Stopping the tsunami of chronic diseases: Four measures for effective population-wide prevention

Strategy document of the German Alliance against Non-communicable Diseases (NCD Alliance) for primary prevention*

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Overweight and obesity are also a growing problem in Germany. More and more people, including children and adolescents, have excessive body weight. More than half of adults[1] and 15% children and adolescents (3-17 years) are overweight[2]; almost a quarter of adults[1] and 6% of children and adolescents[2] are obese. The numbers are growing. Overweight and obesity in children and adolescents is a particularly significant problem: overweight children grow into overweight adults and have high risk for non-communicable diseases like diabetes and cardiovascular diseases[3]. Obesity is also an important risk factor for the development of cancer[4,5]. Overweight and obesity have fatal consequences not only for those affected and their social environment, but also generate high costs for the healthcare system, thus affecting the entire society. In view of these significant individual and societal effects, it is critically important from the medical and health-policy standpoint to prevent obesity at the outset.

Measures targeting behaviour modification of the individual (behavioural prevention), such as programmes for promotion of physical activity and healthy nutrition for adolescents, have not been effective in the past[6]. It has been noted that better outcomes can be reached when behavioural prevention is supported by political measures, creating a framework where a healthy lifestyle from the start is promoted and facilitated (environmental prevention). Only the combination of behavioural and environmental preventive measures reaches all social groups, especially educationally underprivileged ones, which are particularly affected by non-communicable diseases.

Our lifestyle is marked already in early childhood. It is influenced by family, social environment and other life circumstances. Modern life lures to inactivity and unhealthy nutrition. Children and adolescents go to school by car, bus or rail; all day school and rising use of electronic devices prolong the time of physical inactivity. Fast food and snacks beckon everywhere, and many families resort to processed food instead of cooking with fresh ingredients.

Various political measures can promote a healthy lifestyle consisting of balanced nutrition with abundant fruit and vegetables, less fat and sugar, as well as daily physical activity. In order to push back obesity and its accompanying diseases, the German Alliance Against Non-communicable Diseases, in agreement with the Global

action plan for the prevention and control of non-communicable diseases of the World Health Organisation (WHO)[7], considers the following measures critical:

1. **A minimum of one daily hour of physical activity or sport at school + Kindergarten**
2. **Health-promoting food prices (tax on sugar and fat)**
3. **Binding quality standards for kindergarten and school food**
4. **Banning food advertising targeting children**

1. A minimum of one daily hour of physical activity or sport at school

Overweight is the result of the combination of high-calorie nutrition and low physical activity; the relation of energy intake and energy consumption is thus out of balance. In the industrialised western countries, including Germany, children and adolescents do too little physical activity[8]. Only 17% of girls and 28% of boys in the 11-to-17 age group are physically active every day; 56% of girls and 35% of boys practice sport less than twice a week[9].

The promotion of regular physical activity in order to combat the widespread lack of exercise is a critical measure in the prevention of overweight and obesity. Increased physical activity also reduces the risk for chronic diseases and the associated high mortality[10,11]. Moderate activity for 60 to 90 minutes daily increases energy consumption by roughly 10% and thus decreases weight gain if the energy intake remains constant. This can be accomplished by rapid walking or cycling. In case of more intense physical activity, such as jogging, even less than 60 minutes per day is sufficient[12]. An hour of moderate physical activity per day decreases mortality by roughly 30% and prolongs life by about four years compared with physical inactivity; half an hour of activity per day lowers mortality by roughly 15% to 20% and prolongs life by almost three years[12]. In view of these data, the WHO[13], the EU health ministers[14] and the International Agency for Research on Cancer (IARC)[10] recommend that children and adolescents should be moderately physically active at a minimum of 60 minutes per day.

The ideal environment for promotion of physical activity for children and adolescents is the school, because only there are *all* children accessible. Even one hour of daily sport at school improves the physical condition of children and can contribute to a decrease in the incidence of overweight[15]. Currently, however, German schools have as a rule only one double hour of school sport per week.

Daily one hour of school sport should promote the enjoyment for physical activity of children and motivate less active young persons for sport. The classic school sport, where specific types of sport are taught, should be complemented with play elements.

2. Health-promoting food prices (tax on sugar and fat)

Food prices can significantly influence consumer behaviour. In Germany, especially highly processed foods rich in sugar, salt or fat are cheap; these contribute to the rise in overweight in the population. Conversely, low prices for fruit and vegetables could lead to higher consumption in the population; this would lead to lower body weight, especially in children and adolescents[16].

The WHO recommends political measures that contribute on the one hand to the reduction of the amount of sugar, fat and salt in foods, and on the other hand to the promotion of the consumption of healthy foods. A differential food tax that makes unhealthy foods more expensive and healthy foods cheaper could support a healthy nutrition. A price rise of unhealthy foods of at least 20% is recommended in order to achieve a measurable change in consumer behaviour[17]. It is estimated that a rise in the price of soft drinks of 20% could reduce their consumption by 24%, and a rise in the price of fast foods of 20% could decrease their use by roughly 10%. Conversely, a subsidy for fruit and vegetables of 20% could increase their consumption by roughly 10%[16].

At this time it is not possible to describe on a valid data basis how a differential food tax would impact in reality the consumption behaviour, body weight and the overall health of the population. However reliable forecasts based on food taxes in other countries and the reactions to the resulting price changes are possible[13,18-20].

Four European countries have already introduced differential food taxes:

- Denmark:
  A 25% tax increase on sweets was introduced in 2009. A fat tax was introduced in 2011 and repealed in 2012 following pressure from the food industry and out of coalition-building considerations after a government change. After the tax rise, the consumption of high-fat products decreased by 10 to 20%[21]. A long-term effect could not be ascertained due to the cancellation of the tax.

- Hungary:
  Tax on foods high in sugar, salt and caffeine was introduced in 2011: basic foods were exempted.
- Finland:
  Tax on sweets, soft drinks, ice-cream and chocolate was introduced in 2011.
- France:
  Tax on soft drinks was introduced in 2012.

Since 2014 Mexico imposes a tax of 8% on foods with more than 275 calories per 100 gram and a tax of the equivalent of six cents per litre on soft drinks. As a consequence of this tax, in the second quarter of 2014 compared with the same period one year earlier, the gross revenues of FEMSA, the distributor of Coca-Cola in Mexico, decreased by 2.1% and the volume sold decreased by 6.6%[22]. Belgium, Ireland, Romania, England, Italy and Australia are also considering taxation of unhealthy foods and drinks.

In order to exert a positive influence on consumer behaviour and consequently on the body weight of consumers, food taxes should be structured as follows[17]:

- The tax should be imposed on the components that cause overweight. A unit of quantity of sugar, fat or salt should be taxed equally in all food products.

- The tax should be due when a certain content of fat (20%), sugar (12%) or salt (1.5%) in a food item is exceeded. These limits have been discussed at the European level and correspond to the guidelines for `the red light` of the food traffic light. The consequence is that healthy foods stay cheap (whole milk, vegetables, fruit, low-fat dairy products, whole-grain bread) whereas foods rich in sugar, fat and salt become more expensive (certain cheese types, sodas, ready-made products such as frozen pizza, canned soup, sweets, etc.).

- The price of unhealthy foods with high content of fat, sugar or salt should rise by at least 20%. The introduction in the value-added tax system of a new level of 29% instead of the current 7% is recommended.

- This tax rise should be offset by a cut of the general value-added tax rate by one percent, from 19% to 18%, in order to maintain the same level of tax burden for the consumer.

3. Binding quality standards for kindergarten and school nutrition

Germany has healthy foods in abundance; however a majority of children and adolescents eat an unhealthy diet. They eat for instance too little fruit and vegetables, and too many sweets. The Research Institute for Nutrition in Children [Forschungsinstitut für Kinderernährung (FKE)] recommends children and adolescents aged 6 to 17 years to consume daily 200 to 350 grams fruit and vegetables, depending on age and gender[23]. Currently only a third of the 6-to-11 year old kids eat these amounts; from the 12-to-17 year olds, 47% of girls and 29% of boys eat the recommended amount of fruit and vegetables[24]. In contrast, 25% of boys and 20% of girls consume soft drinks more than once daily; 16% of children eat chocolate and 20% eat other sweets daily[25]. The nutrition of children should thus become much healthier.

The school can assume an important role. Due to expanding afternoon hours and an increasing proportion of all-day schools, it is becoming more and more the central living space of children and adolescents. Children eat more frequently at school. The composition and the quality of the daily food influence not only the physical and emotional development of children and adolescents; they have also a critical role in determining how their eating behaviour develops and stabilises all the way into adulthood. Thus school nutrition plays an important role not only in the development of children and adolescents; it can also bring an enduring contribution to the health behaviour of the whole population.

At this time, healthy school nutrition is by no means something to be taken for granted. Frequently the quality is determined by the prices of the ingredients. Food kiosks that sell bread rolls as well as sweet snacks and soft drinks compete with the school cafeteria, especially when the time available for meals is very short and part of it has to be spent queuing where food is served.

In order to bring about a standardised improvement in school nutrition, the German Society for Nutrition [Deutsche Gesellschaft für Ernährung (DGE)] has drawn up in 2007 quality standards for school food for the Federal Ministry of Nutrition, Agriculture and Consumer Protection [Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz] as part of the National Action Plan `IN FORM`. These have been twice updated[26]. They include:

- A balanced, diverse main meal. The composition is 50% carbohydrates, 30% fat, 20% protein. This means daily raw vegetables/salad/vegetables, a starch-based side dish (potatoes, pasta products), lean meat or fish, a beverage

(water, unsweetened fruit- or herbal tea). There should be a vegetarian dish on the menu daily.
- Exclusive use of natural products, without processed products like reconstituted meat.
- No use of additives like flavour enhancers, flavours, sweeteners.
- Low-fat cooking, short warm-holding times (< 3 hours).
- Menus that change every four weeks.
- A pleasant atmosphere and plenty of time (a minimum of 60 minutes) for meals
- Fruit, whole-grain products and milk products instead of chocolate bars as snacks.
- A ban on the sale of sweets, snack products and soft drinks in schools.
- Installation of water dispensers.

These quality standards have so far been poorly implemented. In order to improve the eating behaviour of children and adolescents and to promote a long-term healthier nutrition in the general population, the Education Ministries should task the schools with the implementation of the DGE quality standards and should create the necessary framework.

4. Banning food advertising targeting children

The food industry advertises its products in order to promote their sale. Unhealthy foods rich in sugar, fat or salt and leading to overweight are advertised most aggressively; these are sweets, sugar-rich breakfast cereals, milk products and soft drinks, as well as fat- and salt-rich snack products. Advertising of these products frequently targets children (marketing to children).

Children are a target of the food industry because they can greatly influence the purchase behaviour of their parents. Since eating habits are created in childhood and maintained to a significant extent during adulthood, the food industry tries to bind children to brands and products as customers of tomorrow by using special products and advertisements for them.

Advertisements for unhealthy foods are present everywhere; children are confronted with them not only on television, but also through sponsoring, product placement and publicity events. Brands are made familiar by means of colourful packaging, mascots, comic figures, sweepstakes and donation campaigns, computer games and apps.

Since children cannot look through such advertising strategies, they absorb the emotionally laden pleasure- and joy-promising images of the advertising tools. Thus advertising works efficiently and leads children to request the advertised product when shopping with their parents. Since almost all advertised products are unhealthy, children prefer these to healthier but non-advertised products. Due to advertising they consume more; this leads to an increase in the number of ingested calories. The more children are exposed to marketing to children, the higher is the risk that they will be overweight[27]. The influence of marketing on the development of obesity is very well demonstrated empirically[17,28].

The World Health Organisation recommends to its member states to restrict marketing to children. Facilities for children and adolescents like kindergarten, schools and hospitals for children should be entirely free of marketing to children[29].

Regarding the regulation of marketing to children, many governments rely on the voluntary commitments of the food industry[30]. These are however uneffective[31]. Some countries have introduced restrictions or more extensive bans only on advertising targeting children on television. Norway, Sweden and the Canadian province of Quebec ban all advertising targeting children younger than 12 on television. Ireland, Finland Denmark and Great Britain have certain restrictions on marketing to children[32].

An important first step would be to ban marketing to children of foods rich in sugar, fat, or salt in the mass media. A ban on marketing to children on television can reduce the consumption of fast food[33]; it could reduce in the medium- and long-term the proportion of overweight children by 25%[28,33]. A complementary ban on marketing to children in the mass media would markedly increase the effectiveness of a television ban[34], since it would reach almost all children.

It is important to restrict not only advertising that targets children, but also advertising watched disproportionally by children. User profiles can be determined reliably for television, print media, internet and external advertising with modern marketing research tool

Conclusion

Life styles that lead to inactivity and unhealthy nutrition promote overweight and its serious consequences like diabetes, cardiovascular diseases, and cancer. They lower quality of life and shorten life. Obesity not only causes disease and suffering, but also imposes high costs on the entire society and its social security systems. Environmental preventive interventions like a hour of school sport daily, differential food taxes, quality standards for school nutrition as well as banning advertising unhealthy foods to children have the potential to counteract the rising problem of obesity.

The German NCD Alliance firmly requests policy makers at federal and state levels to implement these interventions, which are also recommended by the World Health Organisation in the Global action plan for the prevention and control of non-communicable diseases 2013-2020[7]. With the political declaration of the first UN summit for the prevention and control of non-communicable diseases 2011 and the adoption of the Global NCD action plan at the 2013 World Health Congress, Germany committed itself to implement the recommended policy strategies for effective environmental prevention. Germany must act now!

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