intake. The theme was found mostly in advertisements (see Table 5.1) conveying the message that **milk contains many of the nutrients that the body needs**. An advertisement in both magazines (this is the only advertisement, appearing three times, under this theme in *Flare*) exemplified this message explicitly through its use of the visual to attract the reader's attention, coupled with bits of informative text. Figure 5.1 shows the two-page spread that made up the sensually appealing *Milk Gives* advertisement. It was a striking advertisement. Although the model was typically slim, the focus was not drawn to her. Instead, what catches the eye is the model being showered by milk with the surrounding text detailing how the nutrients of milk are good for her body. Thus, readers were informed that milk provides other nutrients, above and beyond the most notable, calcium. The advertisement seems to suggest that milk is good because it is nutrient-dense. Small amounts of information were presented, describing the nutrients' contribution to the body's health.

Taking their target audience into consideration, the advertisers provided information on parts of the body that would be of interest to women. For example, vitamin A is needed to help maintain healthy skin. Protein helps build and repair body tissue including hair, skin and fingernails. Calcium, of course, is needed for

Being sensitive to *its* target audience, *Chatelaine* disseminated the same message through a second version of the *Milk Gives* advertisement. In this scenario, milk showered a mother holding her infant (see Figure 5.2). The text highlighted nutrients in milk important for both the mother and child such as folic acid which helps produce red blood cells and niacin to help the body develop and grow.

MILK GIVES

Hey baby, milk and momma are taking good care of both of you. With Niacin helping you develop and grow. Folic Acid to help your little body make red blood cells. And Calcium plus 5 other nutrients to help build and maintain both momma and baby's bones. All part of milk's legendary energy and 15 essential nutrients.

CALCIUM
HELPS DEVELOP &
MAINTAIN YOUR
BONES & TEETH

MAGNESIUM
HELPS DEVELOP
YOUR BONES
& TEETH

NIACIN
HELPS
YOU
DEVELOP
& GROW

FOLIC ACID
HELPS PRODUCE
RED BLOOD CELLS

CARBOHYDRATES
HELPS SUPPLY
ENERGY TO YOUR
WORKING MUSCLES

RIBOFLAVIN
HELPS YOUR
BODY USE
ENERGY

VITAMIN D
HELPS YOUR BODY
ABSORB CALCIUM

PROTEINS
HELPS BUILD & REPAIR
BODY TISSUES
INCLUDING
YOUR SKIN

Each 250 mL glass of 2% milk gives: Energy 129 calories (540KJ), Protein 8.6g, Carbohydrates 12.4g. Plus these % of Recommended Daily Intake: Vitamin A 12%, Vitamin D 44%, Thiamin 8%, Riboflavin 27%, Niacin 10%, Vitamin B-6 6%, Folic Acid 6%, Vitamin B-12 45%, Pantothenate 13%, Calcium 29%, Phosphorus 22%, Magnesium 14%, Zinc 11%.

Figure 5.2. *Milk Gives*. (*Chatelaine*, Sept. 2001, p. 117).

An advertisement found only in *Chatelaine* sent readers the same message but packaged milk as a “healthy bones tool kit.” This advertisement (see Figure 5.3) cleverly used tools in the pitcher of milk to represent milk’s capacity to fix the problem of bone health. It is interesting that tools would be used in this context since tools are usually associated with men. Tools connote masculinity; that men fix things. In a study examining gender in occupational stereotypes, it was found that jobs utilizing tools, such as carpenter, roofer and repair are perceived to be dominated by men (Glick et al., 1995). Yet this advertisement suggests that women can fix things too; women can partake in non-traditional roles. Perhaps the advertisers count on the women who read *Chatelaine* to fulfill the traditional caregiver role in preparing meals to address their boys’ and men’s bone health. As previously mentioned, men are at risk of getting osteoporosis as well.

The dairy industry uses another approach, regular advertorials, to present more detailed information about their products. An advertorial is an advertisement presented/disguised as an article. It contains “text relevant to the advertiser” (Daly, 1997). One example provided nutrient profiles of milk, orange juice, cola and sparkling water (*Chatelaine*, Jun. 2000, p. 42). To emphasize the “nutritional bang for your buck,” the registered dietitian writing the advertorial provided a cost comparison to illustrate the value of milk. Readers were also informed that milk has more of vitamins A, D, riboflavin and calcium than orange juice. More compelling is the fact that cola, in family-size bottles, may cost half as much as milk, but it has none of the above-mentioned nutrients. The message is clear: while other beverages

may provide a particular flavour, milk “delivers not only good taste but 15 essential nutrients.”

THE TROUBLE WITH CALCIUM.

These restless, impatient days we want everything fast and easy.

Like a quick fix that'll keep bones strong and us from curling up like a fiddlehead when we get old.

Today, that's calcium.

Well, sad to say, calcium can't do it alone.

It needs you, to do enough weight-bearing exercise. And it needs other things too.

Vitamin A to help break down old bone and replace it with new bone. (It's called remodeling).

Vitamin D to help absorb the calcium you ingest.

Protein to help promote healthy bone growth.

Phosphorous to combine with calcium in the crystals of bones and teeth. It's essential.

Magnesium to help in bone mineralization.

It takes a whole tool kit of vitamins and minerals plus your energetic participation to give your bones a chance.

Well, you say, isn't that a lot of stuff to ingest?

Yes & no.

Yes if you're into popping pills.

No if you drink milk.

Because every glass of milk you drink, be it white or chocolate, has all these things in it, as well as 1/3 of your daily calcium requirement.

On top of that, milk tastes good, cold and wonderfully satisfying.

So Drink Milk, Love Life and get a healthy bones tool kit free!



MILK. NOT JUST CALCIUM, A HEALTHY BONES TOOL KIT.

Figure 5.3. Healthy Bones Tool Kit. (*Chatelaine*, May 2000, p. 60).

When a reader asked a nutrition columnist in a monthly feature entitled “Ask a Nutritionist” about omitting milk and dairy products from her diet, the response was emphatic: “there is little reason to take dairy out of your diet, since no other food (with the exception of fortified soy milk) provides you with all the nutrients milk has to offer” (*Chatelaine*, Dec. 2001, p. 50). Magazine content such as this promotes the importance of milk and its nutrients.

Furthermore, the Dairy Farmer's logo, emphasizes the association between milk and other food products (see Figure 5.4). The implication is that consuming foods that are manufactured using milk, such as cheese, can yield the benefits of all of milk's nutrients. Such a reminder (advertisements with logo) dispersed throughout the magazine may serve to enhance readers' knowledge about milk and milk products. This association may also be applied to butter. Although Figure 5.5 is advertising butter, the association of milk with cows is an overpowering visual.

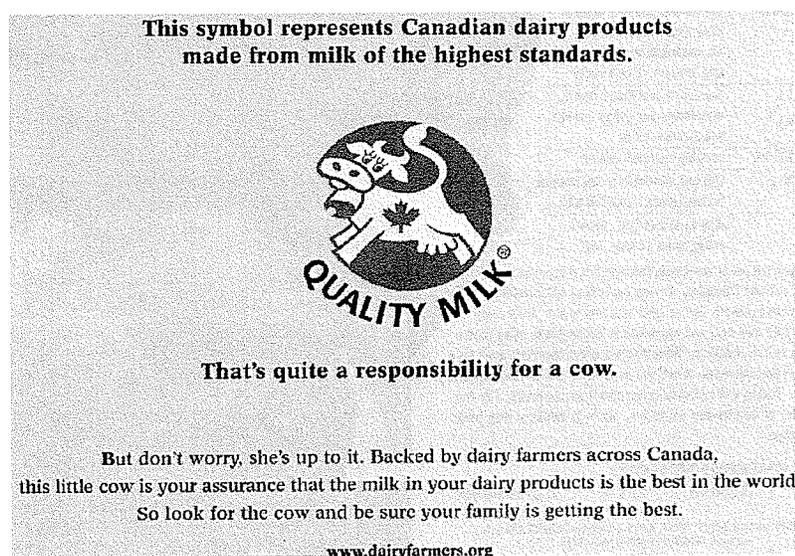


Figure 5.4. Dairy Farmers. (*Chatelaine*, Mar. 2000, p. 114)

Alternative Sources of Calcium

The theme of *alternative sources of calcium* was found most often in advertisements, with some information also in articles and bullets. The message was explicit - **there are alternative sources of calcium available in order to meet daily requirements if they cannot be met through milk and milk products.** Both magazines promoted a common advertisement for calcium supplements that provided

this message. In Figure 5.6 the life-size portrayal of the supplement bottle focused attention on the advertiser's product and their claim that the supplement is equivalent to two eight-ounce glasses of milk. This claim is backed up with the repeated slogan "more calcium – more efficiently." Although slightly smaller, the fact that the supplement had "zero calories" and was fat-free is prominently positioned and circled to draw the attention of dieting readers. The advertisers were explicitly using a weight-related idea to sell an alternative source of calcium. A vulnerable reader who is trying to cut back on calories may be attracted to a calorie-free solution to getting her daily requirement of calcium, without realizing that she will be missing out on the opportunity to consume all the other nutrients that milk has to offer.

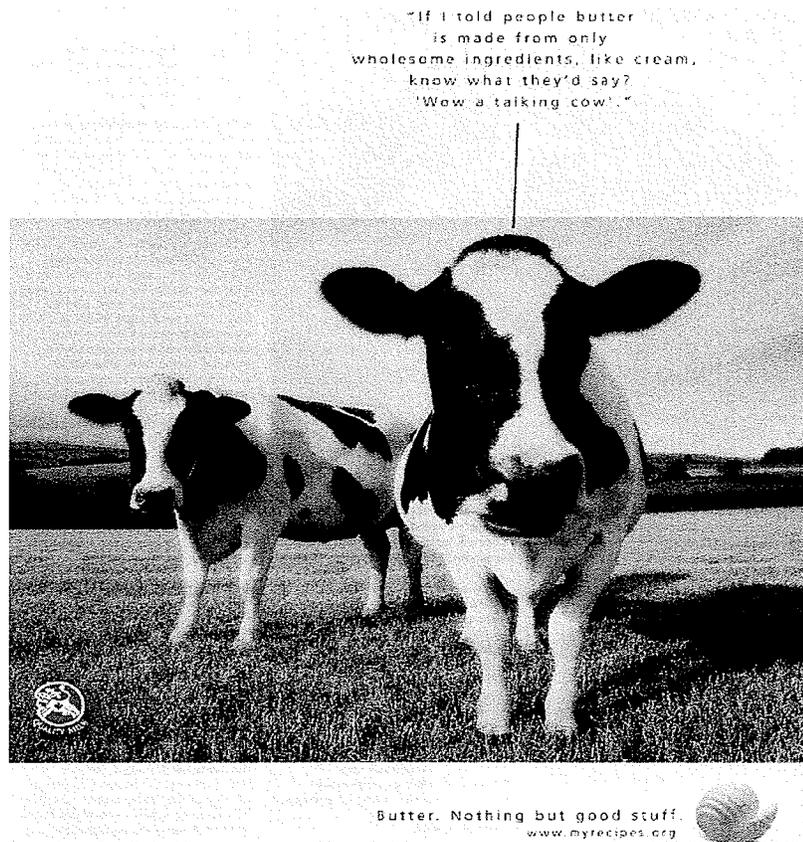


Figure 5.5. Butter. (*Chatelaine*, Aug. 2000, p. 87)

Jamieson's Exclusive High Absorption Formula



**MORE CALCIUM
MORE EFFICIENTLY**

LACTOSE FREE
0 CALORIES

Jamieson™
Laboratories

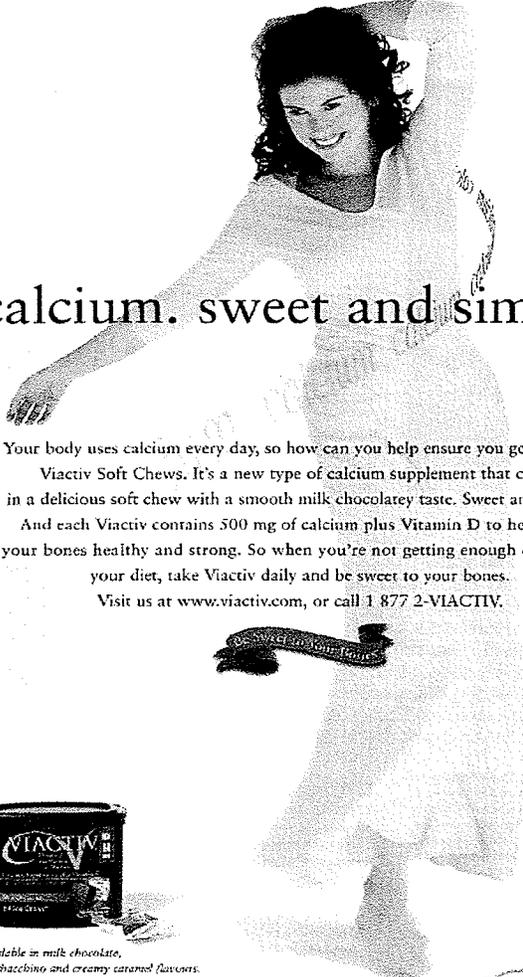
Available at fine pharmacies and better health food stores.

Figure 5.6. *Jamieson Supplements.* (*Flare*, Nov. 2000, p. 127).

Chatelaine presented an advertisement for *Viactiv Soft Chews* in several issues (see Figure 5.7). The nutrient was disguised as an individually wrapped candy, a “delicious soft chew with a smooth milk chocolaty taste” which may implicitly suggest that eating candy is good for you, given that “sweet” as in “sweet and simple” and “be sweet to your bones” was used several times. The message is clear-cut: it is important to consume calcium, and if you are unable to consume adequate calcium through dietary sources, then *Viactiv Soft Chews* are a good alternative. As in the previous advertisement, there was a cross-reference to weight, in this case, implied by using a slim model to promote the calcium supplement. This may speak

directly to readers who would consider taking supplemental calcium in order to avoid having to consume the calories contained in a glass of milk. The advertisement contains a website address (www.viactiv.com) which tells you that one *Viactiv Soft Chew* contains 20 calories and 500 mg calcium versus 1- 8 oz glass of 2% milk which contains 120 calories and approximately 300 mg calcium (Mead Johnson, 2001).





calcium. sweet and simple.

Your body uses calcium every day, so how can you help ensure you get enough?

Viactiv Soft Chews. It's a new type of calcium supplement that comes in a delicious soft chew with a smooth milk chocolatey taste. Sweet and simple.

And each Viactiv contains 500 mg of calcium plus Vitamin D to help keep your bones healthy and strong. So when you're not getting enough calcium in your diet, take Viactiv daily and be sweet to your bones.

Visit us at www.viactiv.com, or call 1 877 2-VIACTIV.



Available in milk chocolate, mocha-cacchino and creamy caramel flavours.



Calcium is a factor in the maintenance of bone health.

Trademark of Mead Johnson Nutritionals.

Figure 5.7. *Viactiv Soft Chews*. (*Chatelaine*, Feb. 2001, p. 61).

Several advertisements in *Chatelaine* promoted *Soy Good Fortified Soy Beverage* (Feb. 2001, p. 137) as a replacement beverage for milk. According to the copy, it is fortified with 14 essential nutrients so it really is “so good” for you. The soy beverage provides a nutritional basket that is similar to that of milk as it advertised that it contains the 15 nutrients in cows’ milk that are generally promoted. There is even a fat-free version that may appeal to people who are making reduced-fat food choices. That said, an advertisement by the dairy industry (*Chatelaine*, Oct. 2000, p. 54) stated that “calcium in cow’s milk is absorbed 33% better than the calcium...added to many soy beverages.” Research shows that commercially used soybeans have a high-phytate content that may have a significant, negative impact on calcium absorption (Heaney et al., 1991; Weaver et al., 1997, Weaver et al., 1993).

A second version of the advertisement promoting a cappuccino-style beverage, *Soyaccino*, took the promotion a step further by stating: “don’t worry about guilt because *Soyaccino* is low in fat...” (See Figure 5.8.) Again, an alternative source of calcium was promoted via a weight-related message. More specifically, the guilt of choosing a high-fat food product was being utilized by advertisers because it resonates with women. Enhancing the impact of the cross-reference to weight was the visual of the beverage carton squeezed into the glass which symbolized squeezing into clothing that are tight, indicating a weight issue. The topic of guilt is commonly associated with eating/food/weight and will be elaborated on in the discussion of weight-related themes.

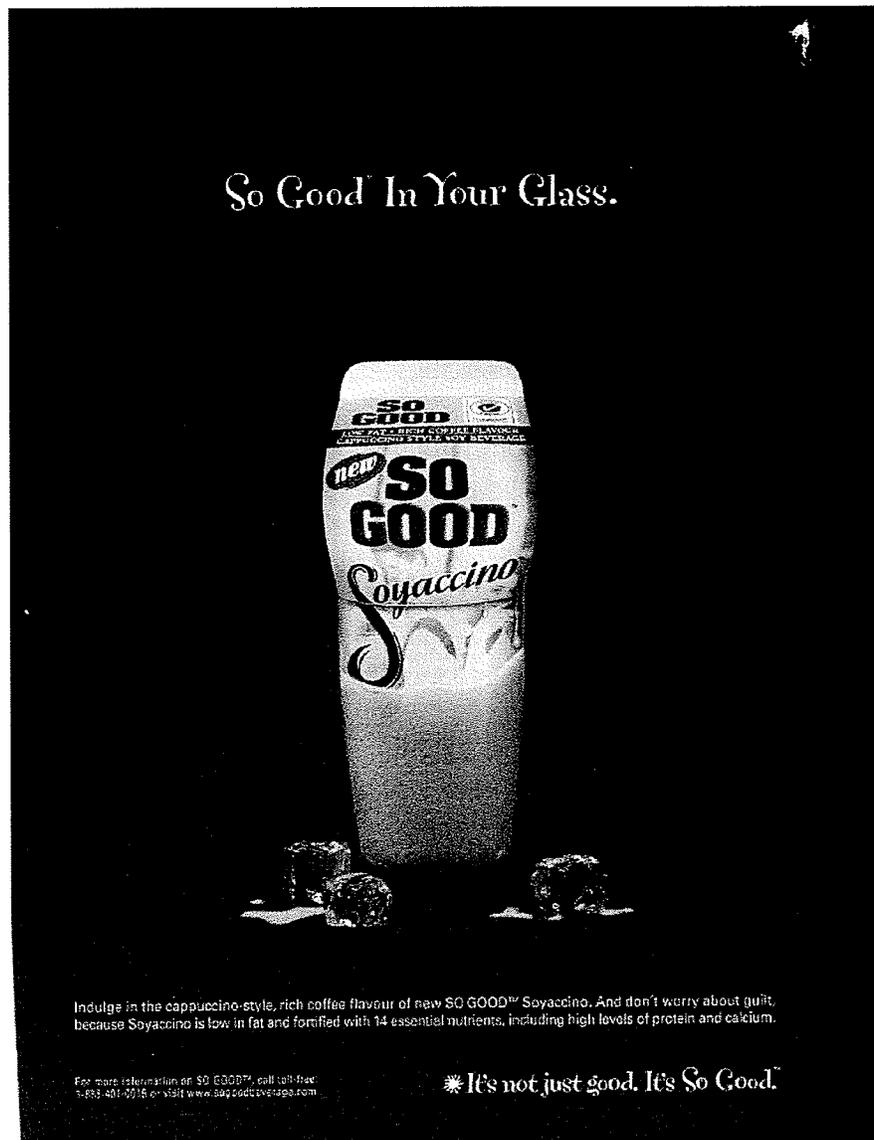


Figure 5.8. *Soyaccino*. (Chatelaine, Feb. 2001, p. 137).

A *Tropicana* advertisement was simple and straightforward in providing factual information: the body contains 206 bones along with the message that these bones need strengthening; *Tropicana* orange juice is fortified with calcium (and vitamin C), and has what it takes to strengthen bones (see Figure 5.9). In an extension of the advertisement (a column's width) on the following magazine page,

the advertisers utilized the advertising space as a forum for educating readers about bone health and the importance of building bone. The advertisement stated: “don’t be dense about your bones,” thus, a play-on-words related to bone “density” is used to attract readers. This humorous ‘admonition’ alludes to an educational purpose that a reader might feel is genuine. It is offered in a format that the reader may not consider strictly as a sales pitch.

**YOU HAVE 206
BONES AND MILLIONS
OF TASTE BUDS.
WE SUPPORT THEM ALL.**

You can always count on Tropicana for great taste. But now you can also enjoy the benefits of calcium. Only Tropicana Calcium and Vitamin C Supplement has FruitCal™, a tasteless, lactose-free, source of calcium. We've also added lots of pulp, so you get more Tropicana taste in every glass.

TASTE THAT GOES RIGHT TO YOUR BONES.

Figure 5.9. *Tropicana.* (Chatelaine, Jul. 2001, p. 66).

When asked if a daily multivitamin is necessary in an “Ask a Nutritionist” column in *Chatelaine*, the nutritionist emphasized the importance of supplementing because “many Canadian women do not get enough calcium...” in their diet (Nov. 2000, p. 22). If individuals are not able to “consume three to four servings of milk products or calcium-fortified foods each day, a calcium supplement is required.” The registered dietitian, responding to reader questions in each monthly issue, did not leave room for uncertainty regarding this important issue: supplements were required, rather than suggested. In another article (*Chatelaine*, Aug. 2001, p. 48), readers were reminded that “many Canadian women...aren’t getting the nutrients they need, especially...calcium.” “Health professionals” agree that women should ideally get their nutrients from a balanced diet as recommended in Canada’s Food Guide to Healthy Eating, however, “go for a ...calcium-citrate supplement if you don’t eat dairy.” If “a busy lifestyle plays havoc with good dietary intentions” then supplements are warranted, suggested an advertorial entitled “Be Well, Stay Well” (*Chatelaine*, Jun. 2000, p. 56). This advice, that supplements can be “a great tool in maintaining health,” is particularly important for pregnant and lactating women because of baby’s bone-building requirements (*Chatelaine*, Jun. 2000, p. 56), perimenopausal women because of the increased risk of osteoporosis, and vegetarians, especially those who do not consume animal products, including milk (*Chatelaine*, Aug. 2001, p. 48).

A particularly beneficial item found in *Chatelaine* reiterated the message that calcium can be obtained from sources other than milk (see Figure 5.10). It was a pullout refrigerator poster of a list of foods entitled “eat for your health.” As part of

an annual feature entitled "Guide to Good Health," this list provided suggestions of foods that help "beat diseases," including building and maintaining strong bones as a precautionary measure to ward off osteoporosis. While the magazine noted that the list is not exhaustive, it identified commonly eaten and easily accessible foods, creating an educational tool that is simple to use.



eat for your health

cancer prevention

Vegetables
asparagus
broccoli
brussels sprouts
cauliflower
celery
corn
garlic
green beans
onion
parsley
peppers
spinach
squash

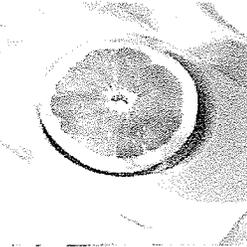
Fruit
apple
avocado
blackberries
blueberries
cantaloupe
figs
grapefruit
guava
honeydew melon
mango
orange
papaya
pear
peaches
raspberries
strawberries
tomato
watermelon

Legumes & nuts
almonds
black beans
butter beans
cashews
chickpeas
kidney beans
lentils
mung beans
navy beans
pinto beans
soybeans
split peas
walnuts

Whole grains
bread
brown rice
cereals
oat bran
rice bran
wheat germ

Proteins
chicken
mackerel
salmon
tuna
turkey

Oils
canola
flaxseed
olive



healthy heart

Vegetables
asparagus
broccoli
garlic
green beans
lettuce
parsley
peppers
spinach

Fruit
cantaloupe
kiwi fruit
orange
pineapple
pink grapefruit
strawberries

Nuts & seeds
almonds
sunflower seeds
walnuts



alzheimer's action

Vegetables
asparagus
broccoli
red leaf lettuce
romaine lettuce
spinach

Fruit
cantaloupe
kiwi fruit
orange
pineapple
pink grapefruit
strawberries

Legumes & nuts
almonds
cashews
soybeans
walnuts

Whole grains
barley
bran
brown rice
buckwheat
oatmeal
rye bread
wheat germ

Proteins
cod
halibut
meat
poultry
salmon

Oils
canola
flaxseed
olive

Dairy
cheese
skim milk
yogurt

strong bones

Vegetables
asparagus
broccoli
parsley
radicchio
romaine lettuce
spinach

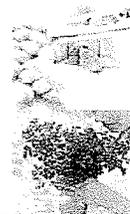
Fruit
apricot
avocado
banana
fig
orange juice
orange
prunes

Legumes & nuts
almonds
Brazil nuts
lima beans
navy beans
soybeans

Whole grains
bread
brown rice
cereals
oatmeal

Proteins
haddock
herring
salmon
sardines
tuna

Dairy
cheese
skim milk
yogurt



diabetes control

Vegetables
asparagus
broccoli
red leaf lettuce
romaine lettuce
spinach

Fruit
apple
avocado
banana
grapefruit
peach
pear

Legumes
black beans
butter beans
chickpeas
kidney beans
lentils
navy beans
pinto beans
split peas

Proteins
chicken
salmon
turkey

Dairy
cheese
milk
yogurt



The following amounts of essential vitamins and minerals are the recommended minimum and maximum therapeutic doses as revealed by the latest research into disease prevention for adult women. If you can't find these amounts in your regular multivitamin, you may need to consider individual supplements. Not all vitamins or minerals are listed below. For more information, please refer to our new online Vitamin Centre at www.chatelaine.com. Remember, more is not better. Too much of any vitamin or mineral can be harmful. Consult your health practitioner.

A	3,333 IU - 5,000 IU
B ₆	1.2 mg - 25 mg
B ₁₂	2.4 mcg
C	25 mg (age 50+)
D	250 IU - 300 mg
E	25 IU - 800 IU (under age 50)
Folic acid (folacin)	400 IU - 800 IU (over age 50)
Niacin	14 mg - 40 mg
Calcium	1,000 mg (15 to 40)
Copper	2,000 mg (51 to 70)
Copper	2 mg
Iron	5 mg - 18 mg
Magnesium	200 mg
Potassium	3,200 mg
Selenium	200 mcg (available only in Selenium-supplement)
Zinc	5 mg - 18 mg

Figure 5.10. Eat for your health. (*Chatelaine*, Jul. 2000, p. 52).

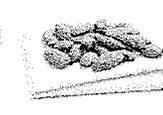
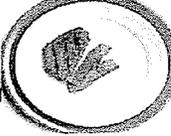
Some other food products can contribute to daily calcium requirements although they contain calcium in a limited quantity and their bioavailability is not as significant as that of milk and dairy products. For example, a wellness feature that provided ideas for improving health identified broccoli as being “packed with calcium” (*Chatelaine*, Feb. 2001, p. 76). “Bone up on Veggies” promised that “fruits and vegetables contain bone-boosting nutrients....” (*Chatelaine*, Apr. 2000, p. 64). Soy hot dogs were featured in a bullet (*Chatelaine*, Jul. 2000, p. 82) claiming soy “may improve bone density.” Indicative of soy being “the hottest food substance on the planet,” soy products were touted for the health benefits of their nutrients, including their calcium content in 15 items in *Chatelaine* (including the advertisements for soy milk). Researchers are acknowledging the potential roles that soy foods may have in the prevention and treatment of some diseases such as cancer and heart disease (Messina, 1995). However, the phytate content in soybeans may contribute to the poor mineral bioavailability found in soybeans (Messina, 1999), rendering this to be misleading information to consumers.

Figure 5.11 was part of a feature on ways to increase energy and optimize health. It was presented as a bonus for readers in the form of a pullout poster with menu suggestions, similar to the above-mentioned refrigerator poster. This “guide to your daily nutritional needs,” demonstrated portion sizes for people who may have difficulty estimating appropriate portions. The magazine stated that “we show you how much of each nutrient you need every day in pictures. That’s easy to remember.” It focused on the nutrients that were important to women such as calcium, folic acid and iron, among others. *Chatelaine* illustrated how easy it was to

meet the daily recommendations for calcium with two cups of bok choy daily! Three of the options (bok choy, sardines, kale) are not foods that Canadians eat regularly.

Although *Chatelaine* was obviously trying to illustrate alternative sources of nutrients, it is odd that yogurt and cheese were not shown as more commonly consumed sources of dairy calcium.

A guide to your daily nutritional needs

	breakfast	snack	lunch	snack	dinner
protein	 1 soft-boiled egg = 6 g 1 slice whole-wheat toast = 3 g	 1 small container (175 g) fruit-flavoured, low-fat yogurt = 7 g	 ham sandwich (made with 2 slices/60 g) = 16 g	 2 tbsp (30 mL) hummus with 1/2 4-inch (10-cm) whole-wheat pita = 6 g	 1 1/2 cups (375 mL) whole-wheat pasta with tomato sauce = 14 g
calcium	 8 oz (250 mL) skim milk = 300 mg	 1 orange = 43 mg	 2 cups (500 mL) steamed bok choy = 320 mg	 3 large canned sardines with bones (on whole-wheat toast) = 220 mg	 1 1/4 cups (300 mL) cooked kale = 117 mg
folic acid	 8 oz (250 mL) orange juice = 10 mcg	 1/2 cantaloupe = 48 mcg	 2 slices whole-wheat toast with 2 tbsp (30 mL) peanut butter = 65 mcg	 1/2 cup (125 mL) chickpea salad = 65 mcg	 5 asparagus spears = 75 mcg 1 medium-size sweet potato = 30 mcg
iron	 1 cup (250 mL) whole-grain, iron-enriched cereal = 4 mg	 1 handful almonds (24 nuts) = 1 mg	 1 cup (250 mL) baked beans (made with molasses) = 4 mg	 7 dried apricot halves = 1 mg	 3 oz (80 g) grilled sirloin steak (size of deck of cards) = 3 mg
fibre	 1 medium-size home-made bran muffin = 5 g	 1 cup (250 mL) fresh strawberries = 3 g	 1 1/4 cups (300 mL) chili with beans = 11 g	 1/4 cup (50 mL) roasted soy nuts = 3 g	 1/4 cup (175 mL) green beans = 3 g

For more meal options, turn the page
Figure 5.11. Poster-portion sizes. (*Chatelaine*, Feb. 2001, p. 80).

Numerous items found in *Chatelaine* throughout the 24-month period concentrated on lactose intolerance. One advertorial (*Chatelaine*, Aug. 2000, p. 26), presented by the dairy industry, explained lactose intolerance. This brief synopsis clarified the subject and informed readers of the possibility that abdominal symptoms may be the result of other health conditions. Furthermore, according to numerous advertisements, the inability to digest lactose, the sugar found in cow's milk, does not have to be a problem as consumers were offered several options. For example, *Lacteeze*, (*Chatelaine*, Jun. 2000, p. 172a) is a lactose-reduced milk that will provide "all the pleasure and comfort milk is meant to bring to your life." *Lactaid Ultra Chewables* (*Chatelaine*, May 2001, p. 207) is a "natural solution" consisting of lactase that helps digest lactose and prevents the symptoms associated with lactose intolerance.

Inhibitors of Calcium Absorption

Chatelaine also provided some information on foods that may have a detrimental effect on health by interfering with the absorption of calcium. For example, rhubarb, featured in one article (May 2001, p. 30) contains oxalic acid that may "interfere with calcium...absorption." Oxalic acid impacts negatively on calcium absorption by forming insoluble calcium oxalate which reduces calcium absorption in the intestine (Heaney & Weaver, 1993; Weaver et al., 1997). One bullet (*Chatelaine*, Sept. 2001, p. 63) postulated that too much salt "puts you at risk for ...bone loss." Researchers suggest that a high-salt diet potentially may increase the rate of bone resorption in postmenopausal women (Harrington & Cashman, 2003;

Nordin et al., 1993). Carbonated drinks were labeled “bone breakers” in a *Chatelaine* report (Oct. 2000, p. 62) that stated “teenage girls who consume soft drinks may be in for broken bones.” According to the bullet, 80% of girls who drink pop faced three times the risk of getting a bone fracture. This is due, in part, to the “phosphoric acid in colas combined with low calcium intake.” Researchers suggest that the phosphoric acid in carbonated drinks interferes with the absorption of calcium (Petridou et al., 1997; Wyshak, 2000; Wyshak et al., 1989; Wyshak & Frisch, 1994). Combined with low calcium intake resulting from the displacement of milk with carbonated drinks, this may hinder young women’s ability to achieve peak bone mass (Heaney & Rafferty, 2001). As pointed out in an article written by a nutritionist, this may inform young women that carbonated drinks are “crowding out healthier options” in the diet. She questioned teens’ practice of drinking three cans of pop daily (*Chatelaine*, Jun. 2001, p. 24).

Under the theme of *Take Charge of Your Own Health* described below, two items mentioned calcium absorption inhibitors. One bullet (*Chatelaine*, Dec. 2000, p. 96) warned consumers that “alcohol and caffeine block calcium absorption.” An article entitled “Bone Bank” (*Chatelaine*, May 2001, p. 63) provided more information: “too much alcohol taxes the liver, reducing its ability to make the active form of vitamin D,” essential in the absorption of calcium. “When the kidneys try to evict non-nutritious substances (salt and caffeine), calcium goes out too.” Furthermore, “smoking interferes with collagen production, giving smokers frail bones.” Last, “more than three (3-oz/90-g) servings of meat a day could force your kidneys to flush out calcium.”

Exercise

This theme included messages that **engaging in physical activity reduces the risk for osteoporosis**. *Flare* had only one advertisement and one bullet pertaining to this theme while *Chatelaine* had five advertisements and two articles. *Flare* and *Chatelaine* had one common advertisement, appearing once in each magazine type, based on this theme. The visual implication of the advertisement is overpowering, with emphasis on exercise to absolve guilt associated with eating a piece of cake. Figure 5.12 illustrates an advertisement that dealt primarily with exercise for the purpose of food-associated guilt (to be discussed under the weight-related themes). This advertisement also contained a misleading calcium-related message suggesting that exercise, in this case running, would make osteoporosis “disappear.” Exercise potentially helps to maintain the amount of bone that existed during early and mid-adulthood, and during the latter years of life, physical activity may aid in reducing the rate of bone loss (Barr, 2001). Although exercise will protect against the risk of a fracture, it will not eliminate osteoporosis. However, this advertisement does suggest a relationship between exercise and osteoporosis.

A reader in *Flare* (May 2001, p. 24) responded to an article about the calorie-burning power of using snowshoes. She was appalled at what she saw as an emphasis placed on the calorie-burning potential of this activity when there are more important issues facing women, such as diseases. The writer stated her point succinctly: “the overriding fitness concern for women of the age group your magazine targets should be to increase bone mass (to prevent osteoporosis)...” among other health issues.

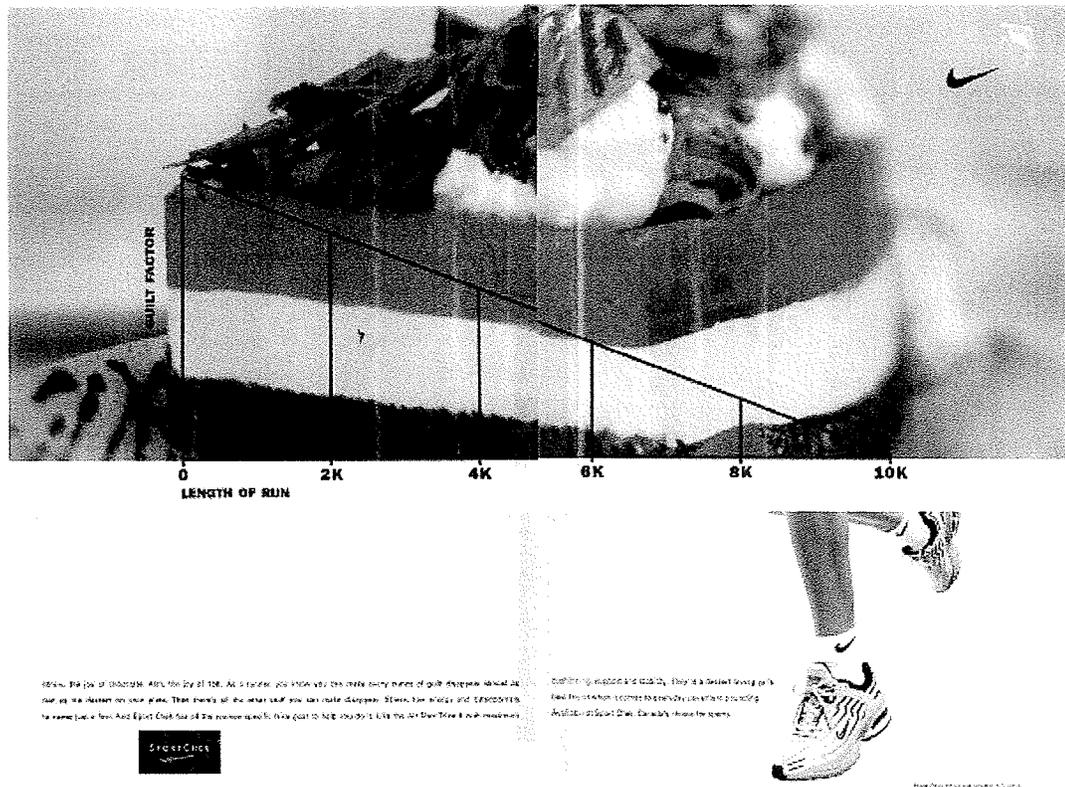


Figure 5.12. Nike/Sportchek. (*Chatelaine*, Jul. 2001, p. 50).

Other references were also made to the benefits of exercise to bone health, as secondary themes. The advertisement for the calcium toolkit (Figure 5.3) focused on the nutrients milk provides, however, exercise was also mentioned as a way to help build bone mass. An article entitled “The Bone Bank” (*Chatelaine*, May 2001, p. 63) suggested that “to really bulk up bone you need weight-bearing exercise.” This article promoted variety as the key: “if you stick to one workout, even a good one such as jogging, your bones won’t be challenged and get stronger.” According to another article (*Chatelaine*, Sept. 2001, p. 72), women in early menopause must prevent osteoporosis by “doing weight-bearing exercise such as walking at least three times a week. Moreover, “bone building and remodeling require exercise” stated another advertorial by the dairy industry (*Chatelaine*, Oct. 2000, p. 54).

Take Charge of Your Own Health

The theme, *take charge of your own health*, carried messages that **taking responsibility for bone health is beneficial for reducing the risk of developing osteoporosis**. This theme was found in three advertisements, two articles and two bullets, all in *Chatelaine*. Most of these items stated that the onset of osteoporosis usually begins when menopause sets in. Therefore, it is essential to “take steps now to prevent its (osteoporosis) ravages,” (*Chatelaine*, Jul. 2000, p. 46). While this part of the calcium message was directed at the ‘younger’ *Chatelaine* readers, as suggested by the cited studies that focused on the milk consumption of women prior to age 25, the bullet also stated that maintaining bone health is “life-long.” Thus, it is never too late to take responsibility for bone health. The format of this bullet, a part of *Chatelaine*’s “guide to good health, foods that beat disease,” detailed what is known about osteoporosis and submitted key prevention tips to inspire readers to take action.

An article (*Chatelaine*, May 2001, p. 63) entitled “The Bone Bank” analogized a bone bank as a “saving for your future and avoiding osteoporosis.” “Start saving today for your retirement,” not only from a financial standpoint but also from a health perspective was the sage advice offered in this article. The article advised readers of think of bones as a form of Registered Retirement Savings Plans (RRSPs) where “you’ll maximize the payoff by boosting your deposits and avoiding withdrawals.” Financial terms were used to explain the different stages of bone health throughout the life cycle. For example, the “peak investment period” is in childhood, and the teen years are the time period in which peak bone mass can be

maximized. “Top-up time” in young adulthood allows for some bone growth and opportunity to increase bone density by small amounts. “Maintain your investment” beyond the age of 35 by making regular deposits in order to “preserve” what you have acquired. Finally, if there is a “drop in the market” which usually happens at the time of menopause, eating right and exercising become absolutely essential to maintaining bone health. The article stressed that loss in bone mass is inevitable but good health practices contribute to its slow down. The article provided readers with listed strategies for making deposits into the bone bank, such as eating calcium-rich foods, getting the proper amounts of vitamin D and phosphorus, and exercise, to name only a few. The reader was also cautioned to avoid withdrawals from the bone bank by getting enough exercise, quitting smoking, not overeating protein, and reducing soft drink consumption. The purpose of this article was clear: to encourage readers to take their bone health into their own hands because the investment is well worth it.

Other items in *Chatelaine* also encouraged the individual to take health care into their own hands. For example, one article identified the importance for women experiencing early menopause to consume the recommended amount of calcium daily and to perform weight-bearing exercises (Sept. 2001, p. 72). According to a segment entitled “bone up!” (*Chatelaine*, Oct. 2001, p. 62), found in an advertorial entitled “Antidotes to aging. An all-ages guide to looking and feeling great,” the message to take charge now was reiterated: “the good habits we begin in our 20s will see us through our 40s and 50s” when we begin to lose bone density, and osteoporosis becomes a real threat. A registered dietitian in the advertorial emphasized the

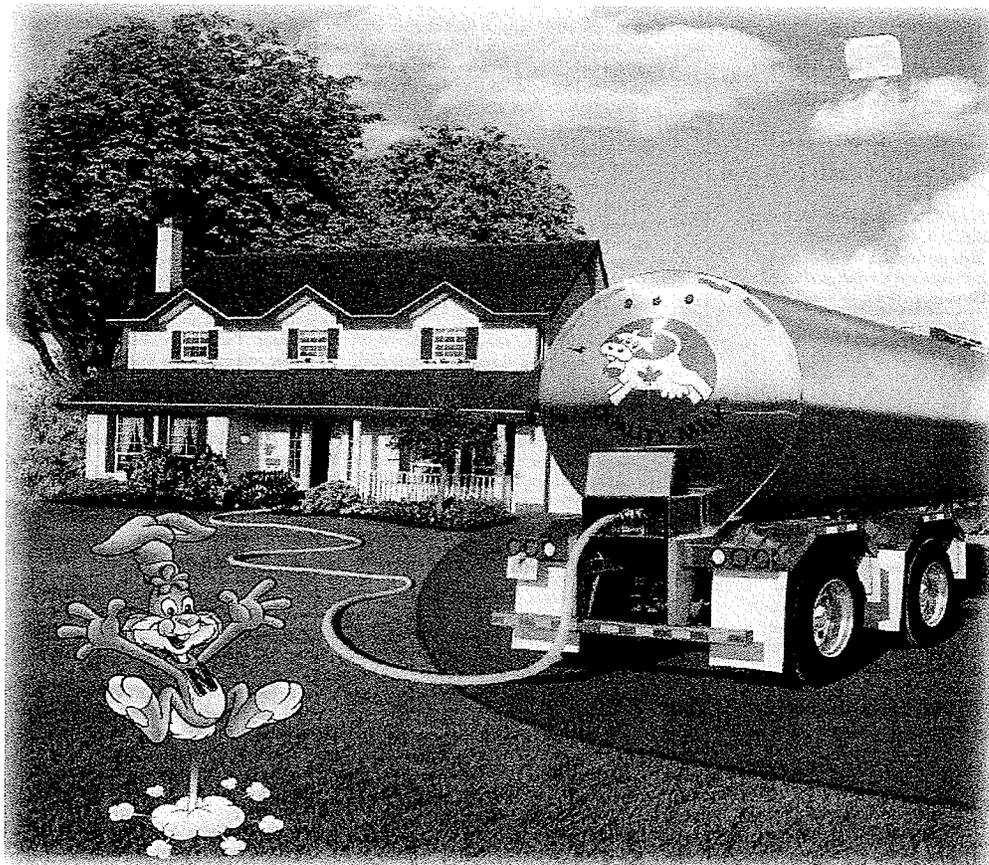
importance of “paying attention to calcium intake now,” thereby reiterating the significance of this theme.

Worth mentioning is a bullet (May 2001, p. 72) found in *Chatelaine* which proposed to readers that drinking milk may enhance weight loss efforts. This recommendation was based on a study which found that “women who ate and drank the most dairy foods ...lost the most weight...” Research is ongoing in this area and results suggest an association may exist between weight loss and calcium intake (Davies et al., 2000; Lin et al., 2000; Melanson et al., 2003; Parikh & Yanovski., 2003; Teegarden et al., 2003; Zemel et al., 2002; Zemel, 2003a; Zemel, 2003b; Zemel et al., 2003). Ironically, milk is the food that is often omitted from the diet in favour of other low-caloric beverages even though it may actually be helpful in weight loss efforts.

Children

Chatelaine's audience includes parents, and 16 calcium messages focused on children, sending the message that **children's bone health is important**. An advertisement for *Nesquick* chocolate milk mix appeared in *Chatelaine* several times. Figure 5.13 suggests children drinking milk flavoured with *Nesquick* will benefit from milk's 14 essential nutrients, including calcium. The advertisement implied that the drink will be so tasty and loved, children will be drinking it by the truckload. An advertorial (*Chatelaine*, Oct. 2001, p. 115) entitled “Kids and Nutrition” condones chocolate milk for children if they will not drink white milk. Acknowledging “food

challenges” that parents face as their children grow, chocolate milk is promoted as a “realistic solution” to a common problem.



WITH NESQUIK, YOU'RE GOING TO NEED A LITTLE MORE MILK IN THE HOUSE.

NesQuik chocolate milk mix makes milk taste so chocolatey good, your kids will gulp it down like crazy. And the more they gulp down the better, because NesQuik mixed with milk has all the calcium, vitamin D and 13 other essential nutrients of white milk kids need. But that's not all! NesQuik contains no more sugar than unsweetened fruit juice. So, don't be surprised if you have to start buying milk by the truckload.

For more information on chocolate milk check out www.milk.org



Milk Made Fun!

Figure 5.13. Nesquik. (*Chatelaine*, Jul. 2001, p. 125).

Advertisements for *Tropicana* orange juice fortified with calcium were also found several times in *Chatelaine* (see Figure 5.14). (This item is discussed under this theme rather than (but included in) *alternative sources of calcium* because the

focus is clearly on children, as illustrated by the visual.) The message is explicit and direct: the calcium in the orange juice will protect children's bones. The visual depicted a boy skateboarding in mid-air, having the protection of calcium-laden orange juice, represented by knee pads, elbow pads and helmet made of oranges. If the boy were to fall, the protective gear would cushion the landing. Thus, bones may not become broken from the fall because of the protective action of calcium in strengthening them. Interestingly, this advertisement utilized a boy for its visual when twice as many women as men develop osteoporosis. As previously mentioned, advertisers may be attempting to influence males through the women who are expected to be their caregivers.

No articles were written for parents about the importance of calcium as specifically related to their children, although an advertorial (*Chatelaine*, Sept. 2000, p. 48) provided editorial-like content. It suggested that kids can get their "liquid satisfaction" by drinking milk rather than soft drinks. Most parents probably know this, but it serves as a reminder of the benefits of milk: "For building bones, milk is a better choice than calcium-fortified juices...because strong bones need other nutrients found in milk like magnesium, phosphorus, vitamins A and D, and protein."

Another advertorial (*Chatelaine*, Sept. 2001, p. 67) may also serve to inform parents that children who consume meals at home consume more calcium compared to children who do not eat their meals at home. Surprisingly, 73% of meals were eaten at home, according to the National Eating Trends study (NET) of the eating patterns of Canadians (NPD Group, 2002). The advertorial suggested that eating on the run is a growing trend (6% of dinners are "ready-to-eat" meals from restaurant

and 6% are fresh/frozen “packaged” meals, according to NET). Parents were advised of the importance of making wise food choices when eating out, and especially to encourage the consumption of milk over soft drinks.

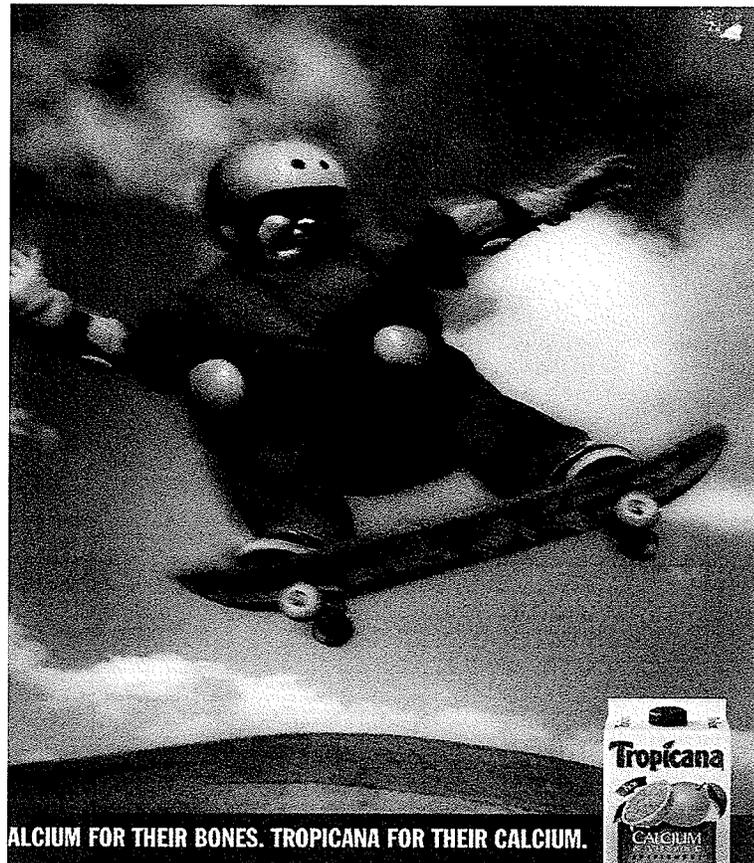


Figure 5.14. *Tropicana*. (*Chatelaine*, Mar. 2000, p. 43).

Discussion of Calcium-Related Themes

Thematic analysis of the 24 issues of *Flare* magazine, targeting 18 to 34 year old women, and *Chatelaine* magazine, targeting women of ages 25 to 49 years, revealed that the majority of the calcium-related messages contained useful

information. Even though there were few calcium-related items in *Flare*, the overall message, that bone health is important, was similar to that in *Chatelaine*.

Figure 5.15 illustrates the association between the six themes discussed in this chapter. The calcium messages offer practical information on calcium and osteoporosis. The messages educate women on improving bone health or promote behaviours that would accomplish this. The four centred themes provide essential information for optimizing bone health. The first theme, *milk, as a nutrient-rich food*, stressed milk's multiple nutrients, most notably calcium, and explained the role of these nutrients in both bone health and overall health. The next theme listed *alternative sources of calcium* if requirements cannot be met by consuming enough milk and milk products. Products were offered, such as calcium supplements, calcium-fortified orange juice and soy beverages, mostly through advertisements. As well, information was provided on particular foods that can be included in a healthy diet to specifically aid in reducing the risk of developing osteoporosis. *Chatelaine* readers were alerted that some foods such as rhubarb, salt, soft drinks, alcohol and caffeine may interfere with the absorption of calcium, and directions were given on how to avoid *inhibitors of calcium absorption*. Not surprisingly, this theme was acknowledged in editorial content only. Finally, *exercise*, and occasionally weight-bearing exercise, plays an important role in strengthening bone and reducing the risk of osteoporosis.

The messages were intended to benefit the women reading the magazines and, to a lesser extent, their children. This is shown by positioning these last two themes on either side of the figure. Healthy bones begin in childhood and adolescence and

the theme of *children*, appropriately offered in the mature women's magazine, encourages parents to consider the importance of bone health for their children. This message was often conveyed through advertisements, suggesting, for example, that drinking milk flavoured with chocolate mix will result in children benefiting from milk's nutrients. Another message to magazine readers is that it is not too late to *take charge (of your own health)* even if bone health has been suboptimal, with the centred themes providing the strategies to reduce the risk of osteoporosis to achieve optimal bone health.

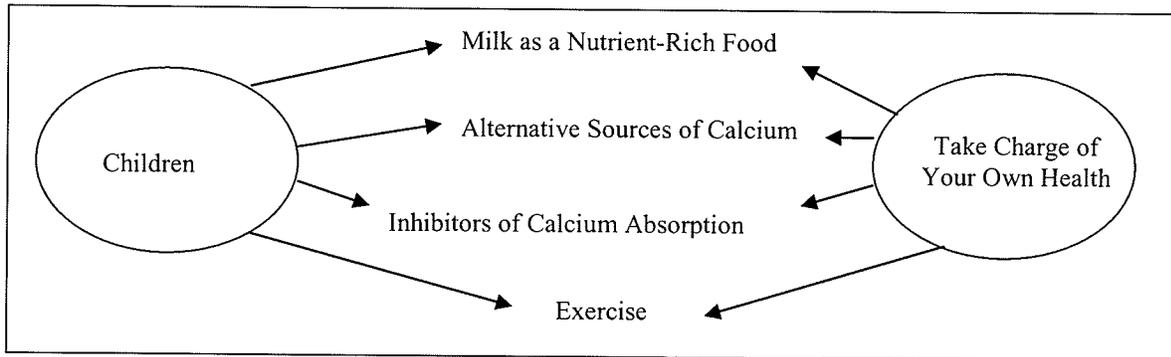


Figure 5.15. Promotion of bone health - Association between calcium-related themes.

The majority of the calcium messages were conveyed through advertisements. This format is useful because it may catch the readers' eye as they skim through the magazine. If visuals in such advertisements as *Milk Gives* (Figure 5.1), *Tropicana* orange juice (Figure 5.9), or *Nesquick* (Figure 5.13) spark an interest in the reader, as they are intended to do, the reader may learn something about nutrition as well as the product. From an educational perspective, editorial content has more of an opportunity to educate and inform, given the increased amount of text that can be

presented in this format. However, educational benefit can be gained as well from smaller pieces of information presented in advertisements.

The majority of the messages under the theme of *milk as a nutrient-rich food*, for example, were conveyed through advertisements. Furthermore, most of the items were sponsored by the dairy industry. A common feature was an advertorial written by a registered dietitian, utilizing purchased space to educate/inform readers on nutrition and dairy-related topics (Personal communication, I. Neiderer, May 18, 2004). The purpose of all dairy industry advertisements is to sell their products. Regardless of their motive, the recurrent exposure to such information, as well as the dairy logo with “quality milk” a part of many advertisements, serves to remind readers of milk.

Presenting information on *alternative sources of calcium* when calcium requirements cannot be met through consumption of milk or milk products is beneficial to readers because they can make informed decisions about how to meet calcium needs. This theme was the most prevalent theme in *Chatelaine* but was not discussed at all in *Flare* (see Table 5.1). Although there was more editorial coverage of this theme compared with the theme *milk as a nutrient-rich food*, advertisements still dominated coverage.

Although the theme *inhibitors of calcium absorption* received the least coverage of all themes, it provided critical information, through editorial content only, broadening knowledge regarding food choices containing calcium. The information on colas, for example, is important because of the increase of colas displacing milk as a beverage, as previously mentioned. Not only is the phosphoric

acid in colas inhibiting calcium absorption but also more people are drinking more cola instead of milk. Studies have shown that teens consume more carbonated soft drinks than milk (Forshee & Storey, 2003; Rampersuad et al., 2003). Readers of *Chatelaine* are offered information about the possible association between increased cola consumption and increased risk for bone fractures. There were no items with this information found in *Flare* magazine.

Considering what an important role *exercise* plays in achieving peak bone mass, it is disappointing that so few items on this subject, dominated by advertisements, were found in either magazine type. Numerous studies spanning three decades document support for the benefits of physical activity, particularly of weight-bearing nature, in prevention of osteoporosis (Bailey et al, 2000; Cromer & Harel, 2000), but this is not reflected here. Considering that so few items offered the exercise message as related to osteoporosis, it is noteworthy to mention that an advertisement featured in Figure 5.12 contained a misleading calcium-related message. This advertisement suggested that exercise would make osteoporosis “disappear” when in fact it will only protect against the risk of a fracture. Nevertheless, most of the exercise-focused messages made a positive contribution with references to the benefits of exercise for bone health.

The theme *take charge of your own health* was found only in *Chatelaine*. Although not extensively promoted (this theme came up seven times), it does contain items that may motivate the reader to act. Editorial content was the primary source of information for this theme which encouraged readers to follow up and utilize that information. Among the items previously mentioned, one was particularly well-

developed and presented well-balanced information; the article “Bone Bank” (*Chatelaine*, May 2001, p.63) explained overall bone health in great detail, utilizing a banking analogy, a common activity, to make its point.

The theme of *children* was found only in *Chatelaine*, in 16 items. The items were age-appropriate in that mothers were being offered messages about the importance of their children’s bone health. The items are significant because they serve to keep the issue of bone health at the forefront, crystallizing to parents the consequence of bone health in childhood and adolescence, and not just in adulthood when osteoporosis may present itself. Most of the coverage was through advertisements such as *Nesquick* that aim to sell their product by emphasizing how fun it is to drink flavoured milk, however, the fact remains that once consumed, the flavoured milk contributes to children’s bone health. One could argue that it is beneficial to enhance the flavour of milk if this gets children to consume it. Research has found that children and adolescents who drank flavoured milk had higher total milk intake than children who did not drink flavoured milk (Johnson et al., 2002). However, concerns have been expressed that flavoured milk may produce, in children, a taste preference or dependence for the flavoured milk (Johnson et al.). Gussow (1972) suggests that drinking adulterated milk may have a lasting effect on children, that is, they may become dependent on this synthetic product and will never be able to enjoy the taste of milk itself.

Similarly, it is debatable whether *Viactiv Soft Chews*, discussed above, are an appropriate form of a calcium supplement (see Figure 5.7). Researchers recommend that supplements should be considered for individuals who are not consuming enough

calcium from food products (Cromer & Harel, 2000; Dawson-Hughes et al., 1991). As such, the *Viactiv Soft Chews* have an important role to play from a nutrition perspective, as do the *Jamieson Supplements* featured in Figure 5.6. However, the *Viactiv Soft Chews* are disguised as candies. Gussow (1972) warns that linking candy with vitamins is “dangerous” and “nutritionally insidious,” because of the possibility of confusing candies and pills. This may apply to adolescents who may be considering taking calcium supplements.

Another questionable issue is the use of a weight-related strategy to appeal to consumers. The advertisement for *Jamieson* calcium supplements, for example, seen in Figure 5.6, takes advantage of a weight-related message to attract the reader. This advertisement makes a positive contribution to increasing calcium intake yet explicitly uses “zero calories” to draw the attention of dieting readers. *Viactiv Soft Chews*, featured in Figure 5.7, relies on the use of a slim model to promote the calcium supplement. As mentioned earlier, advertisements such as these may speak directly to readers who would consider taking supplemental calcium in order to avoid consuming the calories contained in a glass of milk.

Nonetheless, the majority of the calcium-related messages found in *Flare* and *Chatelaine* magazines provided useful and informative information. Even though there were few calcium-related items in *Flare*, the overall messages were similar to those in *Chatelaine* in reinforcing the importance of bone health. Some items focused exclusively on osteoporosis while others incorporated calcium-related information as part of an overall feature on disease prevention or general health. Others utilized calcium-related information to sell other products such as milk-flavouring mixes.

Therefore, readers who may not be looking for calcium-related information are inadvertently exposed to osteoporosis-related messages if they look at such types of magazine content (Radimer, 1996). For example, the previously mentioned “guide to good health, foods that beat disease” (*Chatelaine*, Jul. 2000, p. 52) focused on other issues or diseases but included osteoporosis.

Similar to Korinis’ (1996) research, this study found more calcium-related messages in magazines for mature women compared to the magazines for younger women. Korinis (1996) also found that this message was predominately aimed at women who are beyond the age where optimizing peak bone mass can be beneficial. Very few calcium-related items were found in *Flare* even though it targets women aged 18 to 34 years who are at the prime age to capitalize on the opportunity to maximize their bone density. The majority of calcium-related messages were found in *Chatelaine* whose audience is at the age where rate of bone loss exceeds bone gain and the opportunity to enhance bone density has passed. It is important to note, however, that looking at the thematic content of the calcium messages demonstrates that it is more complex than the comparison of the numbers of messages would suggest. The thematic analysis demonstrates that some of the messages in *Chatelaine* are intended to inform parents about the benefits of milk consumption for their children. While the absence of messages in *Flare* is striking, providing information to parents could be one way of reaching adolescents, thereby the provision of age-appropriate messages in *Chatelaine* is achieved to a degree. Only looking at the numbers of calcium-related messages, as Korinis (1996) did, exaggerates the inappropriateness of the content. Thus, this study’s examination of the content of

calcium-related messages provides a better understanding of the quantitative comparison. To my knowledge, this is the first study to analyze content of calcium messages.

Studying the content of the calcium messages in *Flare* and *Chatelaine* has demonstrated generally informative coverage. The information was practical and concrete, and in *Chatelaine* it was often thorough. Some messages were focused on children's bone health and were thus age-appropriate because they provided advice for readers' children. However, messages directed to the youthful readers were inadequate considering the significance of calcium to this age group. Those messages that were directed to younger readers had a much greater emphasis on weight which will be discussed in the following chapter. Future directions where nutrition professionals can fill a gap in working towards increased coverage of calcium messages in magazines targeting young women, such as *Flare*, will be discussed in the concluding chapter of this thesis. Preceding that, however, the following chapter will present the weight-related themes.

CHAPTER 6

Thematic Analysis of Weight-Related Themes

This chapter describes the weight-related themes presented in two Canadian women's magazines during 2000 and 2001. Discussion will reveal that although weight-related messages in both magazine types had a similar focus, there were some differences.

These messages were categorized into four themes listed in Table 6.1. The 43 items that had more than one theme were included in both categories. The table also indicates the presentation format for the themes. Overall, the themes were similar in both magazines, however only *Chatelaine* contained messages related to the theme of *preventing obesity*. In contrast to calcium-related messages where advertisements dominated (64%), weight-related messages (70%) were conveyed mostly through editorial content.

Table 6.1.

Form and Frequency of Weight-Related Themes by Magazine Type

Themes	<i>Flare</i>					<i>Chatelaine</i>				
	Ads	Articles	Columns	Bullets	Total	Ads	Articles	Columns	Bullets	Total
<i>Promoting the Thin Ideal</i>	23	1	0	9	33	16	2	1	5	24
<i>Achieving the Thin Ideal</i>	36	26	0	28	90	45	34	7	15	101
<i>Self-Acceptance</i>	8	2	0	11	21	8	9	2	1	20
<i>Prevention of Obesity</i>	0	0	0	0	0	0	2	0	2	4
Total	67	29	0	48	144	69	47	10	23	149

Note. The 43 items that had more than one theme were included in both categories.

Promoting the Thin Ideal

The theme of *promoting the thin ideal* proliferated throughout both magazines reiterating the message that **society expects women to be thin**. Many messages explicitly suggested that a thin body type is the ideal for which to strive. This theme appeared more frequently in *Flare* (33) than in *Chatelaine* (24) even though *Chatelaine* contained more pages within its 24 issues. The push towards attaining the thin ideal was pervasive. To reach the “pinnacle of success [through diet and exercise]” referred to in a bullet in *Flare* (Aug. 2000, p. 109) is indicative of such a message.

A recurring feature in *Flare* magazine titled “Trendspotting,” exemplified this theme. For example, one issue focused on clothing with plunging v-necks. The fashion-focused feature utilized visuals to illustrate the latest trend (see Figure 6.1), with this particular issue featuring a picture of the anorexic- looking actress Jane Leeves. Those pictured with Leeves appeared to be very slim, with Leeves taking it to the extreme. The readers’ attention may be inadvertently directed to Leeves’ bony physique which overpowers the visual, begging the question of whether or not the trend refers to the v-neck outfits or the desirability of thinness? One reader (*Flare*, Aug. 2000, p. 28) commented on this article in a letter to the editor to “start taking responsibility for what they are portraying as beautiful. Young women read your magazine and are very influenced by what you print.”

On the surface, an advertisement for a nutrition bar in *Flare*, seen in Figure 6.2, made a contribution to healthy eating to achieve a healthy body weight by offering a meal replacement when time does not allow for meal preparation.

However, this information may be overshadowed by the visual of the advertisement; the image of a man and a woman embraced, the smiles on their faces indicative of happiness and contentment. In large print, the headline of the advertisement stated: “great bodies don’t have to require great sacrifice.” Spending time with a man is apparently more important than taking the necessary steps (preparing a healthy meal with ‘real’ food) to achieve optimal health, therefore, “when time is of the essence” this nutrition bar will be a meal in and of itself. Incidentally, the slender, elongated bars symbolize the thin, long bodies that are so coveted by many in Western society.

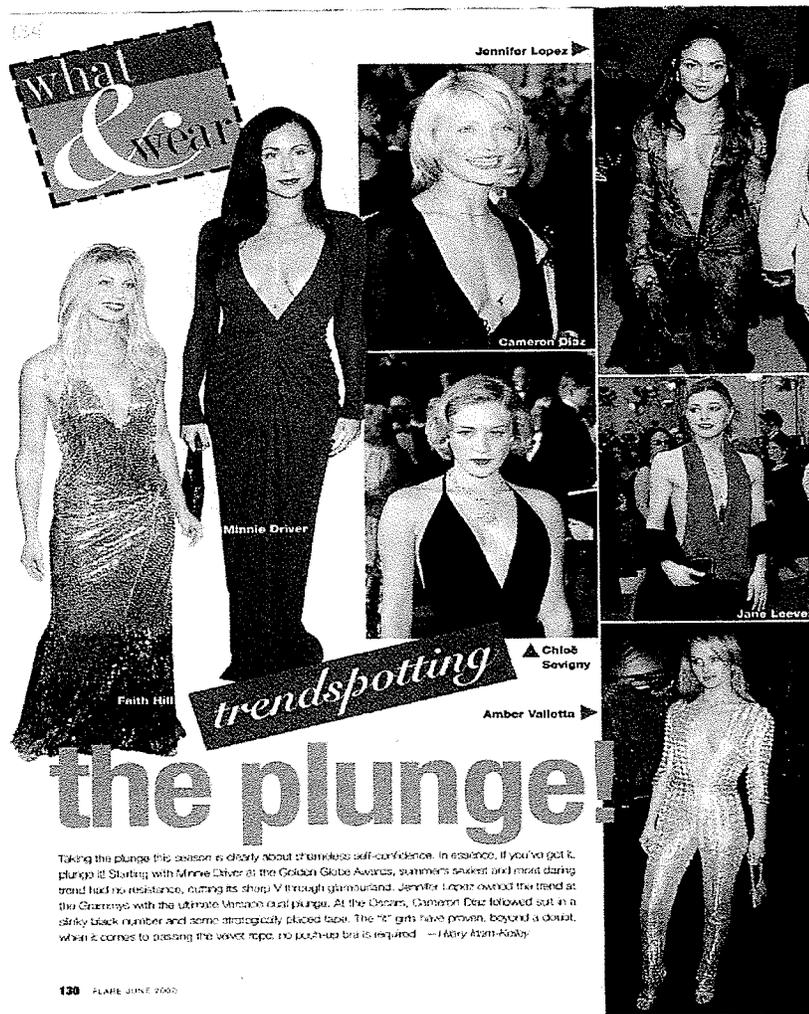
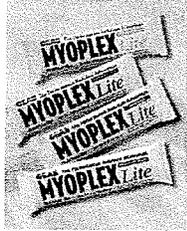


Figure 6.1. Trendspotting. (*Flare*, Jun. 2000, p. 130).

Great Bodies Don't Have to Require Great Sacrifice

When time is of the essence and nutrition is a priority—
The new Myoplex Lite™ Performance Nutrition Bar from EAS, Inc. has been scientifically formulated to support your body's requirements for quality nutrients, day in and day out. Each bar helps support stable energy levels by providing complex and simple carbohydrates, high-quality protein as well as 23 vitamins and minerals.

EAS products are available at GMC, Sears Health Food and Fitness, Nutrition House, better gyms, pro shops and other fine health food retailers.

To find the retailer nearest you call 1-877-551-8455 (Dept. 3001) or visit us online at www.upper50th.com/vrmain.htm

EAS
is the Official Presenting Sponsor of the
FITNESS CANADA
PAGEANT

Figure 6.2. Performance Nutrition Bar. (*Flare*, Sept. 2001, p. 125).

A final example to illustrate the obsession with the thin ideal is the advertisements for skin-firming lotions. Ironically, the magazine targeting younger women had more such advertisements than the one targeting older, more mature women. These women being targeted by the magazine are physiologically young to begin with and have skin that is already taut. Hence, most young women do not need these products, yet they are being promoted to them at an early age. While

advertisements for firming lotions focused on skin, the visuals that accompanied the advertisements were of thin models, implying firming and toning of the entire body. An advertisement for skin cream found in both magazine types and included for the impact of its visuals is shown in Figure 6.3. It is apparent that the model is extremely slim with minimal body fat on her, however clothespins are used to pinch the fat, creating the undesirable dimples. The implication is that the skin/fat being pinched is excessive and should be gotten rid of with the aid of the advertised cream. The unmistakable message, according to Wilson and Blackhurst (1999) is that “women’s bodies cannot be thin enough and even very thin women must worry that their bodies are too fat!”

VICHY
LABORATOIRES

D-STOCK
Lipo-Refining Gel-Cream

Visibly reduces the appearance of dimples* by 23.5% in 1 month.

An exclusive formula using Gradual Release Technology that allows a continuous release of ingredients. With glucose-catcher and lipo-refiner. Hypoallergenic. With Vichy Thermal Spa Water. Exclusively in drugstores.

NEW
gradual release technology

1-866-DR-VICHY

VICHY. HEALTH IS VITAL. START WITH YOUR SKIN.
www.vichy.com

Figure 6.3. *Vichy D-Stock Lipo-Refining Gel-Cream.* (Flare, Jul 2001, p. 49).

Achieving the Thin Ideal

While the previous theme promoted the notion that society expects women to be thin, the theme of *achieving the thin ideal* discusses the **various strategies offered to women in order to achieve that thinness**. Included are diet and diet products, food choices, exercise, and promotions to change appearance.

Diet and Diet Products

Items relating to diet and diet products were common throughout both *Flare* and *Chatelaine*, transmitting the message that thinness can be achieved through dieting and/or through the use of diet products. Almost every issue of every woman's magazine contains content that focuses on dieting and weight control (Hill, 2002). *Flare* and *Chatelaine* were no different. Of all the weight-related items found, 27% contained information that pertained to dieting. An advertisement for *Weight Watchers* found in both *Flare* and *Chatelaine*, suggested that dieting is tough to accomplish on one's own. Therefore, a dieter needs the support of other dieters to get through such a monumental task. *Weight Watchers* is there to provide a supportive network. Although Figure 6.4 illustrates the cleverness of the advertisement and is certainly eye-catching, from a different perspective, the hands did not appear to extend out in a supportive gesture. Rather they appeared to be grabbing as if to restrain the dieter's hand before 'she' grabs a food prohibited. The support of the group leaders and fellow members (also known as dieters) will help the member to "stay-in-control" thereby suggesting that without their help, the dieter will be out of control. Controlling their weight is one way women can exert power over

their lives (Kilbourne, 1994) yet *Weight Watchers* implied that women cannot even do that on their own. This encourages the notion that women are helpless beings.



©2001 Weight Watchers International, Inc. All rights reserved. The name of the WEIGHT WATCHERS trademark. All rights reserved.
Figure 6.4. *Weight Watchers.* (*Flare*, Mar. 2001, p. 26).

Another advertisement for *Weight Watchers* used the power of food to appeal to the reader/potential dieter, thus further exploiting women's preoccupation with weight. Figure 6.5 shows pictured foods that are typically enticing but quite often

seen as 'bad' (French fries, hamburger, pizza, brownie) and that many women often feel guilty about eating. This contradiction assures the reader that they *can* have any food they "crave" while on this program. Through the visual images and written messages, *Weight Watchers* encourages women to eat (McCracken, 1993) and achieve the kind of thinness exemplified in the model's physique. Thus, many find themselves continually overwhelmed and battling the temptation of so called 'bad' foods, while also being socially condemned for their overindulgence (Bordo, 1993).

10 POINTS

9 POINTS

8 POINTS

5 POINTS

2 POINTS

0 POINTS

On 1•2•3 Success, Weight Watchers' easiest plan ever, **enjoy** any food you crave because every food has a POINTS® value.

Just stay within your daily POINTS range (typically 22 to 29) and lose weight.

Just get started with our whole new approach to weight loss: **the new 10% difference!**

Join now: call 1-800-651-6000

"Have you been to Weight Watchers lately?"
—Sean, Duchess of York

Weight Watchers
1 2 3 SUCCESS
www.weightwatchers.com

©1999 Weight Watchers International, Inc. All rights reserved. WSC#01/04/03 #20 is the registered trademark of Weight Watchers International, Inc.

Figure 6.5. *Weight Watchers*. (Flare, Jan. 2000, p. 37).

While the aforementioned advertisement suggested that successful dieting requires a helping hand, implying that it is difficult to accomplish, the slogan for this advertisement read “enjoy any food...and lose weight,” it is the “easiest plan ever.” Sarah, The Duchess of York, a high-profile spokeswoman for *Weight Watchers* featured in this advertisement then asks: “Have you been to *Weight Watchers* lately,” implying that people ‘return’ to *Weight Watchers*. These two statements are contradictory. Despite being the “easiest plan ever” people return because they have been unsuccessful at achieving or maintaining weight loss. Indeed, there is an abundance of research demonstrating that diets do not usually work long term. (Anonymous, 1995; Green et al., 2000; Hyman et al., 1993; Miller, 1999). *Weight Watchers* understands this phenomenon because the programs are continuously revamped so that people will want to return to try their luck at weight loss again with the “new” *Weight Watchers* plan. *Weight Watchers* is a multimillion dollar business that is there to make a profit. Because people fail time and again, their profitability is ensured with ‘repeat customers.’ That said, *Weight Watchers* is not responsible for people’s failure. However, they are taking advantage of the phenomenon of unsuccessful dieting schemes and those who covet the thin ideal.

Another common advertisement found in both magazine types was for the *Slim-Fast* plan. This advertisement is also noteworthy for its profusion of mixed messages. Eye-catching at first glance was the milkshake-like beverage which is *Slim-Fast* (see Figure 6.6). This overt imagery symbolized the wide/big dieter that slims down (like the glass narrowing) as the “plan” progresses. The beverage looked like a frothy milkshake, known to be a high-calorie food item that is usually taboo for

weight loss. Again the advertisers used a forbidden food and transformed it into something 'allowable.' Of equal prominence was the headline of the advertisement which spoke declaratively to the reader: "It's okay if you want the body of a 19-year-old girl. Hey, it's okay if you want the body of a 19-year-old boy." *Slim-Fast* was telling the reader that it is "okay" to lose so much weight that your body will no longer look like a girl but rather a boy's; the physical features that define a woman's body, "the hourglass figure emphasizing breasts and hips- the markers of reproductive femaleness" (Bordo, 1993), were no longer relevant. On the one hand, *Slim Fast* was implying that if you get the body of a 19-year-old girl, you will be thin enough to get the "pool boy." On the other hand, the reference to a male body again implied a control issue. By stating that the male look is okay, the advertisement suggested that consumption of *Slim-Fast* will lead women to achieve some control. According to Kilbourne (1994), women are told that they must be more like men in order to achieve success, particularly in business. Men have traditionally been believed to be the ones "in control." Bordo (1993) suggests that the boyish look may symbolize liberation from a reproductive destiny that draws attention to protuberant body parts (enlarged breasts and stomach). However, it could be viewed that a reference to the male figure represents uninhibited eating. "Men are supposed to have hearty, even voracious, appetites," writes Bordo (1993). While men eating expansively are deemed socially acceptable, the implication of the diet plan for women inhibits a healthy, hearty appetite. Finally, the advertisement suggested a woman can find "balanced nutrition" with the consumption of the *Slim-Fast* beverage, because it contains many nutrients. However, a healthy eating 'plan' ideally involves following

Canada's Food Guide to Healthy Eating, not a meal replacement product. The advertisers were implying that the basic principles of healthy weight loss should be discarded and replaced with a beverage!

It's okay if you want the body
of a 19-year-old girl.
Hey, it's okay if you want the
body of a 19-year-old boy.



However lofty, or lusty your weight-loss goals are, there's no reason you can't achieve them. You just need to have the right attitude. And the right plan.

The Slim•Fast Plan is a great way to start. Get going with a Slim•Fast shake for breakfast, one for lunch,

and follow it up with a sensible dinner. After a week of the

Slim•Fast Plan, don't be surprised if you lose a

pound or two. You can take your Slim•Fast shake

to work, the gym, even when



you're out watching construction workers work up a

sweat. With every delicious sip

you're getting an excellent source

of protein, Calcium, Iron and vitamins

A, B, C, D & E. It's like having a nutritionally balanced

meal. Just remember the Slim•Fast Plan also includes drinking plenty of water, snacking on fruits and vegetables,

and adding some physical activity into your routine.

Physical activity can be anything. Go for a walk, shop

for an entirely



new wardrobe, or chase

the pool boy around

the backyard. You know,

that sort of thing. Losing

weight isn't impossible.

you just need a goal, the

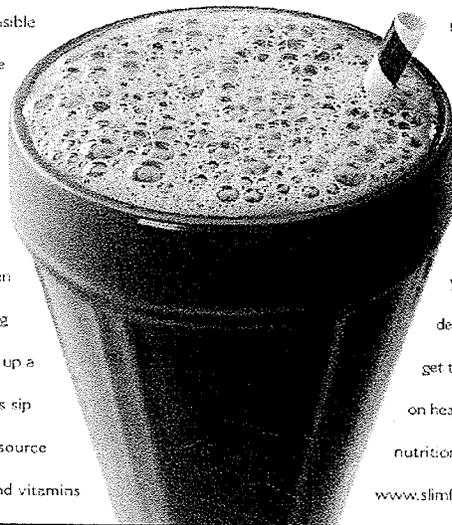
desire to reach it and a plan to

get there. For more information

on health and

nutrition visit

www.slimfast.ca



BALANCED NUTRITION AS PART OF A HEALTHY LIFESTYLE.

© Registered trademark. Used under license by Uniforce Canada. © 2001 Slim-Fast.

Figure 6.6. *Slim-Fast*. (*Flare*, Jun. 2001, p. 93).

Photo by Brian Davis

Styling by Zazu

Makeup by Renata

Body by Jenny Craig

*Results not typical. Offer ends 4/30/00. ©2000 Jenny Craig, LS code: CHAT. PGM code: Z1.

Carol Cooper lost 35 lbs. in 4 months* with Jenny Craig and got a great new look.
CALL 1-800-314-2226 or **CLICK** on www.jennycraig.com. Bring this ad with you to local Jenny Craig Centre and get 30 days FREE, plus the cost of food.

Figure 6.7. *Jenny Craig*. (*Chatelaine*, Apr. 2000, p. 181).

Chatelaine featured an advertisement for the *Jenny Craig* weight loss plan although you would not know what it was at first glance. The advertisement (see Figure 6.7) looked like a fashion advertisement partially because “Body by Jenny Craig” is splashed boldly in front of the ‘model,’ as might be done for a line of clothing. Nonetheless, this was a weight loss program in which the ‘model’ lost 35 lbs. in four months. The visual suggested that the reader too can have that body and

achieve that weight loss by going on this weight loss plan. The before-and-after ‘pictorial’ symbolized this. Research has shown that such before-and-after diet advertisements increase weight stigma and contribute to the perpetuation of damaging stereotypes about overweight people due to the impression that people can easily control their weight (Geier et al., 2003). A legally required disclaimer stating that “results are not typical” was included in the advertisement. This requirement indicates the promised success is unlikely to be achieved on this plan. The more striking and larger visual image eclipses the apparent disclaimer (McCracken, 1993) such that the reader may not even notice the disclaimer. Intriguingly, the ‘before’ picture showed the successful dieter in a wedding gown. Indeed, this woman was able to get a man in spite of being overweight. All too often, magazine content suggests that a woman will catch her man only *if* she loses weight. But now that this woman has lost the weight, she may only be able to keep her man if she maintains that weight loss!

An advertisement from a pharmaceutical company, in *Chatelaine*, suggested that if you lose a little weight you will feel great. The implication here (see Figure 6.8) was that being at the weight that you are makes you physically feel unwell; thus being overweight is pathologized and weight loss treatment is the prescribed cure for this malady. Surprisingly, the model in the visual was not typically thin. The reader was not being exposed to a thin model who purportedly feels the need to lose weight. Frequently, readers are exposed to the images of thin female models in advertisements or articles to illustrate the kind of person who needs to lose weight.

What is more surprising is that the model, like the bride in the previously discussed advertisement, appeared to be relatively happy despite her weight.



LOSE A *little weight* AND
PRETTY SOON YOU'LL NOTICE
HOW GREAT *you feel.*

There are weight loss treatment
options now available to help you.
Talk to your doctor today.

Figure 6.8. Roche. (*Chatelaine*, Jan. 2000, p. 33).

A second version of this advertisement, seen in Figure 6.9, depicting a mother playing with her daughter, stated that “losing a little weight could help you ...enjoy life more...” The visual in both Figures 6.8 and 6.9 suggested that this woman was definitely enjoying life with her daughter. Life with a few extra pounds was not so bad! Bordo (1993) adds that the portrayal of mother and daughter in the context of a

weight loss advertisement suggests that the daughter is a “dieter in training.” The little girl may eventually diet herself because “mothers do influence their daughters’ attitude toward weight” (Field et al., 2001). Worthy of note is the fact that each advertisement included a picture of a scale. Is it a coincidence that a scale resembles a clock? Given time, you will lose weight; given time, you will gain the weight back since diets/diet products do not work in the long term, as previously stated.



TRYING TO *lose weight?*

LOSING A LITTLE WEIGHT *could help you*
 FEEL BETTER, *enjoy life MORE,*
 AND *lower YOUR cholesterol AND blood pressure.*

Call 1-888-281-8777 to speak with a nurse and receive free information on proven weight loss treatments including personalized support programs or visit our website at www.123justask.com.
 There are solutions. Just ask your doctor.

© 2000 Roche. Approved provider of Metformin for the U.S.A.

Figure 6.9. Roche. (*Chatelaine*, Oct. 2000, p. 59).

Diet-related content often offers a quick-fix scheme such as ‘lose x amount of weight in x amount of time.’ Usually it involves a large amount of weight loss in a

very short period of time. One example of such a diet was a four-week plan (Jun. 2001, p. 74), a “mini makeover” found in *Flare* magazine that advocated a nutritious diet, yet suggested the reader avoid the consumption of carbohydrates that have been processed because “it will lead to bloating.” This may suggest to readers that processed foods cannot fit into a healthy lifestyle when Canada’s Food Guide to Healthy Eating advocates all foods in moderation. “Steer clear of dairy...when trying to lose quick pounds” was an erroneous message stated by the article because consuming dairy food has been shown to be positively associated with weight loss (Zemel, 2004; Zemel, 2003a, Zemel, 2003b). What’s more, suggesting a “quick” weight loss is ill advised because a slow approach at weight loss of 1-2 lb per week has been found to be reasonable and may increase compliance to the plan (American Dietetic Association/ Dietitians of Canada, 2000). This article encouraged the reader to “go on a diet” even though diets are no longer considered to be effective. Numerous studies have shown this to be the case (Goodrick & Foreyt, 1991; Kassirer & Angell, 1998). Another diet (*Flare*, Dec. 2000, p. 110) encouraged rewarding the dieter with taboo foods for “working so hard” thereby perpetuating the vicious cycle of eating too much, gaining weight, attempting weight loss and again rewarding with food. Society needs to get away from the ‘d’ (diet) word in terms of weight loss because permanent weight loss involves a ‘lifestyle change’ that will lead to reducing health risks (Brownell, 1999).

Food Choices

The making of appropriate *food choices* is another strategy to achieving the thin ideal. This was reiterated time and again sending the message that food choices bring consequential results.

An advertisement in *Chatelaine* for Canada's Food Network (Nov. 2000, p. 253) used the slogan, "watch what you eat." On a superficial level, the advertisement was promoting three television shows. On a deeper level, the implicit message posed a stern warning to be careful of both the kinds and amounts of foods eaten. The clever pun may be harsh because it is a reminder that we always need to watch every morsel of food that goes into our mouths. In making use of this kind of strategy of implied reprimanding for eating too much or eating a 'bad' food, the advertisers were exploiting women's dominant discourse regarding their failure to achieve thinness and perpetuating the cycle of guilt and shame (Wilson & Blackhurst, 1999).

Common to both magazine types were four versions of an advertisement for *Crystal Light* beverages. "All water should be so lucky," stated one version of the advertisement (*Chatelaine*, Jul. 2001, p. 145). While this advertisement encouraged masking the taste of water as if it were bad, it indirectly encouraged the drinking of water through the consumption of the flavouring product. The back page of the advertisement provided a detailed promotion of the benefits of water consumption. Another version suggested that adding *Crystal Light* to plain water was a "delicious and refreshing way to help increase your fluid intake." Advertisers should be applauded for educating readers on the importance of water consumption. One could argue that advertisements such as these serve to remind the reader of the old adage

that you are what you eat (drink) (Wilson & Blackhurst, 1999). The advertisers of *Crystal Light* capitalize on the fact that many women are obsessed with weight loss and thinness, and may be implying that drinking this product will contribute to a woman's lightness.



Figure 6.10. *Harvest Crunch.* (*Chatelaine*, Jul 2001, p. 37).

Chatelaine had two versions of an advertisement for a low-fat cereal (see Figures 6.10 and 6.11). The focus of the advertisement was on the cereal being

“lighter,” with the visual of one of the advertisements depicting cereal floating in the air due to its ‘light’ weight. In the other advertisement, the entire box of cereal was floating. Thus, the subtle implication being that you also will be lighter if you eat this cereal. The emotional heights that women reach in their association with food may also be depicted here. Figure 6.11 suggests that weight loss is out of reach without the help of this lightened cereal. The advertisement did not enlighten the reader as to the health benefits of eating a lower fat food rather it served to further remind the reader that they should be concerned with their weight.



Figure 6.11. *Harvest Crunch.* (Chatelaine, Dec. 2001, p. 59).

An advertisement for fat-free muffins stated “Pinch yourself, while you still have something to pinch” (see Figure 6.12) suggesting that by eating this product, extensive weight loss will be achieved. Loss of all body fat will be the result with nothing left to pinch. This leads one to believe that having no body fat at all is a preferable condition and may exacerbate the readers’ longing for the elusive, unattainable thin ideal (Wilson & Blackhurst, 1999).

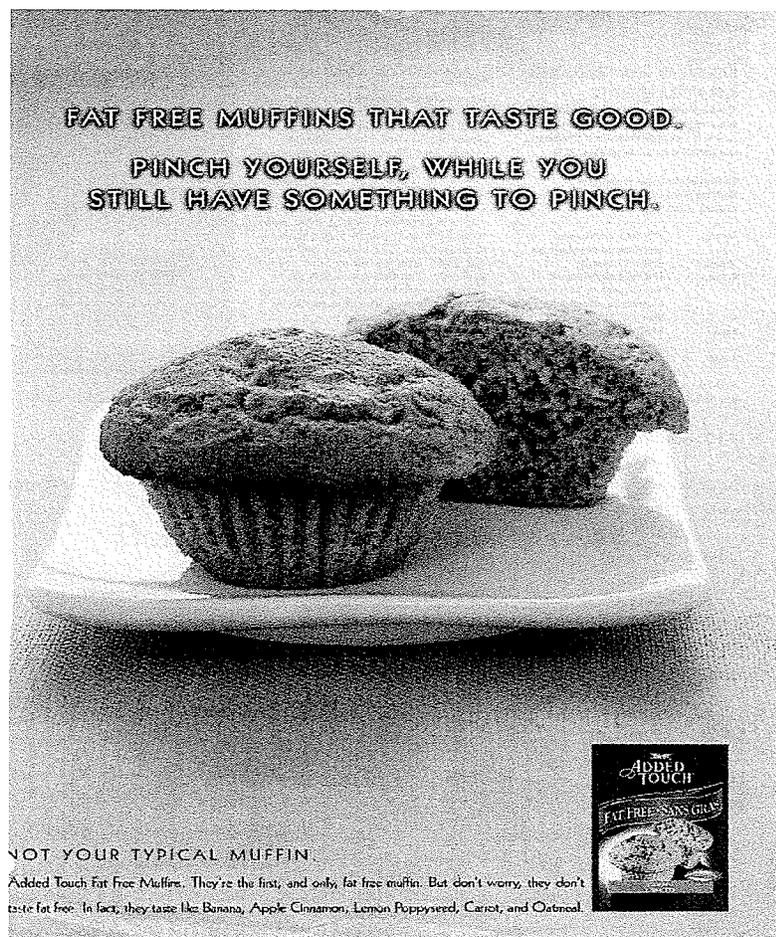


Figure 6.12. *Added Touch* (Muffins). (*Chatelaine*, Feb. 2000, p.111).

An advertisement for Becel margarine describes a couch as being “big, soft and squishy, just like you’re going to be if you don’t GET UP.” It is understood that

these qualities are undesirable, and to resemble the couch would be shameful (see Figure 6.13). What *is* desirable is thin and firm which can be achieved through exercise and a healthy diet that includes, of course, the margarine. By utilizing overt warnings about the consequences of unrestrained eating and lack of physical activity, advertisers stir up the culturally embedded fear and disgust of fat, further intensifying women's anxieties about their bodies. Additionally, the absence of a body in this food advertisement reflects the cultural taboo against the large female body. Advertisements seldom portray fat women directly but rather through symbolism and imagery, thus inducing and manipulating women's fears of becoming fat (Wilson & Blackhurst, 1999).

Notwithstanding, some items did provide important nutritional information to readers through a review of Canada's Food Guide to Healthy Eating (*Chatelaine*, Oct. 2001, p. 28), or the clarification between "good carb, bad carb," thus dispelling some of the confusion that may exist between simple and complex sugars (*Chatelaine*, Jan. 2001, p. 35). However, these items often contained references to weight. For example, beans, according to an article in *Chatelaine*, are a "nutritional powerhouse" and "being full of beans is good for your ...waistline" because beans are very filling so "you're less likely to overeat" (*Chatelaine*, Oct. 2001, p. 20). Eating a high-fibre diet helps keep the "waistline in check" stated another bullet (*Chatelaine*, Feb. 2000, p. 46). Items such as these utilized the written medium to transmit important information to consumers, yet all too often there was some implication of the need or interest for weight control. It is important to have a healthy body weight in order to

reduce the risk of diseases but terms used, such as keeping the “waistline in check” connote weight preoccupation.

Can't beat exercise and a smart diet. One that includes Becel margarine. It's low in saturated fat, trans-hydrogenated and recommended by more doctors and dietitians as part of a heart-healthy lifestyle. Visit www.becelcanada.com for small changes that can make a big difference.

becel takes your health to heart.

Figure 6.13. *Becel Margarine.* (Chatelaine, Jul 2001, p. 99).

Exercise

Items relating to exercise sent the message that women should engage in exercise as a means for achieving thinness. By virtue of burning calories, losing weight or shaping up, women will attain the desirable look. According to a bullet in

Flare (Feb. 2000, p. 50), women need to exercise because they cannot “hide under that mohair poncho forever.”

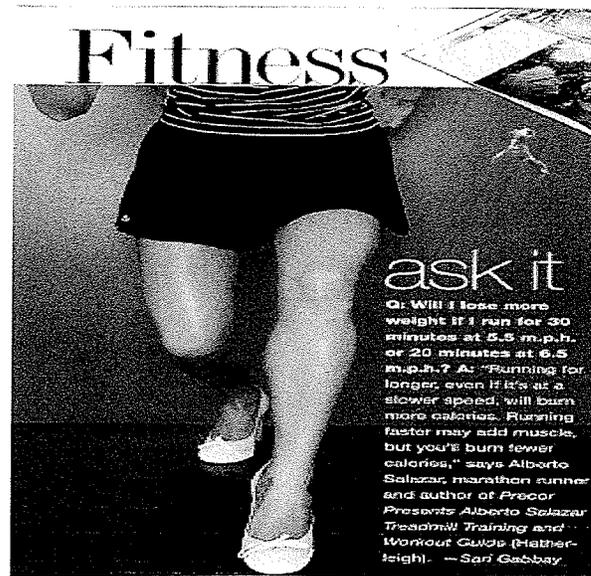


Figure 6.14. Running in high heels. (*Flare*, May 2001, p. 102).

One bullet in *Flare*'s question-and-answer segment discussed the merits (as related to weight loss) of running 30 minutes at 5.5 miles-per-hour or 20 minutes at 6.5 miles-per-hour. The information was appropriately given, discussing burning calories versus building muscle. The written component was rather innocuous, however, the visual accompanying this information was of a woman running in a short skirt with high heels (see Figure 6.14). The implication being that women are supposed to make an effort to look attractive at all times, even when they are partaking in physical activity, which in many cases is being done for the purpose of improving physical appearance rather than to improve health. A visual such as this trivializes women's participation in physical activity and tends to focus attention on superficial concerns such as how women look while exercising (McCracken, 1993).

Flare was sending the message that running can aid in weight loss, but ultimately remains an activity for males. Thus, it “perpetuates the stereotype of sports for women as a type of frivolous recreation” (Kaiser, 1979).

“Anyone can get a ballet bod” according to a featured workout video (Aug. 2001, p. 62) in *Flare*. This is an example of how the thin ideal was perpetuated through exercise messages. It is well documented that ballerinas often have disordered eating habits evident in severe dieting practices, a preoccupation with food, and are often extremely underweight (Abraham, 1996; Druss & Silverman, 1979; Martin & Bellisle, 1989). By encouraging readers to strive for the very thin body synonymous with ballet dancers, *Flare* was advocating for, and helping to perpetuate, the excessive thinness among young women. The writer spoke directly to the reader, emulating the style of “girl talk” (Wilson & Blackhurst, 1999) and interestingly, justified the exercise routine as a means for being able to “gain a better sense of self.” Research has shown that many women do not have a healthy/positive sense of self, in other words, a feeling of being worthwhile. Therefore, many subsequently turn to dieting and exercise as a way to transform themselves. Losing excessive amounts of weight gives them a false sense of feeling better about themselves. In doing so, they gain a sense of control over themselves that, through the image of waif-like fragility, reflects societal expectation of what feminine women should be (Kilbourne, 1994).

The health editor for *Chatelaine* magazine dared herself to shape up because she “didn’t want to be a mother who couldn’t keep up with her kids, who couldn’t swing from the monkey bars and do fun stuff like the 20-something moms (Feb.

2001, p. 66).” In her article, entitled “waist not,” she claimed to have the admirable goal of wanting to increase her fitness level. However, her second goal was to drop one dress size in six weeks. For her, it was a “measurable goal and a trophy of accomplishment” to get into a pair of size-eight jeans. The weight loss goal seemed to be the true impetus for increasing her physical activity. She was exercising in order to achieve the level of thinness that size-eight jeans provided. The epitome of success was measured by the achievement of this goal. As the health editor of the magazine, she may be considered a role model and an authority figure by many women. Hence, the message that exercise will help get you thinner is given credence by her so-called expertise.

At this juncture, it is worth mentioning another component of the exercise message. One advertisement, appearing in both *Flare* and *Chatelaine*, focused on relieving the guilt-ridden despair that follows any indulgence. Figure 6.15 illustrates a collaboration between *Nike* and *Sportchek* featuring a visual consisting of a piece of cake over which is superimposed over a linear scale measuring the guilt factor by the length of the run (exercise). In other words, the longer you run to burn off the calories, the less guilt you will feel about indulging in the decadence of a piece of cake. The text was explicit in targeting the core of many women’s low self-esteem as it relates to guilt by stating: “you know you can make every ounce of guilt disappear” by exercising after you eat. Such a powerful message advocates behavior congruent with eating disorders: the need for immediate compensatory behavior (exercise) to undo the damage done (weight gain) by consuming a piece of cake. The advertisement spoke nothing about the health benefits of exercise but only focused on

getting rid of the guilt and weight. Additionally, the *Nike* shoes mentioned in the advertisement were referred to as “a dessert-loving gal’s best friend” inferring the association that women turn to food for comfort and the emotional needs found in ‘human’ friends.

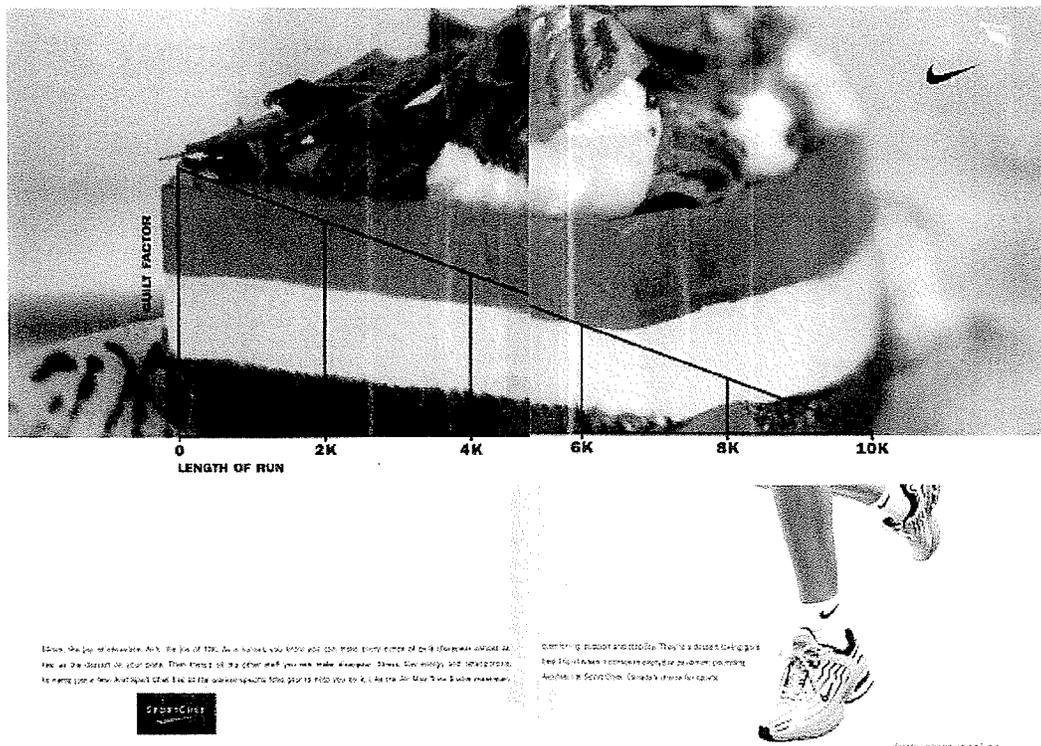


Figure 6.15. Nike/Sportchek. (*Chatelaine*, Jul 2001, p. 50).

It is fascinating that while promoting exercise as a means to achieve weight loss for the benefit of achieving the thin ideal, items found in *Flare* tended to utilize descriptors that had a negative connotation to them. For instance, “grueling cross-training” (*Flare*, Feb. 2001, p. 107) was used to prompt readers to exercise outside. According to Webster’s dictionary, grueling is defined as “trying to taxing to the point of exhaustion; punishing.” A bullet in *Flare* (Feb. 2001, p. 64) suggested taking a

walk in snowshoes (versus a treadmill), stating that you can “maintain a punishing pace” burning up to 1000 calories per hour. Making exercise seem so difficult may put someone off from engaging in physical activity with the opportunity to gain the health benefits of fitness being lost. On the other hand, a reader with an eating disorder who believes she needs to punish herself because she thinks her body size makes her worthless may engage in “grueling” exercise for punishment. Frequently people describe foods as ‘bad’ and anything bad deserves punishment. Is exercise a punishment or is it an activity that rewards you with good health? Or does it simply become the cost/sacrifice to attain the thin ideal?

Promotion to Change Appearance

The magazines reinforced the thin ideal by promoting the need for changing appearance. The notion that physical flaws are unacceptable by society’s standards and should be changed or hidden was exemplified through 15 items, 9 of which were found in *Flare*. *Flare* was extremely blatant in its aversion for so-called physical imperfections. For example, a two-page spread focusing on suits that will “keep any figure flaw under wraps” (Mar. 2001, p. 116) promised that the suit could “whittle your waist; conceal your tummy; minimize your hips or elongate your torso.” This “quintessential suit” was presented as the panacea that all women who are made to feel dreadful about their bodies have been looking for! What’s more, the suit, styled for power, symbolizes success, and its gendered association with successful men is obvious. If women wear the suit, they too can feel they are successful.

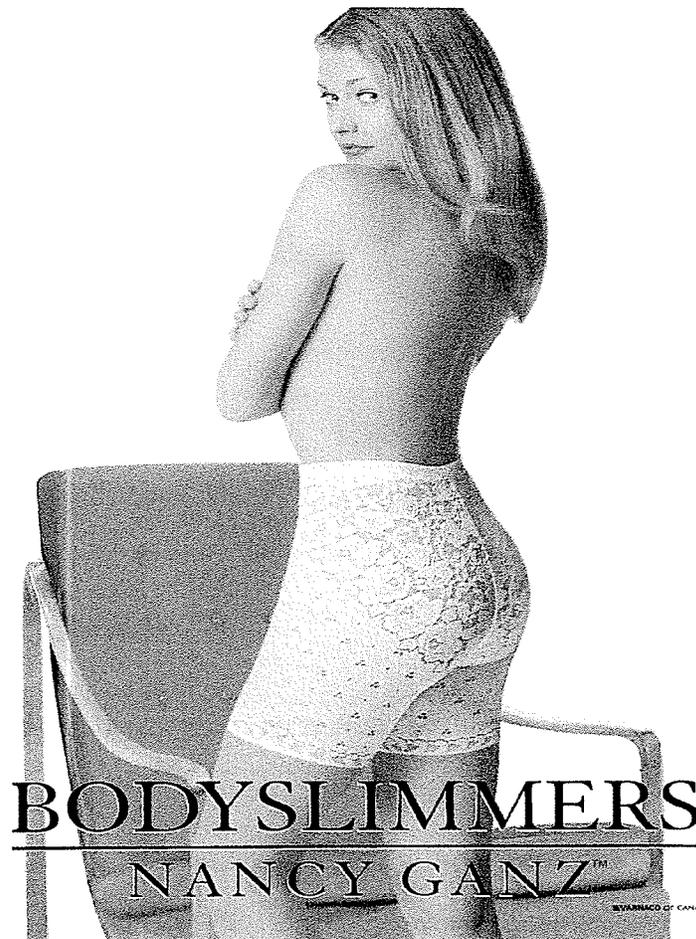


Figure 6.16. *Bodyslimmers.* (*Flare*, Apr. 2001, p. 49).

Advertisements appearing in *Flare* for undergarments such as *Bodyslimmers* and *Body Wrap Lites* offered other slimming and controlling solutions. The undergarments will slim, tone and mould her into a desirable shape, helping women to perceive their body images more favourably. Interestingly, the models pictured in the advertisements appear to be rather slim, not oversized figures that have been coerced into flawless shapes by the undergarments they have on (see Figures 6.16 and 6.17). Again this emphasizes that the natural shape of a women's body seems to be inadequate.

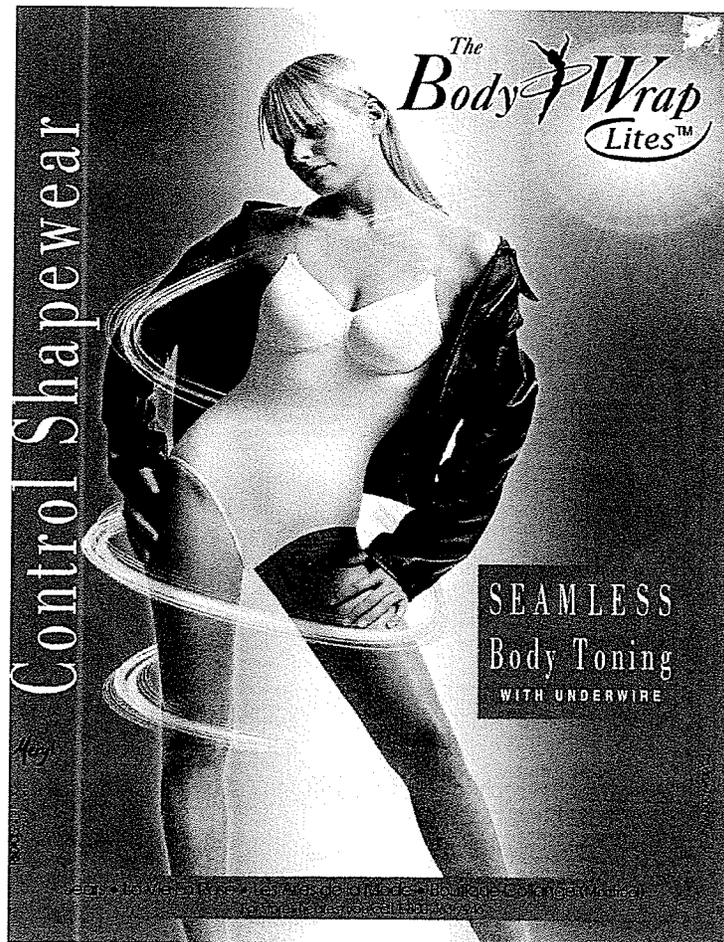


Figure 6.17. *Body Wrap Lites*. (*Flare*, Dec. 2001, p. 137).

Should the waist be the focus of obsession, *Flare* offered two articles on the corset in its fitness feature. One (Dec. 2001, p. 136) suggested that inhaling and lacing up can achieve the illusion of an hourglass figure. The second (Nov. 2001, p. 88) criticized the ill-effects of squeezing the torso tightly, such as breaking ribs, but stated that designers continue to create corsets because, according to one designer's belief, "women would be willing to suffer a bit for a flatter tummy." Apparently, women are willing to endure physical pain (in addition to emotional pain) and risk

bone fractures to meet societal expectations for their appearance. The designer condones women's desire to conform to appearance expectations, even if it results in broken ribs. In view of the author's belief that corsets will be out-of-style fairly soon, she offered a solution: an "inner corset" consisting of building up specific muscles to form a natural corset. By training the inner core muscles, a woman can shrink and shape her waistline naturally, because "once you're used to their [corset] slimming powers, it will be difficult to retreat to a rounder tummy and a wider waistline."

While the "inner corset" promotes a physical manipulation of muscles, the real corset is physically binding and quite simply, dangerous. Both articles promoted the harmful message of shrinking the waist and changing one's appearance as opposed to toning muscles for health reasons, such as skeletal support, improved balance, etc..

According to an article in *Flare* (Jul. 2001, p. 74), the "summer's challenge" of getting into a bathing suit is a time of "horror," "misery" and "desperation" because when people see you in a bathing suit they will "help you complete your annual inventory about everything you would remodel on your bod." The article implied that anyone who dares to wear a bathing suit must have a suitable body to 'pull it off' otherwise the necessary steps, such as weight loss, must be taken. If weight loss or any attempt at physical alteration were unsuccessful, the hope remains because the appropriate bathing suit "lifts, conceals..." and deceives scrutinizing eyes. This kind of text sends a powerful message to readers: you are in imminent danger of having your body exposed as disgusting and loathsome (Wilson & Blackhurst, 1999).

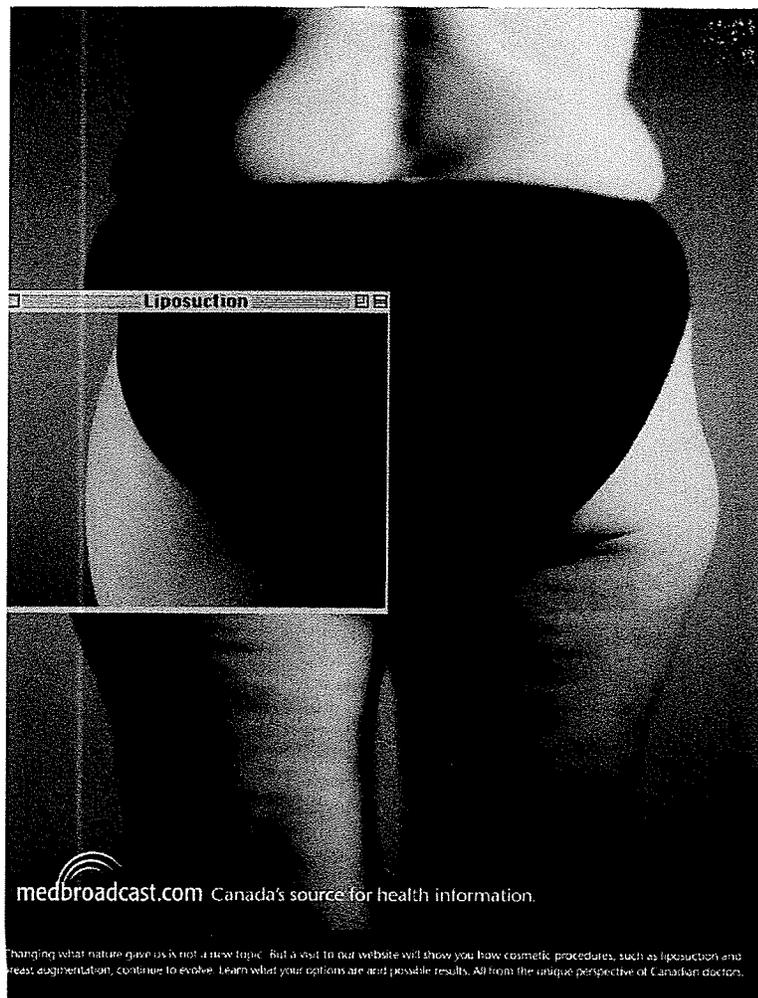


Figure 6.18. Medbroadcast.com. (*Chatelaine*, Jun. 2000, p. 49).

An article in *Chatelaine* approached the issue of physical imperfections from a different perspective. *Chatelaine* diplomatically advised readers to use clothing to draw attention to certain parts of their bodies and away from others (Sept. 2001, p. 30). One could argue that *Chatelaine*, in this instance, was actually suggesting to readers to accept what physical qualities they have and dress with clothing that is appropriate for those qualities. In actual fact, *Chatelaine* was suggesting clothing (specifically skirts) that will hide the imperfections. According to McCracken (1993), magazines often urge readers to feel inadequate so that a product remedying

the situation can be purchased. The magazines channel readers' desires for attaining ideal bodies into the need to purchase consumer goods and in making these external changes, a "new person" emerges (McCracken). For example, the "bottom slimmer" skirt had an "asymmetrical design that disguises a large bum." The "belly smoother" skirt had flat-front panels to "minimize a full tummy." The "curve control" skirt had a "generous swingy shape (that) camouflages wide hips," and so on. The vernacular was clear, the connotations all negative: "disguises... minimize...camouflages... draw attention away from... covers up." Thus, for any flaw a woman might have, *Chatelaine* had the skirt to deal with it. If a woman cannot change her appearance physically, she can modify the clothing to flatter her figure by making new purchases.

Although *Chatelaine* featured fewer items on this topic, an advertisement in *Chatelaine* for medbroadcast.com (touted as "Canada's source for health information") was particularly disturbing. The visual (see Figure 6.18) depicted buttocks that appeared full and oversized with a leaner version of buttocks in front. The advertisement promoted the liposuction procedure to transform buttocks full of cellulite to one that is smaller, smooth and cellulite-free. The advertisement was encouraging surgery for the sake of improving appearance, indicative of the degree to which society's disgust with bodily bulges has been elevated (Bordo, 1993). If this is a legitimate Canadian health agency, then it is alarming that this health source was promoting this message. A Canadian health source was not telling the reader to accept yourself as you are, that cellulite is a natural state of progression for the human female body. Instead, it was offering a medical procedure that has some serious health risks associated with it, such as thromboembolism, abdomen/viscus

perforation, cardiorespiratory failure and death to only name a few (Grazer & de Jong, 2000). Furthermore, the advertisement stated that doctors provide the information at this website. Who can you trust if not a doctor? Doctors dispense information about cosmetic procedures that further indoctrinate the thin ideal into the psyche of women, perpetuating the socially created insecurities burdening many women.

Preventing Obesity

The message that **obesity is a serious health problem** was found in *Chatelaine* only, and only in four items. One article (*Chatelaine*, Mar. 2000, p. 32) discussed how oversized portions were creating oversized people. The “obesity delivery system” goes into high gear with promotions such as “buy one, get one free...” Entitled “supersize your thighs,” the article talked about how the food industry was enticing people to purchase mega-sized food portions in order to get the best value for their money. Consumers pay a hefty cost with their waistline when they eat “unhealthily large quantities of nutritionally challenged food.” This article made a positive contribution in its frankness regarding the role played by the food industry in increasing consumers’ risk of obesity.

Three items stated that childhood obesity was a serious health problem. It is interesting that several advertisements for chocolate-flavoured milk and orange juice focused on children’s bone health as mentioned previously, yet the number of items related to childhood obesity indicate *this* issue has not become a concern.

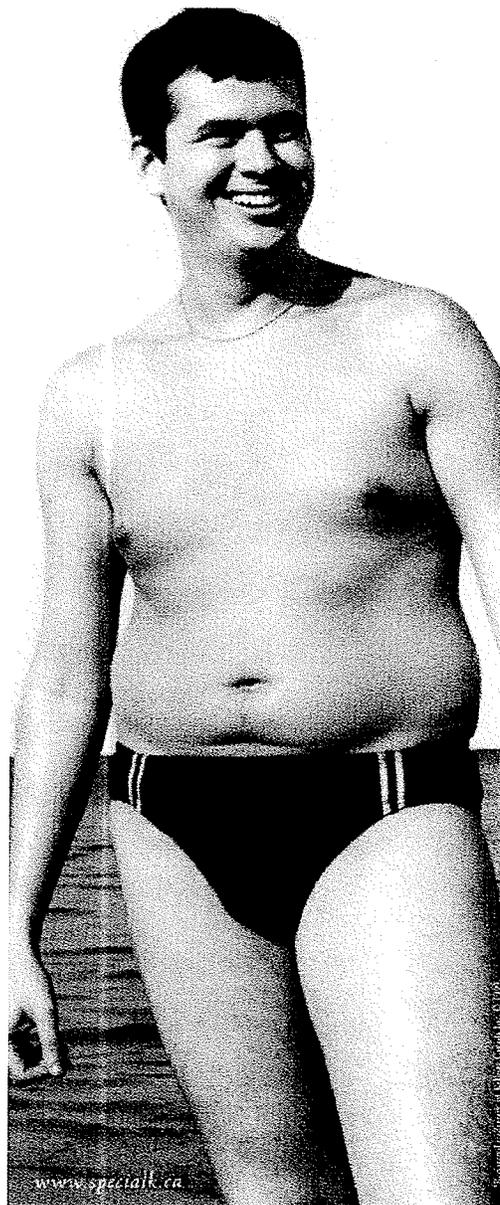
In an article entitled “fat like me” (*Chatelaine*, Mar. 2001, p. 38) the writer recalled what she went through as a fat child and her experiences with dieting. Her solution: physical activity, also known as “playing.” Children do not play like they used to. Now playing involves sitting in front of an electronic game or computer. Another item (*Chatelaine*, Sept. 2000, p. 48) reiterated this sentiment: the main reason for the increasingly high numbers of overweight children is likely due to “lack of physical activity. Not enough running around and too much time sitting in front of a screen.” The underlying message: prevent childhood obesity in order to prevent obesity in adulthood.

The importance of obesity is evident in the fact that obesity has reached epidemic proportions in North America, with childhood obesity on the rise (Cummings et al., 2002; Rugg, 2004; Wadden et al., 2002). Yet limited coverage of this topic highlights the need to address this problem.

Self-acceptance

In contrast to the above trends, the theme of *self-acceptance* was also based on items found within the two magazine types. The positive message of **accept yourself as you are** was conveyed in 41 messages. Among them was an advertisement in *Chatelaine* for Kellogg’s *Special K* cereal that epitomized the message of self-acceptance. In fact, as Figure 6.19 illustrates, the title blatantly asked “you accept his imperfections. Why not your own?” This advertisement defied conventional trends in advertising: one that did not promote a product by attempting to undermine self-confidence. Rather, it encouraged the reader to “be happy with who you are” and

“start feeling good about you...” The message was clear and direct; there was no need to read between the lines. Such a ‘pep talk’ may have an impact on readers who have succumbed to societal pressures to achieve the thin ideal.



YOU ACCEPT HIS IMPERFECTIONS. WHY NOT YOUR OWN?

Fact is, not one of us is perfect. Not you. Not your husband. Not the girl on the cover of this magazine. Wouldn't it be nice if we could be as accepting of ourselves as we are of others? Be happy with who you are. Be strong and healthy. Exercise, eat sensibly and go from there. Kellogg's® Special K® cereal now has two ways to start the day right. Original Special K cereal is a light-tasting, fat free cereal that also provides a good source of protein. New Kellogg's® Special K Fibre cereal has a delicious fibre crunch that is low in fat, a source of fibre and an excellent source of iron. So start feeling good about you, because everyone else already does.



Look good on your own terms.

Figure 6.19. Kellogg's Special K. (*Chatelaine*, Feb. 2000, p. 57).

An advertisement for workout clothes by Nike/Sportchek was found in *Flare*.

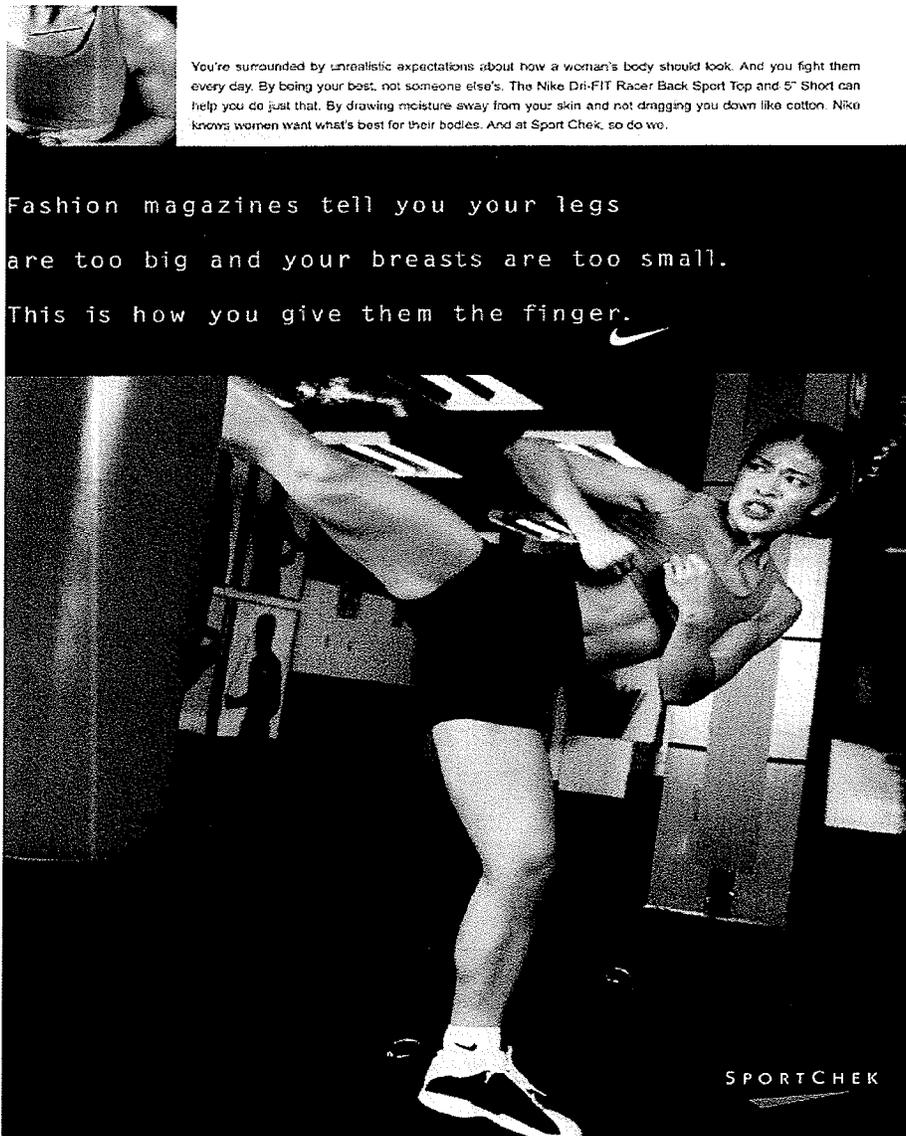
The advertisement was promoting workout clothing through its visual and textual

components, but it included another message as well: “Fashion magazines tell you your legs are too big and your breasts are too small. This is how you give them the finger.” As Figure 6.20 shows, the *Nike* logo was “the finger.” In much smaller print, but equally important, the advertisement stated: “You’re surrounded by unrealistic expectations about how a woman’s body should look. And you fight them every day. By being your best, not someone else’s.” Interestingly, the advertisers were making these statements in a magazine that does exactly that: bombard women with messages that normalize body dissatisfaction and weight preoccupation and that evoke guilt and shame about body size (Wilson & Blackhurst, 1999). This advertisement acknowledged society’s preoccupation with physical appearance but responded by encouraging readers to take action against society by doing their best with what they have. It attempted to empower women to respond to society with attitude, with “the finger.” *Nike* promoted its technically correct clothing as “drawing moisture away from your skin and not dragging you down like cotton.” *Nike* was encouraging women to be powerful. *Nike* was telling women to accept themselves as they are, thin or not, fit or flabby. Yet the model featured, not typically feminine, is rather thin, but fit. *Nike* could have affirmed their concern to be genuine by featuring a model without such physical qualities.

Flare surveyed its readers about their thoughts on, among other things, happiness and looking and feeling good (Jul. 2001, p. 59). Often the respondents were not happy with their bodies, or with themselves. Samantha stated “I’m not too happy because I am always feeling fat even though I’m not.” Kim declared “The only thing I would change right now is for me to be happy about my body...”

Fortunately, there were other perspectives. Shirley said “I work with what I have and what looks good on me” while Jieyearn responded with “I can look and feel great on my own terms.” These women clearly said they accepted their physical appearance for what it was. *Flare* presented these encouraging perspectives thereby giving the reader exposure to more positive role models. Readers can see that there are ‘real’ people out there who have come to terms with any physical limitations they might have and have learned to deal with them. In fact, in another item found in *Flare* (Aug. 2000, p. 46), the bullet explicitly stated: “reclaim your real self. Don’t pretend you’re... less hungry than you are.” In other words, be yourself, eat what you need to eat (to be healthy).

An article in *Chatelaine* (Oct. 2000, p. 95) presented a shopping guide for women who did not fit the standard sizes typically offered in stores. Just reading the title “size matters” may mislead readers into thinking this is just another article that focuses on body size and criticizes physical appearance. However, the article said size matters only in the sense that every body size should be regarded equally well, and clothes should be available to fit any size woman. This article reported that almost half of Canadian women were not able to find clothes that fit. Women should accept themselves in any size, and the *Chatelaine* author wanted them to have access to clothes that will give them the perfect fit.



You're surrounded by unrealistic expectations about how a woman's body should look. And you fight them every day. By being your best, not someone else's. The Nike Dri-FIT Racer Back Sport Top and 5" Short can help you do just that. By drawing moisture away from your skin and not dragging you down like cotton. Nike knows women want what's best for their bodies. And at Sport Chek, so do we.

Fashion magazines tell you your legs are too big and your breasts are too small. This is how you give them the finger.

SPORTCHEK

Figure 6.20. Nike/Sportchek. (*Flare*, Jun. 2000, p. 69).

In a final example to illustrate the theme of self-acceptance, an advertisement by Nike seen in Figure 6.21 used the visual of exercise and a play-on-words to encourage readers to *not* work on achieving the thin ideal but rather to make decisions about their weight that are appropriate for themselves. The advertisement, common to both magazine types, in two versions, stated: “thin is in if... you’re a cell phone or a maxi-pad.” Nike explicitly stated “there are better things for a woman to be. Fit.

Firm. Healthy. Strong.” Of course, the purpose of the advertisement was to sell the workout clothes featured in the visuals, and the textual message was in very small print. The fact remains that the messages *were* there (four times between both magazines) and the reader *was* being exposed to a positive message, for a change.

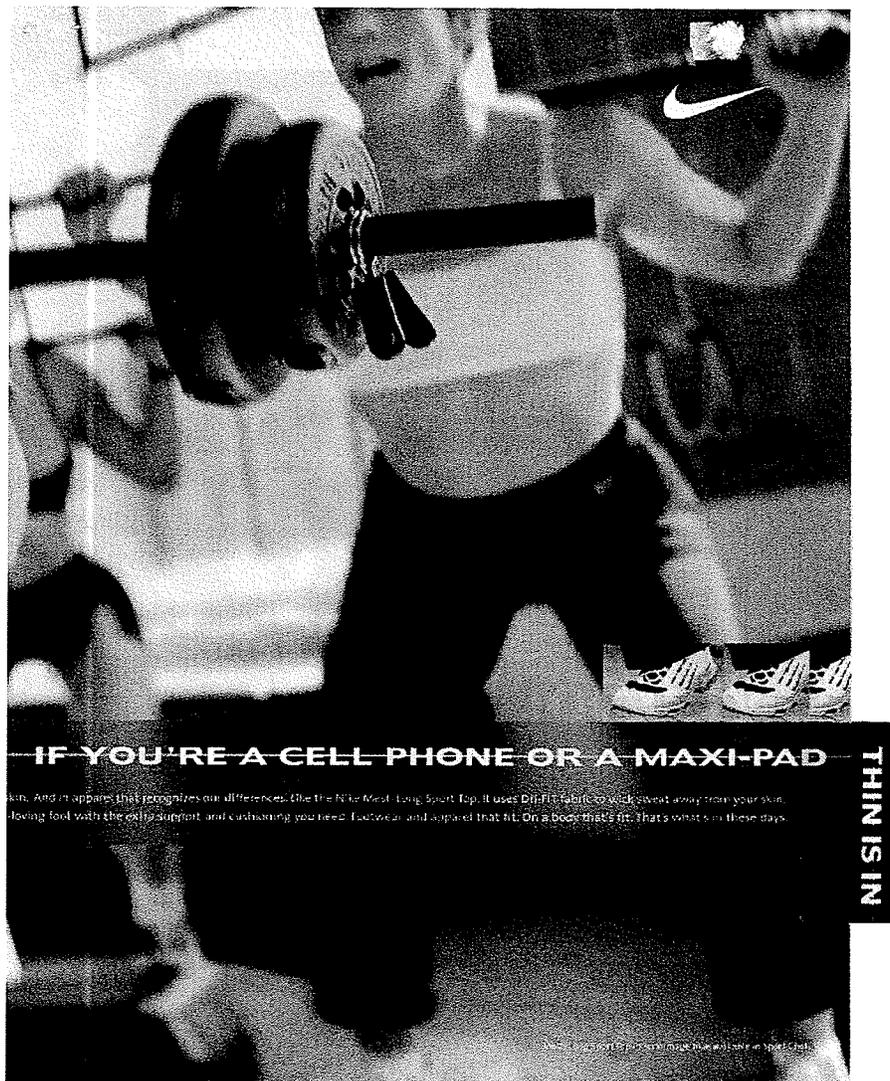


Figure 6.21. Nike. (Flare, Nov. 2000, p. 42).

Discussion of Weight-Related Themes

Thematic analysis of the 24 issues of *Flare* magazine, targeting 18 to 34 year old women, and *Chatelaine* magazine, targeting women of ages 25 to 49 years, revealed that the majority of weight-related messages focused primarily on weight loss. Figure 6.22 depicts the themes that were created from the weight-related items collected and the association between them. Given that the thin ideal was at the focus of most of the weight-related items (be it explicitly or implicitly presented), some items were found to promote the notion of thinness while others provided specific strategies through which to achieve that thinness, namely dieting and choosing certain foods, exercising and changing appearance. Thus, the association between the themes of *promoting the thin ideal* and *achieving the thin ideal* is clear. There is some connection between *promoting the thin ideal* and *preventing obesity* in that both themes focus on not having excess body weight. The theme of *self-acceptance* stands as an obvious contrast to the dominant over-arching theme of achieving thinness, as represented by the dotted line separating it from the other themes.

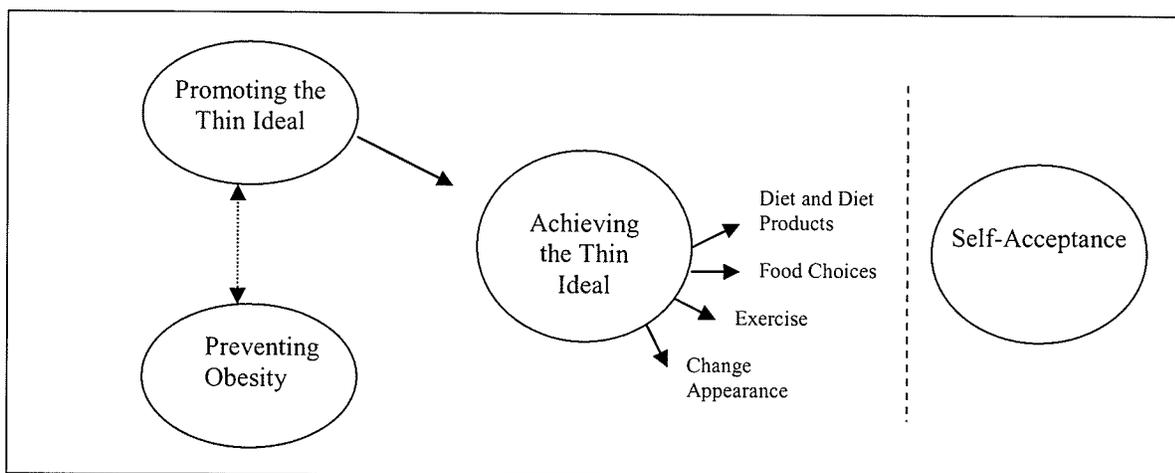


Figure 6.22. Interrelationship between weight-related themes.

The theme of *promoting the thin ideal* appeared more frequently in *Flare* than it did in *Chatelaine* (33 times in *Flare* versus 24 in *Chatelaine*). The content of the items was rather diverse, from visuals of an anorexic celebrity to meal replacement bars to body firming lotions, yet the message was inarguably focused on thinness. The message reiterated that society expects women to be thin.

Conversely, the theme of *achieving the thin ideal* occurred slightly more often in *Chatelaine* (101 times) than in *Flare* (90 times). When looking at the combined focus of *promoting the thin ideal* and *achieving the thin ideal*, the tally reveals a similar number of messages in *Flare* (123) and in *Chatelaine* (125). This highlights the fact that both magazines put equal emphasis on the thin ideal. Editorial content was used in both magazine types more than advertisements to provide readers with concrete information on ways to achieve the thin ideal. This suggests the importance placed on this theme reflective of the actual strategies provided, with detailed information that may not necessarily be presented in advertisements, such as four-week diet plans.

Diet and diet products appeared almost as many times in *Flare* as in *Chatelaine* (33 and 37 times respectively). Dieting is overtly glorified in magazines (Wilson & Blackhurst, 1999). The practice is promoted in a way that sensationalizes the behavior, as though to not partake would deem someone as not part of the 'in group.' Interestingly, *Chatelaine* alerted its readers to a startling statistic: 73% of women, in the year 2000, were on a diet (Jan. 200, p. 80), indicating to readers that dieting is extremely pervasive. Yet, *Chatelaine* continues to add fuel to the fire by covering weight loss extensively, likely because it is attempting to address the

interests of its readers. However, it is important to mention that, in *Chatelaine* more so than in *Flare*, some emphasis was placed on making appropriate food choices as a means to achieving weight loss, rather than only promoting a diet plan to achieve the same result.

Exercise was shown to be helpful in transforming/reshaping/toning the body. Information on exercise appeared twice as many times in *Flare* as compared to *Chatelaine*, illustrating the emphasis placed on exercise as a means to achieving the thin ideal in the magazine targeting young women. Of particular note was the perspective taken by both magazines on the use of exercise to absolve the guilt associated with eating (see Figure 5.12). This is something that resonates with many North American women (Gonzalez & Vitousek, 2004). Readers were also provided with tips for changing their appearance to hide physical flaws, as a shortcut to achievement of a degree of thinness. This is consistent with McCracken's (1993) suggestion that women are encouraged to loathe their own bodies. Magazines prompt readers to critically evaluate their bodies and be ashamed of parts that do not fit the established model. Regardless of how thin a woman may be, she is expected to continuously scrutinize her appearance and obsess over flaws and imperfections. Body dissatisfaction is "a fact of life" for many women (Wilson & Blackhurst, 1999).

The theme of *preventing obesity* merits recognition because of the increasing prevalence of obesity. Some believe the problem to be growing out of control, to epidemic proportions (Cummings et al., 2002; Rugg, 2004; Wadden et al., 2002). Childhood obesity, in particular, was the subject of three of four items. From a preventative perspective, this is crucial because of the importance of curtailing

obesity in childhood before it turns into adult obesity. In this case, weight loss for the purpose of reducing excess body weight and achieving a healthy body weight is appropriate. It is interesting that all these articles were in *Chatelaine*, but must be approached with sensitivity to the danger of eating disorders in young women. Increased awareness in this area is warranted.

The theme of *self-acceptance* was represented similarly in both magazines, with *Flare* having 21 messages and *Chatelaine* 20. This is commendable given the messages pervading the magazines with a focus on achieving thinness. Advocating self-acceptance goes against the grain of 'typical' magazine fare, with messages promoting feeling good about one's self, and focusing on fitness and eating well in order to be healthy. *Chatelaine* provided information on eating disorders, thereby alerting readers to a potentially dangerous aspect of striving for the thin ideal. This issue was completely absent from *Flare* despite the relevance of this information to its readers. Researchers have suggested that women's magazines may be an important influence in the development of disordered eating practices by promoting the thin ideal (Grogan & Wainwright, 1996; Hamilton & Waller, 1993; Pinhas et al., 1999; Stice et al., 1994). Yet offering this information in order to provide some degree of balance to the overwhelming presence of weight-related information is not being addressed in *Flare*.

As previously mentioned, the calcium message was not adequately provided to the age group who would benefit most from receiving it. In contrast, the weight-related messages were over-emphasized to both age groups. The overwhelming extent to which weight loss information was offered is unfortunate for many reasons,

including the relationship between weight loss and the risk for osteoporosis later in life.

To sum up, the focus of weight-related items found in *Flare* and *Chatelaine* magazines was primarily on weight-loss, promoting thinness as the ideal body type. The messages conveyed in both magazines types were persistent in their push towards achieving one particular body type, the thin physique. The underlying implication of these messages was that failure to achieve the ultimate goal of thinness will result in rejection by society. However, there seemed to be a break from the pervasive focus on thinness with a divergence to the theme of *self-acceptance*. These messages, of accepting oneself as you are without succumbing to the societal pressure to change, have not, to my knowledge, been reported elsewhere. The above-mentioned themes were similar to both magazine types, however, *Chatelaine* touched on obesity, albeit in only four items (two articles and two bullets), which cannot be overlooked.

Chatelaine offered a more critical perspective of the weight-related message as compared with *Flare*. *Chatelaine* made a positive contribution to women's health in terms of weight-related information in that some items found in *Chatelaine* did not focus on weight for the sole purpose of being accepted by society. Informing the reader of the risks related to yo-yo dieting, the benefits of walking, and the importance of label reading were but a few examples dealing with weight for the purpose of achieving health and to reduce the risk of diseases, whereas, *Flare* emphasized the societal desire for thinness. Both *Flare* and *Chatelaine* had an equal number of advertisements focusing on self-acceptance, however *Flare*'s editorial content on this issue was dominated by shorter items, that is, bullets, while

Chatelaine conveyed the self-acceptance message through articles. Despite the fact that both magazines have items that encouraged self-acceptance, *Flare* undeniably deems thinness as the preferred physical ideal. This is implied through the proliferation of images of thin women, not necessarily accompanying weight-related content, throughout the entire magazine, as previously stated.

Unlike the presentation of calcium content that was primarily addressed through advertisements, weight-related information was most often conveyed through editorial content. Thus, thinness was promoted through information pieces, not only through the sale of consumer products. Similar to the content of calcium-related advertisements, the advertisements focusing on weight were usually selling a diet or weight-related product. Hoggart (1970) contends that advertising is a “form of emotional blackmail” that strives to accomplish its goal of selling products by emotionally abusing its audiences. Given that people have fears, hopes, anxieties, aspirations, and insecurities, advertisers seek to capitalize on these feelings by playing on these emotions in order to increase the sales of products. Advertisers are skillful at manipulating consumers by “creating (possibly unnecessary) wants rather than satisfying needs” (Novelli, 1990). Women want to achieve thinness whether they need to or not and one way to move towards that goal is to restrict their intake of food (that is, buy into a diet plan) or buy diet products that will help achieve weight loss. Advertisements were used most often to promote diets or diet products. Contrary to the calcium-related advertisements, weight-related ones cannot be described as educational. The editorial content on weight loss was informational,

focusing on a variety of topics from diet plans, to clothing, to ways of hiding physical flaws.

Advertisements promoting thinness often used visuals as a tool to enhance the impact of their message on readers. Visuals are extremely important in the presentation of weight-related information because of the effect they can have on readers. Visuals are more crucial in terms of having an impact on readers than the textual content (Millum, 1975). Baker (1961) states that “people react to images as automatically... as a small child to a piece of candy.” Bovee and Arens (1986) suggest that “most readers of advertisements (1) look at the illustration, (2) read the headline, and (3) read the body copy, in that order.” Most of the items in *Flare* and *Chatelaine* included pictures of thin women. Furthermore, items were often symbolic of thinness such as long and thin meal replacement bars or toning lotions appearing in long and thin bottles. Elongated and thin cartoon caricatures were used to illustrate many of the items in these magazines.

Of note, some items identified as being weight-related also had a focus on calcium, including a few items that took the opportunity to implicitly send the thin ideal message while trying to promote a calcium-related message. An example of this is an advertisement promoting calcium supplements which utilized a thin model, as previously mentioned (see Figure 5.7). Advertisers took advantage of an issue (weight) that resonates with women to sell an unrelated product.

The above discussion delineated the weight-related messages resulting from a thematic analysis of messages found in *Flare* and *Chatelaine*. Weight-related coverage was pervasive in both magazine types, with the emphasis being on the

achievement of the thin ideal. A few attempts were made by the editors to encourage readers to attain some degree of balance, however limited the content proved to be.

The following chapter will conclude this thesis by providing a summary of the study's results including a review of the content and thematic analyses. Conclusions will be stated and implications of the results for dietitians and health educators will be discussed with insight as to where future research in this area can be focused.

CHAPTER 7

Summary, Conclusions and Implications

“The goal of women’s health risk coverage in the media should be to alert those who should be worried and reassure those who should not” (Lebow & Arkin, 1993). Clearly, those who should be worried are younger readers of *Flare* magazine because they fall within the age range when peak bone mass is achieved. Yet, as the results of this study confirm, they are not the ones being offered the calcium message. While calcium intake is important at any age, the time between 9 and 30 years is a critical period for maximizing bone mass accretion. This is a key time for this age group to be exposed to calcium information. The large volume of weight-related information in women’s magazines, most of which focuses on the thin ideal, is detrimental not only because it may increase weight preoccupation and risk for an eating disorder, but also because of the adverse relationship that may exist between weight loss and bone mass. *Flare* emphasized weight while providing limited calcium information. This inadvertently promotes a lifestyle that may increase the risk for osteoporosis. This chapter will summarize and elaborate on the conclusions formulated from the study’s findings of limited calcium and more weight-related messages in *Flare* magazine. The role of magazines in nutrition education will be promoted. This thesis will conclude with implications for dietetic professionals that may direct research into the future.

Society’s obsession with the thin ideal puts women’s health at risk. The goal of excessive thinness potentially jeopardizes women’s chances for achieving optimal health. More specifically, taking steps to lose weight may contribute to women’s loss

of bone mass and ultimately, osteoporosis. Granted, some women may benefit from weight loss in order to reduce the risk of co-morbidities associated with being overweight and/or obese, however, the unrelenting societal pressure to be thin may provoke some women to take weight loss to the extreme. Magazines play a significant role in perpetuating the thin ideal because they continuously present images reinforcing standards society currently deems acceptable. Cultural stereotypes pressure women to conform to the current societal standards for beauty that overemphasize thinness (Furnham & Alibhai, 1983). Kilbourne (1994) suggests that the media serve to “indoctrinate” society to the thin ideal. When looked at individually, advertisements (and articles and columns) may seem to have a trivial effect; researchers, however, suggest that the repeated exposure to these embedded messages may have a “serious, cumulative impact” (Ewen, 1976; Kilbourne, 1977; Williamson, 1978). Such a practice may bode well regarding calcium information because repeated exposure may lead to increased calcium intake, yet can instigate negative outcomes with respect to weight preoccupation as the thin ideal may be internalized (Stice et al., 1994) and may lead to excessive weight loss efforts. According to Wolf (1991), women are often deeply affected by what they read in magazines and believe the messages in them.

Summary

Given that young women report magazines as their most frequent source of nutrition and diet information, it was deemed important to determine what calcium and weight-related information was carried in Canadian magazines. Content and

thematic analyses were used to examine calcium and weight-related messages in 24 issues of *Flare* magazine, targeting 18 to 34 year old women, along with 24 issues of *Chatelaine* magazine, targeting women of ages 25 to 49 years. The purpose of the study was to determine the number and thematic focus of magazine content published between 2000 and 2001 and to compare the focus of messages being disseminated through those magazine items. The research questions proposed included: 1) Are there fewer calcium messages in magazines targeting young women as compared to magazines targeting mature women? 2) Are there more weight-related messages in magazines targeting young women as compared to magazines targeting mature women? 3) What are the calcium and weight-related messages in Canadian women's magazines? 4) Are these messages different, thematically, in magazines targeting young women and mature women?

Surveying the selected issues of *Flare* and *Chatelaine* magazines yielded 109 calcium messages. The vast majority (93%) of the items were found in *Chatelaine*, and most (64%) of them were in the form of advertisements. Of the remaining items, articles and columns (including bullets) each comprised 18% of calcium messages. *Flare* had only six advertisements and two bullets focusing on calcium-related topics. No articles or columns on calcium-related issues were found in *Flare*. For the most part, the messages relating to calcium in both magazine types were appropriately informative and provided readers with information about bone health and osteoporosis.

There were six calcium-related themes. *Milk as a nutrient-rich food* provided information on milk's many nutrients that the body needs. There are *alternative*

sources of calcium if daily requirements cannot be met through dairy sources. As well, information was provided on particular foods that can be included in a healthy diet to specifically aid in reducing the risk of developing osteoporosis. Conversely, readers were enlightened to the fact that certain foods are *inhibitors of calcium absorption*. Utilizing *exercise* as a means to reduce the risk of osteoporosis was a strategy discussed in a few items. Readers were occasionally encouraged to *take charge of your own health* by assuming responsibility for bone health. Finally, *children's* bone health surfaced in *Chatelaine*, the mature women's magazine, suggesting relevance to a younger audience.

I collected 177 weight-related items from the 48 issues of *Flare* and *Chatelaine* surveyed. Of the items found, 40% were in *Flare* while the remaining 60% were in *Chatelaine*, however, the difference was not significant. As previously mentioned, it is quite possible that including all the implicit images of thin women would have changed the results of the weight-related analysis for total items (explicit and implicit combined). Of all the weight-related information identified, 30% was in the form of advertisements, 32% comprised articles and the remaining 38% was presented as columns (including bullets). The majority of information was conveyed in editorial content rather than advertisements. Weight-related information focused primarily on losing weight in order to measure up to society's vision of the thin ideal, as opposed to achieving a healthy body weight to reduce the risk of disease.

The four weight-related themes that I created from the data collection process proliferated throughout the magazines. *Promoting the thin ideal* reiterated the societal expectation for women to be thin. In promoting this, the theme of *achieving*

the thin ideal offered an abundance of items that provided readers with strategies to achieve weight loss including diet regimes and diet products, discussion of food choices, exercise plans and schemes for changing appearance in some way. The importance of *preventing obesity* was touched on, notably in examples relating to childhood obesity, and only in *Chatelaine*, the mature women's magazine. Finally, contradictory to the above themes which make up the majority of items collected, some coverage was given to content that promoted *self-acceptance*, with a focus on feeling good about one's self and emphasizing health rather than weight.

Conclusions

The significance of the relationship between calcium and weight-related information crystallizes in regard to other research showing a possible link existing between weight loss and bone mass. Results of my study indicate that messages providing information on sources of calcium and osteoporosis prevention strategies were found mostly in *Chatelaine* magazine, the mature women's magazine. The Canadian magazine, *Flare*, targeting women aged 18 to 34 years offered fewer calcium messages than Canadian magazines aimed at women who are over 30 years of age. Thus, women who are past the age where they can maximize bone mass are sent calcium messages more often than those who have greater potential to increase their level of bone mass accretion. This is slightly ameliorated through the messages in *Chatelaine* that gave advice for children, although these constituted a minority of the total calcium messages (16 of 109 messages). Young women in their prime age to accumulate bone mass are often dieting and usually not consuming the recommended

amount of calcium to strengthen their bones. In so doing, they may be lowering their chances of optimizing their bone health.

Research has shown that not only do media reflect cultural values, media also contribute to those values including social norms of weight dissatisfaction and preoccupation, promotion of the thin ideal and perpetuation of a diet mentality (Anderson & DiDomenico, 1992; Irving, 1990; Myers & Biocca, 1992; Stice et al., 1994; Stice & Shaw, 1994). The unrelenting push for the thin ideal is pervasive. Media promotion should also have the potential to promote prevention of other health risk such as osteoporosis. As Wallace and Ballard (2003) submit, "mass media is an influential source of medical information and can shape health beliefs and prompt individual decision making." They suggest that it is essential that women receive sufficient information regarding osteoporosis because many of the risk factors for this disease can be modified by a person's behavior choices. As demonstrated by this study, there is potential to provide more information on issues relating to calcium, osteoporosis and healthy attitudes to body weight to young women through a magazine targeted to their interests.

Messages to the public could provide more informative coverage about osteoporosis throughout a women's lifespan. Wallace and Ballard (2003) assert that "because incidence/prevalence rates [of osteoporosis] are not discussed in detail, this may contribute to some confusion and underestimation of the long-term impact of osteoporosis." Recent studies in United States indicate that many women do not perceive a personal susceptibility to osteoporosis and do not consider it to be a serious health threat. Therefore, most do not practice osteoporosis - preventive behaviors

(Hsieh et al, 2001; Satterfield et al., 2000). If women are made aware of the true magnitude of osteoporosis risk and the importance of strategic preventive action throughout the lifespan, they may be more likely to embrace and /or sustain preventive behaviors to lower their personal risk. Women need basic information related to osteoporosis to assist them to apply the messages to their own lives (Wallace, 2002). Women need to receive this information when they are young, at the age where they can maximize peak bone mass and lower their personal risk.

Implications

This study has implications for dietetics professionals and health educators. Knowing that young women reading *Flare* magazine are not receiving adequate information on osteoporosis, one step that dietetic professionals can take is to offer to collaborate with *Flare* magazine, and presumably other such publications, to increase coverage of this subject matter with the goal of increasing women's awareness of the importance of timely intervention. Dietetic professionals may need to educate the editors and readers of *Flare* on the possible connection between weight loss and bone mass. Research indicates that despite the fact that osteoporosis has been identified as a major public health problem, the focus of attention has been directed to medical intervention at the time fractures occur rather than on promotion of early preventive strategies (Williams et al., 2002). Martin and colleagues (2004) suggest that the majority of preventive efforts have been targeted at women in the perimenopausal stage of life when bone loss accelerates. Dietitians should consider focusing their efforts in the direction of prevention to the appropriately aged audience. Magazines

may be a helpful venue, given that many young women seek health-related information from magazines. The inclusion of a column by a registered dietitian as a regular feature in *Flare* magazine, similar to the one in *Chatelaine* covering calcium-related issues amongst other nutrition topics, geared to suit *Flare*'s target audience would increase coverage. As previously mentioned, *Flare* reported a readership of approximately one to two million readers, in the years 2000 and 2001 respectively, within the age group that would greatly benefit from calcium-related information.

To advance the knowledge gleaned from this study, further research can examine young readers' interpretation of content of Canadian magazines related specifically to calcium and weight. Research can look into whether other forms of media such as school newspapers, curriculum, television and internet programming, etc., can be an effective tool for transmitting calcium and weight-related information to young women. Registered dietitians can address such important issues. Finally, research should investigate ways to reduce social pressures that deem the thin ideal as the image of choice. Determining if self-acceptance messages are an emerging trend in women's magazines would be a helpful step in this direction.

REFERENCES

Abraham, S. (1996). Eating and weight controlling behaviours of young ballet dancers. Psychopathology, 29(4), 218-222.

Aloia, J. F., Cohn, S. H., Vaswani, A., Yeh, J. K., Yuen, K., & Ellis, K. (1985). Risk factors for postmenopausal osteoporosis. American Journal of Medicine, 78, 95-100.

American Dietetic Association. (2002). Nutrition & you: Trends 2002. American Dietetic Association.

American Dietetic Association/ Dietitians of Canada. (2000). Manual of Clinical Dietetics. (6th edition). Chicago, IL: American Dietetic Association.

Amschler, D. H. (1999). Calcium intake in adolescents: An issue revisited. Journal of School Health, 69, 120-121.

Analyse-it™ General & Clinical Laboratory Statistics vsn 1.63 ©1997-2000. Analyse-it Software, Ltd.

Andersen, R. E., Wadden, T. A., & Herzog, R. J. (1997). Changes in bone mineral content in obese dieting women. Metabolism, 46, 857-861.

Anderson, A.E., & DiDomenico, L. (1992). Diet vs. shape content of popular male and female magazines: A dose-response relationship to the incidence of eating disorders? International Journal of Eating Disorders, 11, 283-287.

Anonymous. (1995). Ho-ho to the no-no on yo-yo. Medical Update, 18(8), 3,6.

Asam, E. H., & Bucklin, L. P. (1973). Nutrition labeling for canned goods: A study of consumer response. Journal of Marketing, 37, 32-37.

Atkinson, S. A., Abrams, S. A., Dawson-Hughes, B., Heaney, R. P., Holick, M. F., Murphy, S. P., Rude, R. K., Specker, B. L., Weaver, C. M., & Whitford, G. M. (1997). Calcium in: DRI dietary reference intakes for calcium, phosphorus, magnesium, vitamin D and fluoride. (pp. 71-145). Washington, DC: National Academy Press.

Bailey, D. A., Martin, A. D., McKay, H. A., Whiting, S., & Mirwald, R. (2000). Calcium accretion in girls and boys during puberty: A longitudinal analysis. Journal of Bone and Mineral Research, *15*, 2245-2250.

Baker, S. (1961). Visual persuasion & marketing: The effect of pictures on the subconscious. New York: McGraw-Hill.

Barr, S.I. (2001). Nutrition and physical activity. Canadian Journal of Dietetic Practice and Research, *62*(3), 134-139.

Barr, S. I. (1989). Nutrition in food advertising: Content analysis of a Canadian women's magazine, 1928-1986. Journal of Nutrition Education, *21*, 64-72.

Barr, S. I. (1987). Nutrition knowledge of female varsity athletes and university students. Journal of the American Dietetic Association, *87*, 1660-1664.

Bass, M., Turner, L., & Hunt, S. (2001). Counseling female athletes: Application of the stages of change model to avoid disordered eating, amenorrhea, and osteoporosis. Psychological Reports, *88*(3 pt 2), 1153-1160.

Berg, F., M., & Marchessault, G. (2000). Of paradigms and revolutions. Healthy Weight Journal, *14*(1), 1.

Bordo, S. (1993). Reading the slender body. In Unbearable weight. feminism, western culture, and the body. (pp.185-212). Berkeley, CA: University of California Press.

Bovee, C., & Arens, W. (1986). Contemporary advertising. Chicago. Il: Irwin Inc.

Brahm, H., Strom, H., Piehl-Aulin, K., Mallmin, H., & Ljunghall, S. (1997). Bone metabolism in endurance trained athletes: A comparison to population-based controls based on DXA, SXA, quantitative ultrasound, and biochemical markers. Calcified Tissue International, 61, 448-454.

Brown, J. P., Josse, R. G., & Scientific Advisory Council of the Osteoporosis Society of Canada. (2002). 2002 clinical practice guidelines for the diagnosis and management of osteoporosis in Canada. Canadian Medical Association Journal, 167(10 Suppl), S1-34.

Brownell, K. D. (1999). The central role of lifestyle change in long term weight management. Clinical Cornerstone, 2(3), 43-51.

Brucks, M., Mitchell, A. A., & Staelin, R. (1984). The effect of nutritional information disclosure in advertising: An information processing approach. Public Policy Issues in Marketing, 3, 1-25.

Calderon, L. L., Yu, C. K., & Jambazian, P. (2004). Dieting practices in high school students. Journal of the American Dietetic Association, 104, 1369-1374.

Casper, R. C., & Offer, D. (1990). Weight and dieting concerns in adolescents, fashion or symptom? Pediatrics, 86, 384-390.

Chao, D., Espeland, M. A., Farmer, D., Register, T. C., Lenchik, L., Appelgate, W. B., & Ettinger, W. H. (2000). Effect of voluntary weight loss on bone mineral density in older overweight women. Journal of the American Geriatric Society, 48, 753-759.

Chapman, G., & Maclean, H. (1990). Qualitative research in home economics. Canadian Home Economists Journal, 40, 129-134.

Chow, J. (2004). Adolescents' perceptions of popular teen magazines. Journal of Advanced Nursing, 48(2), 132-139.

Compston, J. E., Laskey, M. A., Croucher, P. I., Coxon, A., & Kreitzman, S. (1992). Effect of diet-induced weight loss on total body bone mass. Clinical Science, 82, 429-432.

Cromer, B., & Harel, Z. (2000). Adolescents: At increased risk for osteoporosis? Clinical Pediatrics, 39(10), 565-575.

Cummings, S., Parham, E.S., & Strain, G.W. (2002). Position of the American dietetic association: Weight management. Journal of the American Dietetic Association, 102(8), 1145-1155.

Daly, C. P. (1997). The magazine publishing industry. Needham Heights, MA: Allyn & Bacon.

Davies, K.M., Heaney, R. P., Recker, R. R., Lappe, J. M., Barger-Lux, M. J., Rafferty, K & Hinders, S. (2000). Calcium intake and body weight. Journal of Clinical Endocrinology & Metabolism, 85(12), 4635-4638.

Davison, K. K., Earnest, M. B., & Birch, L. L. (2002). Participation in aesthetic sports and girls' weight concerns at ages 5 and 7 years. International Journal of Eating Disorders, 31(3), 312-317.

Dawson-Hughes, B. (1991). Calcium supplementation and bone loss: A review of controlled clinical trials. American Journal of Clinical Nutrition, 54, 2745-2805.

Derelian, D. (1995). President's page: Survey cites dietitians and nutritionists as most valuable nutrition sources, but much work to be done. Journal of the American Dietetic Association, 95, 1322.

Donaldson, M. L. (2003). The female athlete triad. Orthopaedic Nursing, 22(5), 322-324.

Druss, R.G., & Silverman, J. A. (1979). Body image and perfectionism of ballerinas: Comparison and contrast with anorexia nervosa. General Hospital Psychiatry, 1(2), 115-121.

Edelstein, S.L., & Barrett-Connor, E. (1993). Relation between body size and bone mineral density in elderly men and women. American Journal of Epidemiology, 138, 160-169.

Ewen, S. (1976). Captains of consciousness: advertising and the social roots of the consumer culture. New York: McGraw-Hill.

Field, A. E., Camargo, C. A., Taylor, C. B., Berkey, C. S., Roberts, S. B., & Colditz, G. A. (2001). Peer, parent, and media influences on the development of weight concerns and frequent dieting among preadolescent and adolescent girls and boys. Pediatrics, 107, 54-60.

Field, A. E., Cheung, L., Wolf, A. M., Herzog, B., Gortmaker, S. L., & Colditz, G. A. (1999). Exposure to the mass media and weight concerns among girls. Pediatrics, *103*, 36-44.

Fogelholm, G. M., Sievanen, H. T., Kukkonen-Harjula, T. K., & Pasanen, M. E. (2001). Bone mineral density during reduction, maintenance and regain of body weight in premenopausal, obese women. Osteoporosis International, *12*, 199-206.

Forshee, R. A., & Storey, M. L. (2003). Total beverage consumption and beverage choice among children and adolescents. International Journal of Food Sciences and Nutrition, *54*(4), 297-307.

Furnham, A., & Alibhai, N. (1983). Cross-cultural differences in the perception of female body shapes. Psychological Medicine, *13*(4), 829-837.

Geier, A. B., Schwartz, M. B., & Brownell, K. D. (2003). "Before and after" diet advertisements escalate weight stigma. Eating and Weight Disorders, *8*(4), 282-288.

Giacomini, M. K., & Cook, D. J. (2000). Qualitative research in health care: Are the results of the study valid? Journal of the American Medical Association, *284*, 357-362.

Glick, P., Wilk, K., & Perrault, M. (1995). Images of occupations: Components of gender and status in occupational stereotypes. Sex Roles, *32*(9/10), 565-582.

Goldberg, J. P. (1992). Nutrition and health communication: The message and the media over half a century. Nutrition Reviews, *50*, 71-77.

Golden, N. H. (2002). A review of the female athlete triad (amenorrhea, osteoporosis, and disordered eating). International Journal of Adolescent Medicine and Health, 14(1), 9-17.

Gonzalez, V. M. M., & Vitousek, K. M. (2004). Feared food in dieting and non-dieting young women: A preliminary validation of the Food Phobia Survey. Appetite, 43, 155-173.

Goodrick, G. K., & Foreyt, J. P. (1991). Why treatments for obesity don't last. Journal of the American Dietetic Association, 91, 1243-1247.

Grazer, F. M., & de Jong, R. H. (2000). Fatal outcomes from liposuction: Census survey of cosmetic surgeons. Plastic and Reconstructive Surgery, 105, 436-446.

Green, S. M., McCoubrie, M., & Cullingham, C. (2000). Practice nurses' and health visitors' knowledge of obesity assessment and management. Journal of Human Nutrition & Dietetics, 13(6), 413-424.

Grogan, S., & Wainwright, N. (1996). Growing up in the culture of slenderness: Girls' experiences of body dissatisfaction. Women's Studies International Forum, 19, 665-673.

Guillen, E. O., & Barr, S. I. (1994). Nutrition, dieting, and fitness messages in a magazine for adolescent women, 1970-1990. Journal of Adolescent Health, 15, 464-472.

Gussow, J. (1972). Counternutritional messages of TV ads aimed at children. Journal of Nutrition Education, 2-4, 48-52.

Hamilton, K., & Waller, G. (1993). Media influences on body size estimation in anorexia and bulimia. British Journal of Psychiatry, 162, 837-840.

Harrington, M., & Cashman, K. D. (2003). High salt intake appears to increase bone resorption in postmenopausal women but high potassium ameliorates this adverse effect. Nutrition Reviews, 61(5), 179-183.

Harris, S. S., & Dawson Hughes, B. (1996). Weight, body composition, and bone density in postmenopausal women. Calcified Tissue International, 59, 428-432.

Heaney, R. P. (1995). Good nutrition cuts osteoporosis risk in half. National dairy council calcium education series. Rosemont, Ill.: National Dairy Council.

Heaney, R. P. (1993). Nutritional factors in osteoporosis. Annual Review of Nutrition, 13, 287-316.

Heaney, R. P., & Rafferty, K. (2001). Carbonated beverages and urinary calcium excretion. American Journal of Clinical Nutrition, 74(3), 343-347.

Heaney, R. P., & Weaver, C. M. (1993). Oxalate in vegetables, effect on calcium absorbability. Journal of Bone and Mineral Research, 8(Suppl 1), S333, Abstract 865.

Heaney, R. P., Weaver, C. M., & Fitzimmons, M. L. (1991). Soybean phytate content: Effect on calcium absorption. American Journal of Clinical Nutrition, 53, 745-747.

Hertzler, A. A., & Grun, I. (1990). Potential nutrition messages in magazines read by college students. Adolescence, 25, 717-724.

Hickman, B. W., Gates, G. E., & Dowdy, R. P. (1993). Nutrition claims in advertising: A study of four women's magazines. Journal of Nutrition Education, 25, 227-235.

Hill, D. D. (2002). Advertising to the American woman 1900-1999. (p. 24). Columbus: Ohio State University Press.

Hill, J. M., & Radimer, K. L. (1996). Health and nutrition messages in food advertisements: A comparative content analysis of young and mature Australian women's magazines. Journal of Nutrition Education, 28, 313-320.

Hoggart, R. (1970). The case against advertising. In Speaking to each other. New York: Chatto & Windus, Oxford University Press.

Holbrook, T. L., & Barrett-Conner, E. (1993). The association of lifetime weight and weight control patterns with bone mineral density in an adult community. Bone and Mineral, 20, 141-149.

Holsti, O. R. (1969). Content analysis for the social sciences and humanities. Reading, Massachusetts: Addison-Wesley Publishing Company.

Hsieh, C., Novielli, K. D., Diamond, J. J., & Cheruva, D. (2001). Health beliefs and attitudes toward the prevention of osteoporosis in older women. Menopause, 8(5), 372-376.

Hyman, F. N., Sempos, E., Saltsman, J., & Glinsmann, W.H. (1993). Evidence for success of caloric restriction in weight loss and control. Annals of Internal Medicine, 119(7 part 2), 681-687.

Irving, L. M. (1990). Mirror images: Effects of the standard of beauty on the self-and body-esteem of women exhibiting varying levels of bulimic symptoms.

Journal of Social and Clinical Psychology, 9, 230-242.

Jacoby, J. (1984). Perspectives on information overload. Journal of Consumer Research, 10(4), 432-435.

Jensen, L. B., Kollerup, G., Quaade, F., & Sorensen, O. H. (2001). Bone mineral changes in obese women during a moderate weight loss with and without calcium supplementation. Journal of Bone and Mineral Research, 16, 141-147.

Jensen, L. B., Quaade, F., & Sorensen, O. H. (1994). Bone loss accompanying voluntary weight loss in obese humans. Journal of Bone and Mineral Research, (9), 459-463.

Johnson, R. K., Frary, C., & Wang, M. Q. (2002). The nutritional consequences of flavoured-milk consumption by school-aged children and adolescents in the United States. Journal of the American Dietetic Association, 102(6), 853-856.

Johnston, C. C., Miller, J. Z., Slemenda, C. W., Reister, T. K., Hui, S., & Christian, J. C. (1992). Calcium supplementation and increases in bone mineral density in children. New England Journal of Medicine, 327, 82-87.

Jones, M. M., Bennett, S., Olmsted, M. P., Lawson, M. L., & Rodin, G. (2001). Disordered eating attitudes and behaviours in teenaged girls: A school-based Study. Canadian Medical Association Journal, 165(5), 547-552.

Kaiser, K. (1979). The new women's magazines: It's the same old story. Frontiers, 4(1), 14-17.

Kassarjian, H. H. (1977). Content analysis in consumer research. Journal of Consumer Research, 4, 8-18.

Kassirer, J. P., & Angell, M. (1998). Losing weight – An ill-fated New Year's resolution. New England Journal of Medicine, 338, 52-54.

Katz, B. (1987). Magazines for school libraries. New York: RR Bowker.

Kazis, K., & Iglesias, E. (2003). The female athlete triad. Adolescent Medicine, 14(1), 87-95.

Kilbourne, J. (1994). Still killing us softly: Advertising and the obsession with thinness. In P. Fallon, M. A. Katzman, & S. C. Wooley (Eds.), Feminist perspectives on eating disorders. (pp. 395-418). New York: The Guilford Press.

Kilbourne, J. (1977). Images of women in TV commercials. In J. Fireman (Ed.), TV book (pp. 293-296). New York: Workman.

Klassen, M. L., Wauer, S. M., & Cassel, S. (1991). Increases in health and weight loss claims in food advertising in the eighties. Journal of Advertising Research, 31, 32-37.

Kleposki, R. W. (2002). The female athlete triad: A terrible trio implications for primary care. Journal of the Academy of Nurse Practitioners, 14(1), 26-31.

Korinis, M. (1996). Comparison of calcium and weight loss information in teen-focused versus women's magazines over two four-year periods (1986-1989 and 1991-1994). Master's thesis. Blacksburg, Virginia: Virginia Polytechnic Institute and State University.

Korinis, M., Korslund, M. K., Belli, G., Donohue, J. M., & Johnson, J. M. (1998). Comparison of calcium and weight loss information in teen-focused versus women's magazines over two 4-year periods (1986-1989 and 1991-1994). Journal of Nutrition Education, 30(3), 149-154.

Krippendorff, K. (1980). Content analysis. An introduction to its methodology. Beverly Hills, CA: Sage Publications, Inc.

Lambert-Lagace, L. (1983). Media, nutrition information, and consumer reactions. Journal of Nutrition Education, 15, 6-7.

Lappe, J. M., Rafferty, K. A., Davies, M., & Lypaczewski, G. (2004). Girls on a high-calcium diet gain weight at the same rate as girls on a normal diet: A pilot study. Journal of the American Dietetic Association, 104, 1361-1367.

Lebow, M., & Arkin, E. B. (1993). Women's health and the mass media: The reporting of risk. Women's Health Issues, 3(4), 181-190.

Lin, Y. C., Lyle, R. M., McCabe, L. D., McCabe, G. P., Weaver, C. M., & Teegarden, D. (2000). Dairy calcium is related to changes in body composition during a two-year exercise intervention in young women. Journal of the American College of Nutrition, 19(6), 754-760.

Mackenzie, S. B. (1986). The role of attention in mediating the effect of advertising on attribute importance. Journal of Consumer Research, 13, 174-195.

Magazine Publishers of America. (1991). A Study of media involvement. New York: Magazine Publishers of America.

Malhotra, N. K. (1984). Reflections on the information overload paradigm in consumer decision making. Journal of Consumer Research, 10(4), 436-440.

Martin, C., & Bellisle, F. (1989). Eating attitudes and taste responses in young ballerinas. Physiology & Behavior, 46(2), 223-227.

Martin, J. T., Coviak, C. P., Gendler, P., Kim, K. K., Cooper, K., & Rodrigues-Fisher, L. (2004). Female adolescents' knowledge of bone health promotion behaviors and osteoporosis risk factors. Orthopaedic Nursing, 23(4), 235-244.

Masi, L., & Bilezikian, J. P. (1997). Osteoporosis: New hope for the future. International Journal of Fertility, 42, 245-254.

Matkovic, V. (1991). Calcium metabolism and calcium requirements during skeletal modeling and consolidation of bone mass. American Journal of Clinical Nutrition, 54, 245S-260S.

McCracken, E. (1993). Decoding women's magazines from Mademoiselle to Ms. New York: St. Martin's Press, Inc.

McVey, G., Tweed, S., & Blackmore, E. (2004). Dieting among preadolescent and young adolescent females. Canadian Medical Association Journal, 170(10), 1559-1561.

Mead Johnson. (2001). Viactiv calcium facts. Questions & answers (pamphlet). Mead Johnson Nutritionals.

Mead Johnson website: <http://www.viactiv.com>. Site accessed December 14, 2004.

Melanson, E. L., Sharp, T. A., Schneider, J., Donahoo, W. T., Grunwald, G. K., & Hill, J. O. (2003). Relation between calcium intake and fat oxidation in adult humans. International Journal of Obesity, 27, 196-203.

Merriam-Webster's collegiate dictionary (10th ed.). (1993). Springfield, MA: Merriam-Webster, Inc.

Messina, M. J. (1999). Legumes and soybeans: Overview of their nutritional profiles and health effects. The American Journal of Clinical Nutrition, 70(3), 439S-450S.

Messina, M. (1995). Modern applications for an ancient bean: Soybeans and the prevention and treatment of chronic disease. Journal of Nutrition, 125(3 Suppl), 567S-569S.

Meyer, H. E., Tverdal, A., & Selmer, R. (1998). Weight variability, weight change and the incidence of hip fracture: A prospective study of 39000 middle-aged Norwegians. Osteoporosis International, 8, 373-378.

Miller, W. C. (1999). How effective are traditional dietary and exercise interventions for weight loss? Medicine and Science in Sports and Exercise, 31(8), 1129-1134.

Millum, T. (1975). Images of woman. Advertising in women's magazines. London: Chatto & Windus Ltd.

Moore, J., Earless, A., & Parsons, R. (1992). Women's magazines. Their influence on nutritional knowledge and food habits. Nutrition & Food Science, 3, 18-21.

Moyer, C. A., Vishnu, L. O., & Sonnad, S. S. (2001). Providing health information to women. International Journal of Technology Assessment in Health Care, 17(1), 137-145.

Murray, T. K., & Rae, J. (1979). Nutrition recommendations for Canadians. Canadian Medical Association Journal, 120, 1241-1242.

Myers, P.N., & Biocca, E.A. (1992). The elastic body image: The effect of television and advertising and programming on body image distortion in young women. Journal of Communication, 42(3), 108-133.

National Institute of Nutrition. (1997). Tracking nutrition trends 1989-1994-1997: An update on Canadians' attitudes, knowledge and reported actions. Ottawa, Canada: National Institute of Nutrition.

Nemeroff, C. J., Stein, R. I., Diehl, N. S., & Smilack, K. M. (1994) From the Cleavers to the Clintons: Role choices and body orientation as reflected in magazine article content. International Journal of Eating Disorders, 16, 167-176.

Neumark-Sztainer, D., Sherwood, N.E., French, S.A., & Jeffery, R.W. (1999). Weight control behaviors among adult men and women: Cause for concern? Obesity Research, 7(2), 179-188.

Nichter, M., Ritenbaugh, C., Nichter, M., Vuckovic, N., & Aickin, M. (1995). Dieting and "watching" behaviors among adolescent females: report of a multimethod study. Journal of Adolescent Health, 17, 153-162.

Nordin, B. E. C., Need, A. G., Morris, H. A., & Horowitz, M. (1993). The nature and significance of the relationship between urinary sodium and urinary calcium in women. Journal of Nutrition, 123, 1615-1622.

Novascone, M. A., & Hertzler, A. A. (1986). Perception of nutrient density and information links of college students. Journal of the American Dietetic Association, 86, 94-95.

Novelli, W. (1990). Controversies in advertising of health-related products. In C. Atkin & L. Wallack (Eds.), Mass communication and public health. Complexities and Conflicts. Newbury Park, CA: Sage Publications, Inc.

NPD Group Canada Inc: National Eating Trends (NET) Canada, March 2002.

Osteoporosis Society of Canada, web site:

[http:// www.osteoporosis.ca/OSTEO/D02-01b.html#howmuch](http://www.osteoporosis.ca/OSTEO/D02-01b.html#howmuch). Site accessed:

June 13, 2001.

Osteoporosis Society of Canada (pamphlet). (2000). Osteoporosis: are you at risk? Toronto, ON: Osteoporosis Society of Canada.

Paisley, J. A., Keller, H., & Ledermann, B. (2000). Research works: A practice-based research manual for diabetes educators. Toronto, Ontario: Canadian Diabetes Association.

Papanek, P. E. (2003). The female athlete triad: An emerging role for physical therapy. The Journal of Orthopaedic and Sports Physical Therapy, 33(10), 594-614.

Paquette, M. C., & Raine, K. (2004). Sociocultural context of women's body image. Social Science & Medicine, 59, 1047-1058.

Parikh, S. J., & Yanovski, J. A. (2003). Calcium intake and adiposity. American Journal of Clinical Nutrition, 77, 281-287.

Parsons, P. R., Rotfeld, H. J., & Gray, R. (1987). Magazine publisher and advertising manager standards for acceptable advertising. Current Issues and Research in Advertising, 10, 199-211.

Pasut, L. (2001). Food habits of Canadians: Changing nutrition issues. Mississauga, Canada: Beef Information Centre.

Patton, G. C., Johnson-Sabine, E., Wood, K., Mann, A. H., & Wakelin, A. (1990). Abnormal eating attitudes in London school girls. Psychological Medicine, 20, 383-394.

Petridou, E., Karpathios, T., Dessypris, N., Simou, E., & Trochopoulos, D. (1997). The role of dairy products and non alcoholic beverages in bone fractures among school-age children. Scandinavian Journal of Social Medicine, 25, 119-125.

Pinhas, L., Toner, B. B., Ali, A., Garfinkel, P. E., & Stuckless, N. (1999). The effects of the ideal of female beauty on mood and body satisfaction. International Journal of Eating Disorders, 25, 223-226.

Polivy, J., & Thomasen, L. (1988). Dieting and other eating disorders. In E. A. Blechman & D. D. Brownell (Eds.) Handbook of behavioral medicine for women, (pp.345-355). New York: Pergamon.

Pope, C., & Mays, N. (1995). Reaching the parts other methods cannot reach: An introduction to qualitative methods in health and health services research. British Medical Journal, 311, 42-45.

Pratt, C. A., & Pratt, C. B. (1995). Comparative content analysis of food and nutrition advertisements in *Ebony*, *Essence* and *Ladies' Home Journal*. Journal of Nutrition Education, 27, 11-17.

Pugliese, M. T., Lifshitz, F., Grad, G., Fort, P., & Marks-Katz, M. (1983). Fear of obesity. New England Journal of Medicine, 309, 513-518.

Radimer, K. L. (1996). Are nutrition messages in popular women's magazines consistent with dietary recommendations? Australian Journal of Nutrition & Dietetics, 53(3), 107-114.

Radimer, K. L., & Harvey, P. W. J. (1995). Where do Queenslanders get nutrition information? Australian Journal of Nutrition & Dietetics, 52(2), 94-100.

Rampersuad, G. C., Bailey, L. B., & Kauwell, G. P. (2003). National survey beverage consumption data for children and adolescents indicate the need to encourage a shift toward more nutritive beverages. Journal of The American Dietetic Association, 103(1), 97-100.

Ramsdale, S. J., & Bassey, E. J. (1994). Changes in bone mineral density associated with dietary-induced loss of body mass in young women. Clinical Science, 87, 343-348.

Reid, I. R., Ames, R. W., Evans, M. C., Gamble, G. D., & Sharpe, S. J. (1993). Effect of calcium supplementation on bone loss in postmenopausal women. New England Journal of Medicine, 38, 460-464.

Rierdan, J., Koff, E., & Stubbs, M. L. (1987). Depressive symptomatology and body image in adolescent girls. Journal of Early Adolescence, 7, 205-216.

Rodin, J., Silberstein, L., & Striegel-Moore, R. (1984). Women and weight: A normative discontent. Nebraska Symposium on Motivation, 27, 267-307.

Rolfes, S. R., DeBruyne, L. K., & Whitney, E. N. (1998). Life span nutrition. Conception through life. Belmont, CA: Wadsworth Publishing Company.

Rubel, C. (1996). Mustache ads change attitude toward milk. Marketing News, 30, 10.

Rugg, K. (2004). Childhood obesity: Its incidence, consequences and prevention. Nursing Times, 100(3), 28-30.

Sabatini, S. (2001). The female athlete triad. The American Journal of the Medical Sciences, 322(4), 193-195.

Satterfield, T., Johnson, S. M., Slovic, P., Neil, N., & Schein, J. R. (2000). Perceived risks and reported behaviors associated with osteoporosis and its treatment. Women & Health, 31(4), 21-40.

Serdula, M. K., Collins, M. E., Williamson, D. F., Anda, R. F., Pamuk, E., & Byers, T. E. (1993). Weight control practices of U.S. adolescents and adults. Annals of Internal Medicine, 119(7 pt 2), 667-671.

Sherwood, N. W., & Neumark-Sztainer, D. (2001). Internalization of the sociocultural ideal: Weight-related attitudes and dieting behaviors among young adolescent girls. American Journal of Health Promotion, 15, 228-231.

Smith, E. L., & Gilligan, C. (1994). Bone concerns. In M. M. Shangold & G. Mirkin, (Eds.), Women and exercise: Physiology and sports medicine (2nd ed.) (pp. 89-101). Philadelphia: F.A. Davis.

Snow, J. T., & Harris, M. B. (1986). An analysis of weight and diet content in five women's interest magazines. The Journal of Obesity and Weight Regulation, 5, 194-214.

Starkey, L. J., Johnson-Down, L., & Gray-Donald, K. (2001). Food habits of Canadians: Comparison of intakes in adults and adolescents to Canada's food guide to healthy eating. Canadian Journal of Dietetic Practice and Research, 62, 61-69.

Statistics Canada, web site:

<http://www.statcan.ca/english/Pgdb/People/Population/demos31a.html> accessed on February, 13, 2002.

Stice, E., Schupak-Neuberg, A., Shaw, H. E., & Stein, R. I. (1994). Relation of media exposure to eating disorder symptomatology: An examination of mediating mechanisms. Journal of Abnormal Psychology, 103, 836-840.

Stice, E., & Shaw, H. E. (1994). Adverse effects of the media portrayed thin-ideal on women and linkages to bulimic symptomatology. Journal of Social and Clinical Psychology, 13, 288-308.

Story, M., & Resnick, M. D. (1986). Adolescents' views on food and nutrition. Journal of Nutrition Education, 18, 188-192.

Sypeck, M. F., Gray, J. J., & Ahrens, A. H. (2004). No longer just a pretty face: Fashion magazines' depictions of ideal female beauty from 1959 to 1999. International Journal of Eating Disorders, 36, 342-347.

Teegarden, D., & Zemel, M. B. (2003). Dairy product components and weight regulation symposium overview. Journal of Nutrition, 133, 243S-256S.

The McCreary Centre Society. (2004). Health youth development. Highlights from the 2003 adolescent health survey. Vancouver, BC: The McCreary Centre Society.

Thompson, A. M., & Chad, K. E. (2000). The relationship of pubertal status to body image, social physique anxiety, preoccupation with weight and nutritional status in young females. Canadian Journal of Public Health, 91(3), 207-211.

Thomsen, P. A., Terry, R. D., & Amos, R. J. (1988). Nutrition information sources used by adolescents. Home Economics Research Journal, 16, 215-221.

Van Loan, M. D., Johnson, H. L., & Barbieri T. F. (1998). Effect of weight loss on bone mineral content and bone mineral density in obese women. American Journal of Clinical Nutrition, *67*, 734-738.

Wadden, T. A., Brownell, K. D., & Foster, G. D. (2002). Obesity: Responding to the global epidemic. Journal of Consulting and Clinical Psychology, *70(3)*, 510-525.

Wallace, L. S. (2002). Osteoporosis prevention in college women: Application of the expanded health belief model. American Journal of Health Behavior, *26(3)*, 163-172.

Wallace, L. S., & Ballard, J. E. (2003). Osteoporosis coverage in selected women's magazines and newspapers, 1998-2001. American Journal of Health Behavior, *27(1)*, 75-83.

Weaver, C. M. (1995). Better bones. Girls who get plenty of calcium fare well later in life. The Island Packet. June 20.

Weaver, C. M., Heaney, R. P., Nickel, K. P., & Packard, P. I. (1997). Calcium bioavailability from high oxalate vegetables: Chinese vegetables, sweet potatoes and rhubarb. Journal of Food Science, *52(3)*, 524-525.

Weaver, C. M., Heaney, R. P., Proulx, W.R., Hinders, S. M., & Packard, P. T. (1993). Absorbability of calcium from common beans. Journal of Food Science, *58(6)*, 1401-1403.

Weber, R. P. (1990). Basic content analysis. Newbury Park, CA: Sage Publications, Inc.

Wertheim, E. H., Paxton, S. J., Schutz, H. K., & Muir, S. L. (1997). Why do adolescent girls watch their weight? An interview study examining sociocultural pressures to be thin. Journal of Psychosomatic Research, 42, 345-355.

Whisenhunt, B. L., Williamson, D. A., Netemeyer, R. G., & Andrews, C. (2003). Health risks, past usage, and intention to use weight loss products in normal weight women with high and low body dysphoria. Eating and Weight Disorders, 8, 114-123.

Williams, B., Cullen, L., & Barlow, J. H. (2002). "I never realized how little I knew!": A pilot study of osteoporosis knowledge, beliefs and behaviours. Health Care for Women International, 23, 344-350.

Williamson, J. (1978). Decoding advertisements: Ideology and meaning in advertising. London: Marion Boyars.

Wilson, N. L., & Blackhurst, A. E. (1999). Food advertising and eating disorders: Marketing body dissatisfaction, the drive for thinness, and dieting women's magazines. Journal of Humanistic Counseling, Education & Development, 38(2), 111-123.

Wolf, N. (1991). The beauty myth: How images of beauty are used against women. (pp. 61-80). New York: Morrow.

Wyshak, G. (2000). Teenaged girls, carbonated beverage consumption, and bone fractures. Archives of Pediatrics & Adolescent Medicine, 154, 610-613.

Wyshak, G., & Frisch, R. E. (1994). Carbonated beverages, dietary calcium, the dietary calcium/phosphorus ration, and bone fractures in girls and boys. Journal of Adolescent Health, 15, 210-215.

Wyshak, G., Frisch, R. E., Albright, T. E., Albright, N. L., Schiff, I., & Witschi, J. (1989). Nonalcoholic carbonated beverage consumption and bone fractures among women former college athletes. Journal of Orthopaedic Research, 7, 91-99.

Zemel, M. B. (2004). Role of calcium and dairy products in energy partitioning and weight management. American Journal of Clinical Nutrition, 79(5), 907S-912S.

Zemel, M. B. (2003a). Mechanisms of dairy modulation of adiposity. Journal of Nutrition, 133, 252S-256S.

Zemel, M. B. (2003b). Role of dietary calcium and dairy products in modulating adiposity. Lipids, 38(2), 139-146.

Zemel, M. B., Thompson, W., Zemel, P., Nocton, A. M., Milstead, A., Morris, K., & Campbell, P. (2002). Dietary calcium and dairy products accelerate weight and fat loss during energy restriction in obese adults. American Journal of Clinical Nutrition, 75(2S), 342S.

Zemel, M. B., Nocton, A. M., Richards, J. D., Russell, S. M., Milstead, A. M., & Gebhardt, L. P. (2003). Dairy (yogurt) augments fat loss and reduces central adiposity during energy restriction in obese subjects. The Federation of American Societies for Experimental Biology Journal, 17(5), A1088.

Appendix A

Print Media Bureau (PMB) Data 2000

PMB 2000 READERSHIP DATA/DONNÉES SUR LE LECTORAT											
CANADA	PMB 2000 - 2 Year Data					CANADA	PMB 2000 - Données sur 2 ans				
	Circ/ Tirage	Readership/ Lectorat 12+	RPC/ LPE	Male Homme	Female Femme		Circ/ Tirage	Readership/ Lectorat 12+	RPC/ LPE	Male Homme	Female Femme
Unweighted Sample/ Échantillon non-pondéré		24072		11350	12722	Unweighted Sample/ Échantillon non-pondéré		24072		11350	12722
		25747		12654	13093			25747		12654	13093
BEAUTIFUL B.C. TRAVELLER	109	332	3.0	176	156	7 JOURS	145	1060	7.3	419	641
BROADCAST WEEK		227	-	102	125	AFFAIRES PLUS	96	267	2.8	182	85
CANADIAN	86	299	3.5	193	106	CAPITAL SANTÉ	47	145	3.1	31	114
CANADIAN BUSINESS	89	323	3.6	217	105	CHÂTELAIN (FR)	201	442	2.2	130	312
CANADIAN GARDENING	146	706	4.8	230	477	CLIN D'OEIL	72	262	3.6	70	192
CANADIAN GEOGRAPHIC	240	644	3.5	463	381	COUP DE POUCE	163	517	3.2	136	376
CANADIAN HOME WORKSHOP	117	503	4.3	296	207	DÉCORATION CHEZ-SOI	66	268	4.1	70	198
CANADIAN HOUSE & HOME	149	800	5.4	204	596	DÉCORMAG	54	275	5.1	80	195
CANADIAN LIVING	563	1986	3.5	418	1568	DERNIÈRE HEURE	52	553	10.6	226	326
CHATELAINE	815	1766	2.2	335	1431	ÉCHOS-VEDETTES	81	363	4.5	136	226
ELM STREET	702	710	1.0	194	516	ELLE QUÉBEC	80	376	4.7	96	280
ENROUTE	126	287	2.3	191	95	FEMME D'AUJOURD'HUI		145	-	23	122
EQUINOX	116	587	5.1	348	239	FEMME PLUS	47	185	3.9	38	147
EYE WEEKLY	95	183	1.9	108	74	FILLES D'AUJOURD'HUI	63	310	4.9	59	251
FEATURE	506	823	1.6	470	353	FLEURS, PLANTES ET JARDINS	56	367	6.6	125	243
FIFTY PLUS / CAPP NEWS	211	322	1.5	156	166	L'ACTUALITÉ	185	524	2.8	294	230
FLARE	176	908	5.1	161	727	LE BEL ÂGE	144	408	2.8	144	264
FOOD & DRINK	300	587	1.9	204	363	LE LUNDI	62	570	9.2	218	352
GARDENS WEST	40	175	4.4	42	133	LES AFFAIRES	90	326	3.6	209	118
GOLF CANADA	118	427	3.6	341	86	LES IDÉES DE MA MAISON	59	211	3.6	57	154
GOOD TIMES	136	325	2.4	77	248	MADAME AU FOYER	199	270	1.4	40	230
HARROWSMITH COUNTRY LIFE	158	498	3.2	158	340	MAGAZINE LES AILES	72	283	3.9	80	203
HEALTHWATCH	568	842	1.5	211	631	MAGAZINE PME	33	72	2.2	53	18
HOMEMAKER'S MAGAZINE	883	1206	1.4	191	1015	PRIMEURS	290	711	2.5	373	337
IMAGES	446	509	1.1	80	429	RÉNOVATION BRICOLAGE	37	217	5.9	101	116
LEISUREWAYS/WESTWORLD	1744	1555	0.9	758	796	REVUE COMMERCE	44	160	3.6	112	48
MACLEAN'S	505	1669	3.3	823	845	SÉLECTION DU READERS DIGEST	270	614	2.3	246	368
NAT'L POST BUSI./FP MAGAZINE		436	-	311	125	SENTIER CHASSE-PÊCHE	58	323	5.6	248	75
NOW	103	197	1.9	134	63	TÉLÉ PLUS	387	562	1.5	263	300
OUTDOOR CANADA	89	542	6.1	378	164	TOURING (FRANÇAIS)	405	355	0.9	201	155
PRIMETIME	286	376	1.3	186	190	TV 7 JOURS/TV HEBDO	361	915	2.5	374	542
PROFIT	102	174	1.7	121	53	VOIR (MONTREAL)	97	174	1.8	104	71
READER'S DIGEST	1223	3168	2.6	1304	1864						
REPORT ON BUSINESS MAGAZINE		397	-	267	130						
SATURDAY NIGHT	408	561	1.4	275	287						
STARWEEK	703	1107	1.6	491	615						
STYLE AT HOME	230	695	3.0	159	535						
TIME	336	1706	5.1	992	715						
TODAY'S PARENT	170	657	3.9	169	488						
TORONTO LIFE	97	341	3.5	175	167						
TORONTO LIFE FASHION	126	608	4.8	156	452						
TORONTO SUN (M-F)	240	1063	4.4	742	321						
TORONTO SUN (SAT)	189	745	3.9	453	292						
TORONTO SUN (SUN)	408	1225	3.0	687	538						
TRIBUTE	651	1305	2.0	635	670						
TV GUIDE	704	1865	2.6	814	1051						
TV TIMES	1780	2229	1.3	1049	1180						
TV WEEK MAGAZINE	76	182	2.4	88	94						
VANCOUVER MAGAZINE	56	117	2.1	66	51						
WESTERN LIVING	211	293	1.4	106	185						

PMB 2000	
New Publications - 1 Year Data	
Nouvelles Publications - Données sur 1 an	
CANADA	Readership/ Lectorat 12+
Unweighted Sample/ Échantillon non-pondéré	11942
CANADIAN FAMILY	200
IE: MONEY	215
LE MAGAZINE ENFANTS QUÉBEC	62
PRESIDENT'S CHOICE MAGAZINE	443
PROFESSIONALLY SPEAKING	214

*Circulation data in accordance with PMB requirements were not received. No readers-per-copy data are shown.
Les données sur le tirage des publications selon les règlements du PMB n'ont pas été reçues. On n'indique pas le nombre de lecteurs par exemplaire.

Numbers in 000 except for RPC/Chiffres en 000 sauf pour LPE

Appendix B

Print Media Bureau (PMB) 2001

PMB 2001 READERSHIP DATA/DONNÉES SUR LE LECTORAT				
PMB 2001				
TOTAL CANADA ENSEMBLE DU CANADA	Circ./ Tirage	Readership/ Lectorat 12+	Male/ Homme 12+	Female/ Femme 12+
Unweighted Sample/ Échantillon non-pondéré		17621	8172	9449
Population (000)		26002	12793	13209
CANADIAN BUSINESS	90	1187	837	330
CANADIAN FAMILY	160	1045	364	681
CANADIAN GARDENING	152	2842	1060	1782
CANADIAN GEOGRAPHIC	228	4806	2507	2099
CANADIAN HOCKEY MAGAZINE/ MAGAZINE HOCKEY CANADIEN	*	2130	1602	528
CANADIAN HOME WORKSHOP	116	1485	964	521
CANADIAN HOUSE & HOME	186	2447	790	1657
CANADIAN LIVING	559	4498	1256	3242
CARPNEWS/FIFTYPLUS	211	918	351	567
CHATELAINE	761	4792	1205	3586
CONFIDANTE / CONFIDENTE	*	236	48	190
ELM STREET	666	1010	341	669
ENROUTE	161	852	532	320
EYE	95	267	167	100
FASHION	161	1909	545	1364
FEATURE	595	808	386	422
FLARE	169	1814	406	1408
FOOD & DRINK	514	1718	661	1056
GARDENING LIFE	102	1913	667	1246
GLOBE TELEVISION/BROADCAST WEEK	*	337	159	178
GOLF CANADA	127	1969	1479	491
GOOD TIMES	145	561	192	369
HARROWSMITH COUNTRY LIFE	135	1539	634	904
HEALTHWATCH	471	4949	1765	3183
HOMEMAKER'S MAGAZINE	546	2267	564	1702
IE: MONEY	174	604	425	179
IMAGES	416	1994	532	1462
LEISUREWAYS/JOURNEY	*	1080	529	550
MACLEAN'S	504	3090	1653	1438
NATIONAL POST BUSINESS	274	1620	1148	472
NOW	105	369	246	123
OUTDOOR CANADA	90	2114	1477	638
PERFORMANCE	*	154	78	76
PLANT & GARDEN	74	1702	616	1086
PRIMETIME	381	475	236	239
PROFESSIONAL SPEAKING	168	224	114	110
PROFIT	101	375	277	98
READER'S DIGEST	1103	7929	3659	4260
REPORT ON BUSINESS MAGAZINE	*	1326	953	373
SATURDAY NIGHT	390	794	421	373
SPECTATOR TV	126	307	132	176
STARWEEK	697	1828	906	922
STYLE AT HOME	203	1383	346	1036
TIME	325	3074	1750	1324
TODAY'S PARENT	175	2092	611	1481
TORONTO LIFE	98	1034	541	493
TORONTO SUN (M-F)	234	1095	770	324
TORONTO SUN (SAT)	181	796	494	302
TORONTO SUN (SUN)	394	1188	695	493
TRIBUTE	501	1834	994	840
TV GUIDE	594	4284	2001	2283
TV TIMES	1800	3555	1822	1733
TV WEEK MAGAZINE	70	315	164	150
VANCOUVER MAGAZINE	55	323	192	131
WESTERN LIVING	210	772	367	404
WESTWORLD/GOING PLACES	1073	1369	676	693

PMB 2001			
CANADA	Circ./ Tirage	Readership/ Lectorat 12+	Male/ Homme 12+
Unweighted Sample/ Échantillon non-pondéré		17621	8172
Population (000)		26002	12793
7 JOURS	125	1261	451
AFFAIRES PLUS	97	487	298
CAPITAL SANTÉ	49	279	87
CHÂTELAIN (FR)	191	1143	340
CLIN D'OEIL	62	859	243
COUP DE POUCE	171	1141	340
DÉCORATION CHEZ-VOI	68	746	238
DÉCORMAG	66	753	279
DERNIÈRE HEURE	45	569	229
ÉCHOS-VEDETTES	70	565	199
ELLE QUÉBEC	77	734	220
FEMME D'AUJOUR D'HUI	*	487	121
FEMME PLUS	54	383	74
FILLES D'AUJOUR D'HUI	58	517	138
FLEURS, PLANTES, ET JARDINS	61	725	230
L'ACTUALITÉ	192	1096	562
LE BEL ÂGE	150	804	255
LE LUNDI	55	826	292
LE MAGAZINE ENFANTS QUEBEC	63	303	60
LES AFFAIRES	96	400	260
LES IDÉES DE MA MAISON	58	912	324
MADAME	123	466	97
MAGAZINE LES AILES	87	796	270
MAGAZINE PME	38	210	154
PRIMEURS	316	578	295
RÉNOVATION BRICOLAGE	38	678	380
REVUE COMMERCE	44	227	152
SÉLECTION DU READERS DIGEST	240	1253	615
SENTIER CHASSE-PÊCHE	50	617	486
STAR INC.	35	420	179
TÉLÉ PLUS	385	502	229
TOURING	498	846	450
TV 7 JOURS/TV HEBDO	324	1490	593
VOIR	165	535	320

*Circulation data in accordance with PMB requirements were not received. No readers-per-copy data are shown.
Les données sur la circulation des publications selon les règlements du PMB n'ont pas été reçues. On n'indique pas le nombre de lecteurs par copie.

Numbers in 000 except for RPC/Chiffres en 000 sauf pour LPE

Appendix D

Content Analysis of Total Items

A review of 48 issues of *Flare* and *Chatelaine* magazines yielded 373 items, 19 of which focused on both calcium and weight-related information, resulting in 392 'total' messages. These items consisted of 286 explicit and 106 implicit messages. The results of 'total' messages proved to be similar to 'explicit only' messages and were, therefore, not included in the content analysis presented in Chapter 4. The analysis of 'explicit only' messages allowed for a comparison of results between this study and that of Korinis' (1996). Descriptive statistics, based on messages per-100-pages will detail the quantity of 'total' calcium and weight-related messages, sources of these messages, and patterns by month and year. Discrepancies due to the inclusion of implicit items will be highlighted.

Overall, 30% (119) of the messages were found in *Flare* with an average of 3.13 messages per-100-pages. *Chatelaine* contained the remaining 70% (273) of messages, averaging 6.33 messages per-100-pages. Thus, when looking at 'total' messages consisting of explicit and implicit content related to calcium and weight, *Flare* had fewer messages than *Chatelaine* ($W=6.5$, $p<0.0001$).

Quantity of Total Calcium and Weight-Related Items

When the 392 messages were examined for their foci, it was found that 35% (138) dealt with the subject of calcium and 65% (254) with weight. Figure D.1 illustrates this distribution of messages within each magazine.

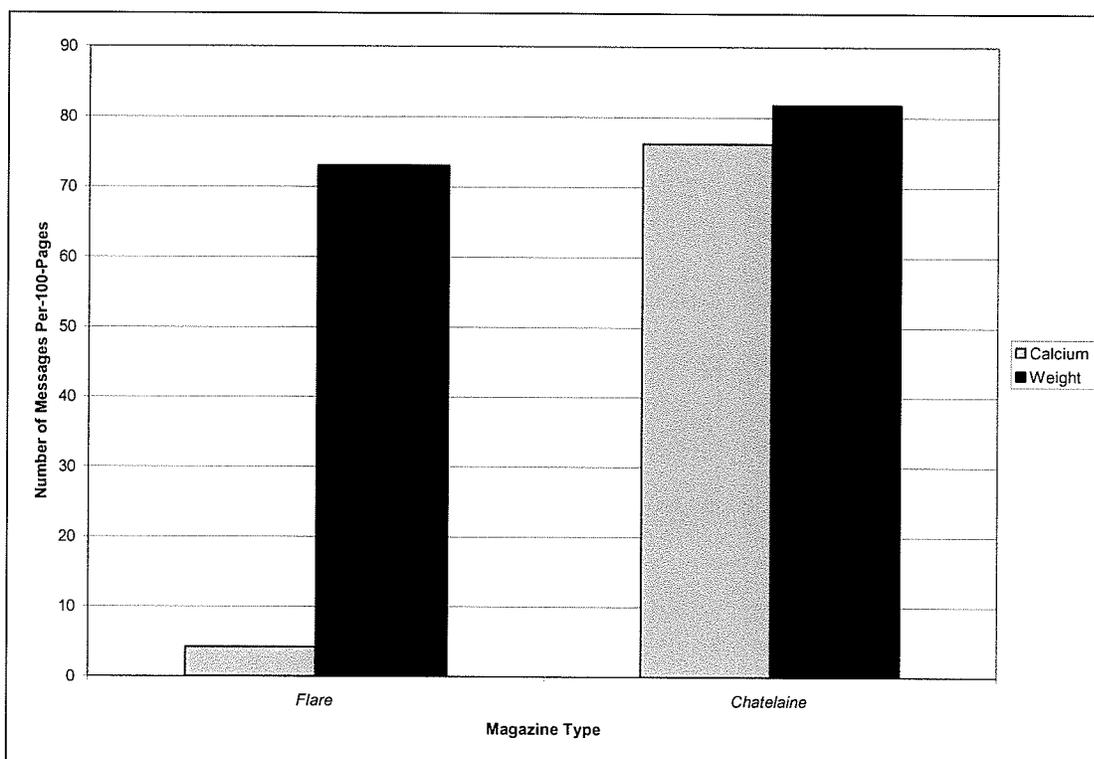


Figure D.1. Frequency of 'total' calcium and weight-related messages by magazine.

Ninety-four percent of the calcium messages were found in *Chatelaine*. There were 130 messages (3.01 messages per-100-pages) in *Chatelaine*, compared to 8 messages (0.21 messages per-100-pages) in *Flare*. There were significantly fewer calcium messages in *Flare* compared to *Chatelaine* ($W=0$, $p<0.0001$).

Fifty-six percent of the weight-related messages were found in *Chatelaine*. There were 143 messages (3.32 messages per-100-pages) in *Chatelaine* compared to 111 messages (2.92 messages per-100-pages) in *Flare*. Although *Chatelaine* had more weight-related messages than *Flare*, this did not achieve statistical significance ($W=106.5$, $p=0.8962$ NS).

Sources of Information

There was a significant difference found between advertisements and editorial content of calcium messages. Advertisements were the primary source of 'total' calcium information in both magazine types, comprising 70% (97) of the identified messages. Articles and columns, (including bullets) each comprised 15% (20) and 15% (21) of the remaining calcium message, respectively ($W=286.5$, $p<0.0001$).

This distribution is shown in Figure D.2.

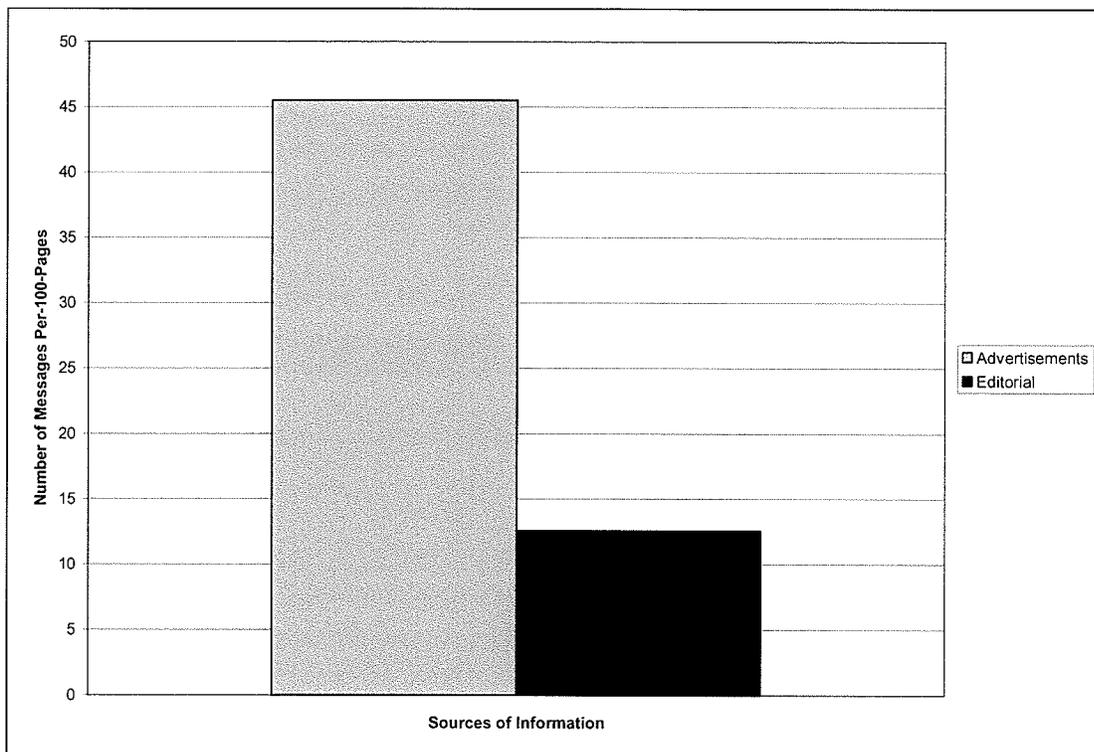


Figure D.2. Distribution of 'total' calcium messages by type.

Conversely, the majority of weight-related information was conveyed through editorial content, however, statistical significance was not achieved. Advertisements comprised 47% (119) of the weight messages while 24% (62) of weight messages

were in the form of articles and 29% (73) as columns (including bullets) ($W=107.5$, $p=0.5661$ NS). This is different from 'explicit only' results in which 70% of weight-related messages were conveyed through editorial content, indicating that advertisers may be sending weight messages more often using an implicit message rather than directly stating their message. This distribution can be seen in Figure D.3.

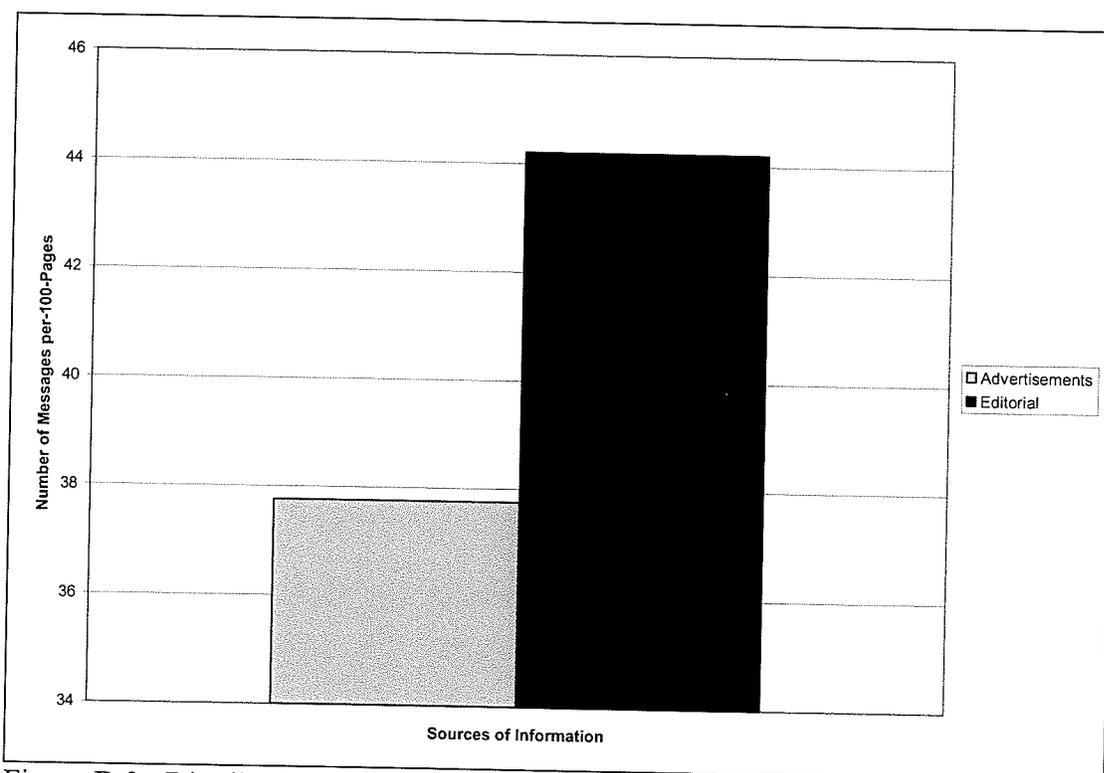


Figure D.3. Distribution of 'total' weight-related messages by type.

Patterns by Month and Year

Figures D.4 and D.5 illustrate, by month, the calcium and weight-related messages, per-100-pages, collected from *Flare* and *Chatelaine* magazines. There were no significant differences in the number of 'total' calcium messages between 2000 and 2001 in both magazines (*Flare*: $W=4$, $p=0.4375$ NS; *Chatelaine*: $W=16$,

$p=0.0771$ NS). Therefore, results are presented over a 12-month period. This differed from the results of ‘explicit only’ calcium messages in which there was a significant difference in the number of calcium messages in *Chatelaine*, between 2000 and 2001. Consequently, those results were presented over a 24-month period. Figure D.4 illustrates a downward trend of ‘total’ calcium messages in *Chatelaine*, in contrast to ‘explicit only’ calcium messages featured in Figure 4.4 which illustrates no discernable pattern consisting of several fluctuations.

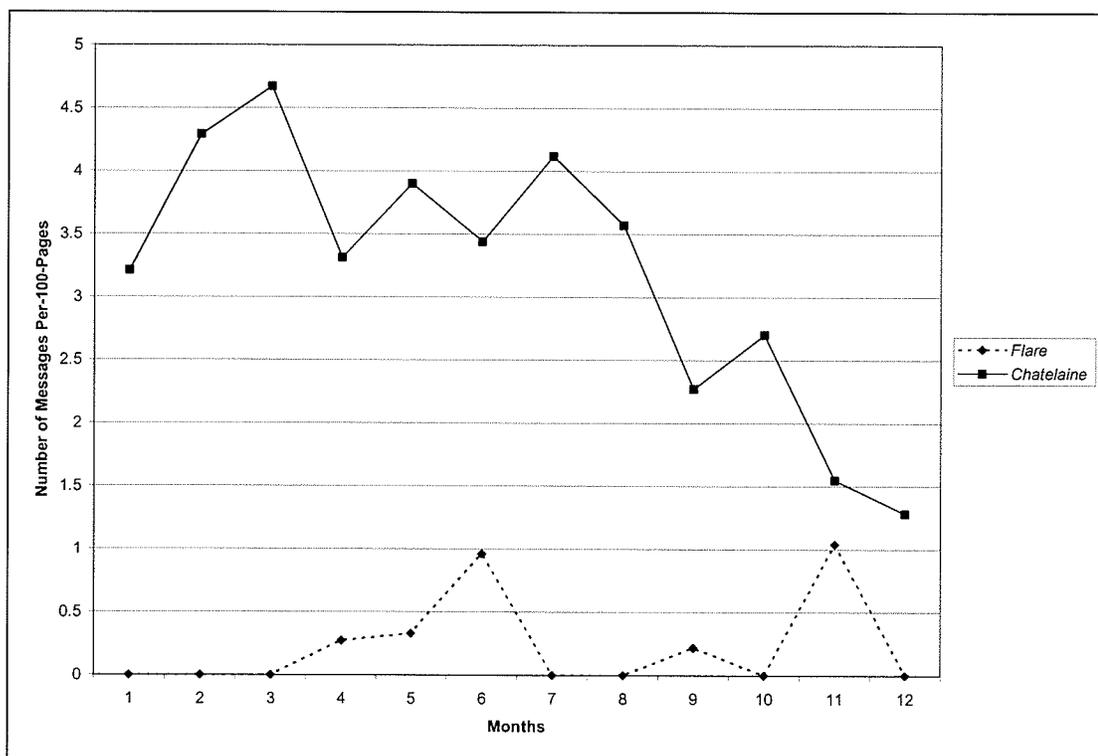


Figure D.4. Pattern of ‘total’ calcium messages distributed by month.

Results are also combined for ‘total’ weight-related messages as year 2000 was not statistically different from year 2001 for either magazine type (*Flare*: $W=16$, $p=0.0771$ NS; *Chatelaine*: $W=19$, $p=0.1294$ NS). Figure D.5 illustrates a downward

trend of decreasing frequency of 'total' messages related to weight, similar to the trend depicted in Figure 4.5 for 'explicit only' messages.

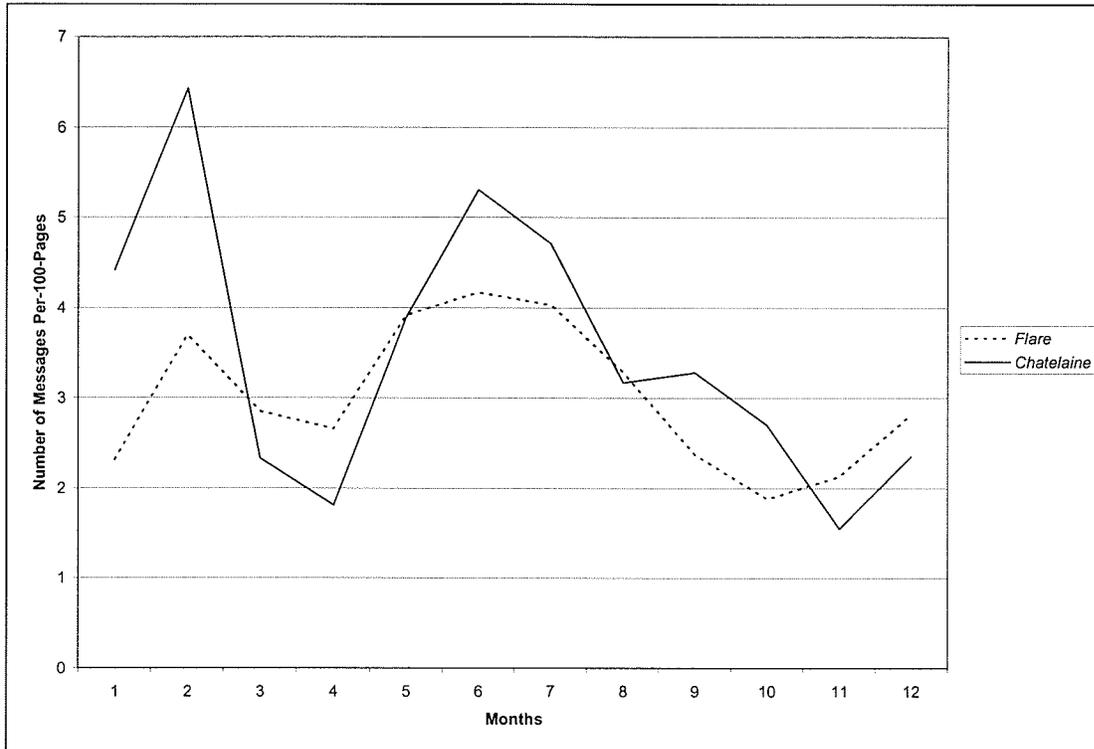


Figure D.5. Pattern of 'total' weight-related messages, distributed by month.