

School breakfast – what can Germany learn from the US experience?

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Summary

The German school system is currently undergoing significant changes, which may soon require longer school days for students. This has sparked an intense debate among German school officials about the potential need to provide students with school meals. Although this debate has focused mainly on school lunch so far, the potential need to also offer students school breakfast has recently begun to receive some attention. Other countries, such as the United States (US), have already implemented a national School Breakfast Program. The aim of this paper is to critically review the structure and main components of the national School Breakfast Program in the US and to highlight both its advantages and challenges. We end the review by discussing elements of the US experience with school breakfast that may be informative for the development of a similar program in German schools in the future. For example, we highlight innovative approaches for breakfast distribution and consumption that many US schools are currently testing. We also briefly discuss recent modifications of the nutritional standards. Lastly, we draw attention to the high degree of professionalism in the US school nutrition programs.

Keywords: dietary recommendations, school breakfast, School Breakfast Program in the United States, child nutrition programs

many similar trends in the breakfasts consumed by children and youths. In Germany, the number of ready-to-eat cereals, such as Cornflakes, is growing, whereas traditional German breakfasts, such as bread with spread/cold meats or muesli are increasingly declining [1]. In the US child nutrition programs, school breakfast is a fixed element in many schools, alongside lunch provision.

Question

The subject of the research was the current status of the implementation of the School Breakfast Program in the USA, focusing on its structure, organization and recommended meal standards. The positive experiences and challenges of the implementation were also examined.

Methods

The article is based on an extensive literature analysis and on a collection of up-to-date, public information. A search was carried out via academic search engines using key words relating to the topic of school breakfast. Only reliable websites were used during research on publicly accessible internet sites, e. g. the websites of state institutions such as ministries.

Results

General recommendations for breakfast

Recommendation: regular breakfast consumption

Recommendations in the USA and in Germany speak in favor of regularly

Introduction

School meals are increasingly relevant in Germany as a result of the reformation of the school system towards all-day schooling. The implementation of meals for school children is still in the early stages in this country. Those responsible must make important decisions and can use the experiences of other countries as a model.

The advantage of examining US experiences lies in the increasingly similar foods and dietary habits of both populations, especially among the younger generation. In particular, there are only a few differences and

Citation:

Precht TE, Strassner C, Kral TVE (2014) School breakfast – what can Germany learn from the US experience? *Ernahrungs Umschau* 61(2): 20–26

This article is available online:
DOI 10.4455/eu.2014.004

consuming breakfast. A multitude of studies attest to the resulting improvements for youths and children, including the provision of calcium and vitamins, healthy eating habits and a generally healthier lifestyle [2]. Several studies also show a regular school breakfast can result in increased cognitive performance in lessons, such as improved concentration and memory [3, 4].

In contrast to these recommendations, studies from both countries show a tendency among youths to skip breakfast. In Germany, 25 % of children state that they do not regularly eat breakfast; in the USA 20 % of children and 31.5 % of youths go without breakfast [1, 2, 5–8]. Possible factors for breakfast skipping are the female gender and a lower socioeconomic status [2] as well as growing up in a single-parent household [9].

Recommendation: breakfast composition

A German study summarized international meal recommendations for breakfast [1]. A high-quality breakfast comprises three elements: grain (or grain products), if possible high in fiber, milk (or milk products), providing proteins and calcium, as well as fruit or vegetables, providing vitamins, minerals and fiber.

German recommendations add a low-calorie drink, such as tea or water, to the international recommendations. The US school breakfast standards, compiled by the United States Department of Agriculture (USDA) resp. the Food and Nutrition Service, are guided (in their implementation) (♦ Table 1) [10] by the above-mentioned international recommendations. These meal requirements contain exact portion size recommendations for individual food groups and additional implementation requirements. For example, at least half of grain products should be provided as wholegrain products.

Food groups and ingredients	Breakfast composition		
	grades K–5 ^a age: 4–10 years-of-age	grades 6–8 age: 11–13 years-of-age	grades 9–12 age: 14–17 years-of-age
Amounts per week [minimum per day]			
fruit ^b (cups ^c)	5 [1]	5 [1]	5 [1]
vegetables (cups ^c)	0	0	0
grain/grain products (oz eq ^d)	7–10 [1]	8–10 [1]	9–10 [1]
meat/meat alternatives (oz eq ^d)	0	0	0
milk (cups ^c)	5 [1]	5 [1]	5 [1]
Other requirements: daily amount based on the average for a 5-day week			
min.–max. calories (kcal)	350–500	400–500	450–600
saturated fatty acids (% of total energy)	< 10	< 10	< 10
sodium (mg)	≤ 430	≤ 470	≤ 500
trans fat	Food labels or manufacturer information must state zero trans fat (0 g) per portion.		
<small>^agrades K–5: K stands for kindergarten ^b¼ cup dried fruit corresponds to ½ cup fresh fruit; less than half of fruit provided must be in the form of juice. Juice must be 100 % fruit juice. ^c1 cup (US cup) = 235 ml (unit of measurement for volume) ^doz eq = ounce equivalent, this corresponds to a food quantity of 28.38 g.</small>			

Tab. 1: Summary of USDA requirements for weekly breakfast plan (Extract from [29])

Targets are implemented gradually, so e.g. by the beginning of the school year in 2014, all grain products should be made from whole-grain.

School breakfast in the USA

In the USA, school breakfast was implemented as a key part of the School Nutrition Program directed by the USDA [11]. This program includes both the School Breakfast Program and the National School Lunch Program. The School Breakfast Program was originally founded in 1966 as a pilot program; it was introduced on a permanent basis in 1975.

The implementation of the program is regulated nationwide by means of a four-level cascade (♦ Figure 1). At

federal level, school meals are managed by the Food and Nutrition Service, which is part of the USDA. On the next level, the program is managed by the education agencies in individual states. They implement the program through agreements with local school meal authorities.

Individual schools or entire school districts can voluntarily participate in the School Breakfast Program. In principle, all state and non-profit private schools and childcare centers are eligible to take part. The USDA supports schools with financial contributions for each school breakfast distributed (cash reimbursement), insofar as schools guarantee that state requirements for nutritional standards are met and offer free or reduced-price meals for eligible students. ▶

In contrast to the School Lunch Program, which is aimed at almost all students, the target group for the School Breakfast Program is primarily financially-disadvantaged students [12], so low-income families can apply for financial contributions for breakfast. The calculation of the additional payment takes into consideration the level of income as a percentage of the poverty line. There are two different subsidy groups [13]:

- a) free meals: annual income < 130 % of the poverty line (in 2012 this corresponded to an annual income of < \$ 29,965/4-person family)
- b) reduced-price meals: annual income 130–185 % of the poverty line (in 2012 this corresponded to an annual income of \$ 29,965–42,643/4-person family)

In the school year 2012–2013, the USDA's financial contributions to students amounted to \$ 1.55 for a

free breakfast, \$ 1.25 for a reduced-price breakfast and \$ 0.27 for a full-price breakfast [11]. The overall costs for the School Breakfast Program have increased from 10.8 million US\$ in 1970, to 287.8 million US\$ in 1980, and up to 3.0 billion US\$ in 2011 [11].

Students' participation in the School Breakfast Program has continued to rise over the years. In 1970 only 0.5 million students took part in the program, whereas participation in 2011 had risen to 12.1 million students, of which 10.1 million received price-reduced or free meals [11, 14, 15]. In spite of this positive trend and although the health advantages of breakfast are well-known, the participation of students in the US school breakfast program is still relatively low and is not fully utilized. It was estimated that in the school year 2010–2011, of the 100 students who took part in the school lunch program, only 48.2 also took part in the breakfast program [16].

Participation comprises: 39 % of students who qualify for a free meal, 20 % of students who qualify for a price-reduced meal, and only 8 % of students who pay the full price [17]. In 2004 it was estimated that 9.4 million low-income students did not use their opportunity to take part in the breakfast program [18]. Reasons given by students for low participation include the social stigma (the program is aimed at low-income children), time pressure, no appetite in the early morning and a preference for meeting friends [17, 19, 20].

Qualifications of catering personnel

At school level, meal preparation and distribution is carried out by a Food Service Management Company and an interdisciplinary team of food service managers and service staff/kitchen help (◆Figure 1). The training requirements for personnel vary. A national survey by the US health authority, the Center for Disease Control and Prevention (CDC),

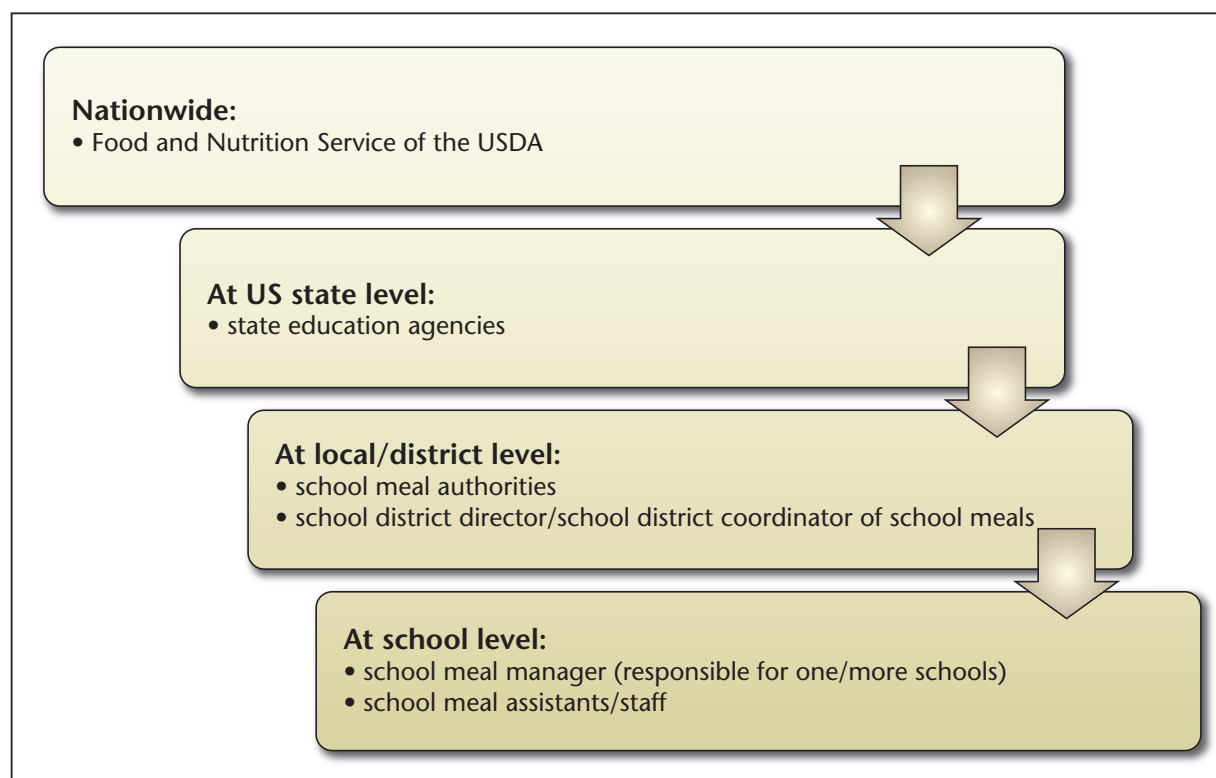


Fig. 1: Organization chart showing the management of school meals by the USDA (referring to [11])

showed that approx. 75 % of schools and districts require a high school diploma for food service managers [21]. In 87 % of schools which participated in the survey, all food service employees had passed mandatory basic training in food safety [22].

A certified food service manager was present for meal preparation and distribution in most schools (83 %). The number of food service managers with training in tertiary educational institutions is rising.

Approx. 1,000 colleges and universities offer bachelor degrees in restaurant and hospitality management and institutional food service management as well as certified training to become a food service management professional [23]. The National Food Service Management Institute (NFSMI), for example, works by agreement with the USDA and educates the skills determined by studies as relevant for school meal personnel [24].

Approaches to optimize the program

Various advantages, disadvantages and challenges arise from the US experiences with the implementation of the school breakfast program (♦ Table 2).

Improvement in the quality of school breakfast

Academic interest in the results of the initiative is apparent in the various studies of the program [25–28], for example, analyses of the nutritional quality and composition and of the acceptance of school breakfast. Improving the general quality of school meals is currently the subject of public debate in the USA.

As a reaction to criticism of the quality, the USDA has launched several initiatives, including the Nutrition Team. This team assists personnel, e. g. at the school level, to improve provision by offering technical training, etc. Nutrient composition was optimized by modifying standards. As a result the provision of whole-

grain products in school meals was increased and salt was reduced, i.a. Standards were thus adjusted to current nutritional recommendations [29]. Another initiative is the “Let’s Move!” campaign 2010 which generated a lot of attention thanks to the First Lady Michelle OBAMA acting as patron. The campaign is part of the Healthier US School Challenge and works by means of a reward system for sports in schools and collaboration between well-known chefs and school mealpersonnel. The aim is to make the meals more attractive to students, as this is one of the reasons for low acceptance (♦ Table 2).

Improvement in the method of implementing school breakfast in schools

The traditional breakfast provision in the cafeteria is being replaced by alternative types of provision in order to increase acceptance. This includes the so-called Grab ‘N’ Go model, where students collect the meal in the cafeteria before school starts and

Advantages	Problems
<p>Health promotion, obesity prevention School breakfast, and regular consumption in particular, lead to an improvement in nutrient intake and thus to healthier eating habits [2]. It can therefore provide a point of intervention.</p>	<p>Low participation Throughout the country, only approx. 86 % of students who take part in the School Lunch Program also take part in the School Breakfast Program [46]. < 50 % of students from low-income families who qualify for reduced-price or free breakfasts participate in the School Breakfast Program [20].</p>
<p>Improvement in learning environment and performance School breakfast significantly improves students’ attendance and punctuality [25, 26]. Teachers report improved classroom atmospheres, increased attention and cooperation from the students. Several studies show that school performance is improved, particularly in the subjects of reading and arithmetic [25].</p>	<p>“Customer” satisfaction, need for improvement Parents of students who are not participating in school breakfast, as well as the students themselves, state as deterrent that too little time is given for school breakfast [47]. 20 % of non-participating students state that they do not like the food offered [48]. Another deterrent mentioned by students is the social stigma (the program is aimed at low-income children) [19].</p>
<p>Nutrition security for all children, particularly children from low-income families [25]. Families who are affected by unemployment can take advantage of support through school breakfast provision; approx. 80 % of breakfasts distributed are subsidized [26]. The School Breakfast Program can therefore be linked to an improvement in the supply situation [27].</p>	<p>Insufficient nutritional quality Suggestions for improvement pertain in particular to an increase in the health value of meals [48]. At many schools the school meals do not meet the requirements determined by the USDA. Program participation was associated with a low occurrence of insufficient nutrient intake, yet also with excessive sodium intake [28].</p>

Tab. 2: Advantages and problems linked to the US School Breakfast Program

choose where they consume it themselves. As a further model, mobile trolleys can be stationed at school entrances, in corridors or next to classrooms [30]. Breakfast can be consumed before school starts or during the first break. This system is often introduced in higher grades (middle and high school) and has already led to a 70 % general increase in participation there [31].

Another frequently implemented distribution system – mainly in lower grades (elementary school) – is the so-called Breakfast in the Classroom. Here, the first quarter of an hour of a class is dedicated to students consuming ready-to-eat meals provided from a cool box. Meanwhile the teacher can collect homework, make announcements or take attendance, in order to reduce the amount of time lost. There is much evidence of a positive increase in acceptance of breakfast as a result of Breakfast in the Classroom [26], particularly in schools with lots of subsidized meals [31].

Discussion

Developments in Germany – what can Germany learn from the US experience?

In the current German debate on school meals, the provision of a hot lunch is a priority [32–34]. Other relevant subjects are snack provision [35], frequently in connection with the school kiosk assortment and the school fruit [36] and school milk programs [37, 38]. There are recommendations at national and state level for the organization, composition and quality of such provision as well as a growing number of field and research reports [39–41]. Breakfast still tends to be regarded as a matter for private households, at which relevant nutritional recommendations are targeted [42]. At the present time, only a few schools in this country have developed and im-

plemented school breakfast. These are often sparked by parent initiatives.

In the USA, however, there is a clearly visible system. In striving to create the best learning environment for school children, the School Breakfast Program and the National School Lunch Program were implemented through federal legislation. Many measures can be enforced efficiently and it provides an optimal and effective point of intervention for future health promotion.

It is also noticeable that state-financed grants for schools are linked to the nutritional quality of the food. This acts as a far-reaching control mechanism for the public authorities.

The professionalism of school meal personnel is supported by skill descriptions for the jobs concerned and via training offered by various institutions. Specific job profiles have been developed.

In relation to the continuous improvement of the system, optimization measures are not exclusively the responsibility of the schools, but also of many other, in part voluntary, entities. For example, the Farm to School network encourages a link between these two bodies [43]. Participating farmers support schools by offering healthy and regional food and can also increase their turnover. The students are educated in agricultural and nutritional topics and increase their awareness of sustainability.

At a time when comprehensive support for lunch provision by the state is hardly mentioned in Germany, a financially-supported nationwide introduction of school breakfast can certainly not be considered. Nevertheless, measures could be developed in view of the parallels and similar conditions in Germany and the USA.

In relation to subsidization, the issue of social stigma associated with school breakfast in the USA should be taken into consideration, and standard pricing could be contemplated. The free provision of school breakfast for each student, irrespective of household income [30], could prevent social stigma.

Along with the recommendations for lunch and snacks, breakfast recommendations for schools could also be developed in this country. In comparison to hot lunches, the practical implementation of breakfast in German schools could be easier to realize, as there are fewer requirements for basic conditions, such as commercial catering equipment and canteens.

In terms of the professionalization of school meal personnel, which is being called for in Germany [44, 45], skills could be identified that are relevant to the jobs concerned; requirements for personnel could be clarified, training programs developed and graduation facilitated.

Overall, flexibility in the implementation of specifications is desirable, as well as the constant adaptation of specifications in response to experiences gained from implementation. One burning question remains: whether and how the attitude of both the public and experts towards a stronger role for schools in health education might develop.

Conclusion

Contrary to many prejudices held by Europeans towards American eating habits, we have discovered that the USA can definitely be a role model for school meals and particularly for school breakfast provision. In Germany, school breakfast is currently more readily associated with snack provision; however, developments in relation to school breakfast provision

can already be seen, such as individual initiatives at school level. So the analysis of nationwide and state-supported school breakfasts in the USA can be informative for further development in Germany.

On the one hand, the acceptance of school breakfast by students and the quality of breakfasts offered is a real challenge; on the other hand, schools systematically implement their school meal provision and show considerable commitment to optimization. As a result, nutritional standards are adjusted and creative approaches to breakfast distribution and consumption are tested, in order to improve quality and increase participant numbers. Suggestions for new pricing and financing models are also discussed, in order to counteract the stigma of "breakfast as a meal for those in need". A strong professionalization among those involved in school meals/school breakfast can be observed.

Acknowledgement

We would like to thank Manuela KUITTENKEULER for the critical review of our manuscript and valuable suggestions.

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Conflict of Interest

The authors declare no conflict of interest according to the guidelines of the International Committee of Medical Journal Editors.

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DOI: 10.4455/eu.2014.004