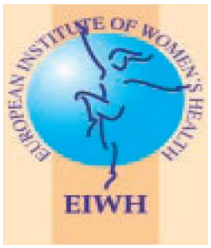

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Physical Activity : Incorporating a gender dimension into obesity prevention policy.

Low physical activity levels have been identified as contributing to the rising prevalence of obesity and non-insulin dependent diabetes mellitus in young people. The widespread occurrence of physical inactivity and its contribution to chronic disease make it a major public health problem in children as well as adults. In 2000, for the first time in history, the number of overweight people in the world, more than 1 billion (300 million of whom are obese) matches the number of those who are underweight. The World Health Organisation (WHO;1998) calls it a 'global epidemic'.Over the past decade, obesity levels having risen by between 10-40% across the EU, and in some Member States over a quarter of the adult population is now obese. Across the EU-25, almost 1 in 4 children are overweight, and the figure is rising by around 400 000 a year. Obesity is one of the top causes of preventable premature deaths in the EU. It is a major risk factor for many chronic diseases such as hypertension, cardiovascular disease, certain cancers, strokes, respiratory diseases and type-2 diabetes. In fact, the rise in some of these illnesses, particularly diabetes, over recent years has been directly linked to the rise in obesity levels.

Quality of Life

Obesity has been associated with impaired quality of life (QOL) in a variety of domains, including physical functioning, emotional functioning, public distress, sexual functioning, self-esteem, and work-related QOL (Kolotkin et al.,2001). A number of factors (including gender and degree of overweight) influence the relationships among obesity, psychosocial functioning, and QoL.Within overweight and obese samples, women are usually, although not always, found to have lower QOL, across all domains

(Carpenter**;**2000). Pregnancy and menopause are significant factors in the development of obesity in women, suggesting that fluctuations in reproductive hormone concentrations uniquely predispose women to excess weight gain (Lovejoy,1998).Women generally have a higher percentage of body fat than men, and there are indications that basal fat oxidation is lower in females as compared to men, contributing to a higher fat storage in women.Research has found that the relationship of obesity to depression is more pronounced among women than men.

These findings imply far-reaching consequences for the quality of life of obese people in biopsychosocial domains and for costs to healthcare. The cost of obesity and related illnesses is estimated to take up 7% of national health budgets in the EU annually, and this figure is higher in some Member States. Recent studies on the US population showed that, at an individual level, the annual healthcare costs of an obese adult were 37% higher than those of a person of normal weight.

A new framework for intervention.

Until recently, disease was thought to be a function of the breakdown of bio-physiological processes. This bio-medical model of disease assumed that there were distinct separations between the mind and body and that health was an exclusive function of an individual's physical state. In contrast, the *biopsychosocial* perspective suggests that an interaction of the biological, psychological and social aspects of a person's life are the determinants of his or her health. For example, female sex may serve as a biological gene modifier, but it is gender that may affect disease outcome by determining the 'coping strategies' used by males and females in their lived experience of the disease. The social systems in which an individual operates (which include gender) will impact on beliefs, attitudes, lifestyle, and experience of health and disease.

This is an important shift from conceptualising disorder as an individual problem towards understanding it as a public issue enabling a broader consideration of the breadth of cultural practices in, for example, education, employment, leisure, health and the family, that may structure and limit people's lives. Many factors affect a young person's decision to be physically active, such as the psychological, physical and social environment. Engaging in physical activity is a multifaceted behaviour determined by numerous interacting variables, which makes interventions difficult to design and implement. Most expenditure on obesity in the UK is spent on advice on diet (Ofcom, 2006). Occasionally advice on exercise is also given, although this is usually no more than asking the patient to increase their levels of physical activity. Most of this advice is given as part of one-to-one consultations by GPs, PNs or dietitians. This strategy has not been a success, because it does not take into account the biopsychosocial determinants of health behaviours. Therefore, our attention here turns to an analysis of the complex conditions that may have immediate and long term negative effects on an individual's sense of competence, responsibility and control which, in turn, affects health and physical exercise. Practical health policy suggestions and recommendations are also discussed.

The influence of gender.

There is a growing international recognition that sex and gender are important indicators of health differences, and *gender mainstreaming* is crucial to the development of effective health policy and practice. Attention to sex and gender in biomedical and health sciences research is being actively promoted by the European Union Commission under their research policy of 'mainstreaming gender equality'(Klinge & Bosch,2001). A gender dimension in research and policy is vital to adequately support initiatives such as the Platforms for Action developed at the UN conferences in Cairo (1994) and Beijing (1995), that recommended 'an active and visible policy of mainstreaming a gender perspective in all policies and programmes' (Wisemann,2000). It is suggested, in a European Union perspective, that the "studies highlight the need to reach beyond a sex-counting approach by recognising the transformation implicit in a more far-reaching gender mainstreaming policy." It is suggested that : *"A true integration of gender into research would profoundly affect the way in which scientific knowledge is defined, valued and produced, the methodologies that are invoked, and the theoretical reflections to which such new modes of knowledge give rise" (pg12)*

Health Communication and Misinformation.

Psychology teaches us that trust in the source is more important under conditions of uncertainty. Distrust is associated with failure by the communicator to provide accurate information in the past. Once lost, trust is not easily regained. Public trust in the media and in science has been affected by conflicting messages, unrealistic estimates of 'how easy' it is to lose weight, the attribution of obesity to rare genetic and chronic conditions, such as a rare metabolic abnormality. Communication is generally most effective when all sources convey similar messages about a particular risk. Slovic (2002) identifies that an individual's interpretation of health risk is essentially intertwined with their unique 'world view'.

Public perception of risk and its meaning is largely dependent upon prior levels of knowledge, experience, beliefs and culture. The individual already carries a large amount of misinformation about obesity, especially about the rate of weight loss which is to be expected, since this is routinely exaggerated by some commercial weight-loss organisations and magazines. Such misinformation may also affect health professionals and policy makers. A potentially important barrier to effective obesity management is a lack of motivation to work with this patient group due to negative perceptions of overweight and obese people or the efficacy of treatments.

It is becoming increasingly clear that knowledge about risk associated with certain behaviours is simply not enough to significantly change future actions .From the viewpoint of healthcare planners there is a dilemma. One strategy (which has been widely adopted in the past) is to plan to treat the co-morbidities - heart disease, stroke, hypertension, diabetes, osteoarthritis, gallstones, certain cancers, reproductive disorders, sleep apnoea, psychological and social disorders - and ignore the underlying obesity. This strategy is superficially plausible, since patients with these co-morbidites clearly need treatment. However, experience shows that the strategy is expensive and ineffective if the underlying obesity is allowed to increase.

An alternative strategy is to seek to prevent the development of obesity by health education campaigns that promote physical activity and healthy diets of low energy density. This also fails for several reasons. First, people will not adopt healthier lifestyles unless the facilities are available to modify their diet and exercise more in conditions that are affordable and safe, and unless they have a clear understanding of the relationship between overweight and health risk. These requirements are not met at present. Second, a campaign to prevent overweight and obesity is inadequate to meet the needs of a population in which half are already overweight and one fifth are already obese. Third, campaigns that exhort adults to 'fight the flab' do not address the problem of increasing obesity among children. Government and health authorities potentially have some control over the diet and physical activity of schoolchildren, but this opportunity is not being effectively used to prevent obesity at its earliest stage.

The solution to the dilemma lies in the ability of healthcare planners to take a broader view of the problem of obesity, and integrate its biopsychosocial determinants into any intervention framework. Any conceptual framework should be based on the premise that psychosocial factors mediate dietary and physical activity behaviors and those in turn influence percentage body fat. The extent to which people engage in physical activity is related to the character of their everyday social experience. It is only when we actively listen to a public interpretation of how they perceive health and well-being, alongside their understanding of their social world, that we can realistically begin to create an effective framework for health promotion, communication and management.

Gender differences in information processing.

Piper and Brown (1998) highlight the limitations of a simplistic health education mythology which assumes that an increase in health knowledge will lead to a shift in attitude, which, in turn leads to a change in health behaviour. When health information is offered, it is known that this information is not simply processed but, instead is met by a barrage of preconceived ideas which mediate the way that the information is interpreted (Joffe, 2002).For example, Murray & Jarrett (1985) examined gender differences in perceptions of health and health maintenance and found that young men were more likely to define health maintenance in terms of physical activity, while young women preferred diet and weight control which improved their physical image.

Research into policy : How can research on gender aid in the promotion of physical activity among children and adults ?

Given the low success of treatment for adult obesity, increased understanding of the early determinants of childhood obesity may eventually lead to effective solutions to combat further increases in childhood overweight.While changes in diet have undoubtedly contributed to the increase in obesity, expert opinion suggests that decreased physical activity is the major contributor (Marks et al.,2003).

While the effects of diet and **physical activity** on health often interact, particularly in relation to obesity, there are additional health benefits from physical activity that are independent of nutrition and diet. Likewise, there are significant nutritional risks that are

unrelated to obesity Along with a steady accumulation of evidence confirming the benefit of exercise in terms of physical health, result also the benefit of exercise on mental health and well-being. This includes improved mood, as well as reduced anxiety, depression and stress (Marks et al.,2003). In addition to promoting overall feelings of wellbeing and apart from weight management aspects, physical exercise has also independent positive effects on the prevention of diseases such as cardiovascular disease, type II diabetes, osteoporosis and depression, and contributes to maintaining muscular strength in older age. Although significant resources are put into promoting increased physical activity, participation is declining, particularly among girls. A 2003 Eurobarometer survey showed that around 60 % of Europeans had no vigorous physical activity at all in a typical week, and more than 40 % did not even have moderate physical activity in a typical week. Europe-wide, only about one third of schoolchildren appear to be meeting recognised physical activity guidelines.

Promoting and constraining factors in the physical environment.

Environmental factors that affect physical activity include the physical environment in which a young person lives (e.g.home, neighbourhood, school); and, social and cultural influences on his or her life (e.g. parental support, peer influences, gender norms regarding physical activity). Several theoretical models of human behaviour have guided research on determinants of physical activity in children and young people. The predominant model has been Bandura's social cognitive theory (SCT) which asserts that personal(e.g.beliefs), environmental (e.g.societal norms), and behavioural(e.g.self assessment) factors interact to determine the final action of an individual.This model it offers clear and practical applications to the study of sport and physical activity.

A central concept of SCT is *self-efficacy* : a sense of personal effectiveness at exercising some control over events that affect their lives. Personal demographics(age, gender, and culture) affect all three of these factors, in turn, influencing physical activity in males and females. Giles-Corti & Donovan (2002) found that, although the most important environmental predictor was accessibility to recreational facilities, individual and social factors (including gender) were more important in predicting exercise participation.

Research shows a clear gender difference in boys and girls participating in physical activity, in that girls have substantially lower rates of participation.A child's perception of physical competency has consistently been found to correlate with physical activity involvement (Welk, 1999). Adult encouragement indirectly influences a child's level of vigorous activity by enhancing his/her perception of competence.

Gender stereotyping and effect on physical activity.

Parental perceptions can have a profound impact on the way that children themselves perceive their own health and illness and on how they interpret risk with regard to possible or actual disease conditions.

Excessive weight during childhood stems from several interacting factors, including poor diet and exercise habits. Dietary preferences and physical activity patterns are shaped early in childhood, influenced by parental practices and familial environment . It follows

that obesity prevention programs, to be successful, will require parental participation . Such participation, in turn, will depend on parents' ability to recognize that their child is overweight, to understand that obesity puts the child at risk for associated short-term and long-term health problems, and to provide healthy, balanced meals that will help their child lose weight.

Most obese children and their parents are unaware of, or choose to ignore, the reality of the child's situation. Obese children are considered healthy, and of 'average weight' by the majority of their parents. Most of the children themselves claim they are happy with their current weight and about the way they look (e.g.Etelson et al.,2003; Young –Hyman et al.,2000).

Health Belief Models (e.g.Weinstein, 1988) demonstrate that parents can help prevent obesity in their own children only if they feel motivated (because they appreciate the health risks of obesity), know what to do (because they understand healthy eating and exercise habits), and comprehend that their child is at risk (because they recognize obesity when they see it). Research has demonstrated that parents, in general, do appreciate the health risks of childhood obesity, as evidenced by the manner in which respondents ranked obesity risks relative to other possible health risks. Parents report that an overweight child faces health risks about as serious as the risk of excessive sun exposure and more serious than the risk of casual contact with a person infected with the AIDS virus. Research also suggests that most parents have a basic understanding of healthy eating habits, at least with respect to the importance of avoiding excessive sugar (from too much juice) and fat (from too much fast food). In contrast, a much smaller proportion of surveyed parents accurately judged their child's weight (within 30 percentile points).

While many studies do not establish direct causality between maternal perception and obesity, it has important implications for young girls at risk of being overweight. The development of eating disorders and poor self-image is caused by a variety of different factors ranging from depression and anxiety to peer pressure and media influences. Several studies have revealed that parents can increase a child's risk of eating disorders (including obesity) and poor body image with negative reinforcement. Ironically parental concern or dissatisfaction with the weight of their child, often leads to lowered self-concepts of the child and reduced participation in physical activities.

Parental encouragement refers to obvious verbal or nonverbal forms of encouragement for a child to be active. There could be direct efforts to get a child to play outside or to reduce TV viewing, or indirect efforts to promote interest and involvement. Numerous studies have confirmed that young children rely heavily on adults (especially parents) as sources of information regarding their physical abilities (Weiss, Ebbeck, & Horn, 1997). A child's perception of physical competency has consistently been found to correlate with physical activity involvement (Welk, 1999). Adult encouragement indirectly influences a child's level of vigorous activity by enhancing his/her perception of competence (Biddle & Goudas, 1996). Thus, parental efforts to build competence and a sense of mastery are likely to promote physical activity involvement.

Until recently, the most common factor was thought to be role modeling--children with active parents want to emulate those same behaviors. While role modeling probably

exerts some effect, recent research suggests that the nature of parental influence may be much more complex. Others argue that parental encouragement, support, and beliefs may be more powerful influences than role modeling (Kimiecik & Horn, 1998).

The tendency for parents to accept gender-role stereotypes influences the nature and extent of socialization behavior. In the same way as parents may encourage an apparently gifted child and may de-emphasize activity with a lesser-skilled child, parents who believe that boys should be more involved in sports and physical activities than girls may work harder to promote activity among boys. In either case, the resulting socialization process can become a self-fulfilling prophecy that tracks a child into patterns of physical activity or physical inactivity.

Trost et al. (2003) surveyed 380 children along with their parents regarding physical activity levels and correlates of physical activity. Parental measures included: parental physical activity level, parental support for physical activity, parents' perceived importance of their child being physically active and parental enjoyment of physical activity. Child measures included: child physical activity and physical activity self-efficacy. Results of the study found that boys reported significantly more physical activity than girls. Parents reported significantly higher levels of support and perceived importance of physical activity for boys compared to girls. The study concluded that parental support directly and indirectly influences children's self-efficacy levels and was more influential than parental modeling.

Research into policy: Best practice implications.

Parents can clearly have a major impact on the development of active lifestyles in their children. Because activity patterns have been found to track over the lifespan, efforts to promote activity at a young age can have major public health benefits . To make use of this potential intervention target, more work is needed to characterize and document the nature and extent of parental influence on physical activity behavior in children.

Given that most parents of overweight children fail to recognize that their child has a weight problem, pediatricians should develop strategies to help these parents correct their misperceptions.

Recognition and acknowledgment are a critical first step, but effective treatment requires behavioral modification involving diet and physical activity. Achieving these goals will depend on ongoing support and reinforcement from health care professionals and families, as well as school and community policies that support healthier lifestyles. Behaviour does not take place in a vacuum; the importance of context and the social environment is vital in the successful targeting of campaigns and interventions. These measures, along with efforts to help parents recognize obesity, will help control this growing epidemic among our children.

Addressing the obesogenic environment :Why does PE in schools not generalise to the 'real world' goal of an active leisure lifestyle ?

The physical environment can strongly promote children and youth to be physically active, or ensure that they will not be. An important aim of school physical education

programmes (PE) is to help young people adopt physically active leisure lifestyles. Yet very little attention has been given to how schools (and the health and PE curriculum within them in particular) may be implicated in the development of healthy eating and physical activity practices . This is precisely the kind of insight needed we suggest if we are to construct curricula that leave students feeling valued, included, comfortable and in control of their bodies. As discussed earlier, research (Giles-Corti, 2002) has found that individual and social factors are more important than environmental factors (e.g. access to recreational facilities) in predicting participation in physical exercise. For example, past experience in school sports and PE is a significant predictor of future involvement.

Contemporary definitions of PE have become increasingly defined by sport, with a narrow focus on competition and performance. This may lead to an automatic association between physical activity and competitive success for both male and females throughout the lifespan, which, in turn, leads to a lack of engagement in physical activity in 'every day lives' because they perceive themselves to be 'no good' at sports. In effect, with regard to girls and women, there is a perception that sport is 'for guys'.

For example, the introduction of the British National Curriculum in PE has allowed for a reinforcement and resurgence of male sporting discourse (Penney & Evans, 1999), and since then, a number of other policy initiatives, such as the School Sport Coordinator programme, have served to strengthen and further cement stereotypical masculine constructions of PE-as-sport. Such a conception of PE seems destined to fail in engaging most young women to adopt active leisure lifestyles. Whilst female participation and motivation for physical activity is subject to individual differences, research shows that their experiences remain strongly gendered. As a result, many young girls are indifferent, and often hostile to the concept of PE (Flintoff & Scraton, 2001; Ennis, 1991).

Therefore, in order to encourage the generalisation of school PE to everyday life, for both sexes, we need to encourage an association of physical activity with health, with accessibility, and even more importantly with fun.

Physical Activity as 'fun' rather than 'competition'.

Pangrazi, and colleagues (2003) investigated the impact on promoting lifestyle activity on childrens' physical activity, under the auspices of The Arizona Department of Health Services. Promoting Lifestyle Activity for Youth (PLAY) attempts to make physical activity fun and relevant for children (without an emphasis on sport or competition).It teaches active lifestyle habits to children in grades four to six and encourages them to accumulate 30-60 minutes of moderate to vigorous physical activity per day. Over 600 fourth graders from 35 schools were divided into the following four groups: PLAY & PE, PE only, PLAY only, and no treatment. The PLAY intervention lasted 12 weeks and was implemented by the students' classroom teacher. Throughout the 12-week intervention teachers led students in 15-minute physical activity breaks each day. In the first week teachers stressed the importance of physical activity. For the next three weeks teachers introduced a variety of physically active games and activities. During the remaining 8 weeks, teachers encouraged students to achieve 30 minutes of daily physical activity independent of the teacher and record their activity levels. Pedometers measured the impact of the intervention during a three-week period after completion of the PLAY

programme. Results showed that students(especially girls) involved in the PLAY programme had increased physical activity levels. Girls in the PE & PLAY group were the most active. Improvements in emotional well-being were also noted.

Television and Media

Not surprisingly, the more time a child or young person spends in sedentary activities, such as watching television, the less likely he or she is to be active. Many factors contribute to low levels of physical activity among youths, including a media-dominated lifestyle. On average, children 8 to 18 years of age spend >3 hours per day watching television, and the average daily consumption of television, videotapes/DVDs, and movies combined is >4 hours. Ironically, it is this pervasive media environment that presents an opportunity to advertise the benefits of a healthy, physically active lifestyle. This type of media intervention for physical activity has been directed to adults but, until recently, not to children. Television advertising may have a more powerful influence on obese children, engaging them in a more emotional/physical way than it does children of normal weight (Halford et al.,2003).

The VERB campaign, which was launched in 2002 by the Centers for Disease Control and Prevention (CDC), is a mass media campaign based on social marketing principles that is designed to increase physical activity levels among children 9 to 13 years of age(Wong et al.,2004). A physically active lifestyle, if established at this young age, could attenuate the decline in physical activity typically seen in the later school years, especially among girls (Aaron et al.,2002).In addition, active children are more likely to become active adults (Telema et al.,1997).

A substantial media buy with additional donated advertising, targeted public relations, and appealing promotional events positioned the VERB campaign to be noticed even within the crowded media landscape of child advertising. Children were also reached via print advertisements, in-school promotions, radio, and the Internet. To maximize the campaign reach to black, Hispanic or Latino, Asian, and Native American children, CDC contracted with 4 advertising agencies specializing in reaching these target audiences. The agencies conducted their own formative research, created advertisements that resonated with their audiences, and developed their own media plans to reach those audiences. The VERB campaign is being evaluated through a longitudinal research design with a nationally representative cohort of children and their parents. Early results are positive (Huhman et al.,2005).

Lessons learned : Best practice in using media to inform policy on health promotion.

VERB's influence with younger children might have been because the campaign's key message in the first year, "getting active is fun," and the campaign's emphasis on the social and friendship aspects of physical activity were motivating to younger children (Bauman, 2004). The aspects of physical activity that resonated with older children in our audience research were mastery, peer acceptance, in addition to fun. Consequently, advertisements developed for year 2 added concepts of mastery, inclusiveness, and fun competition, to better appeal to 11- to 13-year-old youths.

Influencing girls was an important campaign effect, given the lower levels of physical activity among girls generally and the precipitous decline in girls' physical activity that occurs as they age through the teen years. VERB's emphasis on the social benefits of physical activity likely appealed to girls, as it did with the younger segment. The effects reported for children in urban settings and children whose surveyed parent had less than a high school education suggest that the VERB advertisements connected with these youths by portraying activities that were realistic and accurate for their neighborhoods and life experiences. The evidence for influencing low-active youths is encouraging, because VERB seeks to get children involved in new physical activities, rather than just reinforcing activity among those who are already active.

VERB is the first national paid mass media campaign intended to change children's physical activity patterns. Significant investment was made to use private sector marketing tactics to reach the majority of children 9 to 13 years of age with messages that portrayed being physically active as an easy appealing choice. The VERB campaign's use of mass media is one strategy for influencing children's physical activity. *"Multipronged approaches, including more physical education in schools, programs that address transportation and other barriers to being active, and public and private efforts to increase access to safe places for children to be active, are still required if we are to increase and to maintain the number of US children participating in regular physical activity"* (Huhman et al.,2005). VERB may be viewed as creating a fertile environment that, combined with more opportunities for children to be active, will result in more physically active lifestyles among children. In its first year, VERB produced promising changes among the nations 21 million children 9 to 13 years of age. If VERB is sustained and proves effective over the long term, then it will contribute to the health of the nation's youth and provide important evidence of the critical role of using paid media as a public health intervention strategy.

Recommendations for policy on obesity prevention ,with particular emphasis on gender and on physical activity.

- The link between policy and research should be made explicit and should take both sex and gender differences into account. Although there is general agreement about the complex interplay among individual, family, organisational and community level factors, there is still a gap between health promotion research and practice.

- Health promotion researchers and practitioners to collaborate with others in the community (both public, private and citizens) to create integrated strategies that work as a system to address a wide array of health related factors.

- More work is needed to characterize and document the nature and extent of parental influence on physical activity behavior in children.

- Given that most parents of overweight children fail to recognize that their child has a weight problem, pediatricians should develop strategies to help these parents correct their misperceptions.

- Recognition and acknowledgment of the importance ongoing support and reinforcement from health care professionals and families, as well as school and community policies that support healthier lifestyles.

- It is becoming increasingly clear that knowledge about risk associated with certain behaviours is simply not enough to significantly change future actions .

- Public perception of risk and its meaning is largely dependent upon prior levels of knowledge, experience, beliefs and culture. This includes the recognition that the prevalence of chronic conditions related to diet and physical activity can vary between men and women, age groups, and between socio-economic strata.

- An emphasis on increased understanding of the early determinants of childhood obesity.

- Approaches aimed at promoting healthy diets and physical activity need to be sensitive to gender, socio-economic and cultural differences, and to include a life-span perspective.

- Multifaceted approaches, including more physical education in schools, programs that address transportation and other barriers to being active, and public and private efforts to increase access to safe places for children to be active, are required.

- Consistent, coherent, simple and clear messages need to be developed, and disseminated through multiple channels and in forms appropriate to local culture, age and gender.

- Health and education policy should promote the concept of physical activity that can be generalised to everyday lives.

- An emphasis on "getting active is fun," and on the social and friendship aspects of physical activity were motivating to younger children

- We must find ways for the media, health services, civil society and relevant sectors of industry to support health education efforts made by schools, and ensure physical activity for girls and women is not only associated with ‘looking sexy’ but with ‘feeling healthy and empowered’.

- Healthcare planners to take a broader view of the problem of obesity, and integrate its biopsychosocial determinants into any intervention framework.

- An emphasis on interdisciplinary research, policy and practice.

- Training on developing an understanding of the impact of sex and gender on health should be widely available across EU institutions and within Member States.

- A gendered approach is crucial in the context of research and health policy in the future. This approach must take into account the perceptions, beliefs and attitudes of males and females themselves about health in general and diet and exercise in particular.

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