

## **Food, Meals and Physical Activity in Danish Kindergartens**

*Case findings from focus groups with children, parents and pedagogues in Danish kindergartens*

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# **FOOD, MEALS AND PHYSICAL ACTIVITY IN DANISH KINDERGARTENS**

Case findings from focus groups with children,  
parents and pedagogues in Danish kindergartens

**Danish PERISCOPE research team**

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## **Abstract**

Development of interventions aimed at improving life style including physical activity and healthy eating in settings such as kindergarten cannot be developed alone within strict scientifically based and potentially narrows domains. Instead they must be informed by practitioners and clients broader everyday life perspective. This was the starting point for the following research developed to capture kindergarten aged children's and other stakeholders (i.e. parents and kindergartens teachers) views on possible intervention strategies related to eating and physical activity.

In the pilot kindergarten in Alleroed Municipality, the children brought their own lunches as well as one piece of fruit for an afternoon snack. In kindergarten A (Fredensborg Municipality) and L (Copenhagen Municipality) lunch and snacks were served and prepared by professional kitchen managers, at the respective kindergartens. In these kindergartens, the kitchen professionals planned a varied menu including fish-, soup- and vegetarian-days.

The focus group interview carried out with the children showed that the children had different knowledge of food items. The children in the pilot kindergarten did not have the same perception of the content in the buffet picture, as the children in kindergarten A. The children in kindergarten A that have a lunch scheme, were much more observant and specific than the pilot kindergarten.

The FG interview with children and PA/movement did not meet our expectations. It was found that the PA and movement subject seemed to be too abstract for children this age to talk about. In the conducted pilot, the children quickly lost their focus and concentration and despite the change of setting and a small break, the children were not able to concentrate and resume to the interview. Based on this finding, it has been decided to use an alternative methodology. This methodology used researcher observations of the children in their natural settings in the kindergarten (both inside and outside) and was supported by digital video camera recorded observation.

In general all the children were quite active, but differences between genders were observed, as the boys were the most active, while the girls were more cautious and engaged in more non-active activities. Furthermore, it seemed like the girls needed more initiatives from the kindergartens teachers than the boys, to play games, which demands that they themselves were physical active. However, when an activity was initiated by the kindergartens teachers the children participated equally (e.g. dancing to music).

The parents saw themselves as the most important role models in the life of their children. But parents also saw the kindergarten teachers as role models. This perspective was seconded by the kindergarten teachers, as they recognised their own importance, both as role models but also as facilitators, as they thought that it was not only important that they ate the same food as the children, but furthermore also encourage them to try new foods.

The level of how much parents themselves regard their own involvement and responsibility on the subject of PA and movement is diverse. However, some parents do see it as important, to support the health improving approaches in the kindergarten, for instance by letting the children walk the distance from the home to the kindergarten, instead of being driven. Some parents, was furthermore very keen on letting their children attend to i.e. swim classes or gymnastics, since, they recognized that play does not always contained much actually movement or physical activity.

## **ACKNOWLEDGEMENTS**

The current work has been conducted by the Danish PERISCOPE research team: Michelle Nadia Werther, Dorte Pedersen, Sanne Sansolios and Bent Egberg Mikkelsen as a part of the PERISCOPE project. The methodology for focus groups with children has been developed by the above team while the focus group (FG) interview with adults (teachers and parents) follows the guideline developed by Margherita Caroli.

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## **1.0 Introduction**

Development of interventions aimed at improving life style including physical activity and healthy eating in settings such as kindergarten or school cannot be developed alone within strict scientifically based and potentially narrow domains. Instead they must be informed by practitioners and clients broader everyday life perspective. This is the starting point for the following research developed to capture kindergarten aged children's and other stakeholders (i.e. parents and kindergartens teachers) views on possible intervention strategies related to eating and physical activity.

## **2.0 Background**

In this section a brief background introduction of the respective kindergartens is presented. It will be elaborated how the meal situation differ the kindergartens in between, and further, their surroundings and physical environment will be described.

### **2.1 Food service**

The meal situations in the kindergartens are different in whether or not the children bring their own lunches. In the pilot kindergarten, the children brought their own lunches as well as one piece of fruit for an afternoon snack. In kindergarten A and L lunch and snacks were served and prepared by professional kitchen mangers, at the respective kindergartens. In these kindergartens, the kitchen professionals planned a varied menu including fish-, soup- and vegetarian-days. On special days (i.e. not every day) the children also participated in small groups in the kitchen.

In order to create more space in kindergarten L, every week 1/3 of the children were relocated to a boys scout hut in the woods with lots of space to move around, leaving the rest of the children with more space in the kindergarten. The arrangement rotated so that all children had been in the hut within a month. During this week, the children had to bring their own lunch.

### **2.2 Physical environment**

Observations were conducted at the two kindergartens A and L, respectively. Background info on this decision is further elaborated in section 3.1.6. These kindergartens are the ones mentioned in

the following. Inside, kindergarten L, had a long corridor and at one side it was divided into 3 'rooms', where each child belonged to one of them. On the other side of the corridor, the kitchen was placed and further down there was a ballroom (a room filled with little multi coloured plastic balls). In addition there was a large room available only for play, which the kindergarten teachers could use to activate the children in joint games. Outside, the children had access to a large playground, which among others included, a small climbing wall, a grass lawn suitable for soccer playing and other ball games, a relatively large sandbox and a small hill centred in the middle.

The kindergarten A is based on the principles developed by the Italian Reggio Emilia's pedagogic approach, which is seen both at the outdoor and indoor environment. Indoor, the kindergarten had a large centre with access to smaller rooms. The centre was divided into smaller areas with different toys available, such as one place for dolls, another for Lego etc., as well as a pillow area. In addition there were not many furniture. The small areas were situated alongside the walls leaving a long open space in the middle, making room for children to run back and forth. In each of the adjoining rooms there was also designed a place for activity, one with large pillows and mats and another with little multi coloured plastic balls. Furthermore, the adjoining rooms functioned as a place where the children were gathered at different times (e.g. lunch), although functioning as an eating room, the furniture were pushed aside leaving more spaces for the children.

The playground at kindergarten A was situated around the entire building, with the front of the kindergarten being the area with most space and playground equipment (i.e. a sandbox with various play tools and a larger climbing frame combined with a big slide placed on a foundation of sand). At the front, the kindergarten also had access to an enclosed mini soccer court, which was used for several purposes besides soccer, such as hockey and dancing to music from an outdoor radio. A slightly smaller play area is found at the back of the kindergarten, with a few playhouses and a kind of a somersault frame. Additionally, a small pavement with little hills, which mainly functioned as a bicycle track, surrounded the entire building. Besides the various play tools and playground equipment, several car tires were lying around, which the children could move and use if they cared to do so.

### **3.0 Method**

The research was piloted at a kindergarten in Allerød Municipality under the supervision of kindergarten manager M.Arts Laila Dall Mikkelsen during September/October 2008 as a part of this municipality's "Healthy Kindergarten" project. The research was then carried out post pilot scale in two kindergartens in Fredensborg and Copenhagen municipality.

The kindergartens were selected from the sampling group that was chosen in Periscopes Danish task force prior to this research. The inclusion criterion for this research was the possession of a devoted and enthusiastic attitude towards this project from the kindergartens, as it requires large stakeholder participation (i.e. from parents, kindergarten teachers and children). In order to recruit informants, a number of invitation letters were sent out to inform the kindergarten and stakeholders about the project and dates for the interviews.

Each interview was held in the respective kindergarten, as this setting provided easy access for all the participants. In addition all interviews were recorded by a digital Dictaphone to ensure no data were lost. All the interviews were then transcript by both the Danish PERISCOPE research team and by an external consultant.

### **3.1 The Children part**

#### **3.1.1 Children as respondents**

Within the last two decades, there has been a change regarding the use of children as respondents in empirical research (Andersen & Kjærulff, 2003). Contrary to how children were looked at previously in relation to empirical research, they are now considered as a important sources to gain information on how children themselves is experiencing the world in which they live in. Hence, they are no longer looked upon as objects in research manners, but as subjects, experts, containing valid and significant knowledge. Moreover, by using and considering children as valid sources, knowledge on perspectives that may not be obvious to adults might be accomplished (Andersen & Kjærulff 2003).

This change within research methods, derives especially from the UN convention of 1989 on the rights of children, in which it is stated: (...) *the child shall in particular be provided the opportunity to be heard in any judicial and administrative proceedings affecting the child, either directly, or through a representative or an appropriate body, in a manner consistent with the procedural rules of national law*” (UN, 1989). Thus, in modern society children have rights.

When dealing with children, a certain pedagogic approach must be considered in order to prepare a research involving children. The psychologist Jean Piaget’s four stages of cognitive development can be a useful guideline in determining which research approach is most fit for a given age group (Woolfork, 2004).

**Table 1: Cognitive development (Woolfork 2004)**

Stage	Approximate Age	Characteristics
Sensorimotor	0-2 years	Begins to make use of imitations, memory and thought. Begins to recognise that objects do not cease to exist when they are hidden. Moves from reflex action to goal directed activity.
Preoperational stage	2-7 years	Gradually develops use of language and ability to think in symbolic form. Able to think operation through logically in one direction. Has difficulties seeing another person’s point of view.
Concrete operational	7-11 years	Able to solve concrete problems in logical fashion. Understands laws of conservation and is able to classify and seriate. Understands reversibility.
Formal operational	11-Adult	Able to solve abstract problems in logical fashion. Becomes more scientific in thinking. Develops concerns about social issues, identity.

Some critics have been addressed to Piaget’s stages of cognitive development, due to lack of recognition of different kinds of cognitive progress within the same stages. Hence, ideally an individual assessment of each child should be made to asses the cognitive development within different research focuses. However, this approach is time consuming and therefore the stages can be used as a guideline to pick the suitable age group for a giving research.

### **3.1.2 Using Focus Group as a Method**

As one aim of the research was to gain knowledge about children's perception on food and meals as well as physical activity, it was decided that a qualitative method would be most appropriate. In addition the use of FG as research method was chosen, as this method gives the researcher the opportunity to explore the children's knowledge and perception of a given subject. Thus recognizes the participants as experts of their world. FG's have the additional advantages of minimize the possibility of the children responding to please the interviewer, and also remove the pressure from the individual child (Heary & Hennessy, 2002).

As in this particularly research it is decided to use the FG method to collect the dietary empiric, it must also be recognised that this method is not common to use with children at the age of 5, and therefore finding literature with best suitable ways to conduct the interviews have unfortunately not been found. Thus, the FG method used in this research is conducted explorative and modified to fit the aims of the research.

### **3.1.3 Development of the Focus Group Guide**

When conducting a FG the development of a guide can be useful to ensure that all important topics are covered during the interview. Initially, one guide was developed for the pilot using the two focuses of interest, i.e. food/meals (FM) and physical activity (PA) to structure the interview. In addition, it consisted of non-leading and open-ended questions, which could generate discussion among the children, starting with general questions followed by more specific ones. However, as children this age may have difficulties in understanding abstract questions due to their cognitive level, it was emphasised that the questions was modified in accordance to this.

Furthermore, it was decided to structure the FM part around three - four activities, as these can help facilitate children's participation in a discussion and dialogue (Heary & Hennessy, 2002). The activities included selecting pictures, dialogue based on a picture and the children's drawings of healthy food, as to get a visual association. All children were asked to participate in the activities (see appendix 1 for review of the research design).

However, the PA part was more difficult to structure around activities, due to the more abstract nature of the subject. Thus, it was chosen to let the children show us places, which they thought of either being good or bad for play, both indoor and outdoor, respectively. It was intended, that this approach also could ensure a more open-ended nature of questions, as the places were used as point of departure for discussion (see appendix 2 for review of the research design). Before conducting the pilot the guide was reviewed by Laila Dall Mikkelsen, who suggested few adjustments of the questions. Additionally, it was also recommended to separate the interview into two, in order to keep the interview relatively short, app. 30 – 45 min, as children this age easily tend to loose their focus and concentration (Borgers et. al, 2000).

### **3.1.4 Group Composition**

The literature is inconsistent in whether or not a mixed gender composition is preferred with younger children. This is related to disparities in views on that children's concentration may be distracted from the topic of discussion, solely because of the presence of the opposite gender (Heary & Hennessy, 2002). Despite these views, it was aimed for the groups to consist of two boys and two girls, due to the expected different perspectives between genders.

It was additionally considered if the interviews should include friendship groups or not, as these may facilitate group participation through a familiar environment. However, friendship groups can also enhance peer pressure in the interview (Ibid). The decision on inclusion of friendship groups was dealt with by letting the kindergartens teachers select the children, as it was assumed that they had a qualified idea on which children who would be preferable in a group.

In addition we requested 4 children to ensure a minimum of three "talkers", moreover, it allows one to miss out (e.g. get sick). Furthermore, after discussion with kindergarten practitioners, children at the age of 5 were preferred over younger children in the kindergarten, due to their cognitive development.

### **3.1.5 Sampling and Recruitment**

The kindergarten leaders were asked to choose 2x4 children, which would be able to participate in the FG interviews about food and meals and physical activity, respectively. In addition, an

information letter was given to the parents, in order to inform about the project as well as to ensure consent from the parents. By letting the kindergarten leaders choose the children, it is assumed that shy and “not likely to talk” children were not included in the interviews. Using this method, it is recognized that the results may be biased, as the result may have been different if the children had been chosen randomly. However, due to time limitations it has not been possible to choose the children randomly.

### **3.1.6 Methodological Reflections Post Pilot**

The FG interview with children and PA/movement did not meet our expectations. It was found that the PA and movement subject seemed to be too abstract for children this age to talk about. In the conducted pilot, the children quickly lost their focus and concentration and despite the change of setting and a small break, the children were not able to concentrate and resume to the interview.

Based on this finding, it has been decided to use an alternative methodology. This methodology will use researcher observations of the children in their natural settings in the kindergarten (both inside and outside) and will be supported by digital video camera recorded observation. By using this method it is the intention to capture the movement of the children, in a context of their natural environment in the kindergarten.

Due to time limitations it was not possible to conduct an observation at the pilot kindergarten. However, it is recognized by the researchers that this is not the optimal approach, as a method always should be piloted before conducted full-scale.

### **3.1.7 Videotaping as a Method**

Using videotaping as a method within FG’ and observation research is relatively new, which is mainly due to technical reasons. Therefore, limited literature is to be found on how to systemise, analyse and present it (Rønholt, H. et al. 2003). The method has several forces, compared with traditional written note taking, given that it has the capability to capture movement, talk, sounds, colours and actions, as these are captured in time *and* space. This gives the interpreter the opportunity to (re)view the interview and/observation as a whole and hereby it gives the option to distance one self from ones subjective discoveries. However, the whole is weakened by the lack of



smells and the colours expressions may fade a tad from the filters of videotaping, and furthermore by the fact that the shooting is only a reflection of what the video camera has recorded (ibid).

In present research, it is chosen to use videotaping as a method, both for conducting the observation and the FG interviews. In relation to the use of videotaping as observation, it has the advantages that when reviewing the videotape, it is possible to interpret on actions not visible and not captured by the eye and memory. Thus it has the ability to get closer to reality than traditional methods (ibid). However, when a researcher enters 'the field', it must be recognized that the researcher will influence it and hereby spoils the natural environment (Kristiansen & Krogstrup, 1999).

Furthermore, the advantages by videotaping is even greater by using the method for FG interviews with children, as interviewing young children often can have unforeseeable outcomes and hence it can be difficult to stick strictly to the interview guide. Additionally, in present research in the FG regarding children and dietary, the children are asked to participate actively, firstly by picking drawings and secondly to draw a drawing themselves. By videotaping, it gives the interpreter the chance to interpret on e.g. facial expressions, what they were actually drawing and to distinguish between the children, as they tend to interrupt each other. Thus, by using videotaping it gives the interpreter the possibility to include these factors in the analysis.

### **3.2 The parent & teacher part**

Both the pilot and the full-scale interviews were conducted using the same method, as it was found that nothing needed to be changed from the conducted pilot, thus this section does not distinguish between the two.

#### **3.2.1 Inclusion of Relevant Stakeholders**

Parents and kindergarten teachers are important stakeholders in the lives of children. Thus, these stakeholders seem obvious to involve in the present project. Moreover, by involving these stakeholders important perspectives of how children eat and prefer their meals as well as their level of PA might be accomplished. The perspective on what might limit or encourage healthy eating and PA patterns in children, is especially important in current project as the children involved have a limited cognitive development, due to their young age (4 – 5 years), and therefore do not express

themselves in a very clear manner. Thus it can be questioned whether or not it is suitable to only included statements of children, if a broad perspective is sought, hence the involvement of the mentioned stakeholders.

### **3.2.2 Conduction of the Focus Group Interviews**

The interviews were conducted in consistency with the methodological framework developed by Margherita Caroli and followed the guidelines outlined in the PERISCOPE protocol. However, it was found that recruitment of participants were rather difficult, due to a) time restrains, as the participant is relatively occupied in their spare time, and b) lack of resources in the kindergartens. Hence, the number of participants was reduced, in order to conduct the interviews within deadline.

Two separate interviews with parents and kindergarten teachers<sup>1</sup>, respectively, were carried out, regarding what they saw as limitations and possibilities for the children to develop healthy eating habits and improve their movement and PA. After serious consideration, it was decided not to include parents and kindergarten teachers in the same interview, due to assumed conflicts of interest. However, the interview guide used in both interviews was identical. As to open the FG interview, the stakeholders were asked to discuss what they understood by the term 'health habits', to ensure an association regarding the specific topic. The following stage of the interview was divided into two main phases, one regarding the dietary and one with the physical activity angle, respectively. The two main phases were furthermore divided into two sub phases, one on the subject of limitations (a) and one on possibility (b) to develop healthy eating habits as well as improve patterns of PA.

## **3.3 Ethical Issues**

There are several ethical aspects, which need to be taken into consideration when conducting a FG interview, especially regarding the children. Most important is the informed consent from the parents, as children themselves are unable to legally consent. Thus the introductory letter provided the parents with a form to consent. However, even though parental consent has been given, the child's assent is also needed. The briefing given in the beginning in each FG interview ensured this.

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<sup>1</sup> In the following, both parents and kindergarten teachers goes under the term 'stakeholder'.

It was emphasised that the children knew they were allowed to leave the interview at any time without it having any consequences, and that they were not obligated to answer the questions.

Furthermore, it is important to explain that participation in the interview is confidential as well as the answers they give. The same briefing was given to the stakeholders in the respective interviews, as these as well needs to be informed about their “rights” in this particular situation. When parental consent and the child’s assent have been given, the moderator needs to consider the subjects of disclosure and stressful behaviour of the participants, as this can put participants at risk if it is not cared for. In present research the topic in question has in general a non-sensitive and non-controversial nature, which would not lead to stress and over-disclosure in a way that could harm the participants. However, a topic may always occur sensitive and controversial to some people, and thus this was kept in mind of the moderator during the interviews.

## **4.0 Findings – the children**

This section is subdivided into two sections, presenting the findings in the FG interviews and the observations, respectively.

### **4.1. Interviews**

Three FG interviews with the children were conducted in the respective kindergartens, including the pilot. The outcomes were of varied standard due to settings, cognitive development as well as group relation and -composition. The pilot was carried out without any major complications and thus had a somewhat excepted outcome. Unfortunately, the remaining interviews did not meet our expectations. In kindergarten A the two boys were unfocused and fooled around, which disturbed the two girls. At kindergarten L, the children were interrupted from their playing, in order to participate in the interview. During the interview the children seemed shy and uncomfortable with the whole situation, and two of the children asked if they could leave, leaving only two children for the final phase of the interview.

The findings in the interviews were categorized under the following themes.

#### 4.1.1 Knowledge of Different Foods

As described in section 2.1, the kindergartens differed in whether or not the children had to bring their own lunches or if the lunch was served in the kindergarten. Regardless the approach in the respective kindergartens, this seemed to give foundation for the children's knowledge about food and menus. In the pilot kindergarten, the children mentioned rye bread and several types of cold cuts (e.g. liver pâté, baloney and mackerel), while in the other two, the children mentioned different kinds of dishes (e.g. carrot soup, lasagne with salmon and meatballs with carrots, potatoes and gravy).

This pronounced difference was also reflected in the children's choice of pictures and in their drawings. In the pilot kindergarten all the children chose the picture of the lunch packages (picture a) to represent their preferred meal situation, while their drawings showed different components of a lunch package. In kindergarten L the situation was similar, as they all chose the picture, where the two children ate the same kind of food together (picture b). However, their drawings did not represent the chosen picture, as the girl drew two apples and the boy some spinach and an apple as the only food items. In kindergarten A the children all picked a different picture to represent their preferred meal, as picture a, b, c and d were chosen, and moreover they all drew somewhat various food dishes and items.

In relation to this, it should be mentioned that the picture selecting, was not carried out using the same approach, as the children in kindergarten A, were the only ones with their own set of pictures, which let them chose simultaneously. In the remaining kindergartens, the children had to share one set of pictures, leaving the picture selection on shifted turns. This approach could have increased peer-pressure.

When the picture of the buffet was presented for the children, it was observed that the children had different knowledge of food items. The children in the pilot kindergarten did not have the same perception of the content in the buffet picture, as the children in kindergarten A. This was especially observed during the debate about the content of the salad dish in the picture. They discussed whether or not salad was a leaf or a dish, additionally they agreed on that the yellow pieces in the salad was cheese. The children in kindergarten A identified the yellow pieces as mango.

#### **4.1.2 Children's Perception of Healthy & Unhealthy Food**

Despite the relatively young age of the children, they still had a perception of healthy and unhealthy foods. In the final phase of the interview the children were asked to draw some food, which they considered as healthy.

In the pilot kindergarten and kindergarten L almost all the children drew different fruit (mostly apples) and rye bread. When the children subsequently were asked why they regarded the items drawn as healthy, they expressed that it was because they liked them. Later on in the pilot kindergarten interview a boy expressed that unhealthy food is unhealthy, as it contains sugar. In relation to the perception of sugary food as unhealthy, the children at kindergarten A discussed whether or not layer cake and ice cream is healthy food, while they were drawing.

When asked why they think healthy food is healthy, three children in the pilot kindergarten and kindergarten A, respectively expressed that healthy food helps build muscles and contain vitamins. That the children had an idea of healthy and unhealthy food, was in particular revealed by one girl in the pilot kindergarten, as she spontaneously wanted to talk about unhealthy food, while drawing the healthy food.

#### **4.2 Observations**

The observations were carried out at different times, as it was necessary to follow the kindergartens routines. In kindergarten A the children spent the time between approx 7.30 – 10.30, outside at the playground. Post lunch, approx at 12.30-13 the children were outside again. This was common routine, regardless of the weather. If the weather was harsh, they considered keeping the children inside. The children in kindergarten L were inside late in the morning and usually outside after lunch approx at 12 -14. However, if the weather was bad, they decided to stay inside or spent less time outside.

Following section is divided into summarized sections of the observations in outside and outside settings in the respective kindergartens.

#### **4.2.1 Outside**

In kindergarten A the observation was carried out in the morning. In general all the children were quite active, but differences between genders were observed, as the boys were the most active, while the girls were more cautious and engaged in more non-active activities, such as digging in the sandbox. Furthermore, it seemed like the girls needed more initiatives from the kindergartens teachers than the boys, to play games, which demands that they themselves were physical active. However, when an activity was initiated by the kindergartens teachers the children participated equally (e.g. dancing to music).

It was observed that the children were using the entire playground and all its facilities both in a traditional way but also untraditional, e.g. walking and dancing upwards a large slide. Moreover, the children were climbing almost everywhere possible, on the outside of the climbing frame, on the fence around the soccer court etc. This was not interrupted by the kindergarten teachers. Furthermore, it was observed that the surrounding playground created different spaces for the children, allowing them to have small ‘oases’, which were not constantly supervised by the kindergartens teachers.

In general the children in kindergarten L used the entire playground; nevertheless it was not in a very active manner, given that most of the playing was situated sitting down e.g. sitting in the sandbox playing, playing with mud etc. Additionally, no child was seen using the climbing wall during the observation. However, these observations could reflect that on the day of the observation, it was rather rainy. Moreover, although there was a lot of playing outside, it took place without a lot of movement and none of the playing seemed to have been activated by the kindergarten teachers.

#### **4.2.2 Inside**

In kindergarten A, all the children were in general quite active indoors, however, it was observed that the differences observed between genders outside were reversed inside.

In one of the adjoining rooms, two girls were observed drawing pictures at a table without picking up chairs to sit on. These were available in the room.

During the observation inside kindergarten L, it was observed that here the children also took full advantage of the space available. The inside observation took place from around 9.30 in the morning, and the children had not yet been outside; this seemed to affect the children, as they had a great deal of unfocused energy in their play. The ‘ballroom’ was especially used by the boys, although some girls did join the game. However, most of the girls were sitting in the respective ‘rooms’, either drawing or playing with plastic pearls.

To summarize, the two conducted observations provided a fairly good idea on how children move, and their level of psychical activity in the kindergarten. These observations showed that the level of movement was somewhat higher in kindergarten A than in kindergarten L, both indoor and outdoor, respectively. This could be due to the fact, that the children in kindergarten A had access to a more diverse playground and several kinds of play tools. In addition, in the kindergarten it was custom to be outside with the children, rather than inside.

Nevertheless, it should be kept in mind that; 1) The observations were conducted on different hours of the day, early in kindergarten A and late afternoon in kindergarten L 2) The differences in the weather condition, as it was rather rainy at kindergarten L and sunny at kindergarten A. Furthermore, the observations are only a caption of the moment, and do not reflect a general picture, as they were only conducted in a very limited period of time.

## **5.0 Findings – the parents & teachers**

### **5.1 Food & Meals**

Both the parents and the kindergarten teachers were asked to identify their point of views on favouring factors, which the kindergarten could initiate as to improve the children’s dietary patterns, as well as restraining ones. However, some views were reversed, new ones was presented.

The factors are categorized in the following.

### 5.1.1 Favourable Factors

#### 5.1.1.1 The Role of the Parents

The parents saw themselves as the most important role models in the life of their children, and one parent stated, that she thought parents should be more supportive about the work of the kindergartens teachers, by carrying on the initiatives at home (e.g. let the children set the table, allow them to participate in the kitchen).

#### 5.1.1.2 The Role of the Kindergarten Teachers

All the parents saw the kindergarten teachers as role models. An aspect of this is that the kindergarten teachers ate the same food as the children during the meal, instead of just supervising and eating their own food. This was especially uttered by the parents from the pilot-kindergarten. This aspect was also appreciated by the parents from kindergarten A, where the kindergarten teachers actually ate the same as the children.

This perspective was seconded by the kindergarten teachers, as they recognised their own importance, both as role models but also as facilitators, as they thought that it was not only important that they ate the same food as the children, but furthermore also encourage them to try new foods.

Both in kindergarten A and L it was a rule that the children tried to taste new foods before rejecting them. Often, it turned out that the children liked the food, and as one kindergarten teacher from kindergarten A says: *"(...) actually, many of them [the children] get surprised in a positive way"*. If the children disliked the food after tasting, it was emphasised by the kindergartens teachers not to create a conflict about it.

Although kindergarten teachers recognizes themselves as role models, one kindergarten teacher from the pilot-kindergarten states, that she would not take responsibility for the children's nutrition, as she says:

*"(...) I would disclaim any responsibility if the children gets obese or overweight or only eats cornflakes (...) that it is the responsibility of the parents"*.



The same kindergarten teacher further states that health should be seen in a larger perspective, as one angle on health is to increase and encourage the self esteem of the children. It was her view that with a great deal of self esteem, children would dare to be different and more experimenting (i.e. taste new foods). This was seconded by another kindergarten teacher in the same interview.

#### 5.1.1.3 A Lunch Scheme

In all the kindergartens there was agreement among the parents and the kindergarten teachers that a lunch scheme could help improve the children's dietary patterns, as this could offer a variety of food items. One parent from the pilot-kindergarten mentioned that perhaps it was even more varied than at home. This latter point of view was shared by the kindergarten teachers from kindergarten A as well as the pilot-kindergarten, as one says:

*“One gets introduced to a huge range of food, so one would not only be able to eat liver pâté and pasta (...).”*

The parents had in addition a general conviction in which the children would try to eat different foods, when presented for them in the kindergarten, as this social setting is different from the one at home. Moreover, one mother from kindergarten A recalls seeing her boy eating a lot of shredded carrots in the kindergarten, something he did not do at home. A mother from kindergarten L explicit said that she thought the lunch scheme contributed to her daughter eating healthier:

*“We have a 5 year old here, and over time she has begun to eat some vegetables here, that she is not at all offered at home. Healthier vegetables – and the kind which children usually dislike - traditionally. Things like spinach and cabbage and salad and green beans”.*

In addition, several parents stated that they had tried to cook some meals from the kindergarten menu at home, but at home the children rejected the menu. The kindergarten teachers also experienced, that the children either could encourage or discourage each other to taste new food, due to group relations and peer pressure.

In kindergarten L the kindergarten teachers also had observed a change of attitude towards new food within the children. When the lunch scheme was introduced they recalled that many children had hesitated on trying new and unknown food. This is far from the case today.

#### 5.1.1.4 Participation in Cooking

This particular task was seen as one of the most important strategies in improving children's dietary habits, as it was supposed that the children hereby could increase their knowledge on how food is prepared, and what the components of a meal can be. This could also lead to an understanding on how long it takes to prepare food, and hence, it should also take time to enjoy it under quiet and calm settings. They could also learn about the enjoyment in preparing a meal for others, than one self. In addition, the parents assumed that participation in cooking would increase the child's motivation for eating it afterwards. This point of view was seconded by the kindergartens teachers, and as one from kindergarten L stated:

*“(...) it is far more interesting to eat, when they have been participating in it [the preperation]”.*

All the kindergarten teachers agreed on to emphasize that the children had knowledge about where food origins, as they see this as a perspective of being healthy. In kindergarten L, farm visits were a regular activity. In addition, they had their own kitchen garden at one of the farms where they grew their own vegetables, which were used in the kindergarten kitchen after harvesting.

### 5.1.2 Constraining Factors

#### 5.1.2.1 Lack of Resources

One topic that was repeated among the parents, were the increasing number of children pr. kindergarten teacher, as this could decrease activities, such as participation in the kitchen. Furthermore, the parents believed that it could also worsen the meal situation, if the kindergarten teachers had to supervise a larger number of children. In general, this view was supported by all the kindergarten teachers, as they already felt that they had their hands full during the meal.

In addition, the kindergarten teachers in the pilot-kindergarten and kindergarten L mentioned that they would enjoy a larger kitchen and more kitchen staff, as both recall days, where one kindergarten teacher had to replace one from the kitchen staff, due to illness etc.

The kindergarten teachers also points out that the setting in which the lunch is eaten can be a constraining factor as the rooms are to small, which create some level of noise making the meal situation a bit chaotic. Further, two kindergarten teachers independently suggested that access to a separate “dinning room” would be preferable.

#### 5.1.2.2 The Role of Kindergarten Teachers

Some parents in kindergarten A and L stated that even though they saw the lunch scheme as a good thing, they expressed concerns about, that they no longer had an exact overview of what their child were eating and how much. This was not reported back by the kindergarten teachers, unless the child did not eat at all. Although a weekly menu is presented for the parents, it is not possible for them to know whether the child eats the whole menu or just some parts of it.

#### 5.1.2.3 The Role of the Parents

One kindergarten teacher stated, that she could see coherence between those children, who do not like vegetables, is also from homes, where vegetables, is not often consumed. The father from kindergarten L seconded this view, as he believed that if the child gets used to not eating broccoli at home, there is an even greater risk that the child will also refuse to eat it in the kindergarten. Several parents stated that they would like the kindergarten to set up some guidelines on what was appropriate to serve at birthday parties, but also some inspiration on how to break down some barriers at home.

#### 5.1.2.4 The Lunch Packages

Although not said explicit, the parents in the pilot-kindergarten saw the lunch packages as being a barrier for their children to develop healthier eating patterns, as they cannot offer a variety of food items due to conflicts with their children. One mother recalled that her boy would only eat liver pâté for two years, while another had tried to introduce her girl to sandwiches, but she would rather eat

dark rye bread with baloney. In relation to this, one mother said that, she would rather give the child what he or she likes, than the child did not eat or threw out the food. However, a second mother disagreed on this perspective, as she thought it was necessary, even though not expressed explicit, for the parents to take these “conflicts” with their children as it is also a part of raising the child. The father from the pilot-kindergarten tried to overcome this kind of conflicts, by introducing new food items at lunch time in the weekends, in the hope of that the child would demand these foods subsequently.

Almost all the parents had experienced the influence from TV-commercials and could recall having discussion with their children about specific food items (e.g. kinder milk slice and Danone yoghurt), as the children were very fond of these brands. The mother from kindergarten L saw this as loyalty to the brand, as she had tried to put alternatives in her daughter’s packages; these were rejected, as they had no brand name on them. This loyalty to brands could be a barrier for the children to eat healthier lunches, as they measured the value of their lunch packages in whether or not these brands are present.

The kindergarten teachers at kindergarten A did see their lunch scheme as a better alternative than the parents’ lunch packages as these could be filled with sugary food. This view is seconded by the kindergarten teachers at kindergarten L, who every third week “observes” the children’ lunch packages from home, and sees that the parents like to spoil their children as it often contains something sweet.

The kindergarten teachers in the pilot-kindergarten also saw the lunch packages as a constraining factor in the sense, that it is their experience that the parents do not vary the lunch packages as they just put in what they know the child prefers.

#### 5.1.2.5 Delivered Food

One thing that was feared the most was if lunch were to be delivered from elsewhere, especially from an elder people’s home<sup>2</sup> either as hot meals or ready made lunch packages. This were related

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<sup>2</sup> In Denmark, a great number of homes for elderly people have a large-scale food production, which delivers food to other elder people’s home without kitchen facilities as well as to elderly people who lives at home, but cannot manage to cook.

to several things 1) there has been major criticism of these kind of meals, because of the somewhat poor quality both nutritional and sensory 2) Both stakeholders agreed that especially the smell from the food, during cooking, is an important factor in stimulating the children's appetite, and food preparation at the kindergarten also stimulates the children's curiosity about food.

One mother from kindergarten L also appreciates that the food is prepared of good quality ingredients instead of using instant or semi-manufactured food.

## **5.2 Physical Activity and Movement**

The two kindergartens where the observations were conducted, had different appearances regarding the décor, both inside and outside, as described in section 2.2. Following section describes the findings in the two observations in kindergarten A and L, respectively.

Several themes seems to consistent on the topic of PA and movement, thus the next section is divided into themes which have consistently been touched or elaborated throughout the three FG interviews, both within the favourable and restraining factors. As the participators could see pros and cons for each of the mentioned factor, and most views were reversed, the following section will not be divided into favourable and restraining factors.

### **5.2.1 Kindergarten Teachers**

The role of the kindergarten teachers was discussed in all the interviews, both by the parents and the kindergarten teachers themselves. They both acknowledged the important role of the kindergarten teachers, as they both saw them(selves) as important role models. Two aspects of how the kindergarten teachers could act as role models were debated. One on how, kindergarten teachers could participate actively in the play games. Secondly, especially the aspect on how the kindergarten teachers could act in order to initiate play and PA was discussed. Even though children have a natural way of initiate play and games, they still need adults to act as catalysts and organisers in certain situations, for instance soccer games, tag, etc. As one kindergarten teacher in kindergarten L states:

*“Well, it is up to us to do stuff, where they have the possibility of movement.  
Surely, otherwise they will just run back and forth in the corridor”.*

### **5.2.2 Gender Composition in the Kindergarten**

It is expressed by the kindergarten teachers and some of the parents, that the gender composition among the kindergarten teachers has a vital role in order to set off movement and PA. Given that it was expressed that male kindergarten teachers seems to possess a natural ability to be more physical active with the children, than their female co-workers, as a female kindergarten teacher in kindergarten A utters:

*“As a woman, it is all the practical things you choose to do – I don’t know.  
Well, the guys prioritize all that physical stuff with the children”.*

This statement can further be related to a general wish for more males working in the kindergartens.

### **5.2.3 Parents**

The level of how much parents themselves regard their own involvement and responsibility on the subject of PA and movement is diverse. However, some parents do see it as important, to support the health improving approaches in the kindergarten, for instance by letting the children walk the distance from the home to the kindergarten, instead of being driven. Some parents, was furthermore very keen on letting their children attend to i.e. swim classes or gymnastics, since, they recognized that play does not always contained much actually movement or physical activity. This view was especially regarding girls, as parents of boys saw no problem with their children not getting enough PA through play. On the contrary they stated that it was a problem to keep them still.

### **5.2.4 Resources**

Resources were mentioned in many aspects as, both parents and kindergarten teachers mentioned following factors, which could act as favourable factors regarding to improve PA and movement in the kindergarten. There was agreement on that more space, definitely would be a favourable factor. Space in terms of  $m^2$ , was a significant factor both viewed from the parents and the kindergarten teachers. Each party would prefer to have easy access to for instances a big hall, big grass lawn (only one of the three kindergartens had access to a rather large lawn) or simple access to another place of scenery than the kindergarten ‘rooms’ or the playground. In kindergarten L, they had

experimented with flip tables attached to the wall, as a way to give the children more play space in the 'rooms'. This idea was independently seconded by a kindergarten teacher in the pilot-kindergarten:

*"...as it would release some space, where it would be possible to create some cosy areas or theatre areas (... ) space for more movement in the 'rooms'. For me – that would be ideal".*

She also saw these 'flip tables' as an obvious way to create more space for play and furthermore, this was in relation to not having to interrupt games/play when lunchtime came around. Another aspect of space was discussed among the kindergarten teachers in the pilot-kindergarten. This was a demand for more tolerance and energy among the kindergarten teachers, in order to promote a growing environment for PA/movement.

This statement can in particular be related to that in almost all the interviews, both parents and kindergarten teachers stated that the number of children pr. kindergarten teachers, did play a main role as a favourable factor for the children to strengthen their level of movement and PA. Especially the kindergarten teachers expresses the lack of extra hands, e.g. if one co-workers got sick, as to have an restraining effect, as they themselves in these situations tend to repress the PA/movement of the children, in order to avoid chaos.

In relation to this, rules as a restraining factor were debated. As some parents and kindergarten teachers uttered; that if there were too many rules on how the children should or should not move, it would limit PA/movement, one parent in the pilot-kindergarten says:

*"Something, which I think could act as a restraining factor, if there is too many rules put up, on how they should move around.*

*Because children has some needs and there are children with different needs, and for instances, at one time they had a rule about 'no running in the corridor',*

*But that was a clear need for a group of children, that they had the ability to run at a given time (...) there is a need for a alternative... else it is getting too restraining".*

Additionally, a kindergarten teacher in the pilot-kindergarten states the importance of not using the playground as a punishment, as this would limit the children's motivation for PA/movement:

*“(...) Now I have said it three times, now you must go out  
[as a punishment]... how fun is then ‘out’?”.*

To summarize, too many rules was in general the topic of restraining factors, as they also could limit the progress of the development of fine motor skills of the children, e.g. by not letting them climb as they please in a climbing frame. Not having any rules about this particular issue, was present in kindergarten A, and was by the parents considered as ideal, as their children freely could move around. Hereby they have the possibility of getting their motor skills strengthened without a kindergarten teacher preventing them because of cautions.

Thus, there is an overall wish for more m<sup>2</sup> pr. child, play tools which encourage physical activity and can strengthen motor skills, more (enthusiastic and involved) kindergarten teachers pr. child and a more even gender distribution in the kindergarten in general.

## **6.0 Discussion**

### **Diet**

As mentioned in section 4.1 the outcomes of the interviews with children were of various specificity and applicability, primarily due to the level of children's cognitive development, but also due to the group composition. In addition, the chosen method was not fully appropriate to be used with children at this age, as the interview became more of a group interview than an actual focus group interview. This was mainly due to the need for a great amount of guidance from the moderator to each child. Even though the interview guide was designed with open-ended and non-leading questions, it was not possible to follow the exact guide, due to the need for guidance of each child, making the questions more closed and potentially partially leading. Thus, interpretations of the data



should be made with some caution, and therefore the data should be used as indications and to raise possible perspectives on the stakeholder views.

Regarding the interviews with adults there was a general conviction that a healthy eating focused kindergarten lunch scheme could contribute in improving the dietary habits of the children, as it has the potential to offer a variety of dishes and foods as well as a different setting than the one at home. In the interviews with the children, it was revealed that the children attending the two kindergartens that had a lunch scheme had knowledge of more varied food items, as these children in general could mention more different dishes and food items. This is contrasted by the findings from the pilot-kindergarten which has no lunch scheme, who had a limited knowledge. This indicates that having a platform for praxis can potentially lead to increased learning opportunities. In addition, the interview focused on a talk of the salad in the pilot-kindergarten vs. Kindergarten A indicated that the children knew, not only the mango fruit, but moreover, that it could be used as an ingredient in a salad. This might be an indicator of that a lunch scheme contributes to a more comfortable and advanced relation to new foods presented, than packed lunches. Child peers eating together were both by the stakeholders and a few children, mentioned as a factor, which could increase the appetite for trying new dishes or foods. Findings also suggest that teachers in the dining situation can play different roles on a passive-active scale. Surprisingly it was found that teachers seem to play a more important role as intermediaries in children's meal than do kitchen staff does not seem to play a role as active intermediaries

However, in order to increase ownership of the food provided in a lunch scheme, both the parents and kindergarten teachers mentioned that it was central that the food was prepared in the kindergarten and not delivered from elsewhere. Furthermore, the ideal situation would be if the children could be involved in the cooking, as this would further increase ownership.

Although, not expressed explicit, the parents regarded the role of the kindergarten teachers with some ambivalence. They saw themselves as the most important role models in their children's lives, but on the other hand, several parents called for more dietary guidance from the kindergartens teachers in relation to support and meet the initiatives in the kindergarten, for instances when throwing a birthday party, as they especially were concerned with the children getting to much

sugar. This view however clashes with the views of kindergartens teachers, as they refuse to take the full responsibility for the children's eating habits

### **Physical activity**

In reviewing the observations on physical activity, it was found that almost independently of the possibilities in the surroundings, the children was rather skilled in taken advantage of them, however, this did not always contribute to actual movement and PA. This indicate that environment only is not a sufficient precondition for movement but that motivation, support and help from teachers is needed in addition. In other words physical environment is important but the organisational environment is even more important a determinant of PA. This means that kindergarten teachers has the potential to initiate more physical activity and movement in the kindergarten, but that any intervention needs to be supported by necessary resources as well as by management commitment.

In relation to this, observations point to the fact that it is central that the surroundings support and challenge these skills, among others by the kindergarten teachers, as it was observed that some children had the need for adults to initiate PA and movement. Observations indicated that girls need more support and some kindergarten teachers expressed concerns of the lack of resources available for this. The kindergarten teachers also expressed this latter view. However, they also recognised that they did not always act in accordance to this, due to e.g. differences between genders and lack of resources. Parents were positive towards the possibility that if more physical activity was initiated in the kindergarten this could create that the children requested these activities at home. This perspective clashes with the view of some of the kindergartens teachers that are reluctant to take the full responsibility for the children's health habits, as some also emphasize to see the health perspective in a broader sense than just food and PA.

It should be kept in mind that any intervention initiated in the kindergarten should be follow up with the extra resources, as lack of these were regarded as one of the main barriers in improving children's health in kindergartens by both parents and the kindergarten teachers.

The findings suggest that the gender aspect seems to be important especially regarding PA, both in relation to children and in relation teachers. In relation to children since girls seem to behave differently than boys and seems to require more support and attention. In relation to teacher since male teachers seems to have a different attitude and more capacity to initiate PA. This statement can further be related to a general wish for more males working in the kindergartens. However this wish seems to collide with another important barrier in Danish kindergartens. The much debated risk of paedophile charges along with the low salaries found in Kindergarten seem to act as a co-reason for the lack of men wanting to work with smaller children.

It is also important to underline that lack of resources in critical events seem to be a constraining factor for PA activities and healthy eating activities. Kindergarten may have ambitious plans and policies for both PA activities and healthy eating but they come under serious pressure in case of staff absence due to sickness, stress etc. On the other hand a number of factors are found to be enabling for PA activities and healthy eating. These include basic values, intentions, policy making efforts and management commitment as well as good physical environment and parent support.

### ***Outline for a kindergarten intervention***

Based on the findings a kindergarten intervention for use in Denmark will be developed. It will be based on encouraging PAP & FNP policy process and encouraging involvement of children's in decision making process by using FG methods routinely. With regards to PA the intervention will contain a theme week dance & play, noise reduction to protect staff, drop down wall-in- built seats in class rooms and installation of activity balls in wires in ceiling.

In relation to healthy eating the intervention will contain a Sapere taste education for children aged 5-6 year, a "Home economics" activity, a School garden activity and nutritional monitoring of food service.

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## Appendix 1: Research design, Food and Meals, Children

This interview was divided into four phases as illustrated in the table below:

Research phase	Question of analyse	Objective of analyse
<b>Phase 1:</b> Opening question: About how the children eat.	What are their daily routines in the kindergarten?	To gain knowledge about how the children think of and understand the meal- and food situation
<b>Phase 2:</b> On how children experience and see the 'good meal' and the 'deficient meal'	Which kind of meal do children prefer, and which kind of meal do children not prefer?	To gain knowledge about how the children prefer the meal settings
<b>Phase 3:</b> About how children relates to food they do not know	How do the children see their possibilities/limitations to eat food they do not know?	To gain knowledge about how the children is experiencing their possibilities/limitations to eat food they do not know
<b>Phase 4:</b> To unveil the health perception of the children and to unveil what the children associates with healthy food	How do the children regard healthy food/ which perception do the children have of health	To gain knowledge about the children's perception of health/ healthy food

## **Practical content of the phases in the dietary interview**

### **Phase 1**

In phase one it is the intention to get an understanding of how children understand the concept 'a meal'. Additionally, it has the purpose to get an idea of what and how the children eat in the kindergarten.

### **Phase 2**

In phase two we hand out laminated pictures to the children. The pictures illustrate different kind of meal situations. In addition, we hand out a picture of children cooking together with adults. The children are asked to pick the picture, which they think fits best with how they like to eat. Afterwards, the children tell each other what they see on the picture which they have chosen and why they have chosen the given picture. Last the children are asked to elaborate their thoughts about the chosen pictures. The same method is used again, but this time the children has to choose a picture which resemble a meal situation they do not prefer.

### **Phase 3**

In phase 3, we present a picture of a buffet for the children. This is to discover whether or not the children would taste and pick food which they have no knowledge of.

### **Phase 4**

In phase 4, the children draw food which they regard as healthy. Afterwards the children explain to each other what their drawing resembles and why they have chosen to draw this exact drawing.

## Appendix 2: Research design, PA and Movement, Children

This interview is divided into three overall phases and two sub-phases, as we wanted the children to look separately on the indoor and outdoor environment. The phases are shown in the table below:

Research phase	Question of analyse	Objective of analyse
<b>Phase 1:</b> Opening question about the movements of the children	What are their daily routines? How do the children move in their everyday life?	To gain knowledge about how the children thinks of and understand movement
<b>Phase 2a:</b> Indoor: When it comes to movement, what do the children prefer?	Which kind of movements do the children prefer?	To gain knowledge about how the children prefer to move
<b>Phase 2b:</b> Indoor: When it comes to movement, which settings do the children prefer	How do the children look at their possibilities/limitations to move?	To gain knowledge about how the children is experiencing their possibilities/limitations to move
<b>Phase 3a:</b> Outdoor: When it comes to movement, what do the children prefer?	Which kind of movement do the children prefer?	To gain knowledge about how the children prefer to move
<b>Phase 3b:</b> Outdoor: When it comes to movement, which settings do the children prefer?	How do the children look at their possibilities/limitations to move?	To gain knowledge about how the children is experiencing their possibilities/limitations to move

## **Practical content of the phases in the PA/movement interview**

### **Phase 1**

In phase one it is the intention to get an understanding of how children understand the concept of 'movement'. Additionally, it is the purpose to get an idea of how the children move and use their bodies in the environment in the kindergarten.

### **Phase 2a+b and 3a+b**

In these phases we ask the children to tell and show us and each other how and where they like to move and use their bodies both indoors and outdoors in the kindergarten. The purpose is to gain knowledge of the perceptions children have of possibilities and limitations of movement in the kindergarten environment.



## Appendix 3: Pictures for Food and Meals

Picture A



Picture B



**Picture C**



**Picture D**

