Infant nutrition and nutrition for breastfeeding mothers

Updated practice recommendations of the network “Healthy Start - Young Family Network” a project from IN FORM

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Consensual recommendations – Basis for communication

The foundation of the network Healthy Start – Young Family Network was established during an initial workshop held in the Federal Ministry of Food, Agriculture and Consumer Protection on 08/12/2008. This event was attended by 55 representatives and health professionals working in the fields of pregnancy, breastfeeding period, birth and young families. The workshop was used primarily to define the tasks of the network, to agree on a common message that all network partners would communicate, and to create a basis for effective communication. In the current environment, young families receive recommendations from a variety of professional associations that differ partially in terms of content or wording. This can be unsettling for the recipients and the health professionals alike. Agreeing on a shared message based on the latest scientific research that is used and publicised by the various professional associations and professional groups will contribute to the acceptance of these recommendations by young families and health professionals, and will therefore increase the likelihood of their observance.

From research to the core statements

The recommendations published by the relevant professional organisations and institutions containing statements on diet for expectant and breastfeeding mothers and children aged under 12 months were researched in May 2009. They include among others:

- German Nutrition Society (DGE)
- German Society of Pediatrics and Adolescent Medicine (DGKJ)
- Research Institute of Child Nutrition (FKE)
- National Breastfeeding Committee at the Federal Institute for Risk Assessment (NSK)
- Federal Institute for Risk Assessment (BfR)
- World Health Organization (WHO)
- European Union (EU), i.e. European Food Safety Authority (EFSA)
- German Association of Gynecologists (BVF)
- German Society of Obstetrics and Gynecology (DGGG)
- German Society of Pediatric Dentistry, i.e. German Society of Dental and Oral Medicine (DGZMK)
- German Midwifery Association (DHV)
- German Lactation Consultant Association
- Various other organisations
Parents experience the time around the birth of their child as intense, exciting and challenging. They are eager to give their progeny a healthy start in life. But there are many decisions they need to make in order for this to happen. Significant numbers of parents are particularly concerned about the topics of diet and preventing allergies. Nevertheless, they find themselves frequently confronted by differing statements in everyday life. This situation prompted the network Healthy Start – Young Family Network to issue the following harmonised recommendations for action.

The network Healthy Start is a project within the German government national initiative IN FORM – Germany’s national initiative to promote healthy diets and physical activity. It is funded by the Federal Ministry of Food, Agriculture and Consumer Protection (BMELV). Healthy Start is a national network incorporating specialist medical and scientific societies, professional associations and institutions within relevant fields that have joined to provide parents with counselling and support in all aspects relating to childbirth. The project is organised by aid infodienst e.V.

For the Scientific Advisory Board at the network
Healthy Start – Young Family Network

- Prof Berthold Koletzko (Chair of the Scientific Advisory Board), Munich (German Society of Pediatrics and Adolescent Medicine)
- Prof Carl-Peter Bauer, Gaißbach
- Prof Claudia Hellmers, Osnabrück (German Society of Midwifery Science)
- Prof Mathilde Kersting, Dortmund (Research Institute of Child Nutrition)
- Prof Michael Krawinkel, Gießen (German Nutrition Society)
- Prof Hildegard Przyrembel, Berlin
- Prof Torsten Schäfer, Immenstadt
- Prof Klaus Vetter, Berlin (National Breastfeeding Committee at the Federal Institute for Risk Assessment)
- Prof Ulrich Wahn, Berlin
- Dr Anke Weißborn, Berlin (Federal Institute for Risk Assessment)
- PD Dr Achim Wöckel, Ulm (German Society of Obstetrics and Gynecology).

The recommendations for action are supported by the professional associations of gynaecologists, midwives and paediatricians [BVF (German Association of Gynecologists), DGKJ (German Society of Pediatrics and Adolescent Medicine), DHV (German Midwifery Association), BVKJ (German Association of Pediatricians)].

Note. The recommendations for action described here refer to the first year in the life of a child, and to the mother’s nutrition during the period of breastfeeding. It is neither possible nor advisable simply to transfer the recommendations to other phases in life, e.g. to young children, or to regions outside of Germany.

The dietary recommendations apply to healthy, full-term infants cared for at home and in communal facilities such daycare centres or nurseries. However, nurseries and daycare centres are required to satisfy special hygiene requirements in handling and preparing food, especially in regard to handling mother’s milk and in the preparation of industrially manufactured formulae.

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The latest issues of currently available brochures [23–25, 36] and other publications in a printed form or on the website of the respective organisations/institutions were used as sources of information. They are available and easily accessible for the target group. A review was also conducted of scientific publications, including the D-A-CH reference values (D: Germany, A: Austria, CH: Switzerland) for nutrient uptake [7], the S3 Guideline on Allergy Prevention [9], i.e. fluoridation advocacy [17] and specialist publications for health professionals such as the DGE Consultation Standards [12].

A comparison with current recommendations for action revealed that the proposals put forward by the various organisations agree in many areas. Nevertheless, young families will encounter different recommendations in a number of items, for instance the period of exclusive breast-feeding, fluoride supplements or fish in the supplementary food.

The results of the research were discussed with the members of the network’s Scientific Advisory Board. Scientists from a variety of technical disciplines and institutions (see above) sit on this board. They came together to formulate common core statements (recommendations for action) based on the latest scientific data and with due consideration of feasibility for their implementation in the everyday routines of the relevant target group. These recommendations for action were then defined and adapted as practical, everyday messages to reflect the needs of young families and the larger target group for publication in the various media and communication channels used by the network. Background information was added for training courses offered to health professionals. The core statements (recommendations for action) formulated by the Scientific Advisory Board therefore form the basis for all of the network’s communication media and measures.

Unequivocal statements of time

It is crucial that any recommendations concerning diet in the first 12 months contain unequivocal statements of time to ensure that they are implemented correctly by the target group. For instance, statements such as at 4 months, could be misunderstood to mean in the 4th month of life, although it actually describes from the 5th month. Statements such as around the age of 9 months lack precision and lead merely to additional questions. This prompted the experts to demand unequivocal statements of time, worded according to the principle from the start of the xx month/from the xx month.
I. Core statements on breastfeeding

General recommendations

Breastfeeding: the best thing for the mother and child
- The composition of mother’s milk perfectly reflects the needs of the child, and it provides the baby with all of the important nutrients it requires for growth and healthy development.
- Mother’s milk is absolutely hygienic and always at the right temperature. Its constant availability is practical, and it costs nothing.
- Breastfeeding reduces the risk of the child suffering from diarrhoea, a middle ear infection and later on in life even obesity.
- Breastfeeding positively impacts the health of the mother. (Breastfeeding can stimulate postnatal uterus regression and reduce the risk of breast and ovarian cancer.)
- Breastfeeding can contribute to strengthening the bond between the mother and the child.

Exclusive breastfeeding is the best possible diet for healthy infants during their first months of life. Partial breastfeeding is also beneficial.

Parents should seek counselling on the best ways to breastfeed.

DGE, DGKJ, FKE, the National Breastfeeding Committee [34], WHO and the EU [22] view mother’s milk as the best/most ideal, i.e. natural, source of nutrition for infants. The experts on the Scientific Advisory Board concur that breastfeeding should be promoted unreservedly, and that each instance of breastfeeding is useful and helpful. Partial breastfeeding is also beneficial, as it reduces the incidence of diarrhoea [26] and other illnesses.

Breastfeeding is linked to a lower risk of SIDS (sudden infant death syndrome). This aspect should be addressed in courses given to health professionals. The courses can also look into the issue of contaminants in the mother’s milk (not only environmental pollutants, but also caused by smoking and other factors). The topic of contaminants should not be stressed in communication with the target group, as the contaminant situation in Germany is not a relevant issue in respect to a decision to breastfeed, and for how long it should continue [11].

Abstract

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Zusammenfassung


Infant nutrition and nutrition for breastfeeding mothers. Updated practice recommendations of the network “Healthy Start—Young Family Network” a project from IN FORM

Abstract

Network. The network Healthy Start – Young Family Network is a project from IN FORM – German national initiative to promote healthy diets and physical activity. In this nationwide network medical and scientific societies, professional organizations, and professionally oriented institutions combined together to accompany and support parents through pregnancy and birth by providing information on nutrition and allergy prevention.

Recommendations. The recommendations of various relevant professional organizations and institutions were compiled, discussed among the members of scientific advisory board of the network and formulated into standardized key messages (recommendations for actions). These recommendations were distributed to young families in the form of application-oriented messages for everyday life and as an integral part of disseminator training in the form of background information. They include key messages on breastfeeding, infant formula, baby foods, drinks (complementary fluids intake), nutritional supplements, nutrition for breastfeeding mothers, stimulants while breastfeeding, medication and food supplements while breastfeeding as well as advice on non-nutrition and non-smoking related allergies in children.

Keywords
Breastfeeding · Infant formula · Supplementation · Nutrition · Drinks · Allergy prevention

Start of breastfeeding

Recommendation

Mothers should be enabled to have direct skin contact with their babies immediately after the birth. If possible, the child should be given the breast for the first time within 2 hours after the birth.

Breastfeeding is a skill that the mother and child both have to acquire. Uncertainty can cause difficulties and may even prompt a (premature) discontinuation of nursing, so mothers need to seek information and counselling on breastfeeding, at best during pregnancy. Gynaecologists and paediatricians, midwives and lactation consultants all provide information and counselling. Early skin contact between
the mother and the child reduces crying in industrial nations, promotes interaction between the mother and child, and helps initiate breastfeeding [30]. Offering the breast early on, and a timely start to nursing, are of immense importance to successful breastfeeding. However, experts do not believe that the WHO recommendation to start breastfeeding within 1 hour following childbirth [39] is always feasible in practice. This aspect should be discussed in courses with health professionals.

Duration of breastfeeding

Recommendations

Infants should be breastfed in their first twelve months, and exclusively at least until the start of the 5th month. The same applies to children with an elevated risk of allergies.

Infants should still be breastfed after introduction of supplementary food – no later than the start of their 2nd year. The mother and child decide how long they would like breastfeeding to continue.

DGE, DGKJ and FKE recommend that babies exclusively receive breastfeeding for a period of 4 to 6 months (until the start of the 5th, i.e. the 7th month). The Scientific Advisory Board holds that there are sound scientific reasons for this recommendation. The S3 Guideline on Allergy Prevention [9] 2009 recommends breastfeeding exclusively for 4 months; there is a lack of secure data to recommend any longer period of exclusive breastfeeding. In respect to preventing allergies, there are no reasons to recommend a delay in the introduction of supplementary food beyond the start of the 5th month (Recommendation Class A). ESPGHAN (European Society for Paediatric Gastroenterology, Hepatology, and Nutrition) recommends introducing supplementary food no earlier than the 17th week, and no later than after the 26th week, and hence endorses the recommendation for exclusive breastfeeding over a period of 4 to 6 months [20].

WHO and UNICEF (United Nations International Children’s Emergency Fund) recommend for populations worldwide that exclusive breastfeeding should continue for a period of 6 months, and that breastfeeding should continue up to an age of 2, not least due to the especially important protection against infectious diseases that breastfeeding provides to the population of poorer countries [37]. Nevertheless, the WHO Expert Working Group notes that an introduction of supplementary food only at the start of the 7th month may create a risk of deficiency in subgroups [40]. The Scientific Advisory Board explicitly endorses the WHO recommendation of exclusive breastfeeding for a period of 6 months, and that the population of poorer countries should continue to breastfeed for a longer period, as they may be exposed to a greater risk of infection by the introduction of supplementary food or bottle feeding.

In respect to European infants, the scientific assessment by EFSA [19] recommends introducing supplementary food between the start of the 5th month and the start of the 7th month. Here, EFSA appraised the available data on a correlation between the introduction of supplementary food and subsequent risks of disease, in particular the risk of celiac disease and type-1 diabetes mellitus, in addition to the aspect of nutrient supply. The gradual introduction of gluten between the start of the 5th month and the start of the 7th month, preferably while breastfeeding continues, correlated with a reduced risk of these diseases. A meta-analysis of 6 case-control studies showed that the risk of celiac disease is reduced by one half if gluten is introduced in supplementary food while breastfeeding continues [2]. More recent data from Bavaria revealed that only 52% of children were still breastfed/offered the breast inside of 24 hours (breastfeed xx times in 24h). The baby must be wakened for breastfeeding in particular circumstances, e.g. if it is not gaining sufficient weight, it has a sucking weakness, or neonatal jaundice (hyperbilirubinaemia). The experts recommend that the aspect of breastfeeding frequency is addressed in detail during courses with health professionals.

II. Core statements on infant formulae

Selection of infant formulae

Recommendations

The baby must receive industrially manufactured infant formulae if it is not fully breastfed, or not at all.

Infant formulae (pre or 1 formulae) are suitable for feeding from birth and for the entire 1st year of life. They can be given as frequently as needed by the child.

Any follow-on formulae (2 formulae) should be given no earlier than upon introduction of supplementary food.

There are contradictory results concerning the effects of probiotics (bacteria that produce lactic acid) and prebiotics (non-digestible carbohydrates), which are claimed to positively influence the health of the child. As things stand, the benefits of adding probiotics and prebiotics to infant formulae have not been confirmed unequivocally.

Parents should not use milk or other ingredients to create their own infant formula.

Special foods for infants should only be given after consultation with the paediatrician.
The infant will be given industrially manufactured formula in the event that the mother cannot breastfeed, or does not want to. The recommendations for action clearly indicate the distinction between initial infant formulae and follow-on formulae. The professional associations DGE and DGKJ, also FKE, concur in their recommendations. However, DGE and FKE stress explicitly that follow-on formulae are not necessary. The EC Directive 2006/141/EC requires follow-on formulae. The professional associations clearly indicate the distinction between these formulae. The recommendations for action in the event that the mother cannot breastfeed, or does not want to. The recommendations for action clearly indicate the distinction between initial infant formulae and follow-on formulae. The professional associations DGE and DGKJ, also FKE, concur in their recommendations. However, DGE and FKE stress explicitly that follow-on formulae are not necessary. The EC Directive 2006/141/EC [21] also ties the use of follow-on formulae to the introduction of supplementary food. Article 13 (1) b of this Directive dated 22/12/2006 states that the label on initial infant formula and follow-on formulae must contain the following information:

“that the product is suitable only for particular nutritional use by infants over the age of six months, that it should form only part of a diversified diet, that it is not to be used as a substitute for breast milk during the first six months of life.”

The Directive continues

“that the decision to begin complementary feeding, including any exception to six months of age, should be made only on the advice of independent persons having qualifications in medicine, nutrition or pharmacy, or other professionals responsible for maternal and child care, based on the individual infant’s specific growth and development need” [21].

Hence, follow-on formula can be given – together with supplementary food – at an earlier date under these conditions. From a scientific perspective, therefore, a binding instruction of 6 months – so not before the start of the 7th month – is not necessary in the opinion of the experts. They anticipate harmonisation of the legislative framework regarding the earliest time to introduce supplementary food based on the EFSA assessment [19]. The statements on probiotics and prebiotics contained in the core statements apply in respect to allergies, and to the prevention of infection. DGE, DGKJ and FKE concur in their recommendations.

A special diet is taken to mean, for instance, special foods if the child has a tendency to spit, or special foods containing soy protein. The professional associations (DGE, DGKJ [15]) and FKE agree that they may be used only after consultation with the paediatrician.

DGE and DGKJ, FKE also, recommend that parents purchase ready-made infant formula from a shop, and that they do not make it themselves. The reasons for this are the high renal solute load of infant formula produced from cow’s milk, a disbalance in the nutrient content, and an increased risk of gastrointestinal infection and abnormal weight development. The experts hold that the infants do not flourish as well with home-made formula. The recommendation to refrain from manufacturing home-made infant formula applies to all types of milk (cow, goat, sheep and horse), and to other ingredients such as almond or soy.

**Selection of infant formulae in case of a risk of allergy**

**Recommendations**

Infants that are not breastfed, and whose parents or siblings suffer from an allergy, should receive an HA infant formula (HA: hypoallergenic food) in the first six months of life (at least until the start of the 5th month).

Infant formulae based on soy protein, goat, horse or other animal milk are not suitable as a method to prevent allergies.

HA formula is recommended in the event that the child has an elevated risk of allergy (at least one parent, brother or sister has an allergy). The professional associations agree on this point [23]. The recommendations are supported by the S3 Guideline on Allergy Prevention [9] 2009. The multi-centric GINI study (GINI: “German infant nutritional intervention”; [29]) showed that children with allergy sufferers in the family are less prone to developing eczema when given HA formula than they are when given infant formula on a cow’s milk basis³. Parents should be instructed that other preventative measures must be taken into consideration. The benefits of adding probiotics and prebiotics to infant formulae have not been confirmed unequivocally. Parents can switch to a normal infant formula upon introduction of supplementary food.

**Preparation of the infant formula**

**Recommendations**

- Infant formula should always be prepared fresh for each meal.
- Any prepared but unused formula should be discarded, and must not be kept and warmed up for a subsequent meal.
- Fresh drinking water (tap water) should be used to prepare the infant formula; to do this, leave the tap to run until cold water begins to flow.
- The water should be luke warm (no more than 40°C) when shaking the infant formula in order to prevent scalding.
- Do not use drinking water from lead pipes. Only use drinking water from domestic wells if the water quality has been tested. (Use packaged water that is “suitable for the preparation of infant formula” if the pipes in the house are made of lead, or if the domestic well has not been tested.)
- The relevant professional associations, also BfR and UBA (Federal Environmental Agency), agree that the drinking water (tap water) in Germany is suitable to prepare infant formulae. Any exceptions, e.g. lead pipes or uranium values above 10 µg/l, are stated unequivocally [5]. Only use drinking water from domestic wells if an accredited laboratory has tested the water quality and found it to be suitable. DGKJ explicitly advises against the use of water filters [14]. The Scientific Advisory Board endorses this recommendation.
- The drinking water should always be heated, and not taken hot from the tap. Boilers in particular are hygienically unsound. Infant formula in a powder form is not sterile, i.e. it may contain bacteria, if albeit in very small amounts. The main hygiene risk is posed by the propagation of pathogenic bacteria such as Escherichia coli and salmonella in formulae that have already been prepared. The dwell, i.e. the time between preparation and consumption, is of particular significance here. This is why any leftover formula must be disposed of, and must not be reheated. This is a crucial hygiene precaution.

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³Children with allergies in the family that receive HA formula from Germany containing partially hydrolyzed protein will develop a medically diagnosed eczema by the age of 6 in 31.1% of cases. In comparison: 37.9% of the children would develop eczema if they were to receive infant formula on an unmodified cow’s milk basis. It follows, therefore, that around 15 children with an elevated risk of allergy would have to receive this kind of HA formula in the first months of its life in order to prevent the incidence of medically diagnosed eczema in just one child by the age of 6 years.
It is essentially conceivable that a bacterial contamination of the water, e.g. caused by dirt on the tap, may occur. Anyone wishing to prevent this risk should boil the water used to prepare the powdered infant formulae and then leave it to cool down to 30–40°C during the first weeks and months of the infant’s life. It is imperative to ensure that the formula cools down sufficiently in order to prevent scalding. Parents and caregivers should make absolutely certain that they only handle hot water, hot food or hot kitchen appliances out of the reach of children in order to exclude the possibility of burns or scalding [6].

Parents and caregivers must also adhere to fundamental hygiene rules in the preparation of infant formulae. This includes thoroughly washing hands with soap under hot, running water before preparing the formulae. They must also ensure that raw foods are not prepared close by at the same time.

Cleaning bottles and nipples

Recommendations

Bottles and nipples must be thoroughly rinsed, carefully cleaned and then stored dry immediately after each meal.

Rubber nipples should be boiled occasionally (not necessary for silicon nipples).

Bottles and nipples must be thoroughly cleaned immediately after each meal. In most cases the boiling or sterilisation of bottles and silicon nipples will not yield any additional benefits in a domestic environment. All professional organisations (DGE, DGKJ, FKE) agree on this point. In contrast, unlike silicon nipples, rubber nipples become porous, which is why experts recommend that they should be boiled occasionally or replaced more frequently.

III. Core statements on supplementary food

Introducing supplementary food

Recommendations

Supplementary food should be introduced no earlier than the start of the 5th month, and not later than the start of the 7th month.

Breastfeeding should continue, even after supplementary food is introduced.

The recommendations published by the professional associations (DGE, DGKJ), FKE and the National Breastfeeding Committee concur in this point. The scientific assessment by EFSA [19] states that introducing supplementary food between the 4th and the 6th month of life (between the start of the 5th month and the start of the 7th month) is safe and will not pose any risk to the health of the child. The experts explicitly stress the importance of continuing to breastfeed/continuing to breastfeed partially, even after introduction of supplementary food. Therefore, introducing supplementary food does not mean the end of breastfeeding.

The recommendation in respect to the time of introducing supplementary food applies to breastfed infants and to infants that receive formulae, irrespective of the type. WHO recommends exclusive breastfeeding for a period of 6 months. Therefore, its recommendation differs from the advice given by the professional associations. WHO recommends that supplementary food is not introduced until the start of the 7th month [42].

Infants may vary in terms of the time from which they will require, and be sufficiently mature to accept, supplementary food. DGE, FKE and the National Breastfeeding Committee all make reference to this aspect. It is therefore important to keep the child’s individual development in mind. Relevant factors in this respect include eating skills (being able to eat from a spoon), interest in new food, an urge to try new food, and the requisite motor and mental capacities. These aspects should be enlarged upon in courses given to health professionals.

Sequence and selection of the supplementary food

Recommendations

The supplementary food should be introduced according to the diet plan published by the Research Institute of Child Nutrition (FKE). Parents and caregivers are encouraged to ensure variety in the ingredients used to prepare the supplementary food (different types of fruit and vegetable; small portions of pasta or other cereal products in the vegetable-potato-meat pap, preferably made of wheat; occasional helpings of even fat-rich fish instead of meat).

The diet plan applies also to children with an elevated risk of allergies. Avoiding or delaying the introduction of foods that frequently provoke allergies does not provide any protection against allergies.

Supplementary food for infants can be home-made or bought ready-made – there are benefits to both types.

The following criteria are helpful in the selection of ready-made products:

- Preference should be given to ingredients that adhere to commonly accepted rules of home cooking.
- The addition of salt or flavouring and a distinct sweet taste are not encouraged.

DGE and DGKJ endorse the FKE diet plan (http://www.fke-do.de). It will be used in courses given to health professionals. The experts recommend varying the ingredients used to prepare each type of pap. Introducing gluten – while the infant is still being nursed – is associated with a 50% reduction in the risk of celiac disease [2]. It is therefore advisable to add small quantities of cereal containing gluten when starting to feed pap. There is no evidence that dietary restrictions have a preventative effect. The S3 Guideline on Prevention [9], for instance, does not recommend dietary restrictions (Recommendation Class B). Avoiding or delaying the introduction of foods that frequently provoke allergies may even have negative repercussions on the development of tolerance. There are indications that the consumption of fish in the 1st year of life helps prevent the development of atopic diseases (S3 Guideline, Recommendation Class B). Fat-rich fish such as salmon or mackerel deliver long-chain
Milk and dairy products as part of supplementary food

Recommendations

Only small quantities of drinking milk (cow’s milk) should be provided during the 1st year in the child’s life (to prepare a milk-cereal pap).

- It should not be provided as a beverage until toward the end of the 1st year in the child’s life, and only as part of a meal featuring bread; it should be served in a cup or mug.

- Cow’s milk must not be unpasteurised or certified raw milk.

All professional associations [13] advise against a premature introduction of cow’s milk as a drink. Infants should consume milk above all from their mothers or as infant formulae. The German professional associations state that cow’s milk should not be served as a drink until towards the end of the 1st year of life. WHO publications indicate that cow’s milk can be gradually introduced as a drink between the 9th and the 12th month [41].

The experts concur that milk and dairy products are suitable ingredients in supplementary food (e.g. in milk-cereal pap, which can transition to a bread meal plus a cup of milk towards the end of the 1st year in life). The experts and the professional associations advise against any further snacks containing dairy products (quark, yogurt, milk pudding, etc.).

IV. Core statements on drinks (additional intake of liquid)

Recommendations

The baby does not require additional fluids until after introduction of the third type of pap (cereal-fruit pap). The drink should preferably be served in a cup or mug.

- As a rule, infants should receive zero-calorie drinks with their supplementary food.

- Besides the nutrition it receives in milk, the best drink for a baby is drinking water (tap water). It does not need to be boiled; leave the water to run until it comes out of the tap cold. Unsweetened herbal or fruit teas can be provided as alternatives.

- Do not use drinking water from lead pipes. Only use drinking water from domestic wells if the water quality has been tested.

Continuous sucking on a bottle and a ‘bottle for the night’ must be avoided at all cost, as they substantially increase the risk of damage to the teeth. Drinks should be offered in a mug or a cup.

DGE, DGKJ and FKE concur in their recommendations: A child that is fully breastfed, or that receives infant formula, does not need any additional drinks. Additional liquid is not needed until the child eats 3 servings of pap per day. Notwithstanding, the child may need additional liquid earlier on if it has a fever, diarrhoea or such like.

The professional associations DGE and DGKJ, also FKE and the German Society of Pediatric Dentistry, urgently advise against continuous use of the bottle [8]. Constantly soaking the teeth in milk, tea and similar liquids is harmful.

V. Core statements on dietary supplements in the 1st year of life

Recommendations

Each infant needs vitamin K, vitamin D and fluoride.

- Vitamin K: 3 x 2 mg vitamin K in a drop form during the medical check-ups U1, U2 and U3

- Vitamin D: 400–500 IU/day

- Fluoride: usually 0.25 mg/day

The professional associations (DGE, DGKJ) and FKE concur in their recommendations for vitamins D and K: DGE, DGKJ and FKE recommend systemic administration of fluoride up to a drinking water content of 0.3 mg/l fluoride. Individual advice should be obtained from professionals (e.g. paediatricians) in case of higher levels of drinking water. DGE, DGKJ and FKE hold that a topical application of fluoride in the form of fluoridated toothpaste should not be administered to young children until it is certain that the children will on all accounts spit out the products. They do not endorse the recommendation by DGZMK to administer a topical application of fluoride after emergence of the first milk tooth (the DGZMK guideline on fluoridation measures is currently being revised; [36]).
VI. Core statements on the diet of breastfeeding mothers

Diet during breastfeeding

Recommendations

Breastfeeding mothers should eat regularly and must ensure a varied and balanced diet.

Breastfeeding mothers should not embark on a diet to reduce weight (deliberately restricting calories to lose weight).

Dietary restrictions by the mother during the period of breastfeeding do not have any recognisable benefits in the prevention of allergies and are not recommended, especially as they come with the risk of an insufficient supply of nutrients.

If possible, breastfeeding mothers should eat saltwater fish on two occasions per week; one of these servings should contain fat-rich fish (e.g. herring, mackerel, salmon, sardines).

FKE publishes reference values for food quantities. The DGE Consulting Standards [12] include qualitative recommendations for the selection of diet by breastfeeding mothers. DGKJ, the National Breastfeeding Committee and the WHO endorse a varied and balanced diet [38]. The experts do not believe that amounts stated in grams are particularly helpful. The dietary recommendations should be communicated using the aid Nutrition Pyramid [1] or the DGE Nutrition Circle [10], and the necessary quantities of food should be shown based on examples of portions. FKE provides the underlying reference values for quantities of food (expressed in grams), which can be used to infer practical quantities for portions and such like when discussing these aspects. They are taught in courses given to health professionals.

A moderate loss in weight and reduction in fatty tissue while breastfeeding are normal, but it is important not to force the issue of losing weight. DGE and FKE recommend eating sufficient quantities to maintain weight or to ensure that it only drops slowly. Milk production will suffer if the mother loses weight too quickly. The experts call for this aspect to be given particular consideration in courses given to health professionals. It is not possible to state a clear number for acceptable weight loss. However, it is a clear indication that the mother has lost too much weight if her weight falls below what it was before pregnancy.

There is no evidence that a precautionary avoidance of certain foods is sensible for the purpose of preventing allergies (Recommendation Class A, S3 Guideline on Allergy Prevention, [9]). It follows, therefore, that there should be no unnecessary dietary restrictions (DGKJ, FKE, WHO, [5]), as this may place the mother’s adequate supply of nutrients at risk.

There are indications that including fish in the diet of breastfeeding mothers has protective effects on the emergence of atopic diseases in the child ([127]; S3 Guideline on Allergy Prevention [9], Recommendation Class B). Fat-rich saltwater fish contain large quantities of the long-chained ω3 fatty acids DHA and EPA. Large predator fish like tuna or swordfish contain greater quantities of contaminants. Therefore, the current statements do not recommend giving preference to their consumption [4, 18].

Liquid intake during breastfeeding

Recommendation

Breastfeeding mothers should drink plenty and regularly (e.g. 1 glass of water each time they nurse).

The D-A-CH reference values in 2008 suggest a water intake in liquid form of approximately 1700 ml. In most cases, though, a definite intake amount for liquid is not stated. The National Breastfeeding Committee and FKE recommend providing/drinking a glass of liquid each time the mother nurses the child.

There is no evidence that so-called milkmaid teas have a specific effect. The aspect of foods that promote milk production and their possible placebo effect (in respect to sufficient liquid intake) should be addressed in the courses given to health professionals.

VII. Core statements on stimulants while breastfeeding

Recommendations

Breastfeeding mothers should avoid alcohol.

- Only on special occasions is it tolerable for the mother to drink a small glass of wine, beer or sparkling wine.

Breastfeeding mothers should not smoke,

- most certainly not in the presence of the child (neither parents nor other persons).
- on no accounts in the apartment or in rooms in which the child is present.

Alcohol passes over into the milk. The recommendations published by the professional associations DGE and DGKJ, also FKE and WHO [13], largely concur in respect to restraint in the consumption of alcohol. However, it is not possible to infer an upper limit to protect the safety of the breastfeeding mother and her infant. This is why it is important to refrain from consuming alcoholic beverages. Popular opinion errs in its assumption that they stimulate milk production; they may even reduce the quantities [31].

The professional associations DGE and DGKJ, also FKE and the National Breastfeeding Committee [32], advise breastfeeding mothers to stop smoking. Nicotine passes over into the mother’s milk; smoking also reduces the quantity of milk and exacerbates the risk of the child suffering respiratory diseases and allergies. The recommendation that mothers who smoke should stop breastfeeding was withdrawn at the start of the 1990s. In the event that the breastfeeding mother is unable to stop smoking, she should smoke after breastfeeding and not before, and should cut down on smoking. Each cigarette she does not smoke is good for the child. These aspects should be addressed in courses given to health professionals.

VIII. Core statements on medication and dietary supplements while breastfeeding

Medication while breastfeeding

Recommendation

Medication should only be taken while the mother continues to breastfeed in consultation with the attending physician.

The recommendation only to take medication in consultation with the attending physician applies to prescription medication and over-the-counter medication.
Supplements for breastfeeding women

Recommendation

In addition to using iodized salt (table salt enriched with iodine), breastfeeding mothers should also take iodine tablets (100 µg iodine/day).

The professional associations have issued general recommendations for the intake of iodine supplements. The experts are in favour of taking supplements in the lower range of the DGE/FKE recommendation 100(–150) µg. This dosage is available and is also justified due to the increased intake of iodide in the regular diet. Breastfeeding mothers should avoid taking multiple supplements containing iodine. Some dried algae products may contain very high levels of iodine, and breastfeeding mothers are warned not to take them.

IX. Core statements on preventing the child from suffering allergies that are not related to diet or smoking

Recommendations

Parents of infants at risk of suffering from allergies are advised to keep their environments as free as possible of allergenic substances and contaminants, to refrain from keeping cats or other furry pets, to prevent mould and damp patches forming on walls, and to use paints and varnishes containing low solvent levels. The Standing Committee on Vaccination also states that children at risk of suffering allergies should be immunised.

This recommendation is based on the S3 Guideline on Allergy Prevention published by the German Society for Allergology and Immunology (DGAkI) in cooperation with the Association of German Allergologists (ADA), the German Society for Pediatrics and Adolescent Medicine (DGKJ), the German Dermatological Society (DDG), and the German Society of Pediatric Allergology (GPA) [9]. Children whose parents and/or siblings suffer from allergies are considered at risk. The recommendation to remove mould and damp patches from walls and to use paints and varnishes containing low solvent levels also applies to families with children that are not at risk of suffering allergies. They should be considered general recommendations to protect health.

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