SNDT Women's University
SNDT College of Home Science, Pune
Department of Food Science and Nutrition

खाद्यFora

All About Science of Food

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EDITORIAL DESK

THE FIRST 1000 DAYS OF LIFE

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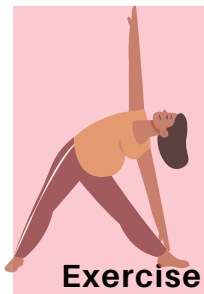
As we celebrate the National Nutrition Month, we are reminded that nutrition is much more than just food. It also concerns the future. It is important to create an environment in which every individual has access to wholesome food, quality healthcare and the knowledge they need to have to make informed choices. Government policies, healthcare systems all play an essential role to ensure that the nutritional needs are met.

This issue of Khadyafora, reflects on one of the most crucial periods in human life, i.e. the first 1000 days. From the time of conception until the child turns two, this period offers a special and unique window of opportunity. What happens in these first1000 days, can have a lasting impact on child's health, growth and development that can last well into adulthood. The foundation for cognitive ability, emotional resilience and social skills is laid at this time, when the brain develops fast. During this period, the child's ability to thrive or struggle with long term health consequences might be determined by their nutrition. According to the scientific studies, hunger during the first 1000 days of life can cause permanent harm to the body and mind, which causes stunted growth, weakened immunity and delayed cognitive development.

Ensuring enough nutrition throughout pregnancy is equally important for mothers. Pregnancy is less likely to be complicated when a balanced diet rich in important macro and micro nutrients is followed. Similarly, breast feeding gives vital nutrients that strengthen immunity and guard against illness. The introduction of solid foods at the right time is another critical milestone that lays a foundation for a positive connection with food.

In conclusion, the foundation for a long-term development, health and well being is laid during the first 1000 days of life. Children's future accomplishment depends on providing them with an appropriate support, attention and nourishment during this time.



SNIPPET

Exercise during pregnancy is generally beneficial. Traditionally, it was believed that exercise during pregnancy may lead to preterm birth or miscarriage. However, recent research has shown that exercise during pregnancy can be beneficial for both the mother and the baby. A sedentary lifestyle may increase the risk of obesity and other complications.

Exercise during pregnancy can reduce low back pain, pelvic girdle pain, pre-eclampsia, gestational diabetes, and cesarean delivery. While yoga is beneficial for mental health, aerobic exercise is considered helpful to prevent complications and improve stamina during pregnancy. Examples of cardiovascular exercises include walking, cycling, stair steppers, swimming, aerobic dance, and yoga. Walking is the most preferred as it requires no special skill or cost. It is recommended to engage in at least 150 minutes of exercise per week, or 30 minutes a day, 5 days a week.

However, certain forms of exercise should be avoided during pregnancy, such as basketball, soccer, horseback riding, hockey, skydiving, and scuba diving. These sports are physically demanding and can lead to overexertion, with a high risk of collision, falls, and injury.

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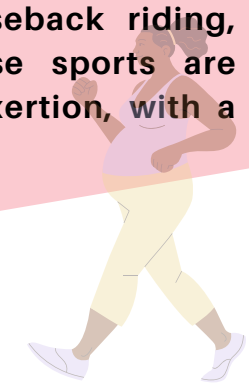

TRACING THE ROOTS FROM THE MAHABHARATA

The Mahabharata tells the tale of Abhimanyu, who while still in his mother's womb learned how to break the Chakravyuha in times of conflict. This story from Mahabharata creates questions in our minds, if these things happen? Children can know things around them while being in their mother's womb.

The answer is Yes. The period of conception to the 2nd birthday of the child is called as first 1000 days of Life.

New life is formed immediately after conception but before becoming an independent individual some physiological and mental changes take place in Mother's Womb can be called as early stage of 1000 days of life.

This phase includes the Mother and the child. They both share a bond. Mother tries to engage herself in different activities for physical & mental peace. These activities include yoga, reading, listening to good content, and doing what she likes. This helps to develop the Child's Brain and gives positivity to the mother. This is also called 'Garbhasanskar'.

According to the Hindu culture or philosophy, there are sixteen Sanskars (sacraments) to be done after the new life is formed. Seven Sanskars among sixteen are done during the First Thousand Days of Life.

Those are 1. Garbhadan 2. Punsavan 3. Seemantonnayan 4. Jatkarma 5. Namkaran 6. Nishkramana 7. Annaprashan

The first three are done in the pre-birth stage & other four are done from birth to the second birthday of the child. Also, the significance of these Sanskars is scientifically proven by modern research techniques.

In this period, the mother and child need healthy food, caring and loving people, security, mental and physical stability, and a happy environment. All these aspects affect the development of a child's brain. At this stage, rapid development of the brain takes place.

The baby gets adapted to the surroundings, environment, and people, and their behavior has a larger impact on his/her mind.

To maintain physiological and emotional balance, the nutrition should be proper & adequate right from conception. The mother should take care of her as well as the child's diet. The mother's nutrition is important as in the early stage she is feeding the fetus.

Post-delivery, for almost 6 months, the baby is fully dependent on the mother for nutrition. Hence, the mother has to maintain a diet & lifestyle for her recovery and her child's health. This is a foundation stage where the right learnings & habits should be taught to the child.

In one Sanskrit shloka, it is said that,

"पिण्डेपिण्डेमति र्भिन्ना कुण्डेकुण्डेनवंपय:। जातौ जातौ नवाचारा: नवा वाणी मुखेमुखे"।।

This means that everyone's genes are unique and thought processes and perspectives are unique, just like water from every pond is not the same. Customs and values from every culture are not the same and even two people can't speak alike. Once we accept this we become more patient towards our thoughts.

The first thousand days of life are the days when these opinions or perspectives start to develop. Every child comes from different cultures and starts to develop his/her thoughts. This is the earliest stage of that process but shaping mature thoughts & opinions proper morals and values should be taught in this phase. It's just like shaping a clay ball to make a beautiful idol. Hence these days are crucial, interesting, and exciting as a parent.

By Vedashree Deshmukh, B.Sc. SYND

DID YOU KNOW?

FUN FACTS ABOUT GROWTH AND DEVELOPMENT

- Brain Power: A newborn's brain is about 25% of its adult size. By the age of 2, it has grown to about 80% of its adult size.
- Taste Buds: By the second trimester (around 13-15 weeks), the fetus develops taste buds. Research suggests babies can taste flavors in the amniotic fluid, and they might show preferences for sweet flavors.

ALUMNI CORNER

ROHINI KULKARNI
SENIOR MANAGER- R&D
PRAVIN MASALEWALE, PUNE

Lots of my friends were opting for the medical field and engineering but I always wanted something different and productive. I was introduced to SNDT College of Home Science, Pune by my grandma who herself was a professor of Food Technology.

I was a student of B.HSc. Food Science and Quality Control from 2007-2010. I was introduced to an entirely different sector of opportunities through FSQC; a world apart from Engineers and Doctors!!

The 3 year course taught us the basics of Food Processing in depth so that we could stand in any organization and prove our merit. It was a wholesome course which also made entrepreneurs amongst us!! It touched upon every aspect of food industry right from raw material, food safety, to understanding the market requirements. I still remember the food machinery and process flow chart drawings drawn by our teachers on blackboard to make us understand the processes.

The SNDT Women's University was founded to make women independent and I can proudly say that it still works on the same founding principle. It creates (S)trong, (N)oteworthy, (D)etermined, (T)errific women to rule the world!!

COMPLEMENTARY FEEDING RECIPE FOR A 9-MONTH-OLD
VEGETABLE SUJI UPMA

Ingredients:
- 1 tablespoon (15g) semolina
- 3 teaspoons pureed vegetables (e.g., carrots, peas, spinach, or any vegetables of choice)
- 1 teaspoon oil/ ghee
- 1 to 2 cups water

Method:
- In a pan, dry roast the semolina on low heat, stirring continuously until it turns light brown. Be careful not to burn it; once roasted, set it aside.
- In the same pan, heat the oil, saute onions and jeera.
- Add the pureed vegetables, then add water and bring it to a boil.
- Gradually add the roasted semolina to the boiling water and vegetable mixture, stirring continuously to avoid lumps.
- Continue to cook and stir until the mixture thickens and reaches a soft, smooth consistency.
- Allow it to cool slightly before feeding.

DID YOU KNOW?

According to certain research studies, exclusive breastfeeding for a longer time is associated with a lower risk of asthma in children.

RECIPE: KHIMAT

Right from when the baby is 6 months till 18 months old, the baby is in the most important physical and cognitive developmental phase where the demands of nutrients is high, but the baby is not able to consume whole foods. In such a case, a meal that is easy to eat without any chewing efforts and something that will provide all the essential nutrients for growth as well, is to be given.

Ingredients-
- 1/2 bowl rice
- 1/2 bowl jowar
- 1/2 bowl ragi
- 1/2 bowl groundnuts
- 1/2 bowl futane daal
- 1 tsp cumin

Put all the items in a grinder individually and store it in an airtight container in a powdered form.

Method-
1. Take 2 tbsp of the powder, 1 cup water and cook it in a pressure cooker until 2 whistles.
2. Add 1 tsp ghee.
3. If you want it sweet, add 1 tsp jaggery powder and ghee. You can also add a seasonal fruit pulp to make it more palatable. (eg.- Mango pulp)
4. Mix it well and it's ready to eat!

Instructions-
- Soak, sun dry and roast rice.
- Roast groundnuts and futane daal individually in a grinder.
- 3 tsp powder and 1 cup water can be added if thicker consistency is preferred.
- Instead of plain water, vegetable stock can be used.
- Groundnuts can be replaced with almonds or cashews.

Why Khimat?
This is a homemade recipe with all the natural ingredients and also it is inexpensive and easy to make. It also does not contain any artificial additives or preservatives, hence it will not have any side effects.

By Juilee Khambete , B.Sc. TYND

UNDERSTANDING HOW BREASTFEEDING WORKS –
ENABLING AND EMPOWERING NEW PARENTS TO BREASTFEED SUCCESSFULLY AND HAPPILY-

- AMRITA DESAI
PRACTICING BOARD CERTIFIED LACTATION CONSULTANT

"If breastfeeding did not already exist, someone who invented it today would deserve a dual Nobel Prize in medicine and economics." Keith Hansen, Vice President for Human Development at the World Bank Group, at the Academy of Breastfeeding Medicine 2015.

Most expecting parents think about their pregnancy journey, and how their lives will change once the little one arrives. They generally mull about whether they may have a normal delivery or a caesarean delivery or become parents to a girl or boy! It's commonly seen that new parents are fairly unaware that the next natural transition following birth of their baby is "Breastfeeding" also commonly known as the 4th trimester!

In the recent past, we have seen that there has been more widespread awareness regarding breastfeeding but there is still a lot of work to be done in this area. This article will try to highlight the science behind breastfeeding and breast milk and also try to emphasize that breastfeeding is not only about the act of breastfeeding or giving milk but the entire behavioural conditioning that is constructive to nurturing, caring, and building a wholesome connection between the baby and mother. The article will also focus on busting certain myths and misconceptions commonly heard while a mother is breastfeeding her baby.

1. What is exclusive breastfeeding?

Exclusive breastfeeding is providing only breast milk to the baby from birth till the completion of 6 months of life. Babies are not to be fed water, honey, cow or buffalo milk, formula milk (unless there is a medical indication) after birth.

2. What is meant by "Golden Hour of breastfeeding?"

As soon as the baby is born, irrespective of the mode of delivery, the baby should be placed on the mother's chest in between both the breasts. It is seen that babies placed in this position slowly move towards the breasts, latch on their own and breastfeed easily. This skin-to-skin contact, and initiation of the first feed is done in the first hour after birth and is known as the "Golden Hour of Breastfeeding". Babies are awake and alert immediately after birth and instinctively know how to latch and breastfeed and studies have shown that early skin to skin contact and breastfeeding helps to establish breastfeeding easily in the long run.

3. How long should breastfeeding continue ideally?

World Health Organization (WHO) recommends that all babies should be exclusively breastfed till completion of 6 months of age with timely introduction of complementary food at 6 months of age and to continue breastfeeding till 2 years or more. Research has proven that increased breastfeeding confers many benefits to the baby in terms of increased immunity, better dentition, increased Intelligence Quotient, Developmental Quotient and better bonding between the mother and baby.

4. Is it true that there are different kinds of breastmilk?

Yes. It's true. While a woman is pregnant, her body starts to prepare for breastfeeding. The first milk is thicker, yellowish and is produced in small droplets. It's known as colostrum and has many antibodies and is the perfect first food for newborn babies. Colostrum is usually produced till 72 hours post birth. The next milk is known as transitional milk and is usually seen after completion of 72 hours post birth and is seen in large quantities of creamy milk. This is usually accompanied by feeling of breast fullness or heaviness by the mother and is commonly considered as the "milk coming in". The transitional milk then changes to mature milk which is white in color and may have a translucent bluish hue which is the final change usually seen 7-10 days post birth and will continue as mature milk till the mother stops breastfeeding.

5. How is milk production sustained by the mother?

Milk production is a primarily a supply and demand cycle which essentially means that as long as the mother continues to breastfeed, she will keep producing milk. There are 2 main hormones: prolactin which helps to produce milk and Oxytocin which helps the milk to flow. These hormones work more in the immediate post-partum period where the milk production is under the endocrine control but switches to the autocrine (supply & demand) control roughly around 2-4 weeks post birth.

6. Is it important for the mother to have a completely different diet while breastfeeding?

A breastfeeding mother is allowed to have a normal, variable diet while she's breastfeeding her child. Breastfeeding mothers are routinely advised to have restricted diets as it is commonly thought that whatever the mother eats, she passes it on to the baby through her breast milk and items such as spicy or gassy foods or sour or cold food items can pass on to the baby can cause gastric discomfort or cough and cold in babies. Research has shown that this is definitely not the case and the breastfeeding mother should have her usual diet as per taste preference and dietary restrictions are considered only if the mother has additional health issues like hypertension or diabetes.

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7. Is it not safe to breastfeed a baby while the mother is in a sleeping position?
On the contrary, breastfeeding while the mother is lying on her side is a position that is very comfortable to both the mother and her baby. It helps the mother to relax physically and simultaneously helps the baby to attempt to latch on his or her own. If the mother has large, pendulous breasts then care can be taken to see that the breast tissue is supported by wearing good, supportive nursing bras and baby is positioned such that the baby's nostrils are not blocked by the mother's breasts. The mother, can additionally support the breast tissue by placing her hand on it and can also position her head higher by keeping two cushions below her head and neck which will enable her to visualize the baby while breastfeeding.

8. What is latching?
Latching is the technique with which the baby latches on to the breast. The baby needs to open his/her mouth wide open to be able to take a grip on the areolar (darker region around the nipple) and not bring the gums only on the nipple. New mothers are commonly told that breastfeeding is painful. However, if the baby is latched optimally then the mother only feels a gentle tugging sensation and there is no significant pain whatsoever. So, ensuring that the baby is opening the mouth wide and grabbing on to as much of the breast as possible helps that baby to transfer the milk well to drain the breast effectively and in doing so establishes a pain free and joyful process of breastfeeding.

9. Can the baby actually show signs which indicate that he/she is hungry?
Yes. Newborn babies are very much aware about the process of sucking and often show signs of hunger which are not picked up by new parents. While starting to become hungry, babies rouse themselves from deep sleep, have good movements of their arms and legs, can show mouthing behaviors (sucking on fingers or wrists), may attempt to latch on suck on anything that comes in close proximity of their mouth. When a hungry baby is touched on the corners of the cheeks, the baby will open his/her mouth wide and will try to turn its head to that particular side. This behavior is known as rooting. Crying is in fact the last sign of hunger! Its always a good idea to pick up a newborn baby when he/she shows these early signs of hunger rather than waiting for the baby to cry.

Breastfeeding is considered as a natural art but I like to always tell new parents that breastfeeding is like learning to ride a bicycle. It takes time to understand the techniques, get into the breastfeeding rhythm, understand your newborn baby's cues and finally transition into a beautiful journey of nurturing

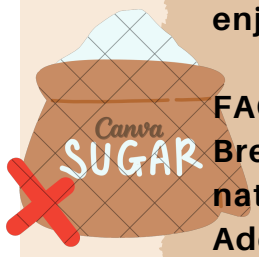
MYTHS AND FACTS

MYTH: Breast milk is essential only for the first six months.

FACT:Breast milk is the ideal food for infants for the first six months and can be continued for upto two years or more as per baby's need, along with complementary foods.

MYTH: Formula is as good as breastmilk.

FACT:While formula is a good alternative for those who cannot breastfeed, breastmilk provides unique benefits, including antibodies, probiotics, and other nutrients that are difficult to replicate in formula.

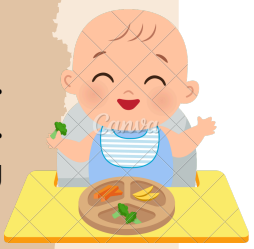


MYTH: Babies need extra sugar to enjoy their food.

FACT:Babies don't need extra sugar. Breastmilk and complementary foods naturally have enough sweetness. Adding sugar can contribute to dental problems and weight gain.

MYTH: Babies need to be forced to eat.

FACT:Babies have natural hunger cues. If they are not hungry, they won't eat. Force-feeding can lead to overeating and negative associations with food.



INTERVIEW

MS. VAISHALI MADKAIKAR
REGISTERED DIETITIAN

- M.Sc. (Nutrition), Diploma in Sports Nutrition
- Registered Dietitian, Reg. No. 032/2011
- Clinical & Paediatric Nutritionist
- Certified Metabolic Dietitian, Advanced Module in IEM UK
- IDF Certified Diabetes Educator
- Certified Gut Microbiome Dietitian
- Certified Keto Epilepsy Dietitian
- Certified Lactation Counselor
- Certified Genetic Counselor
- American Heart Association Certified Basic Life Support Provider
- Professional Certificate in Molecular Genetics

Q1: What inspired you to specialize in the field of paediatric nutrition?
Answer: Everyone knows early nutrition plays an important role because it has long-term repercussions. I was fortunate to have the opportunity to work and start my career with the Department of Paediatrics at KEM Hospital, Pune, and since then, my perspective has completely changed. This experience further fuelled my interest, and I started loving the subject so much that I completely indulged myself in it. Eventually, I decided to make it the main domain of my career. Nutrition is crucial when it comes to the growth and development of children. When you counsel parents, you can empathize with them; you understand their concerns and their pain. That, in turn, drives you to apply your knowledge to the best of your ability, aiming for good compliance from the patient's side as well. Seeing positive results is incredibly satisfying, making paediatric nutrition a unique and rewarding career path.

Q2: What does a typical day in your life look like in your role as a paediatric dietitian?
Answer: As a paediatric nutritionist, my day begins with rounds in the paediatric wards and PICU (Paediatric Intensive Care Unit), where I assess each child's nutritional needs. I follow the ABCD model for nutritional assessment, focusing on Anthropometry, Biochemical data, Clinical assessment, and Dietary history. Each child is unique, so I adapt their care plan based on their condition, whether it's malnutrition, diabetes, or a chronic illness like kidney disease. For instance, in cases of Severe Acute Malnutrition (SAM), I prioritize understanding the child's history and symptoms to evaluate their intake and any nutrient deficiencies. A critical part of this process involves measuring weight, and height, and calculating z-scores, especially for conditions like Kwashiorkor and Marasmus.

Q3: How has your experience been working with paediatric patients and their families in a clinical setting?
Answer: In any clinical setting, effective counselling is key to improving patient outcomes. It starts with being an attentive listener, allowing patients and their families to express their concerns without interruption. Empathy is crucial, especially when families are struggling to understand a diagnosis or treatment. Tailoring communication to a family's background—whether it's educational, socio-economic, or even language barrier, helps build trust. Explaining medical conditions in simple, clear terms makes a big difference in compliance. Whether it's at the bedside or in the OPD, counselling should always be compassionate, clear, and honest, giving families the support they need while managing their expectations.

Q4: How do you manage the emotional aspects of dealing with children who have severe or life-threatening conditions?
Answer: Having a strong understanding of the condition is essential for managing the emotional aspects of dealing with children who have severe or life-threatening illnesses. This knowledge helps you assess recovery, survival, and potential neurological effects on quality of life. Counselling plays a major role, and staying updated on guidelines and treatment options is key. It's important to remain calm, help families focus on positives, and then explain potential challenges like frequent hospital visits or the financial burden of special medical foods. Sensitive communication is crucial, especially when families may not fully understand the severity of the situation. While paediatricians usually lead in this, nutrition is vital to recovery, and we often witness significant improvements in critically ill children with timely nutrition support.

Q5: How do you educate and support the families in managing the dietary changes for children, and what resources do you provide to help them?
Answer: Counselling plays a key role in our professional practice and must be done carefully. It's important to listen closely, explain dietary changes in simple terms, and highlight how these changes will improve the child's health. Nutrition is crucial in recovery and preventing future complications. Many families I work with have experienced severe illness and understand the importance of proper management. They need to know how diet will support their child's recovery and long-term health, such as for celiac disease or dietary ketosis in diabetes. Families often fear that dietary changes will limit their child's future or quality of life, but I reassure them that these modifications can be highly beneficial, especially for conditions where diet is the primary treatment. Clear and relatable communication helps families understand the positive impact, making them more likely to follow the recommended diet.

Q6: What are some of the most common misconceptions you've encountered regarding pediatric nutrition?
Answer:
- **Colostrum is too heavy for newborns: Some parents think the first milk after birth isn't suitable, but colostrum is vital for a baby's immunity and nutrition.**
- **Starting solids with thin liquids only: At six months, parents often offer only diluted foods like rice water, fearing thicker textures. In reality, babies need nutrient-rich foods with appropriate textures to support growth and chewing skills.**
- **Extended use of pureed foods: Keeping babies on purees for too long can delay their transition to regular family meals and hinder chewing development.**
- **Store-bought foods are superior: There's a belief that commercially fortified foods are better than homemade meals, but well-prepared home-cooked foods are just as beneficial.**
- **Worrying about food intake: Many parents fret that their child isn't eating enough, despite children naturally regulating their hunger and fullness.**

● Concern over slowed weight gain: After the first year, weight gain naturally slows down, which is normal, but it often causes unnecessary worry.
● Milk as a complete food: Some believe that giving large amounts of milk meets all nutritional needs. Excessive milk can lead to constipation and displace other essential nutrients.

Q7: What recent developments in paediatric nutrition have influenced your practice?
Answer: In recent years, there have been numerous advancements in paediatric nutrition. Scientific guidelines are constantly updated, which is essential for us to follow. While I cannot pinpoint a single development, I ensure that I stay current with these evolving guidelines. The importance of continuing education in this field cannot be overstated; it's imperative and essential to regularly review the latest research and practices to provide the best care.

Q8: What challenges do you face in ensuring adherence to dietary restrictions among children and their families?
Answer: Adherence to dietary restrictions can be quite challenging, especially given the natural inclination of children to resist monotony in their diets. When it comes to paediatric patients, we see that they can become quite cranky and less compliant, particularly during pre-adolescence when peer pressure also plays a role. To combat this, it's important to understand the specific challenges families face. Offering a variety of choices within the framework of their dietary needs can help. I often work with patients who are on restrictive diets, such as ketogenic diets, or those with inflammatory bowel diseases, and I find that flexibility is key in maintaining adherence while ensuring they receive proper nutrition.

Q9: What skills do you believe are essential for working in paediatric nutrition?
Answer: It's very important to be passionate about your work, you must keep learning because every day I feel like there's still more to learn. So, you need to be willing to study and update yourself regarding the guidelines. Sometimes guidelines change every two years, or even annually. Secondly, having an in-depth understanding of your subject is extremely important. In paediatrics, at the postgraduate level, the knowledge imparted is very basic. However, when you start working in the field, you realize there are so many diseases and conditions that you need to learn about. Paediatric nutrition covers infants up to 18 years of age, and there are so many unheard diseases. If you don't understand the case well, you won't be able to provide the appropriate intervention for these children. You need to be confident in what you're doing because you often must interact with paediatricians. That confidence only comes from continuous learning and upgrading your knowledge.

Q10: Lastly, what advice would you give to aspiring dietitians in paediatric nutrition?
Answer: The key takeaway for aspiring dietitians is to remain passionate and dedicated. Many students I've interviewed are disheartened when they realize the amount of work involved. It's important to commit to this path, as it requires not only hard work but also continuous learning and adaptation. Being available to patients and their families is part of the job, and you must be prepared for that commitment. I often receive calls at all and odd hours from patients in crisis. If you're ready for that level of dedication, there's a place for you in paediatric nutrition. I encourage all aspiring dietitians to embrace this challenging yet rewarding field. Passion for helping children and their families will drive you through the demanding moments.

FROM WOMB TO TODDLER - THE IMPACT OF EARLY NUTRITION ON LIFELONG HEALTH

The term First 1000 Days refers to the crucial period that includes 270 days of pregnancy, the first year of the baby's life (365 days), and the second year (365 days), totalling 1000 days. Nutrition during this time has a profound impact on lifelong health.

Nutritional Requirements by Month of Pregnancy :

- Month 1: At this stage, the baby is smaller than a grain of rice, but vital organs like the heart, brain, and spinal cord are already forming. It's common to experience nausea and vomiting, but it's important to aim for four balanced meals daily. Include foods rich in folate and vitamin B12, such as eggs, fish, moth beans, soybeans, spinach, and chicken liver, to support the development of the brain and spinal cord.
- Month 2: The baby has grown to the size of a kidney bean, and the heartbeat can be heard. Bones are soft but beginning to harden. It is essential to include calcium-rich foods like milk, curd, ragi, paneer, sesame seeds, and fenugreek to support the hardening of the baby's bones.
- Month 3: At three months, the baby is the size of a lemon, and the arms, hands, fingers, feet, and toes are visible via ultrasound. Nails and teeth are also beginning to develop. Continue to focus on folate-rich foods for the normal development of the brain and spinal cord, alongside calcium-rich foods to support bone and teeth formation.
- Month 4: Now about the size of an apple and weighing approximately 110 grams, the baby's blood circulation has begun. Include foods rich in iron and folic acid, such as bajra, ragi, spinach, moth beans, raisins, and eggs. Vitamin C-rich foods, along with calcium, are important to aid in iron absorption and bone development.
- Month 5: By the fifth month, the baby is as long as a carrot and weighs about half a kilogram. The baby's muscles and skin are forming rapidly. At this stage, energy and protein-rich foods such as wheat, bajra, rice, maize, lentils, sweet potato, bananas, and walnuts are essential to meet the growing energy demands.
- Month 6: At six months, the baby is about the size of an ear of corn and weighs almost 1 kilogram. Eyes are developing, so it's important to consume foods rich in vitamin A, including green leafy vegetables and orange or yellow fruits and vegetables like papaya, tomatoes, muskmelon, carrots, and pumpkin.
- Month 7: The baby is as long as a bottle gourd and weighs around 2 kilograms. Fat stores are building, and the brain is growing rapidly, enabling the baby to respond to light and sound. To support brain development and vision, include a variety of oils like mustard, coconut, and groundnut oil, as well as nuts, oilseeds, and fish.
- Month 8: At this point, the baby is 1.5 feet long and weighs approximately 2.3 kilograms. Energy-dense foods like cereals, pulses, milk and dairy products, nuts, and oilseeds will help support the baby's rapid weight gain and growth.
- Month 9: In the final month, the baby is fully developed, measuring over 1.5 feet and weighing about 3 kilograms. Continue to focus on energy-dense foods such as cereals, pulses, dairy products, and nuts to provide the final nutritional boost for both the mother and the baby.

By Radha Raut, M.Sc. CND 1

HUMAN MILK BANKING – A NECESSARY INNOVATION & INTERVENTION

- AMRITA DESAI
PRACTICING BOARD CERTIFIED LACTATION CONSULTANT

Human milk banking is gaining a lot of attention in the past few decades, and rightly so as it helps many infants to access life-sustaining fluid "Breast Milk"

Globally we are moving to an approach which is intervention friendly and Mother's Own Milk or Breast Milk or Human Milk is the primary intervention in any newborn baby but is of utmost importance in a fragile baby, born prematurely and may not be able to breastfeed immediately after birth.

This life-saving elixir is not available to many babies born prematurely and this is where a Human Milk Bank plays a critical role.

- 37 – 40 weeks: Full term
- 34 – 37 weeks: Late Preterm
- <34 weeks: Preterm

- <2500g – Low Birth Weight
- <1500g – Very Low Birth Weight
- <1000g – Extremely Low Birth Weight

Babies can sometimes be born at 27 - 28 weeks at a weight of less than 1kg. These babies are indeed very delicate and fragile and spend a few months of their life in the Neonatal Intensive Care Unit (NICU) and are fed through a tube till they are strong enough to be fed orally.

Human milk banks are organizations which collect excess breast milk produced by mothers under all hygienic conditions, pasteurize this collected breast milk, test for contamination or infectious growth, and only when deemed free of pathogens approve for usage of this milk for other babies.

In the good old days, wet-nursing was fairly rampant and mothers would breastfeed their biological babies as well as the other babies of the family. British India had a large number of wet nurses who would breastfeed the British/English babies instead of their biological mothers. This concept of wet nursing declined over the years, especially with the rise of diseases like HIV/AIDS.

In today's day and age any mother who is producing milk in excess of her baby's requirements is guided to donate her milk rather than throwing it away. This donation is usually done in hospitals which have large NICUs which are attached to human milk banks. These milk banks also screen the donor mother to ensure that she is free from any infections, is healthy, is not a smoker/drinker and is not on any heavy medications (strong anti - depressants, anti – epileptics). The mother's blood sampling is also done to rule out HIV/AIDS, Cytomegalovirus (CMV) etc.

This donated breast milk is then stored in the freezer till it's ready to be pasteurized. If multiple mothers have donated then this milk is pooled together to increase the nutritional content. Milk banks have a pasteurizer which helps to pasteurize the donated human milk. This technique of pasteurization also known as Holder Pasteurization brings the temperature of the human milk to 62.5 degrees and maintains it for 30 minutes at this same temperature.This milk is then immersed into a cold water/ice bath to ensure rapid cooling to less than 10 degrees.

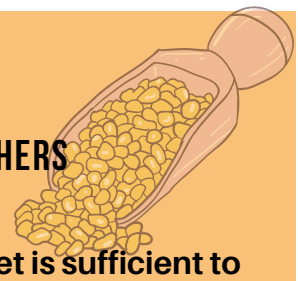
This process ensures that most of the bacteria and viruses of the breast milk are destroyed and continues to preserve maximum nutrition of the breast milk.

A sample of the pasteurized milk is then sent to the laboratory for culture and when the sample is identified as free from organisms its then dispensed to babies as needed only on prescription.

Human Milk banks work similarly as Blood Banks to ensure that the donors and the recipients remain anonymous. Human milk donation is done voluntarily and the donor mother is not remunerated in cash or kind. Babies of donor mothers are also assessed to see that they baby is thriving before the mother chooses to donate her breast milk. Records of donor mothers and recipients are safely stored by the human milk banks.

Verbal and written consents are taken from both the donor mothers and the parents/caretakers of the recipient babies while milk is being donated and when the pasteurized donor human milk is utilized respectively.

GALACTAGOGUES
THE GOLDEN SUPERFOOD FOR MOTHERS



Breastfeeding mothers often worry if their diet is sufficient to benefit their baby's health and nutritional needs, particularly when it comes to ensuring an adequate milk supply.

Galactagogues are foods or herbs that boost breast milk production, which can help address these concerns. They are reported to improve prolactin levels by interacting with dopamine receptors to induce milk production.

Some of the best galactagogues include:

1) Garden cress seeds (हळीव/हलिम) - Considered the best source of calcium, iron, and selenium, aliv seeds have been used for centuries as an ideal food for lactating mothers.

2) Fennel Seeds (बडीशेप/सौफ) - Known to improve digestion, fennel seeds contain calcium, iron, zinc, and phosphorus in significant amounts helping to stimulate milk production.

3) Edible gum/Acacia (गोंद/डिंक) - What better than preparing a gond ladoo, especially for new mothers? For preparing ladoos, a handful of nuts, gond, wheat flour, kharik(dried dates), ghee, and jaggery is all you need for a nourishing treat.

4) Cumin seeds(जिरा) - Known to assist postpartum recovery, cumin seeds are a rich source of phosphorus, calcium and iron.

5) Fenugreek seeds(मेथी के दाणे/बीज) - Is a rich source of calcium, magnesium, iron, and zinc, it is also known to maintain blood sugar levels. Moreover, it promotes milk production.

6) Garlic(लसूण) - An everyday spice to enhance taste and flavor, garlic contains magnesium and potassium that have a positive impact in more breastmilk production.

7) Ginger(अदरक/आले) - Ginger, known for its anti-inflammatory properties is also rich in calcium, magnesium, and phosphorus making it an ideal source to increase the production of breast milk.

8) Sesame seeds(तीळ/तील)- These seeds are loaded with zinc, magnesium, potassium, and phosphorus, making them an excellent galactagogue.

9) Carom seeds(अजवाइन/ओवा) - Rich in phosphorus, calcium, selenium, and iron, carom seeds are another effective ingredient for improving milk supply.

However, it is necessary to consult a healthcare professional while including these foods in the diet of a lactating mother and eat these given foods in moderation.

RIDDLE

I'm a cushion , soft and clear,
Protecting life that's growing near.
I shield from shocks, I help it thrive,
Without me, it couldn't survive.

What am I?

Ans. Amniotic Fluid

RIDDLE

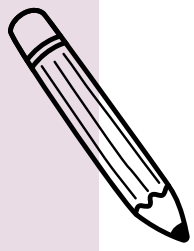
I'm a lifeline, but cut when you're born,
Connected you to the one who kept you warm.
I give you food and help you grow,
But once you're born, I let you go.

What am I?

Ans. Umbilical Cord

WORD SEARCH

N	Z	L	N	H	B	E	A	V	X	A	I	A	P	B
P	E	I	K	Q	E	M	F	T	Q	E	N	M	L	C
L	O	W	W	T	N	A	N	T	T	S	F	A	B	Y
R	A	O	B	I	N	J	R	C	Z	U	A	T	E	V
O	J	B	O	O	Y	I	S	T	C	A	N	E	S	I
U	M	T	O	L	R	R	C	U	B	N	T	R	R	T
W	I	J	L	R	V	N	O	O	T	E	Z	N	U	A
C	R	E	T	S	E	M	I	R	T	E	A	I	O	M
W	B	S	E	N	O	M	R	O	H	Y	F	T	C	I
C	O	N	T	R	A	C	T	I	O	N	X	Y	R	N
C	O	N	C	E	P	T	I	O	N	E	N	O	E	S
G	N	I	V	A	R	C	K	V	G	G	O	U	T	N
C	E	D	V	I	W	W	M	C	R	J	P	M	N	X
H	J	Z	S	A	R	N	Y	D	I	Y	N	B	I	F
V	O	M	I	T	I	N	G	Q	Y	K	Q	E	L	K



- CONTRACTION
- NEWBORN
- AMNIOTIC
- NAUSEA
- TRIMESTER
- INTERCOURSE
- BELLY
- OXYTOCIN
- VITAMINS
- CRAVING
- KICK
- VOMITING
- INFANT
- LABOR
- HORMONES
- FETUS
- HEARTBEAT
- CONCEPTION
- MATERNITY

COLLEGE ACTIVITIES

- **The students of 2nd year M.Sc. Clinical Nutrition And Dietetics (CND 2), as NutriBuddies from SNDT College of Home Science, Pune in collaboration with AgroZee Organics visited 2 rural schools in Uruli Kanchan to spread awareness about nutrition and healthy food habits to the students of 5th to 8th grades. The topics covered were anemia, physical activity, cleanliness, hygiene and some interactive games. The HANSA (Health and Nutrition for School Age Children) models of Nutri Pathshala and Nutri Dabba provided to students as a part of the Mid Day Meal Scheme (MDMS) were emphasized.**
- **In collaboration with Taramobile Creches, Pune -**

1. During World Breastfeeding Week celebrated from 1st to 7th August, the students of M.Sc. Clinical Nutrition and Dietetics (CND 2)visited various community centres and provided knowledge about the importance of breastfeeding to pregnant and lactating mothers through various creative posters.

2. As a part of The National Nutrition Month Celebration in September, the students of M.Sc. Clinical Nutrition and Dietetics (CND 2) visited various construction site labour camps and educated mothers and children about healthy eating, anemia, iron-rich recipes, childhood nutrition, cleanliness and hygiene.

- **The students of 2nd year M.Sc. Nutrition and Food Processing (NFP 2) participated in The Anuga FoodTec India and Anuga Select India 2024 exhibition at the Bombay Exhibition Centre, Mumbai, showcasing innovations and advancements across the food processing and beverage sectors.**
- **The students of M.Sc. Nutrition and Food Processing (NFP 2)and M.Sc. Clinical Nutrition and Dietetics (CND 2) attended a workshop on 'Biofortified Crops: A Game Changer to Combat Malnutrition through MDM and ICDS' at Gokhale Institute of Politics and Economics, Pune in July where HOD of FSN Dept Mrs. Anuja Kinikar was invited as a panelist in the discussion.**
- **The students of M.Sc. Clinical Nutrition and Dietetics (CND 2)participated in the 3 days International Diabetes Experts Consortium (IDEC) 2024 at JW Marriot Hotel, Pune wherein experts from medicine, nutrition and health conducted insightful sessions revolving around diabetes.**
- **Nutrition awareness sessions were arranged where senior pediatric dietitian Ms. Vaishali Madkaikar enlightened students on the First 1000 days of life and the importance of maternal and child nutrition. Certified lactation consultant Ms. Amrita Desai shed light on importance of breastfeeding, human milk banking and the scope of lactation counselor in future.**

ACHIEVEMENTS

With the celebration of National Nutrition Month in September, various competitions were organised in the college as follows:-

<u>Cookery Competition:</u>

1. **Rutuja Kumbhare - SY B.Sc. FSQC (Beverage - Paan shots)**
2. **Sejal Dethe - M.Sc. NFP 2 (Amla chutney and Ridge gourd Chutney)**
   Prapti Lakhangave - SY B.Sc. HECS (Panchratna Chutney)
3. **Vaishnavi Dalvi - FY B.Sc. ND AIDED (Salsa, pineapple and beetroot dips)**

<u>Poster making Competition:</u>

1. **Saloni Nevgi (M.Sc. CND 2): Importance of Complementary Feeding**
2. **Siddhi Kulkarni (SY B.Sc. FSQC): Combating Anemia**
3. **Divya Jagad (M.Sc. CND 2): (Consolation Prize)**

<u>Nutrition Aids/ Games Competition:</u>
<u>Theme - Anemia and Complementary Feeding</u>

1. **Ashleysha Deshmukh and Bhakti Deshmukh (TY B.Sc. FSQC)**
2. **Tanuja Patil and Bhakti Gharmode (TY B.Sc. FSQC)**
3. **Shruti Paste and Khushbu Sapkale (TY B.Sc. FSQC)**
4. **Tisha Oswal and Anuja Bhise (M.Sc. CND 1)**

<u>Street Play Competition:</u>

1. TY B.Sc. ND Unaided 1 : Complementary Feeding
Team members: Aayushi Badela, Arya Beri, Ashleysha Bure, Shamika Chikhalikar, Mukta Ghughe, Anuja Kulkarni, Tejashrri Leley
2. SY B.Sc. ND Unaided 1 (Consolation Prize) : Anemia
Team Members: Vedashree Deshmukh ,Apoorva Khare, Gayatri Kalyani, Shravani Kandge, Aarya Huddar, Devika Limaye
3. FY B.Sc. ND Unaided 2 (Appreciation Prize) : Poshan bhi Padhayi bhi
Team members: Rameshwari Dave, Gauri Patil, Arya Kokate, Yogita Kokare, Ankita Kale, Ishika Jain