

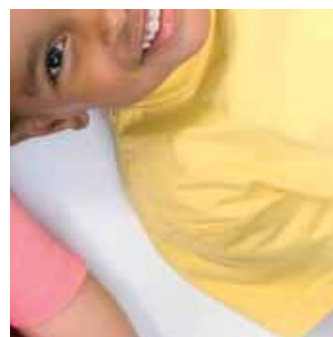
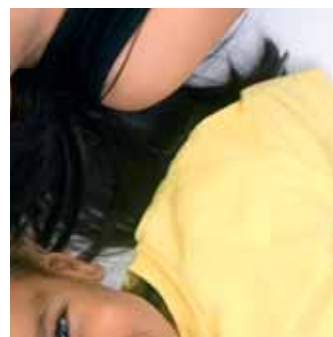


HEALTHY AND STRONG



Nutritional Guide
for Mothers, Kids
and Adolescents

DR. GEORGE D. PAMPLONA-ROGER



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Preconception

The time to make dietary changes to prepare for pregnancy is before conception.

When pregnancy is planned, there is a wondrous time during which the imagination soars and dreams collect in one's mind: from the moment pregnancy is considered until the biological moment of conception. This period of time, prior to conception, is a wonderful opportunity for the mother-to-be to make healthy changes regarding her diet and lifestyle. A successful pregnancy and nursing are forged since the preconceptional stage. Ideally, preconceptional care should begin at least two years prior to pregnancy (see timetable in p. 12).

It is easily understood and that once a woman becomes pregnant, she will pay attention to her diet and research is discovering that the diet consumed months or even years prior to pregnancy, will also determine the development of her future child. If, as it appears, diet before pregnancy is as important as diet during pregnancy, the wellbeing of the fetus and the accountability is placed on the woman at childbearing age. As of any moment, any woman who is considering a future pregnancy is committed to following a healthy diet from her early years. If this does happen, she will be in the best condition for the development of her child.

Negative external influences such as tobacco, alcohol, or drugs at any time of a young woman, even long before pregnancy, may have subsequent severe consequences for her offspring.

Facts and Figures About Preconception

400,000	Average number of immature dormant ova in both ovaries of a girl at puberty.
400	Average number of mature ova released from ovaries during the reproductive lifetime of a woman.
46	Number of chromosomes in any body cell (except in ova or spermatozoa).
23	Number of chromosomes in a reproductive cell (ova or sperm).
14	Average weight of an ovary.

Ova Are Not Renewed

Although a female's ova are wonderfully protected and stored during a woman's lifetime, they are exposed, even before birth, to external factors such as an inadequate diet, nutritional deficiencies, tobacco smoke, alcohol, drugs, chemical pollutants, certain medications or X-rays. Ova are not renewed, so a damaged ovum by such external factors may be released at the time of ovulation and develop into an embryo.

FOODS FOR FUTURE PREGNANT WOMEN

Dietary awareness before pregnancy requires little effort, and it will be rewarded with far-reaching benefits for the offspring.

- **Ovulation:** The release of an ovum from the ovary, usually midway in the menstrual cycle.
- **Ovum (ova):** The female reproductive cell released from ovaries.
- **Conception:** The fusion of male sperm and a female ovum leading to the development of an embryo.
- **Preconceptional:** Before or around the time of conception.

Key Terms

Birth defects	14	Preconceptional care	13
Diet before conception	16	Preconceptional diet	16
Father	16	Proteins	19
Fats	12	Supplements	19
Folate	18	Timeline	12
Folic acid	14	Trans fat	12
Foods to eat every day	20	Vitamin B ₁₂	17
Foods to limit	20	Weight	14
Infertility	17		

The planning of a pregnancy in the family must include the future parents' nutrition.

HEALTHY AND STRONG • 1 •

- (1) Uterus
- (2) Fallopian
- (3) Ovary
- (4) Vagina
- (5) Fimbriae
- (6) Follicle (sac)
- (7) Ovulation
- (8) Ovum
- (9) Layer of jelly
- (10) Nucleus of the cell. It stores genetic information in chromosomes.

THE PRECONCEPTIONAL DIET – 1

Neither obesity nor a restrictive diet is convenient at the beginning of pregnancy.

Waiting to make healthy changes to one's diet and lifestyle until a pregnancy test is positive is better than nothing; however, it may, indeed, be too late to ensure the best health outcome of one's future baby. As soon as a woman of childbearing age plans pregnancy, she must initiate some dietary and lifestyle changes for the sake of her future baby.

A large study performed at the University of Stanford (California, US) has proven once more that a healthy diet rich in fruits, vegetables and grain cereals, and low in meat, as well as the use of multivitamin supplements prior to pregnancy, may reduce the risk of birth defects by about 50%.^a

Begin pregnancy at a suitable weight

Women should be encouraged to enter pregnancy with a BMI (Body Mass Index) less than 30, ideally between 19 and 25.

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FOODS FOR FUTURE PREGNANT WOMEN

Dietary awareness before pregnancy requires little effort, and it will be rewarded with far-reaching benefits for the offspring.

FOODS TO LIMIT OR AVOID BEFORE (AND DURING) PREGNANCY

- **Fish:** Avoid any amount of high-mercury fish, like shark, swordfish and others (p. 58). Methylmercury (the organic form of mercury found in fish) accumulates in the bloodstream over time. After following a proper diet, it may take over a year for the levels of methylmercury to significantly drop.
 - If fish is eaten, limit the intake of medium or low-mercury fish, like canned light tuna and sardines, to less than 12 ounces (340 g) per week (p. 61).
- **Meats:** If meat is eaten, choose lean cuts or skinless poultry, and avoid cold cuts and other processed or cured meats.
 - Avoid barbecued meats because of their high content of mutagens.
 - Avoid undercooked or raw fish or meat products that may be contaminated with pathogen bacteria viruses, or parasites (p. 51).
- **Unpasteurized milk and dairy products,** like soft cheeses (Brie, feta, Camembert, and Roquefort) that may be contaminated with *Listeria monocytogenes*, a bacteria that causes miscarriages.
- **Raw or undercooked eggs** (i.e. home made mayonnaise) to avoid salmonella poisoning.
- **Fast or junk foods** high in saturated or *trans* fat, like hamburgers and commercially deep fried products as french fries, fried chicken or fried onion rings (p. 151).
- **Refined carbohydrates** like white bread, regular cookies, doughnuts, cakes, and other commercially baked goods because they are low in B vitamin, iron and fiber.
- **Sugary snacks,** candies, soda and soft drinks.
- **Preservatives, colorants and other additives,** which are mainly present in processed products.

Foods to Eat Every Day During Preconceptional Period

Taking each of these foods every day, a young woman is ready for conception at any time.

1 PORTION OF GREEN SALAD

May include lettuce, corn salad (mâche, lamb's lettuce), avocado and other green vegetables like spinach, broccoli and asparagus (when tender, spinach, broccoli and other vegetables can be eaten raw provided that they are thoroughly washed). This salad provides a fair amount of folate necessary for the prevention of neural tube defects in the embryo during an first few weeks of pregnancy.



3 FRUITS AND 2 VEGETABLES

Take at least three pieces or a daily food portion (one of them, citric) and two brightly colored vegetables like tomatoes, bell peppers or carrots.

Fruits and vegetables are the best source of dietary antioxidants protecting the ova (reproductive cells) from genetic damage.

Before and during pregnancy choose organic fruits and vegetables.



a 125 g (about 4.4 oz) steak with a same weight, similar soy meat, cuts down the risk of ovulatory infertility by 50% (both portions, meat and meatless, contain about 25 g of protein, providing the 5% of total energy intake for a 2,000 calorie diet).

MULTIVITAMIN AND MINERALS SUPPLEMENTS

Taken at least 6 months prior to conception, multivitamin and mineral supplements provide certain benefits:

c. Chavarro JE, Rich-Edwards JW, Rosner BA, Willett WC. Protein intake and ovulatory infertility. Am J Obstet Gynecol. 2008 Feb;198(2):210.e1-7. PubMed PMID: 18226626.

Taking plant protein instead of meat increases fertility in women.



Pregnancy

Diet during pregnancy certainly affects growth, intellectual development and future health of a child.

Among heredity, environment, diet, and other determinants of health, diet has the greatest impact on the health condition of a child or an adult. And the same can be stated about a pregnant woman: Her diet and the resulting nutritional condition will be the most important factor for her own wellness



Thus, particularly nutrition as breast nutrition. Seldom reaching

A woman's diet at this time will have an impact on the future baby not only at birth, but also the rest of his or her life. Many chronic diseases in adults, such as obesity, diabetes or hypertension, can originate at the fetal stage in connection with the mother's diet.

A nutritious, well-balanced diet is perhaps the greatest gift for a future baby. The ideal is to adopt a healthy diet and lifestyle before conception (p. 16). But if this was not the case, the beginning of pregnancy is still a good time to bring about healthy changes in the diet.

IMPORTANT VITAMINS AND MINERALS FOR PREGNANT WOMEN

1. FOLATE AND VITAMIN B₆

Facts and Figures About Pregnancy

280 days (=40 weeks)	Normal duration of pregnancy.
9 mm (3/8")	Length of the embryo at 4 weeks of pregnancy.
30 g	Amount of calcium transferred from mother to fetus during pregnancy.
11 to 16 kg (25 to 35 lb)	Average weight gain during pregnancy.
1.3 g	Additional amount of essential polyunsaturated fatty acids from plants needed daily during pregnancy.
3 g	Additional amount of fiber needed daily during pregnancy.
25 g	Additional amount of protein needed daily during pregnancy.
45 g	Additional amount of carbohydrates needed daily during pregnancy.

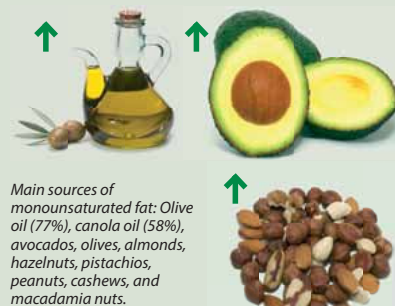
Dietary Guidelines to Enhance Conversion From Plant to Animal Omega-3

While fish can contribute to a pregnant woman's supply of long-chain omega-3 EPA and DHA, it can not be the main or the only source of these fatty acids. Mercury contamination forces a limit on fish intake (p. 57). Consequently, conversion from plant omega-3 to long-chain animal omega-3 becomes necessary and unavoidable, both for fish and for non-fish eaters. These guidelines contribute to making conversion more efficient.

1. KEEP AN ADEQUATE BALANCE OF OMEGA-6 / OMEGA-3 (p. 32)

2. CUT DOWN ON TRANS FAT

Trans fat interferes and slows down the conversion process from plant ALA to animal omega-3 EPA and DHA. Processed foods, partially hydrogenated vegetable fat, margarines, commercially baked goods, fast food, french fries and other commercially fried foods are common sources of trans fat (p. 151).



Main sources of monounsaturated fat: Olive oil (77%), canola oil (58%), avocados, olives, almonds, hazelnuts, pistachios, peanuts, cashews, and macadamia nuts.

3. LIMIT THE INTAKE OF SATURATED FATS

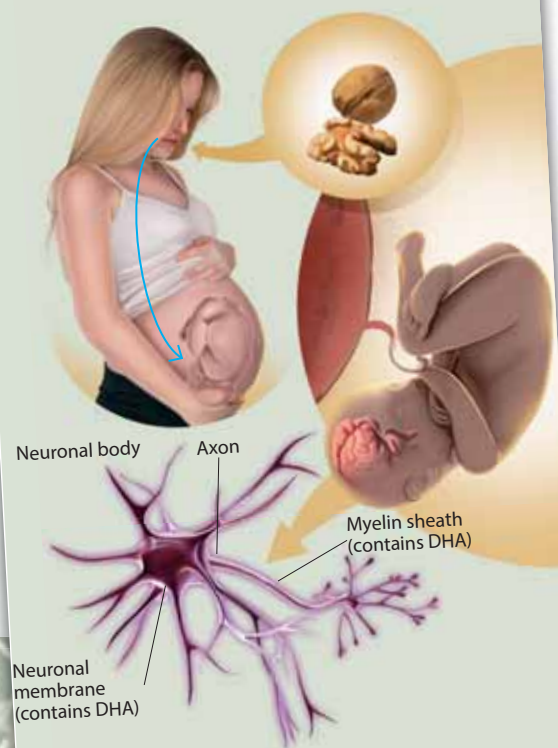
Meat, particularly sausages, cured and luncheon

5. INCREASE FLAVONOID INTAKE

Bright colored fruits and vegetables are the main sources of flavonoids.

A complete diet in this stage is the best help against premature babies and problems in the development of the newborn.

Feeding the Fetal Brain



Flaxseed, nuts, soy, chia and other seeds, and green leafy vegetables are the major sources of plant omega-3 ALA (alpha-linolenic acid), a precursor of the fatty acids EPA (eicosapentaenoic) and DHA (docosahexaenoic).

EPA and DHA are essential, structural components of the body's cellular membranes, particularly neurons. The myelin sheath covering the axons of neurons is made up of EPA and DHA.

FOODS TO INCREASE DURING PREGNANCY

Some foods are specially beneficial to pregnant women.

A Time for Thoroughness

Pregnancy is the time when an expectant mother must act sensibly and prudently concerning her health, with the support of the future father.

Breaking the laws of good health during this period of life usually carries life-long consequences for the offspring. Pregnancy means accountability.

Some Definitions

- **Congenital malformation or birth defect:** A physical defect present in a baby at birth, regardless of whether the defect is caused by a genetic factor or by prenatal events that are not genetic.
- **Heme iron:** The iron found in meat and fish; non-heme iron is found in plant foods and eggs.
- **Planned pregnancy:** An intended and desired pregnancy. When pregnancy is unplanned or accidental, health risks for a mother and her baby are usually higher.
- **Lifestyle:** A set of habits and attitudes that determine personal health.
- **Omnivore:** A person who eats all types of foods.
- **Pregnancy:** The period between conception to childbirth.
- **Processed:** The method of preparing food for the purpose of curing, preserving, or improving its appearance.
- **Total vegetarian:** A person who eats no animal products.
- **Teratogen:** A substance that can cause birth defects.

There are chemical substances than can reach the fetus and threaten its brain development.



CAFFEINE, NOT SO HARMLESS

Coffee, green tea and black tea, maté, and cola drinks are common caffeinated beverages that are inadequate during pregnancy.

Key Words

Abortion.....	81	Fats.....	25
Adolescent pregnancy.....	76	Fats, healthy.....	26
Adult disease, fetal origins.....	92	Fatty acids.....	27
Alcohol.....	95	Fiber.....	25
Birth defects.....	94	Fish.....	56
Caffeine and coffee.....	88	Fish oil supplements.....	66
Calcium.....	40	Flaxseeds.....	46
Calories.....	24	Folate and folic acid.....	34
Carbohydrates.....	24	Foodborne disease.....	50
Constipation.....	79	Foods to increase.....	44
Dental conditions.....	78	Foods to limit.....	48
DHA supplements.....	69	Heartburn.....	78
Diabetes.....	79	Herbs.....	84
Energy.....	24	Iodine.....	36
EPA and DHA.....	27	Iron.....	38
		Iron absorption.....	42

Dinner

The last meal of the day must be taken at least two hours before bedtime to avoid heartburn.

One portion of raw vegetable salad seasoned with flaxseed or chia oil, lemon juice, and a tablespoon of wheat germ
 • Provides alpha-linolenic acid, fiber, iron, folate and vitamins B and E.

One avocado (or its equivalent prepared as guacamole) with toasted slices of bread
 • Rich in healthy fats (oleic acid), iron, and folate.

One bowl of whole rice with a meat analogue, tofu, or a well cooked egg
 • Source of proteins and fiber.

Some dietary sources of iron

Iron is widely present in plant and animal based foods, except cow's milk, which is poor in iron. Indeed, many plant food portions contain more iron than meat or fish portions, as can be seen in this table.

Food	Weight	Common measure	Iron content per measure
Soybeans, boiled	172 g	1 cup	8.84 mg
Lentils, boiled	198 g	1 cup	6.59 mg
Spinach, boiled and drained	180 g	1 cup	6.43 mg
Wheat flour, whole grain	120 g	1 cup	4.66 mg
Raisins, seedless	145 g	1 cup	2.73 mg
Mushrooms, cooked	156 g	1 cup	2.71 mg
Pumpkin seeds, roasted	28,35 g	1 onza	2.29 mg
Beef, broiled	85 g	3 ounces	2.21 mg
Chicken breast, grilled	172 g	1 breast	1.78 mg
Egg, whole, hard-boiled	50 g	1 large unit	0.87 mg
Milk, low fat	244 g	1 cup	0.07 mg



Meat and fish are good sources of iron, although not indispensable to achieve a good iron status. Plant foods rich in iron, combined in the same meal with fresh fruits and juices (sources of vitamin C) greatly contribute to an improved iron status.

Stomach's capacity reduces, which may require smaller and more frequent meals. These are nutritious and suitable for pregnant women as supplementary meals. Take one or more snacks at intervals as advised by a health care provider.

SNACK B

2 carrots
 • Rich in beta-carotene and fiber.

A handful of almonds, pistachios, or hazelnuts with raisins
 • Source of healthy fats and minerals.

Biscuits made with whole wheat flour
 • Source of carbohydrates and fiber.

Toast (s) or biscuits with ground flaxseed and molasses
 • Provides healthy fats, calcium, and iron.

A glass of calcium fortified soy milk
 • Source of proteins, calcium, and plant omega-3.

The apple is rich in soluble fiber and antioxidants: source of iron.

Salads with hummus (seasoned chickpea, see p. 000) and one tablespoon of ground flaxseed
 • Source of proteins, minerals, and omega-3 alpha-linolenic acid.

Dried prunes, figs, or dates
 • Source of healthy sugar, iron, and fiber.

One banana
 • Source of healthy sugar, vitamin B₆ and fiber.

Supplements

Remember to take these daily supplements (p. 65):
 • Folic acid: 400 µg until the end of the third month of pregnancy.
 • Vitamin B₁₂: 100 µg a day or 2,000 µg a week until the end of pregnancy or lactation.
 • Iodine: 200 µg a day until the end of pregnancy or lactation.

Nursing

For a baby, no gift is more precious than mother's milk.

Breastfeeding creates a bond between the mother and the baby that is a unique and unforgettable experience.



Nursing primarily means to nourish at the breast, that is, to breastfeed. Nevertheless, in this chapter we shall also include other non-breast ways to nourish infants, like expressed milk feeding (indirect breastfeeding) (p. 124) and bottle feeding with formula (p. 130).

Breastfeeding, the main way of nursing, is a special kind of partnership between a loving mother and her hungry baby. Particularly at this time, mother and baby need each other.

can interfere with breastfeeding. To modern women, cultures to forget when breastfeeding time for feeding demand and sufficiency of certain number breastfeeding healthy for bo

Facts and Figures About Nursing

6 months	Optimal duration of exclusive breastfeeding.
10 a 20 ml	Capacity of a newborn's stomach.
12 g	Amount of fat stored daily by an infant up to 3 months.
20 minutes	Time of digestion of mother's milk by infant.
724 ml	Average daily volume of breast milk produced after 3 months.



VEGETARIAN DIET AND BREASTFEEDING

A well-planned vegetarian diet can easily meet the nutritional needs of a breastfeeding woman with some advantages for her baby.

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Father's Role in Breastfeeding

A father's involvement in the breastfeeding experience is a factor of wellbeing for all the family. A mother is physically, emotionally, and biologically bound to her infant, but a father needs to develop a deep bond with his new offspring. These simple tasks strengthen the tie between a father and his baby, making a mother's nursing process more pleasant.



Provide emotional support to the mother, expressing love and care.



Perform household chores.



Assume some caring tasks, such as carrying or bathing the baby or changing diapers. A father should cuddle his baby with skin-to-skin contact at least once a day to establish a strong bond.



Take care of the family's older children.

Main International Statements on Breastfeeding

- **Convention on the Rights of the Child:** Recognizes, in Article 24, the important role breastfeeding plays in the achievement of the child's right to the highest attainable standard of health.^a
- **Innocenti Declaration on the Protection, Promotion and Support of Breastfeeding,** sponsored by WHO and UNICEF (United Nations Children's Fund) in 1990, and co-sponsored by the United States Agency for International Development and the Swedish International Development Authority.^b It stated that all women should be enabled to practice exclusive breastfeeding and all infants should be fed exclusively on breastmilk from birth to 6 months of age.
- **Maternity Protection Convention,** adopted by ILO (International Labor Organization) in the year 2000. Grants the working woman the right to have daily breaks or reduction of working hours to breastfeed her child (see p. 118).^c
- **Global Strategy for Infant and Young Child Feeding,** unanimously adopted by all WHO (World Health Organization) member states at the 55th World Health Assembly in May 2002.^d

a. United Nations General Assembly. Convention on the Rights of the Child. New York, 1989.
b. <http://www2.ohchr.org/english/law/crc.htm>
c. http://training.itcilo.org/nutrition/index_24807.html
d. WHO. Global Strategy for Infant and Young Child Feeding. WHO, Geneva, 2002. Download at: http://www.who.int/child_adollescent_health/topics/prevention_care/child/nutrition/global/en/index.html



EXPRESSED MILK FEEDING – 1

Feeding a baby with expressed breast milk allows the flexibility of bottle feeding combined with the advantages of breast milk.



Resuming work should not be an hindrance to continue breastfeeding. Feeding with expressed milk may be of great help.

Feeding expressed milk, also called indirect breastfeeding, can be done with a cup, spoon, eyedropper, syringe, or bottle. It is a better alternative to breastfeeding than infant formula since expressed milk is, in fact, breast milk with all its nutrients and antibodies.

BENEFITS OF EXPRESSED BREAST MILK FEEDING

- Allows to continue feeding an infant with breast milk in circumstances when a mother lacks privacy or does not feel comfortable breastfeeding in public.
- A mother can leave for a short trip without worrying that her baby will be hungry.
- Dad or any other care provider can feed the baby with a cup, spoon, eyedropper, or a feeding syringe. A bottle is not the best option, because after its use an infant will become reluctant to turn back to breastfeeding.
- Makes it easier to combine breastfeeding and mother's work or tasks.
- Allows feeding of breast milk to babies that cannot latch-on or are unable to suckle well on the breast, such as:
 - Premature babies.
 - Babies with birth defects like cleft lip or palate.

Steps To Express and Use Breast Milk

1. Preparation



2. Breast expression



Send to a milk bank.

3. Storage or freezing



Recently expressed milk can be fed right away to a baby. If not refrigerated or frozen, use within 6 or 8 hours of expression.

Express from left breast first, then right breast.

Signs of a Good Latch on

- The baby's mouth is completely open.
- A baby's mouth covers both the nipple and a large portion of the darker area around the nipple (areola).
- A baby's lips are flared outward, not folded in (inverted).
- A baby's chin and/or nose touches the breast.
- No suction sounds.

Common Breastfeeding Positions



Classic, front hold, or cradle

Easy to get a good latch-on.



Underarm or football hold

Good for prematures or after a cesarean.



Lying down

Good after a cesarean or when the floor of the pelvis is sore because of delivery.

Sitting
Good for infants with esophageal reflux.



Good attachment.



Poor attachment.

Breast milk not only benefits the baby, but also favours the mother's health.



Breast milk is the best food for a baby. Besides nurturing, it protects the child against different diseases.

Complementary feeding

This is a key time in life to inculcate in the children the taste for healthy foods, like cereals and fruits.

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The most vulnerable age
The transitional period from breast or formula feeding into semisolid or solid family foods is the most critical in a child's life; consequently, it deserves careful attention.

FIRST COMPLEMENTARY FOODS

1. CEREALS AND FRUITS

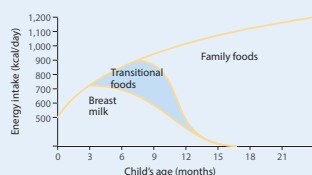
Some Definitions

- **Baby:** In this book it is used as a synonym of infant at second semester of life.
- **Beikost:** Any food other than maternal or formula milk that is given to an infant during the weaning period.
- **Bioavailability:** The fraction of a nutrient that is absorbed and assimilated.
- **Complementary feeding:** According to WHO, "The process starting when breast milk alone is no longer sufficient to meet the nutritional requirements of infants, and therefore other foods and liquids are needed, along with breast milk."
- **Complementary foods:** All semisolid or solid food or liquids different to breast or infant formula milk used from the start of weaning.
- **Trace mineral:** A mineral required in a very small amount, but plays a vital role in health. Iron and zinc are the most critical trace minerals for infants and children.
- **Weaning:** The introduction of semisolid or solid foods into the diet of a baby who is only drinking breast or formula milk.

Key Words

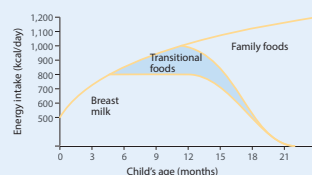
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Energy Provided by Breast Milk According to the Age of Introduction of Complementary Foods



Early introduction of complementary foods (around 3 months)

Early introduction of complementary foods leads to a decline in breast milk production from the third month. Maintaining breastfeeding up to 12 months is no longer possible.



Introduction of complementary foods at proper time (around 6 months)

When complementary foods are introduced from the sixth month, breast milk production is maintained beyond 12 months, which confers additional benefits to both mother and child.

FIRST FOODS AND BRAIN DEVELOPMENT

Foods eaten early in life influence intellectual development.



Citrus juice
Feed two spoons of citrus fruit juice after each cereal meal to enhance iron absorption.



Cereals plus fruits
Cereals can be mixed with banana, mango, or other mashed or pureed fruit.



Fruits and vegetables enhance intelligence
High consumption of fruit, vegetables, and home-prepared foods from 6 to 12 months is associated with higher IQ (Intelligence quotient) at childhood.

Foods that are received during infancy have an important influence on brain development. The University of Cambridge research shows that children who consume a diet rich in fruits and vegetables during infancy have a higher IQ at age 10.

HIGHER IQ

The University of Cambridge research shows that children who consume a diet rich in fruits and vegetables during infancy have a higher IQ at age 10. The research also found that children who consume a diet rich in fruits and vegetables during infancy have a higher IQ at age 10.

Research has shown that the early diet of a human being during infancy, when the brain is rapidly growing, has an impact on brain structure and function.

WEANING FROM THE BREAST

A major change in a baby's nutrition.



THE FIRST FOODS AFTER BREAST OR FORMULA MILK

Every nursing mother will ask herself: What shall I feed my baby after my breast milk drains off? The mother or father feeding his baby with formula milk also thinks about "What shall come next?"

These questions are, of course, relevant because no single food in the world is as nutritious and suitable as milk for babies.

Breast milk is not forever

Sooner or later breast milk production will come to an end. The infant will be confronted then with the challenge of living from foods other than breast (or formula) milk.

Weaning must be planned

Parents, particularly nursing mothers, must map out thorough plans for weaning, the most crucial event in a child's development. Reading and thinking about weaning and complementary feeding for baby is required for parents to overcome the many challenges of this exciting period.

from the breast is the process of introducing a range of complementary foods. Weaning is not a sudden stop to breastfeeding, but a combination with complementary foods over a period of several months.

Historical records from ancient times reveal that the age time for weaning ranges from 1 to 2 years of age. Traditionally, a family celebration took place when an infant was weaned from the breast. In most cultures, it has been customary to start the weaning process when the first teeth erupt, that is, around the sixth month.

During the weaning period, energy from breast milk provides about 50% of infant's energy requirements.



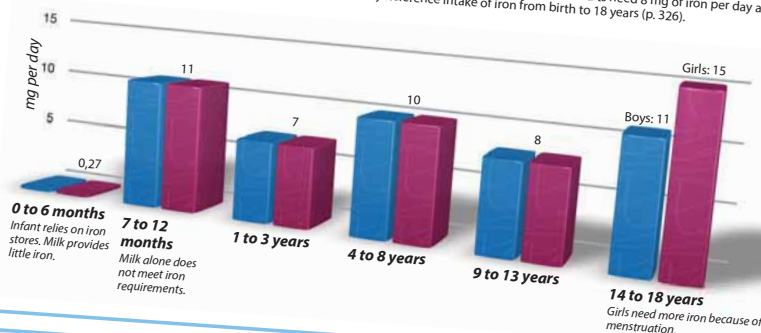
FIRST COMPLEMENTARY FOODS

3. LEGUMES, NUTS AND SEEDS

There is a great diversity of foods that facilitate the proper development of children.

RDA (Recommended Dietary Allowance) of Iron (mg per day)

Infants from 7 to 12 months old and adolescents (particularly girls) need a high intake of iron. Male adults need 8 mg of iron per day and menstruating females 18 mg per day. Figures express the Dietary Reference Intake of iron from birth to 18 years (p. 326).



Iron Content of Some Complementary Foods



Childhood

A time to set healthy eating habits.

Understanding how to eat healthy fosters the child's learning development and maturity.

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Some Definitions

- **Enrichment:** The process of adding nutrient food to compensate for the loss of nutrient processing. The difference between "enrichment" and "fortification" is mainly theoretical. For purposes, enrichment is used as a synonym for fortification.
- **Food sensitivity:** An unpleasant reaction of unspecified origin to certain foods, including heartburn, nausea, bloatedness, or abdominal pain.
- **Fortification:** The process of adding vitamins and minerals to foods, irrespective of whether these nutrients were originally or not in the food before processing.
- **Milk:** When used alone, milk refers to the secretion of mammary glands of mammalian animals. In many cases, "milk" is a synonym of "cow's milk".
- **Non-dairy milks:** White or whitish nutritive beverages obtained from nuts, seeds, or tubers, such as almond or soy milk.
- **Plant milks:** Equivalent to "non-dairy milks".
- **Snack:** A small, quick meal, especially between regular meals.

FRUIT JUICES FOR CHILDREN

Fruit juices should be used as part of a meal or snack, but not sipped throughout the day.

Meeting Protein Needs

A vegetarian diet, even without milk or eggs, will meet protein needs of a child provided that these two conditions are fulfilled:

- **Sufficient calories are ingested.**
 - Cereals (as oats, corn, or rice), tubers (as potatoes, cassava, or yam), dried fruits (as raisins, figs, plums, or dates), and nuts are good sources of calories.
- **A variety of plant proteins are included in the diet.**
 - Soybeans, soy products, other legumes, cereals, and nuts are the main sources of proteins in a total vegetarian diet.



HEALTHY MENUS FOR CHILDREN

Vegetarian dishes and snacks adequately combined.

Menu A

BREAKFAST

- Home made flakes (p. 262) with sliced fruits.
- A cup of soy milk with whole flour biscuits.
- Fruit salad with walnuts (p. 315).

LUNCH

- Vegetable horseshoe (p. 275).
- Chickpeas with nuts (p. 250).
- Whole-wheat bread toast with omelette (p. 315).
- Mango, banana or other fruit shake (p. 273).

DINNER

- Mashed sweet potatoes (p. 187).
- Grilled tofu with vegetables (p. 265).
- A serving of fresh fruit.

SNACKS

- Nachos with guacamole (p. 315) and/or
- Applesauce with sesame (p. 209).

Menu B

BREAKFAST

- Muesli soaked in orange juice (p. 262).
- Toast with almond butter (p. 263) and molasses or honey.
- A serving of fresh fruit.

LUNCH

- Raw vegetable salad.
- Rice with soy meat (p. 265).
- Baked or pureed potato with spinach.
- A handful of dried prunes, raisins, dates, or figs.

DINNER

- Vegetable soup.
- Soy burger (p. 265) with carrot sticks.
- A serving of fresh fruit.

SNACKS

- Apple sandwich (p. 274) and/or
- Strawberries (or other seas fruit) with soy or milk yog (p. 314).

Notes

... lunch is the main meal of the day; in others it is dinner. In these menus lunch is the main meal of the day, according to family eating habit. ... hours before bedtime.

Food Rejection Can Be Overcome

According to research studies, many children inherit the taste for meat but need to learn to love fruits and vegetables (p. 280). With a smart approach, disliked foods may become liked. Teaching the child the health benefits of vegetables and fruits, and showing enthusiasm when harvesting, buying, or eating them will help improve acceptance.



ress up vegetables: Use something enjoyed by children, like adding melted cheese to cauliflower, or peanut butter to carrots.

e creativity to make it fun: Foods in general, particularly the rejected ones, should be played in an attractive way at the table, combining bright food colors and shapes. Make up a plate of appealing and colored vegetables (baby corn, cherry tomatoes, carrot sticks...).

vegetables into artistic shapes.

re dipping sauce with vegetables, as children like to dip vegetable chunks in a sauce.

the senses: Allow the child to explore selected food with all senses: sight, hearing, smell and taste.

aw: Cooked or boiled vegetables are rejected, whereas the same food raw (or) steam cooked can be accepted. Grilling, or frying vegetables is another

Prefer it raw
Vegetables are often better accepted when cooked or boiled. Baked, grilled, and vegetables can also be enjoyed.



Being overweight must not be seen as a sign of poor health.

CHILD OBESITY

A true, modern epidemic with lifelong consequences.

If the child's intake of energy is not sufficient, it may slow or halt growth.

Children need energy to perform physical activity and to grow.

A bad nutrition during infancy can condemn a person to suffer dangerous diseases in adult life.



ENERGY AND SUPPLEMENTS FOR CHILDREN

Meeting energy requirements is the first nutritional need for children.

Energy because they expend energy requirement is the amount needed to maintain body size, position and advisable physical activity, and energy needed to support growth.

Energy demands for growth constitute about 35% of the total energy requirement during the first three months of life. The proportion of energy needed for growth decreases to about 17% of total energy requirements from months 3 to 6, to about 6% up to 12 months, and to about 3% during the second year until the end of the first decade. Beyond 20 years of age, no more energy is needed for growth.

ENERGICAL SUPPLEMENTS

A balanced diet rarely needs to take additional supplements. Nevertheless,



Adolescence

The transition period from childhood to adulthood.

Children grow at a relatively uniform rate. But from 10 to 15 years of age, a sudden increase in growth velocity occurs, greater than in any other time except that of the first year of life. Adolescent growth spurt often begins between 18 and 24 months sooner in girls than in boys.

Adolescent physical growth requires an additional supply of nutrients, and at the same time, is associated with emotional and cultural changes frequently impacting eating behavior. The combination of increased nutritional needs and a changing feeding style leads to additional pressure both for adolescents and for parents or caregivers. Adults need an extra dose of sensitivity and nutritional knowledge when dealing with food related issues of adolescence.

BENEFITS OF EATING AT HOME

Although adolescents need to become gradually emancipated from the family unit, family meals should be maintained as long as possible, at least once a day. By making family meals nutritious and enjoyable to their adolescent daughters and sons, parents are bestowing them a great gift with

Facts and Figures About Adolescence

Percentage of final adult ideal weight gained during adolescence
Percentage of adult height reached during adolescence
Percentage of adult fat for adolescent girls

lifetime benefits. According to research conducted at the University of Illinois (USA),* adolescents sharing three or more meals weekly at home with their parents receive significant protection against overweight and eating disorders like anorexia.

a. Hammons AJ, Flegal DM. Is frequency of shared family meals related to adolescent and adolescents' weight status?

Some Definitions

- **Adolescence:** The period in human development that occurs between the beginning of puberty and adulthood.
- **Eating disorder:** A condition defined by abnormal eating habits that may involve either insufficient or excessive food intake associated with damaged physical and mental health. Bulimia and anorexia nervosa are the most common specific types.
- **Family meal:** A happy time when family members share food, thoughts, and emotional wellbeing.
- **Puberty:** The period when the sex glands become functional and the secondary sexual characteristics emerge: like changes to voice in boys and to breasts in girls.

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ANOREXIA AND BULIMIA

Parents and caregivers can detect early signs of an eating disorder, thereby reinforcing preventive measures.

Nachos with Guacamole

Crispy maize nachos combined with guacamole, the typical Mexican dip made with avocado, onion, and/or peppers, and seasoned with lemon juice and salt. Avocados are very adequate for adolescents because of their healthy monounsaturated fats, proteins, and iron contents.



Physical and emotional changes in adolescents demand a special care in diet.

HEALTHY SNACKS FOR ADOLESCENTS

There are many more options than the typical and hardly adequate burger and chips.



Excessive snacking can lead to becoming overweight, but one or two daily, healthy snacks can be adequate for adolescents.

Adolescents may easily feel hungry, even while eating three regular meals a day because of their greater need for energy and nutrients. Resorting to a burger and French fries or to candies leads the way to weight gain, diabetes and high cholesterol. Fortunately, there are healthy snack alternatives which can satisfy hunger until the next regular meal while providing energy and avoiding weight gain.

Some snacks and sandwiches suitable for children may also appeal to adolescents.

Strawberries with Yogurt

Good source of antioxidants, proteins, and calcium. Strawberries can be replaced with other fruits, in chunks. Milk yogurt can be replaced with soy yogurt, which provides the same amount of calcium if enriched with this mineral.



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UNITS, ABBREVIATIONS, AND ACRONYMS

p: Page.

ppb = parts per billion. 1 ppb = 0.001 ppm

ppm: Parts per million. 1 ppm = 1,000 ppb = 1 mg/kg
µg/g

syn: Synonym

y: Year.

Abbreviations and acronyms

AAP: American Academy of Pediatrics.

ADA: American Dietetic Association.

AI: Adequate Intake. AI is the recommended average intake level based on observed or experimentally determined approximations or estimates of nutrient intake by a group (or groups) of apparently healthy people that are assumed to be adequate. AI is used when sufficient scientific evidence is not available to calculate an RDA.

ALA: alpha-Linolenic acid, an omega-3 polyunsaturated fatty acid found in seeds and other plant foods.

ARA: Arachidonic acid, an omega-6 LC-PUFA found mainly in meat. In excess, ARA has a pro-inflammatory effect.

DDT: Dichloro Diphenyl Trichloroethane. DDT is a pesticide having a great impact on health and environment. It has been banned worldwide, although being a POP remain for years in the food chain.

DFE: Dietary Folate Equivalent, used to express the vitamin B₉ activity of a food or medication. 1 DFE = 1 µg of food folate = 0.6 µg of folate from fortified food or as a supplement consumed with food = 0.5 µg of a

TABLEAUX DES NUTRIMENTS

Dietary Reference Intakes (DRI) for vitamins and minerals

ADULT WOMEN

Bold framed cells correspond to nutrients which DRI increases more than 30% during pregnancy or lactation.

Nutrient	IDR (RDA or AI) for non-pregnant non-lactating women 19-50 y	IDR (RDA or AI) for pregnant women 19-50 y	IDR (RDA or AI) for lactating women 19-50 y
Vitamin A (µg/d) [1]	700	770	1,300
Vitamin C (mg/d)	75	85	120
Vitamin D (µg/d) [2]	15	15	15
Vitamin E (mg/d)	15	15	19
Vitamin K (µg/d)	90*	90*	90*
Vitamin B ₁ or Thiamin (mg/d)	1.1	1.4	1.4
Vitamin B ₂ or Riboflavin (mg/d)	1.1	1.4	1.6
Vitamin B ₆ or Pyridoxine (mg/d)	1.4	1.8	1.7
Vitamin B ₉ or Folate (µg/d) [4]	400	600	2.0
Vitamin B ₁₂ or Cobalamin (µg/d)	2.4	2.6	500
Pantothenic acid (mg/d)	5*	6*	2.8
Biotin (µg/d)	30*	30*	7*
Choline (mg/d)	425*	450*	35*
Calcium (mg/d)	1,000	1,000	550*
Iron (mg/d)	25*	1,000	1,000
Copper (µg/d)			

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1 tablespoon:
About 15 ml (15 g of water)



1 cup:
About 240 ml (240 g of water)



HEALTHY AND STRONG

An adequate nutrition during childhood and adolescence is one of the great tools for preventing and fighting diseases in a human being life. In reality, it is one of the great legacies parents transmit their children. Hence the importance to have a complete children's food guide.



HEALTHY AND STRONG represents an indispensable nutritional manual through the children development process, since pregnancy, lactation and adolescence. Its reading and implementation of the exposed advices may imply the prevention of future health problems in our sons and daughters.



GEORGE D. PAMPLONA-ROGER is a physician and surgeon and an expert in Public Health. Through his professional life as a surgeon, he has come to know the human body well, both inside and out. And with his broad-ranging experience as an educator in the field of healthcare, he has an excellent ability to communicate and reveal scientific knowledge, making its many complexities easy to understand. Dr. Pamplona-Roger authored the *Encyclopedia of Medicinal Plants* and the *Encyclopedia of Foods and their Healing Power*, which have been translated into major languages from all over the world and published by Editorial Safeliz, in addition to other printed works.

