TELEVISION: THE MEDIUM THE MESSAGE AND NUTRITIONAL HEALTH

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Abstract: This paper presents a review of research linking nutritional health and body image attitudes with television viewing. Cultivation Theory and Social Learning Theory provided the basis for a discussion of socialization of health-related attitudes by television broadcasts. Health-enhancing and health-detracting behaviours related to heavy television viewing have been highlighted in the literature. The physiological effects of viewing, including obesity, fitness level and serum cholesterol level, have led some researchers to term television a chronic disease risk factor. Content analyses of television portrayals of nutrition and body image messages have studied both advertisements and programming. These studies have indicated that television presents a paradoxical view of food – snacking on higher energy, lower nutrient dense foods abounds and yet few characters have or develop weight problems or chronic diseases. The need for health and education professionals to improve media literacy levels is evident.

Résumé: Cet article présente une revue des recherches qui établissent un lien entre la nutrition et les attitudes de perception de soi avec le visionnement de la télévision. Les théories culturelle et de socialisation sont à la base de la discussion de la socialisation des attitudes reliées à la sante par la programmation de télévision. Le développement de certains comportements nuisibles ou favorisants la santé relié au visionnement de la télévision ont déjà eté soulignes dans la littérature. Les effets physiologiques reliés au visionnement de la télévision tels que l'obésite, le niveau de forme physique ainsi que le niveau de cholestérol ont mené certains chercheurs a nommer la télévision comme étant un facteur de risque pour maladie chronique. Le portrait véhiculé par la télévision en ce qui à trait a la nutrition et à l'image de soi à ete analysé à l'intérieur de la programmation et de la publicité télévisées. Ces études indiquent que la télévision présente une vision paradoxale de la nourriture: la collation basée sur de la nourriture élevée en énergie; la nourriture faible en valeurs nutritives abonde mais peu de personnages développent des problemes de poids ou des maladies chroniques. Le besoin pour les professionnels de la santé et de l'éducation d'améliorer le niveau de connaissance des médias est évident.

This paper discusses the reported and purported effects of television viewing on nutrition, body image and general health. Nutrition and body image related research have extensively studied mass communication, particularly that of television. This body of research will be reviewed in terms of audience use research, media effects research and media content analysis.

Background

Recent research concerning the amount of time people spend viewing television has garnered much attention. Children spend more time in front of the

television than they do in school an estimated 28 hours weekly (Comstock and Paik, 1987). Each week, adult males and females watch 29 and 34 hours, respectively. After retirement, this figure increases (Black & Bryant, 1992). In the average household, the television is turned on about 55 hours each week (Comstock & Paik, 1987), indicating that families don't always view together. So, it seems that besides work or school and sleep, television occupies the greatest proportion of viewers' time (Black & Bryant, 1992). It has been estimated that over the period of one year Americans collectively spend 30 million person years viewing television (Murray, 1993).

Comstock (1993) suggested that these viewing time statistics have a certain folklore quality about them. He noted that typical television viewing is not marked by constant attention to the screen, but is discontinuous, often interrupted and is not the sole activity engaged in by the viewer. Viewing tends to be characterized by 'content indifference', 'low involvement' and 'monitoring"' (Comstock, 1993, p. 126). Thus, the estimated viewing hours, and those reported to ratings companies, define the upper limits of possible attending to the screen only (Comstock, 1993). However, while viewers may not be actively engaged in viewing while in the room with the television set, they are aware of the content at a lower level of consciousness; that is, they are monitoring the programming. Thus, the brain may still recognize all that is broadcast.

On average, a child views 22,000 commercials annually (Signorielli, 1990). Advertisements for food products constitute at least 5000 of these ads, over half of which are for low nutrient dense foods (Signorielli, 1990). As well, data from the long-term cultural indicators project showed that a typical viewer of prime-time welcomes about 300 stable characters into their homes each week (Gerbner, 1985). Often the foods consumed by these characters are of low nutritional quality and the foods are used to soothe unsettled emotions or as socialization tools rather than to curb hunger (Weinberg, 1993).

Audience Uses of Television

In spite of the common misconception that television is solely an entertainment medium, many studies of viewers have uncovered a multitude of other uses. Much research has pointed to the informal educational ability of the medium – not only with children, but with adults, too. While, television has the ability to lay foundations for attitude and behaviour adaptations, it also validates existing attitudes and behaviours.

For many viewers, television provides them with information, both factual and fictional (Singer, 1983). In a study of 100,000 French school-aged children, 70% reported that most of their science knowledge was obtained from the television (Dan, 1992). General Mills conducted a study which presented respondents with a list of 16 health information sources. Television was cited as the main health information source by 3 1% of the respondents, second only to

doctors and dentists, a group that was chosen by 45% of the sample (Signorielli, 1990). A recent Canadian survey (Tracking Nutrition Trends, 1994), found that SO-70% of respondents obtained their nutrition information from the mass media, both print and electronic. This same study showed that only 30-40% of respondents reported obtaining such information from a dietitian/nutritionist.

Other uses for television have been noted in the literature. Singer (1983) alludes to the use of television as a babysitter or companion for children when caregivers are busy with other tasks. The role of companion or social support is also likely to occur with the socially isolated, such as the elderly or unemployed, since it has been noted that television viewing hours increase in these groups (Huston, Donnerstein, Fairchild, Feshback, Katz, Murray, Rubinstein, Wilcox & Zuckerman, 1992). As well, a study by Tarasuk and Maclean (1990) suggested that owning a television set and VCR and subscribing to basic or expanded cable services not only provided the low-income family with entertainment and escapism, but it added to their sense of financial security due to the high resale value of the hardware.

Audience uses of television are many and varied. But, what effect do these uses have on the audience?

Television Viewing Effects

Television as Reality

An area which has received much attention is that of perceived reality of television by the viewer. Concepts about reality begin early in life. Children aged two to three years do not comprehend the representational nature of television (Fitch, Huston & Wright, 1993). A bizarre example of this from the literature involved a 3-year-old boy who presented to the physician with constipation. The child refused to sit on the toilet and had reverted to using a diaper after viewing a television commercial in which the toilet bowl turned into a monster with the lid making a biting movement (Pilapil, 1990). While this commercial was targeted towards adults, and was likely found amusing by adults, it was perceived very differently by a child. Such unrealistic portrayals are not likely to be understood until around seven or eight years of age when children are able to distinguish between active and symbolic events (Blosser & Roberts, 1985). Around age 10 years, children seem to judge factuality similarly

Perception of message intent research has largely centred on child viewers of commercials. In studies of children aged 4 to 11 years, increasing age has been directly related to improved ability to recognize message intent (Blosser & Roberts, 1985; Robertson & Rossiter, 1974). The most apparent increase in this ability occurred between eight and nine years of age (Blosser & Roberts, 1985). Robertson & Rossiter (1974) proposed that such improvement was due to both

cognitive development and the cumulative experience with commercial messages.

Socialization of Attitudes and Television

Its ubiquity, visual appeal and the minimal skills required to use it, make television an ideal socialization agent. Based on the concepts of social learning theory, this medium assists viewers to acquire the values, beliefs, attitudes and mores of a culture – both their own and those of others.

Signorielli (1993) states that the "story-telling" function of television is paramount to viewers' learning of the world and its social structures. The images and popular culture portrayed by this medium tell the viewer about life. It is this same function which can be potentially damaging by misshaping perceptions of the real world through stereotyping (Rubinstein, 1983). In terms of gender role images on television, the majority of female characters in prime-time maintain traditional roles, tend to be younger than their male counterparts, are outnumbered by men by a ratio of two or three to one (Signorielli), and are slimmer than male characters (Silverstein, et al., 1986).

Recent research has pointed to the effect of awareness of advertising, not merely exposure, on development of beliefs. Grube and Wallack (1994), in a study of fifth and sixth grade children, concluded that children who were more aware of beer advertisements held more favourable beliefs about drinking, had a greater knowledge of beer brands and slogans, and reported a greater intent to drink as adults. A British survey of over 7000 children aged 11 to 16 years, found that when asked for their favourite commercial, the most popular choices were beer and lager products (Nelson & While, 1994). These commercials were significantly more likely to be chosen as favourites by children who claimed to drink alcohol (Nelson & While, 1994). Thus, it is possible that attitudes and beliefs formed by television viewing may affect behaviour. This is of major concern since prime time televised alcohol consumption portrayals have been reported to appear twice as often as those of coffee or tea, 14 times as often as soft drinks and 15 times as often as water (Tucker, 1985).

Television, Body Image and Self Esteem

Of interest to nutrition and health professionals is the psychological research of how individuals construct mental models of themselves called self-schemas. One such self-schema is body image, the view of body shape, size and physical ability as compared to the perceived norm (Ikeda & Naworski, 1992). It is closely linked to self-esteem, physical changes in the body (puberty, pregnancy, menopause), socialization, prevailing social values and judgments or feedback from others (Rice, 1993). Research in this area combines social reality concepts with socialization theory.

Originating in feminist critique research, the notion of body image as a basis for health-detracting behaviour has focused on female bodies. Yet, adult males tend to express their ideas of health in terms of their own or others' bodies (Watson, 1993). Thus, television could affect the personal body image of males as well as their images of women.

It has been estimated that viewers see over 5,000 attractiveness messages each year through televised commercials (Downs & Harrison, 1985). As well, in prime-time programs, a much smaller proportion of overweight characters is portrayed than would exist in the non-mediated world (Gerbner, Gross, Morgan, & Signorielli, 1981; Kaufman, 1980; Silverstein, Perdue, Peterson & Kelly, 1986). For example, Silverstein et al. (1986) found that while 25.5% of males portrayed on television were rated as heavy, only 5% of female characters were so rated. At the same time, high energy foods are often referred to, giving the impression that eating excess calories is not associated with weight gain (Weinburg, 1993). Stereotypical male body images portrayed in the print media have been viewed negatively by males, who saw the body-builder image as an inappropriate and unattainable cultural representation (Watson, 1993). A cumulative effect of these messages may exist where "each of these body image messages is just one more strike on a chisel sculpting the ideal body inside a . . . mind" (Myers & Biocca, 1992, p.111). Again, based on social learning theory and cultivation analysis, heavy viewing of television could cultivate the belief that few women are overweight in the non-mediated world.

Myers and Biocca (1992) described the concept of "elastic body image" which points to the non-static nature of self body image and its susceptibility to change based on environmental cues. They found that a woman's body image is responsive to televised ideal female body images. The researchers concluded that viewing less than 30 minutes of televised messages concentrated on the socially-accepted slim female body ideal resulted in the young women feeling thinner than they did usually and slightly more euphoric. Another study found that after viewing commercials for diet food, women at high risk for developing anorexia nervosa reported more negative than positive appearance statements compared to a group of lower risk women (Kaltenbach, 1990). In terms of cultivation theory, these short-term changes in self perception could be attributed to the adoption of the presented views of social reality by the viewer.

Low self esteem, a concept closely related to negative body image, may be reinforced by television viewing. Lonely people viewing television to pass the time have reported increased boredom, passivity and withdrawal (Weinburg, 1993). These feelings, in turn, can lower self esteem. Adolescent males who were light television viewers (2 h/day) compared to moderate (2-4 h/day) or heavy (4+ h/day) viewers were more outgoing, self-controlled and emotionally stable and were less neurotic, frustrated or troubled (Tucker, 1987). In nutritional health terms, boredom, frustration, low self esteem, loneliness and

lack of control have been reported reasons for overeating (Weinburg, 1993). Thus, another behavioral component is added to the body image model.

Television and Health Behaviours

The scientific understanding of the possible roles television plays in human physical health status has little value alone. Unless behaviour is affected and, in turn, understood, causal links cannot be made and prevention strategies cannot be effectively implemented. The effect exerted by television on viewers is a function of the time spent viewing, the accumulation over time of what is seen (American Academy of Pediatrics, 1990) and the qualities and intentions of the viewer (Huston et al., 1992).

Purchasing and Product Choice Behaviour

Television commercials implicitly and explicitly influence viewers to purchase products. In children, the effect manifests itself as either a direct product purchase or a request of the caregiver to purchase the product (Clancy-Hepburn, Hickey & Nevill, 1974).

With an interviewer-administered questionnaire for parents, the viewing habits and food requests of children aged 3 to 8 years were gathered (Taras, Sallis, Patterson, Nader & Nelson, 1989). Foods requested reportedly due to a television commercial were similar in frequency to the televised rates of the commercials themselves. Also, a significant positive correlation was found between viewing hours and television influenced purchase requests made by the children. In a laboratory setting, children who worked harder, by pressing a button, to keep commercials rather than program material on a television monitor, were observed to make a greater number of purchase-influencing attempts at the grocery store (Galst & White, 1976).

First grade children viewing commercials for highly sugared foods tended to choose more sugared foods as snacks when compared to controls or children who saw pro-nutrition public service announcements (PSAs) (Goldberg, Gorn & Gibson, 1978). In a later study, Gorn and Goldberg (1982) exposed campers aged 5 to 8 years to one of four commercial treatments over 14 consecutive days. The treatments included candy commercials, fruit commercials, pro-nutrition PSAs and no commercial messages. Children exposed to the fruit commercials chose the most fruit juice as a snack while those exposed to the candy commercials chose the least orange juice as a snack. As well, less fruit was chosen by the candy commercial group than any other group. Unlike most previous studies, this research attempted to improve the validity of any association found by using a longitudinal design and exerting some control over food choice and television viewing behaviour through the choice of a summer camp setting.

While most of the research relates children's food choices with televised commercials, Goldberg and colleagues (1978) investigated the effect of a pro-nutrition episode of Fat Albert, an animated half-hour program with Bill Cosby appearing intermittently to emphasize points. The results indicated that viewing the program, which dealt with the problems of eating excessive amounts of low nutrient dense foods, changed short-term food choices even when accompanied by commercials for snack and breakfast foods with high sugar contents. Thus, television programming also can affect behaviour and perhaps even counteract commercial content.

Research with adults has shown similar effects of television advertising on food product choices. Marketing research surrounding the Kellogg All Bran(R) advertising strategy of 1984, has shown a major impact on product purchase. Levy & Stokes (1987) reported on the televised media campaign targeted to the 35-year-old and over audience. This All Bran(R) campaign presented the fibre-cancer prevention message and was endorsed by the National Cancer Institute of the U.S. National Institutes of Health. Market share was tracked using computerized purchase data from grocery store check-outs from 16 weeks prior to the campaign to 48 weeks following its initiation. In the first 24 weeks of the campaign, sales for all high fibre cereals (particularly Kellogg cereals) rose sharply. The growth in sales continued over the next 24 weeks, but this was due mainly to increased sales of non-Kellogg high fibre cereals (Levy & Stokes). At the end of the study, high fibre cereal sales had increased to 8.4% of all ready-to-eat cereal sales, an increase of 2.3% (Levy and Stokes). It is interesting to note that this seemingly small increase was of major importance as a 1% market share was equal to over $40 million (Levy & Stokes).

This advertising campaign by Kellogg gave impetus to a review of U.S. government policy towards health claims in food advertising and a suspension of the ban against health claims while the issue was being considered. Between 1984 and 1986, surveys reported an increase in public knowledge regarding the link between cereal fibre and cancer prevention from 9% to 32% (Ippolito & Mathios, 1990). Lifting the advertising ban created a more accessible information source for consumers which resulted in their behaviour change. Televised cereal commercials and placement of health promotion messages on product packaging were better able to reach a wider audience than previously available information sources (Ippolito & Mathios, 1990). In terms of social marketing theory, their evidence suggested that this form of communication reduced the cost of obtaining information for broad sectors of the population.

Health-Enhancing Behaviour

The transmission of positive health messages is well suited to the television medium. It offers a route to population segments which are generally though of as 'hard-to-reach', such as older adults, lower income groups, those with lower

education levels and other socially isolated persons (Dan, 1992). A recent Canadian campaign demonstrated improved knowledge by the public of the risk of alcohol consumption during pregnancy in a pre-test/post-test design (Casiro, Stanwick, Pelech, Taylor & Child Health Committee, 1994). Respondents reported that television was their main source of this information significantly more often after the campaign than before the campaign (Casiro et al., 1994).

Health programming rather than PSAs has been used successfully in Finland (Weinberg, 1993). Five series of 15 segments each were aired between 1978 and 1985. The programs helped viewers develop the skills needed to make and sustain behavioral changes and encouraged a supportive social environment for the changes. Viewers reported smoking cessation, weight loss and reduced dietary intakes of fat, sugar and sodium (Weinberg, 1993).

In North America, health professionals are beginning to work cooperatively with the television industry to promote health-enhancing behaviours (Montgomery, 1990; Weinberg, 1993). The Centre for Health Communications at the Harvard School of Public Health launched a campaign to increase the awareness of the dangers of drinking and driving. After the first year, the program took credit for scenes or entire programs devoted to the topic in 25 television programs (Montgomery, 1990). This project has expanded to include technical consultation to the producers of Beverly Hills 90210 for a story line involving body image and dieting in teenage women (Weinberg, 1993). Specialty programs promoting positive health behaviours have begun to be collaboratively created – work which is based largely on the agenda setting concept of social marketing theory.

Health-Detracting Behaviour

Heavy television viewing has been related to increased low nutritional knowledge and increased perceptions of validity of nutrition claims in commercials (Signorielli, 1990). Many health-detracting behaviours may occur in persons who rely heavily on television as a source of health information as well as those who view heavily (Signorielli, 1990).

A TV Guide survey in 1992 showed the extent to which television and eating habits have become linked (Weinberg, 1993). Two-thirds of respondents reported viewing television while eating their evening meal. In the 18- to 24-year-old segment, three-quarters of respondents reported this behaviour. In a study of pregnant adolescents, it was reported that subjects consumed 38% of their energy intake while viewing television (Goldberg, 1990). This change in the social aspects of mealtime may have an effect on the mental health of viewers and their families.

Klein and associates (1993) reported that adolescents aged 14 to 16 years who were heavy viewers of music videos and televised movies were more likely to engage in health-detracting behaviours such as smoking cigarettes or

marijuana, drinking alcohol or engaging in high risk sexual activity. In a study of adolescent males, Tucker (1987) found that subjects viewing less than two hours of television daily were significantly more physically fit than those viewing two or more hours each day, indicating that they likely were more physically active.

The portrayed ideal body image in the mass media has become slimmer since the 1960s (Myers & Biocca, 1992). The health effects of this societal ideal may be seen in the large numbers of people dieting to lose weight. Of adult Canadians who fall within a healthy weight range, 45% wanted to lose weight, while 7% of those who were already below a healthy weight range wanted to weigh less (Health and Welfare Canada, 1988). An American study showed that in a university population, 35.5% of all smokers, (39% of female smokers and 25% of male smokers) reported using smoking as a weight loss strategy (Health and Welfare Canada, 1988).

As a perpetuating factor in these behaviours, television transmits the thin ideal for females and the muscular ideal for males. These messages, as dieting to lose weight, are not exclusive to adults. Fear of becoming overweight affects children as early as age 6 to 9 years (Czajka-Narins & Parham, 1990). Weight loss dieting behaviours, including binge eating, have been reported in children aged 9 to 12 years (Michaud & Terry, 1993). Recent reports of increased anabolic steroid abuse by adolescents males have been linked to difficulties with body image (Turner, 1994; Yesalis, 1992). Teenage males seem to be turning to these drugs to help them achieve the socially represented ideal body not to enhance performance in sport. Such behaviours compromise growth, reduce vital body nutrient stores, decrease resistance to infection and perpetuate distorted body images (Michaud & Terry, 1993).

Signorielli (1990) reported that heavy viewers of television reported not being concerned about body weight and that they ate or drank whatever they chose, whenever they chose. Thus, television viewing can be linked to a complacency about positive health attitudes and behaviours. Gerbner and associates (1981) termed this the "cultivation of complacency." This effect was based on the unrealistic belief held by the viewer in the "magic of medicine" perpetuated by television programming and commercials. The authors felt **this** belief resulted in continued unhealthy lifestyle choices by viewers who felt that modern medicine would fix them if problems arose. In light of the present health care system reforms, this continued reliance on the traditional view of medicine, or the illness-care model, will have far-reaching and perhaps devastating effects. There not only is a threat to personal health but a threat to an already over-burdened health care system.

Television Viewing as Chronic Disease Risk Factor

Television viewing has been linked to body image distortions, reduced fitness levels, increased consumption of low nutrient dense foods and changes in

social eating patterns. But, what are the personal and public health impacts of these behaviours?

Obesity

A recent report stated that 1 in 5 U.S. teenagers was overweight ("Prevalence of overweight," 1994). The prevalence has increased from 1 in 7 which was reported for the 1970s. An increased prevalence of adolescent obesity will lead to a future increase in obesity of the adult population ("Prevalence of overweight," 1994). Canadian figures have estimated that the increased prevalence of obesity since 1980 has been a 50% increase in children aged 6 to 11 years and a 40% increase in adolescents aged 12 to 17 years (Lechky, 1994). Of these overweight youth, 40 - 90% will become overweight adults (Lechky, 1994). The health risks of this future obesity include increased hypertension, cardiovascular disease, non-insulin dependent diabetes, orthopedic disorders, gallbladder disease and sustained self esteem and body image problems (Groves, 1988; "Prevalence of overweight," 1994), to name only a few.

Cross-sectional studies to estimate the association between viewing times and obesity in both adult males and adult females, found that for subjects viewing three or more hours of television daily, adjusted estimates showed over twice the prevalence of obesity as seen with lighter viewers (Tucker & Bagwell, 1991; Tucker & Friedman, 1989). A dose-response effect was seen in both studies as risk increased with increased daily viewing times. Second only to prior obesity, television use has been termed the strongest predictor of obesity in children (Boyle & Morris, 1994). Using food frequency data, Taras and co-workers (1989) found a significant correlation between caloric intake and the number of hours spent viewing television. Dietz and Gortmaker (1985) were able to find strong associations between obesity and television viewing in a study utilizing cross-sectional data from the National Health Examination Surveys (NHES II and III) on 6965 children aged 6 to 11 years and 6671 children aged 12 to 17 years. As well, a longitudinal component was present as data from the NHES III included information on 2,153 children previously seen in NHES II. For both age groups, there was a significantly greater prevalence of obesity and superobesity in those who spent more time viewing television. Gortmaker, Dietz & Cheung (1990) supported a causal connection between daily television viewing duration and obesity in youth based on both cross-sectional and longitudinal data. Their study identified a 2% increased obesity prevalence with each additional hour of television viewed by children and adolescents, after controlling for possible confounding variables. From longitudinal data, these authors reported that television viewing was associated with development of obesity, with an increased incidence rate of 1.3% for each additional hour of television viewing. As well, rates of remission of obesity decreased by 6.3% for each additional hour of viewing (Gortmaker, Dietz & Cheung).

A cyclical model for the association between television viewing and obesity has been proposed (Dietz & Gortmaker, 1985; Weinberg, 1993). Television appears to affect both energy intake and energy expenditure. Energy expenditure may be reduced as viewing television requires little energy and also as it displaces more active pursuits. While viewing television, high energy, low nutrient foods are advertised and portrayed within programs. Snacking behaviour increases when viewing television and often takes the form of the lower nutrient dense foods promoted. These factors can result in viewer weight gain. In turn the weight gain may result in less motivation to exercise on the part of the viewer which leads to greater time spent viewing television, and the cycle continues (Weinberg, 1993). To compound this obesity problem, Klesges Shelton and Klesges (1993) found that in normal weight and obese children aged 8 to 12 years, viewing television resulted in a metabolic rate significantly lower than during rest. Other researchers have found a reduced activity level and hence a reduced energy expenditure during viewing compared with sitting quietly or reading (Dietz, Bandini, Morelli, Peers & Ching, 1994; DuRant, Baranowski Johnson & Thompson, 1994). Thus, television viewing may contribute to obeisity through a reduced rate of energy expenditure while viewing.

Fitness

A study to relate television viewing to obesity and physical fitness in adolescent males found light viewers scored significantly better on tests of fitness level than did heavy viewers (Tucker, 1986). A cohort study of adolescent females found only weak associations between adiposity, activity level or a change in either over a two year period, and television viewing time (Robinson et al., 1993).

In almost 9,000 adults, Tucker (1990) investigated the association between television viewing and cardiovascular fitness level. Adults who viewed television for more than four hours each day were only less than half as likely to be tit compared with adults viewing for less than one hour daily and were about three-quarters as likely to be as fit as those viewing three to four hours daily.

A cyclical mechanism for the television viewing association with fitness level, similar to that noted for obesity, was proposed by Tucker (1986).

As television viewing time increases, physical activity tends to decrease. As physical activity declines, physical fitness tends to decline. As physical fitness declines, attraction to passive recreation tends to increase (p. 803).

Increased television viewing is a likely form of passive recreation to be adopted. Thus, a major impact of television is not only the behaviour it promotes but also the behaviour it prevents (Tucker, 1986).

Serum Cholesterol Levels

The association between time spent viewing television and the prevalence of hypercholesterolaemia was studied in a sample of almost 12,000 employed adults (Tucker and Bagwell, 1992). Results indicated that adults viewing television for three or more hours daily were almost twice as likely to have a serum cholesterol level in excess of 6.02 mmol/L (240 mg/dL) than adults viewing less than one hour daily. Moderate duration viewers (l-2 h/day) were almost one to five times as likely to have hypercholesterolaemia. Neither group was more likely to suffer moderately increased serum cholesterol levels (5.2-6.2 mmol/L; 200-240 mg/dL). The researchers concluded that excessive television viewing may be an important lifestyle factor linked to cardiovascular disease risk (Tucker & Bagwell, 1992).

In a study of over 1000 children aged 2 to 20 years, Wong and co-workers (1992) found that excessive television viewing strongly predicted an elevated serum cholesterol level of 5.2 mmol/L (200 mg/dL) or higher. Compared to infrequent television viewers, children viewing more than four hours daily were 4.8 times as likely to have an elevated cholesterol level. For moderate television viewers, this risk was 2.2 times that of infrequent viewers. While 88% of the children viewing two or more hours daily did not have cholesterol levels over 5.2 mmol/L (200 mg/dL), this high false-positive rate should not overshadow the implied association between excessive television viewing and other behavioral factors which impact on the serum cholesterol levels of children (Wong et al., 1992).

Nutrition and Body Image Messages on Television

Media effects research has concluded that television viewing can exert a variety of effects on viewers. These effects, though, are dependent on the televised content to which the viewer is exposed (Potter & Ware, 1989). Content analyses of television broadcasts have suggested that the airwaves are saturated with overt and subtle health and nutrition messages.

Food Related Messages

Early studies indicated that Saturday morning television commercials promoted highly sugared breakfast cereals, snack foods and low nutrient dense beverages (Brown, 1977; Gussow, 1972). More recent analyses have found very few changes have occurred during the intervening years (Cotugna, 1988; Kotz & Story, 1994). Cotugna (1988) reported that on Saturday mornings, 80% of food commercials aired on the major U.S. television networks were for foods of low nutritional quality and that ads for high sugar products still prevailed. She also reported that the proportion of commercials for high fat fast foods, high sodium canned pastas and high sugar cereals had increased. Kotz & Story (1994)

reported that 56.6% of all commercials on Saturday morning U.S. network broadcasts were for food products. Of these, 43.6% were for foods high in fat and/or sugars. Again, highly sugared breakfast cereals were the most frequently advertised product.

Studies of Canadian network commercials on Saturday morning television found similar content concerns (Ostbye, et al., 1993; Wadsworth, 1992). Breakfast cereal ads comprised 25% of all food ads with 57% of these being for high sugar cereals (Wadsworth, 1992). Other major product categories advertised included sweets, low nutrient dense beverages and canned pastas (Ostbye, et al., 1993; Wadsworth, 1992). Significant differences between networks were found, with 71.6% of the commercials on YTV being for food products (Wadsworth, 1992) and neither CBC-English nor CBC-French airing any food commercials (Ostbye, et al, 1993; Wadsworth, 1992). As well, Ostbye and co-workers (1993) reported that Much Music aired a significantly greater proportion of commercials for low nutrient dense beverages. Such differences suggest both targeting of particular audience groups by the food industry and dissimilar advertising policies amongst the networks.

Byrd-Bredbenner (1994) took this Saturday morning television research one step further by analyzing nutrition related incidents in the programming itself. She found that food and body image incidents occurred an average of six times per hour. Program characters ate to socialize or to cope with emotions. When a food pyramid was constructed based on the frequency of televised food portrayals, it was nearly opposite to the U.S. Food Pyramid (Byrd-Bredbenner 1994). A similar effect had been produced using only advertised food product; (Kotz & Story, 1994).

The nutritional messages contradictory to current nutritional guidelines are not exclusive to children's programming. Research results have indicated that prime time television is far from immune to these pervasive messages. Studies have reported that 25% to 30% of prime time commercials were for food products (Kaufman, 1980; Ostbye et al., 1993; Signorielli, 1990). Ostbye and co-workers (1993) found that food products represented the largest single category of advertisements on Canadian prime time television. They found the most common foods advertised were beverages, including alcoholic beverages, complete meals, breakfast cereals and french fries. Significant network differences were evident with beverage commercials being heaviest on Much Music – 66% of total advertisements on the network with 41% of total advertisements being for soft drinks.

The practice of "product placement", which consists of the paid, prominent placement of brand-name products within program content (Black & Bryant 1992), has resulted in much greater exposure to brand-name food items for the viewer. This, coupled with the possible nutrition messages embedded in programs, led to the analysis of prime time program content. Kaufman (1980)

reported that references to food occurred two to three times in each 30-minute segment analyzed. She also found more food references in program content than in commercials. Despite the obvious bias evident in terms of actual minutes of programs versus commercials, this finding pointed to the importance of television programs as sources of nutrition messages.

Way (1983), in a study of 5 1 ongoing prime time series, found food related behaviours occurred at a rate of 1.77 per character, 5.3 per program and 7.67 per hour of programming analyzed. As well, food related behaviours which involved foods of higher nutritional quality almost equaled behaviours related to lower nutritional quality foods. Upon closer inspection of the behaviours, though, Way (1983) discovered that foods which were eaten were of lower nutritional quality than foods which were purchased, prepared, served or requested.

Higher televised rates of food references had been reported by Gerbner and co-workers (198 1). In a study of one week of prime time broadcasts, they found an average of 9 incidents per hour. A more recent study found similar aired frequencies - 4.8 incidents per 30 minutes (Story & Faulkner, 1990). Difficulties in comparisons between studies exist, though, due to the lack of standardized definitions of food incidents and differences in data collection procedures (Sylvester, Achterberg, & Williams, 1995). This is a common complication encountered with content analysis methodologies which often use different data sets, recording instruments and recording procedures (Krippendorf, 1980).

Since major motion pictures are often broadcast on television, knowledge of the nutrition messages they contain would be useful information for the nutrition educator. An analysis of 71 of the top 100 dollar grossing films of 1991 for food and nutrition related messages found that 76% of the films contained at least one major food scene. Portrayal of higher nutrient density, lower fat foods was related to higher socioeconomic and educational status of the characters.

The context surrounding food related behaviours has received some attention. Portrayed eating incidents have emphasized snacking (Gerbner et al., 1981; Kaufman, 1980). Episodes involving drinking were predominated by alcoholic beverages followed by coffee and tea (Gerbner et al., 1981). Kaufman (1980) found television characters were portrayed as happy in the presence of food, snacked often and rarely ate alone, indicating the emphasis on social aspects of eating.

The "prime time diet" appears to consist of foods of lower nutrient density with an emphasis on low nutrient beverages, sweets and snack foods. These portrayals have been likened to the typical North American consumption pattern (Ostbye et al., 1993; Story & Faulkner, 1990). This eating pattern is lower in fibre and complex carbohydrates and higher in fat, sodium, simple carbohydrates, caffeine and alcohol than current nutrition recommendations suggest (Health & Welfare Canada, 1990).

Body Image Messages

Kaufman (1980) investigated the body image portrayed in the ten top ranked prime time programs on U.S. network television. Of persons portrayed in food related situations, 88% were rated as being of thin or average body size and 12% as being overweight or obese. More men (15%) than women (8%) were rated as overweight or obese (Kaufman, 1980). This trend towards portrayal of larger male body types more often than larger female body types was confirmed by other researchers (Signorielli, 1990; Silverstein et al., 1986). Overweight persons were deemed to be under-represented in box office films, as well (Sylvester, Achterberg & Williams, 1993).

Children, adolescents and young adults were rarely portrayed as overweight or obese (Kaufman, 1980). This study also found disproportionate obesity among racial minority characters. Personal characteristics of overweight and obese persons tended to be more negative than for their thin counterparts (Kaufman, 1980). Thus, the dramatic functions of larger body sizes seem to be limited.

It seems, therefore, that television provides a paradoxical view of food. Slim characters abound, yet they continually eat high energy foods. Eating is portrayed as a "consequence-free" activity (Byrd-Bredbenner, 1994).

Content analyses of television programs and commercials have indicated many subtle nutrition and body image messages are continuously portrayed. According to social learning theory principles, with time, repeated viewing of such messages may affect viewers. As lower nutrient dense food was often presented as a prop or to give characters something to do with their hands (Byrd-Bredbenner, 1994), it may be a result of writers and producers not understanding the potential such scenes may have on viewer learning or their not being aware of higher nutrient dense food substitutes. As well, these portrayals may be due to a contract situation with a food manufacturer.

Media Literacy Strategies

With the expected future growth of cable television, VCR use and the integration of the television and the home computer, increases in television viewing may occur. "If there is any chance that our current unscrutenized enslavement to TV can affect [the health of viewers], now is the time to do something about it" (Wadsworth, 1993). Several calls for increased efforts to improve media literacy levels of the television viewing public have been made (Kotz & Story, 1994; Kubey, 1994; Taras & Gage, 1995; Tucker, 1990).

The need for television viewers to become responsible and informed consumers is clear. Improving the media literacy skills of viewers of all ages should reduce the impact of negative nutrition and body image messages broadcast by television. Emphasis on skill development will assist viewers with their critical appraisal of health related messages.

There is a need for development of updated media literacy tools for use with community nutrition programming and health curricula. Interdisciplinary efforts of nutrition, communications and education specialists would maximize the effectiveness of such educational tools. Media literacy skill development should be included in all new nutrition education and healthy weight programming. Of equal importance is the addition of media literacy components to existing programming. It is recommended that such components

(1) foster and develop awareness of the detrimental health effects of excessive television viewing, especially as they pertain to healthy eating, exercise and body image, and

(2) provide the opportunity to develop skills for critical viewing of television programming and advertisements in order to identify persuasive techniques which could adversely affect healthy eating, exercise and body image attitudes and behaviours.

When discussing the sociocultural determinants of nutritional well-being with their clients, nutrition professionals should emphasize the possible effects of television viewing on food choice behaviour and body image attitudes. Workshops on these topics, held with adult, adolescent and child viewers, will increase awareness of the link between television viewing and nutritional health status.

To advocate for healthier television viewing habits, communications, education and nutrition professionals may adopt several strategies. As possible approaches, professionals could:

- encourage viewers to set a limit on television viewing time and to substitute an alternative physical activity.
- encourage parents and caregivers to view programming with children and to discuss the concepts of advertising and entertainment programming.
- foster discussion and facilitate skill building for interpretation of imagery viewed on television in order to recognize underlying messages, not only of advertisements but of programming, as well.
- encourage discussion amongst viewers regarding foods and eating styles portrayed and those not portrayed on television.
- encourage discussion amongst viewers of the body image attitudes and stereotypes promoted through television broadcasts.
- identify local and national organizations to which viewers can direct concerns over televised message content.

Strategies such as these may improve media literacy levels of television viewers and increase awareness of the potential health hazards associated with heavy viewing. However, there is a need for the evaluation of these strategies and educational components to determine their effectiveness in increasing recognition of persuasive techniques and in changing health related attitudes and

behaviours over time. As well, such components and strategies will need to be tested and adapted for use with various population groups. Again, these efforts would benefit from an interdisciplinary approach with input from both field level practitioners and researchers.

Summary

There is no question that television viewing is a powerful and pervasive lifestyle factor in present day society. The sheer magnitude of leisure time devoted to television viewing along with the multitude of health related messages portrayed by the medium, influence health attitudes and behaviours. It seems that the widespread use of this medium by all sectors of the population may contribute to maladaptive health habits and hence, affect chronic disease risk.

Several researchers have begun to work with television rather than against this form of popular culture. The need to consider the environment within which the television industry functions is beginning to be recognized. This shift away from research based on a single aspect of a complex communication process should lead to a greater understanding of the social and cultural contexts of television – a vision of the totality of television viewing.

Further research needs to look at the nutrition related messages portrayed in television programs and commercials and the effects these have on food behaviours and body image attitudes. At the same time, however, the nutrition community must continue to build working relationships with producers, directors and writers, to assist in the presentation of positive nutritional messages, both in eating scenes and scenes where food is merely a prop.

It is imperative that the environment of the television medium, as well as the messages it carries, be understood by viewers, researchers and the television industry itself. Also, communications, education and nutrition specialists should join forces to strengthen media literacy skills of television viewers. Without such efforts, as Tucker (1990) feared, the effects of television viewing could outweigh those of health promotion campaigns.

References

American Academy of Pediatrics Committee on Communications. (1990). Children, adolescents, and television. *Pediatrics, 85,* 119-l 120.

Black, J. & Bryant, J. (1992). *Introduction to mass communication* (3rd ed.). Dubuque, IA: Wm. C. Brown Publishers.

Blosser, B. J. & Roberts, D. F. (1985). Age differences in children's perceptions of message intent. Responses to TV news, commercials, educational spots and public service announcements. *Communication Research, 12,* 455-484.

Boyle, M. A. & Morris, D. *I-L* (1994). *Community nutrition in action: An entrepreneurial approach.* St. Paul, MN: West Publications.

Brown, J. (1977). Graduate students examine TV ads for food. *Journal of Nutrition Education, 9,* 120- 122.

Byrd-Bredbenner, C. (1994). What is television (TV) trying to make children swallow? A content analysis of nutrition-related incidents (NRI) in TV programs viewed heavily by children aged 2-l1 years. (abstract). *Journal of the American Dietetic Association, 94(9),* A- 10.

Casiro, 0. G., Stanwick, R. S., Pelech, A., Taylor, V. & Child Health Committee, Manitoba Medical Association. (1994). Public awareness of the risks of drinking alcohol during pregnancy: The effects of a television campaign. *Canadian Journal of Public Health, 85(*1), 23-27.

Clancy-Hepburn, K., Hickey, A. A. & Nevill, G. (1974). Children's behavior responses to TV food advertisements. *Journal of Nutrition Education, 6,* 93-96.

Comstock, G. (1993). The medium and society. The role of television in American life. In G.L. Berry & J.K. Asamen (Eds.), *Children and television. Images in a changing sociocultural world.* (pp. 117 - 131). Newbury Park: Sage Publications.

Comstock, G. & Paik, H. J. (1987). *Television and children: A review of recent research.* Syracuse, NY: Syracuse University.

Cotugna, N. (1988). TV ads on Saturday morning children's programming - What's new? *Journal of Nutrition Education, 20,* 125- 127.

Czajka-Narins, D. M. & Parham, E. S. (1990). Fear of fat: Attitudes toward obesity. The thinning of America., *Nutrition Today,* January/February, 26-32.

Dan, B. B. (1992). TV or not TV. Communicating health information to the public. *Journal of the American Medical Association, 268,* 1026- 1027.

Dietz, W. H, Bondini, L. G., Morelli, J. A., Peers, K. F. & Ching, P. (1994). Effect of sedentary activities on resting metabolic rate. *American Journal of Clinical Nutrition, 59, 556-559.*

Dietz, W. H., Jr. & Gortmaker, S. L. (1985). Do we fatten our children at the television set? Obesity and television viewing in children and adolescents. *Pediatrics, 75, 807-S* 12.

Downs, A. C. & Harrison, S. K. (1985). Embarrassing age spots or just plain ugly? Physical attractiveness stereotyping as an instrument of sexism on American television commercials. *Sex Roles, 13,* 9-19.

DuRant, R. H., Baranowski, T., Johnson, M. & Thompson, W. 0. (1994). The relationship among television watching, physical activity, and body composition of young children. *Pediatrics, 94,449-455.*

Fitch, M., Huston, A. C. & Wright, J. C. (1993). From television forms to genre schemata. Children's perceptions of television reality. In G.L. Berry

J.K. Asamen (Eds.), *Children and television. Images in a changing sociocultural world* (pp. 38-52). Newbury Park, CA: Sage Publications.

Galst, J. P. & White, M. A. (1976). The unhealthy persuader: The reinforcing value of television and children's purchase-influencing attempts at the supermarket. *Child Development, 47,* 1089- 1096.

Gerbner, G., Gross, L., Morgan, M. & Signorielli, N. (1981). Health and medicine on television. *The New England Journal of Medicine, 30.5,* 901-904.

Gerbner, G. (1985). Children's television: A national disgrace. *Pediatric Annals, 14* (12): 822-823,826-827.

Goldberg, D. L. (1990). *Determining the effects of television, parents, and peers on the food choices of pregnant adolescents (Adolescent pregnancy diets).* [CD- ROM]. Abstract from: ProQuest File: Dissertation Abstracts Item: 9121716

Goldberg, M. E., Gorn, G. J. & Gibson, W. (1978). TV messages for snack and breakfast foods: Do they influence children's preferences? *Journal of Consumer Research, 5,73-81.*

Gorn, G. J. & Goldberg, M. E. (1982). Behavioral evidence of the effects of televised food messages on children. *Journal of Consumer Research, 9,* 200-205.

Gortmaker, S. L., Dietz, W. H., Jr. & Cheung, L. W. Y. (1989). Inactivity, diet, and the fattening of America. *Journal of the American Dietetic Association, 90,* 1247-1252, 1255.

Groves, D. (1988). Is childhood obesity related to TV addiction? (Part 2 of 2). *The Physician and Sportsmedicine, 16,* 117- 118, 120- 122.

Grube, J. W. & Wallack, L. (1994). Television beer advertising and drinking knowledge, beliefs, and intentions among school children. *American Journal of Public Health, 84 (2), 254-259.*

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

Health and Welfare Canada. (1990). Action towards healthy eating . Canada's guidelines for healthy eating and recommended strategies for implementation. Report of the Communication/Implementation Committee. Ottawa, ON: Minister of Supply and Services Canada.

Health and Welfare Canada, Health Services and Promotion Branch. (1988). *Promoting healthy weights: A discussion paper.* Ottawa, ON: Minister of Supply and Services.

Huston, A. C., Donnerstein, E., Fairchild, H., Feshbach, N. D., Katz, P. A., Murray, J. P., Rubinstein, E. A., Wilcox, B. L. & Zuckerman, D. (1992). *Big screen, small world. The role of television in American society.* Lincoln NE: University of Nebraska Press.

Ikeda, J. & Naworski, P. (1992) . *Am I fat? Helping young children accept differences in body size.* Santa Cruz, CA: ETR Associates.

Ippolito, P. M. & Mathios, A. D. (1990). Information, advertising and health choices: A study of the cereal market. *RAND Journal of Economics,* 21(3), 459-480.

Kaltenbach, P. A. (1990). *Effects of diet advertising on women at-risk for the development of anorexia nervosa (Television commercials).* [CD-ROM]. Abstract from: ProQuest File: Dissertation Abstracts Item: 9104387

Kaufman, L. (1980). Prime-time nutrition. *Journal of Communications, 30 (3),* 37-46.

Klein, J. D., Brown, J. D., Childers, K. W., Oliveri, J., Porter, C. & Dykers, C. (1993). Adolescents' risky behavior and mass media use. *Pediatrics, 92,* 24-3 1.

Klesges, R. C., Shelton, M. L. & Klesges, L. M. (1993). Effects of television on metabolic rate: Potential implications for childhood obesity. *Pediatrics,* 91,281-286.

Kotz, K. & Story, M. (1994). Food advertisements during children's Saturday morning television programming: Are they consistent with dietary recommendations? *Journal of the American Dietetic Association, 94,* 1296-1300.

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

Kubey, R. (1994). Media implications for the quality of family life. In D. Zillman, J. Bryant & A. C. Huston *(Eds.), Media, children, and the family. Social scientific, psychodynamic, and clinicalperspectives.* (pp. 61-69). Hillsdale, NJ: Lawrence Erlbaum Associates

Lechky, 0. (1994). Epidemic of childhood obesity may cause major public health problems, doctor warns. *Canadian Medical Association Journal,* 150,78-81.

Levy, A. S. & Stokes, R. C. (1987). Effects of a health promotion advertising campaign on sales of ready-to-eat cereals. *Public Health Reports, 102,* 398-403.

Michaud, K. K. & Terry, R. D. (1993). Body image and dieting behaviors among school-aged children. *Topics in Clinical Nutrition, 8,45-50.*

Montgomery, K. C. (1990). Promoting health through entertainment television. In C. Atkins & L. Wallack, *(Eds.), Mass communication and public health. Complexities and conflicts.* (pp. 114-128). Newbury Park, CA: Sage Publications.

Murray, J. P. (1993). 1. The developing child in a multimedia society. In G. L. Berry & J. K. Asamen *(Eds.), Children and television. Images in a changing sociocultural world.* (pp. 9- 22). Newbury Park, CA: Sage Publications.

Myers, P. N., Jr. & Biocca, F. A. (1992). The elastic body image: The effects of television advertising and programming on body image distortions in young women. *Journal of Communications, 42 (3),* 1 OS- 133.

Nelson, E. & While, D. (1994). Humour and alcohol: Children's favourite television advertisements. *Health Education Quarterly, 51,64-67.*

Ostbye, T., Pomerleau, J., White, M., Coolich, M., & McWhinney, J. (1993). Food and nutrition in Canadian "prime time" television commercials. *Canadian Journal of Public Health, 84 (6), 370-374.*

Pilapil, V. R. (1990). A horrifying television commercial that led to constipation. *Pediatrics, 85, 592-593.*

Potter, W. J. & Ware, W. (1989). The frequency and context of prosocial acts on primetime TV. *Journalism Quarterly, 66,359- 366.*

Rice, C. (1993). Understanding and responding to the range of body image problems. In C. Rice (ed.) Promoting healthy body image – A report and resource list for program directors based on a workshop held in October 1993 for the Best Start demonstration sites. Toronto, ON: Ontario Prevention Clearinghouse.

Robertson, T. S. & Rossiter, J. R. (1974). Children and commercial persuasion: An attribution *theory* analysis. *Journal of Consumer Research, I,* 13-20.

Robinson, T. N., Hammer, L. D., Killen, J. D., Kraemer, H. C. Wilson, D. M., Hayward, C. & Taylor, C. B. (1993). Does television viewing increase obesity and reduce physical activity? Cross- sectional and longitudinal analyses among adolescent girls. *Pediatrics, 91,273-280.*

Rubinstein, E. A. (1983). Television and behavior. Research conclusions of the 1982 NIMH report and their policy implications. *American Psychologist, 38, 820-825.*

Signorielli, N. (1990). Television and health: Images and impact. In C. Atkin & L. Wallack (Eds.), *Mass communication andpublic health. Complexities and conflicts* (pp. 96 - 113). Newbury Park, CA: Sage Publications

Signorielli, N. (1993). Television, the portrayal of women, and children's attitudes. In G.L. Berry & J.K. Asamen (Eds.), *Children and television. Images in a changing sociocultural world* (pp. 229-242). Newbury Park, CA: Sage Publications.

Silverstein, B., Perdue, L., Peterson, B. & Kelly, E. (1986). The role of the mass media in promoting a thin standard of bodily attractiveness for women. Sex *Roles, 14, 5 19-532.*

Singer, D. (1983). A time to reexamine to role of television in our lives. *American Psychologist, 38, 8* 15-8 16.

Story, M. & Faulkner, P. (1990). The prime time diet: A content analysis of eating behavior and food messages in television program content and commercials. *American Journal of Public Health, 80,738-740.*

Sylvester, G. P., Achterberg, C. & Williams, J. (1995). Children's television and nutrition: Friends or foes? *Nutrition Today, 30, 6-* 15.

Sylvester, G. P., Achterberg, C. & Williams, J. (1993, July). *Food and nutrition messages in film.* Paper presented at the meeting of the Society for Nutrition Education, St. Paul, MN.

Tams, H. L. & Gage, M. (1995). Advertised foods on children's television. *Archives of Pediatric & Adolescent Medicine, 149, 649-652.*

Tams, H. L., Sallis, J. F., Patterson, T. L., Nader, P. R. & Nelson, J. A. (1989). Television's influence on children's diet and physical activity. *Journal' of Developmental and Behavioral Pediatrics, IO, 176- 180.*

Tarasuk, V. & Maclean, H. (1990). The food problems of low-income single mothers: An ethnographic study. *Canadian Home Economics Journal, 40 (2), 76-82.*

Tracking nutrition trends - Then and now – 1989-1994. (1994, Fall). *National Institute of Nutrition Rapport, 9 (4), 1, 4-5.*

Tucker, L. (1985). Television's role regarding alcohol use among teenagers. *Adolescence, 20,593-598.*

Tucker, L. A. (1986). The relationship of television viewing to physical fitness and obesity. *Adolescence, 21,797-806.*

Tucker, L. A. (1987). Television, teenagers and health. *Journal of Youth and Adolescence, I6,4* 15-425.

Tucker, L. A. (1990). Television viewing and physical fitness in adults. *Research Quarterly for Exercise and Sport, 61 (4), 3* 15-320.

Tucker, L. A. & Bagwell, M. (1991). Television viewing and obesity in adult females. *American Journal of Public Health, 81,908-911.*

Tucker, L. A. & Bagwell, M. (1992). Relationship between serum cholesterol levels and television viewing in 11,947 employed adults. *American Journal of Health Promotion, 6,437-442.*

Tucker, L. A. & Friedman, G. M. (1989). Television viewing and obesity in adult males. *American Journal of Public Health, 79, 5* 16-5 18.

Turner, R. (1994, July 27). Steroid abuse taking alarming twist. *The Swift Current Sun,* p. 20.

Wadsworth, L. A. (1992, February). *Food advertisements on Canadian children's television programming: The Couch Potato Kid's Diet.* Poster session presented at Child Health 2000 - First World Congress and Exposition on Child Health, Vancouver, BC.

Wadsworth, L. A. (1993). Couch potato kids. *Organization for Nutrition Education Bulletin, 13, 8.*

Watson, J. M. (1993). Male body image and health beliefs: A qualitative study and implications for health promotion practice. *Health Education Journal,*

Way, W. (1983). Food-related behaviors on prime-time television. *Journal of Nutrition Education, 1.5,* 105- 109.

Weinberg, L. (1993). Television and obesity: The medium or the message? *The Journal of Gastronomy, 70* (1), 89-98.

Wong, N. D., Hei, T. K., Qaqundah, P. Y., Davidson, D. M., Bassin, S. L. & Gold, K. V. (1992). Television viewing and pediatric hypercholesterolemia. *Pediatrics, 90,70-79.*

Yesalis, C. E. (1992). Epidemiology and patterns of anabolic-androgenic steroid use. *Psychiatric Annals, 22(1),* 7- 18.

Acknowledgements

The author gratefully acknowledges the kind assistance and insightful comments of Drs. Shawna Berenbaum and Richard Schwier during the preparation of this manuscript.

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