

Preliminary counseling
Highlighting and dispensing of pregnancy
Pregnancy nutrition

Preliminary counseling

The purpose of counseling is to give the woman who wants a pregnancy sufficient information for her pregnancy to proceed in the best possible circumstances, to give birth to a healthy newborn. The aims are:

- **Genetic counseling, prenatal screening available**
- **Eating**
- **Smoking**
- **Alcohol consumption**
- **Behavior, prophylactic treatment**
- **Chronic diseases, pre-existing treatments for pregnancy**
- **Rights of pregnant women**

1. Genetic counseling, prenatal screening available

- **Congenital / hereditary abnormalities** - See couples for **genetic screening** prior to pregnancy, if they want recommendation, and have factors that expose them to a high risk of having a child with a genetic condition.
- **Personal or family history of genetic abnormalities** : thrombophilia, cystic fibrosis, thrombocytopenia, fragile X syndrome, B-thalassemia, hemophilia, Down syndrome, polycystic kidney, Korea Huntington, Duchenne dystrophy and other muscular dystrophies.

Rubella virus infection : rubella during early pregnancy carries a high risk (40-70%) of deafness, blindness, cardiac abnormalities and other fetal abnormalities . In case of lack of immunity, we will suggest MMR immunization and avoidance of pregnancy for 3 months with immunity reverification after 3 months.

- **Influenza Vaccination** - Pregnancy increases the risk of complications and death from seasonal flu. We will suggest influenza vaccination **every year to all women who want a pregnancy.**

2. Food

- **Various foods, regular meals, small quantity / meal:**
- many **fruits and vegetables** , at least five servings a day
- high protein foods, such as: **lean chicken or fish meat, eggs, beans, lentils**
- fiber rich foods: **whole grain breads, pasta or rice, fruits and vegetables**
- calcium-containing dairy products (**milk, cheese and yogurt**)
- supplementation of **folic acid (400 mcg) / day**. Foods containing folic acid: vegetables, brown rice, fortified bread and cereals.
- **foods rich in iron** (red meat, beans, lentils, legumes and cereals). Fruits, fruit juices and legumes help in iron absorption due to vitamin C

Foods to Avoid:

- **Liver** and some **unpasteurized dairy** products ,
- **Poorly cooked raw meat, eggs and fast food** .
- We recommend **hand washing after handling raw meat**
- We recommend **keeping the raw meat separate from the rest of the cooked food**
- We recommend the consumption of **well prepared meat** - without red areas
- We recommend eating **boiled eggs until the egg yolk and egg yolk are solid** .
- Liver products and vitamin A supplements
- We recommend eating 2 servings of fish per week - **fish high in fat** - mackerel, fresh sardines (not canned), tuna or trout,
- **Avoid sharks, swordfish** (Mercury in these fish can affect the newborn's nervous system)
- **Avoid raw shellfish** , as they can cause food poisoning.

3. Smoking

- Increases the rate of **pregnancy loss** (x 2) and the risk of ectopic pregnancy
- Increased risk of **placenta praevia and placental ischemia**
- Increases the risk of premature rupture of membranes and **premature birth**
- Increases risk of **malformations** (palatal cleft)
- Increases perinatal mortality and the risk of having a low birth weight baby (on average 200 g)

After birth, smoking is associated with:

- **Sudden death** rate increases
- Increased risk of **pulmonary infections and otitis media**

We need to explain the risks and provide advice on how to stop smoking.

4. Alcohol / drug / coffee consumption

- **Fetal alcoholism syndrome (growth restriction, nervous system development and facial abnormalities)** is rare and tends to occur in children with large drinks. The current challenge is **to avoid alcohol** during pregnancy, especially for the **first 3 months** . If a woman continues to drink, she is advised to limit her consumption to **1-2 u / z i**.
- Illicit drugs and cannabis (used by mothers in 5%) are associated with poorer motor skills in children. If other illegal drugs are used, the consultation for specialized care is recommended.
- High levels of **caffeine** can cause **low birth weight and miscarriage**.

5. Behavior, prophylactic treatment:

- We recommend daily at least **30-45 minutes of movement, walking or cycling, tennis**.
- **Folate supplementation** decreases the risk of neuronal tube defect (open spina bifida, anencephaly, encephalocele) by 72%. For most women, we recommend 0.4 mg daily from pregnancy planning. It is recommended 5 mg daily in case of:
 - a previous child had a neural tube defect
 - history of maternal / paternal family or previous children with neural tube defects
 - mother with celiac disease, DZ, BMI > 30 kg / m², or under anticonvulsants
- **Vitamin D - 10 micrograms (400 UI) / day** is recommended

- Prophylactic **iron** from the second trimester of pregnancy, to **prevent infant iron deficiency anemia** , regardless of the presence or absence of iron deficiency in the mother.
- **Gardening and changing litter in cats - Toxoplasmosis** can affect the unborn baby's nervous system and cause blindness. The parasite that causes them is found in **meat, cat feces and soil**. We recommend **wearing gloves** for gardening or changing a cat litter, then washing hands.

6. Chronic diseases, pre-existing treatments for pregnancy:

It is recommended to carry out a thorough history of pre-existing conditions:

- **Old diabetes**
- **Epilepsy**
- **Cardiovascular diseases**
- **Chronic hepatitis**
- **Genito-urinary disease**
- **Medication Review** - Drug metabolism in the pregnant body is impaired during pregnancy, medications can cause developing fetal injury:
- Discontinue teratogenic medication known before conception.
- It is advisable to avoid OTC medicines, unless the safety is checked with the doctor
- **Use of medicines checked** and indicated in pregnancy, at the lowest possible doses, and only when you benefit > risk.

7. Rights of pregnant women

- **protection of motherhood at work**
- **maternity risk leave**
- **pregnancy and leisure leave**
- **free medicines during pregnancy**

Highlighting and dispensing of pregnancy

It is important that:

- the task should be detected as early as possible
- the pregnancy to be highlighted
- to be consulted regularly
- to benefit from prophylactic measures
- be educated and informed about his new condition.

The purpose of the prenatal consultation consists of:

- functional verification of the maternal organs that will be overloaded by pregnancy
- pregnancy monitoring and detection of risk factors to prevent obstetric complications
- conducting hygiene conditions of pregnancy
- physical and mental preparation for birth.

The first consultation should be performed in the first trimester of pregnancy, afterwards the consultations will be monthly (week 12-28) or bi - monthly (after week 28). The first prenatal consultation should include the following:

Determining the health status of the pregnant woman:

1. anamnesis:

- APF, gynecological APP, history of previous and current pregnancies, gestational age, genetic diseases, communicable hereditary diseases
- - Medical and surgical APP

2. General clinical examination : constitutional type, nutrition status, weight gain, functional status of devices and systems, TA measurement, roll-over test

3. obstetric examination

- Leopold maneuvers (after week 36)
- determination of abdominal circumference and uterine height

Selection of pregnant women with high risk:

1. Psycho-social circumstances:

- unwanted pregnancy, unfriendly affective climate
- home in hard to reach areas
- iatrogenic: errors, misinterpretation of a frustrated pathology.

2. General factors

- primipare age below 20 years or over 35 years, the large multiparous
- height below 1.55 m, weight below 45 kg
- genital hypotrophy
- low cardiac volume
- Rh or group isoimmunization
- autoimmune diseases

3. Gynecological or obstetric history:

- uterine scar
- malformations or genital tumors
- sterility treated
- plastic operations on the genital sphere or rectum
- pregnancies with complications or a birth less than 1 year from the date of current fertilization
- abortion, preterm birth
- births with mechanical dystocia, dynamics, hemorrhages in delivery, interventions
- infection with infectious syndrome or thromboembolic disease
- birth of dead faces, malformed children, macrosomes, handicapped, hypotrophic.

4. Pre-existing diseases:

- Cardiopathies, hypertension
- anemia
- obesity, diabetes, hyperparathyroidism, hyper or hypothyroidism
- respiratory diseases, nephropathy, chronic infections - tuberculosis, lues
- rubella, herpes, toxoplasmosis, listeriosis, hepatitis, colibacillosis, CMV infections
- chronic hepatitis
- orthopedic disorders: kyphoscoliosis, stinging, ankylosis.

5. Poisoning:

- alcoholism, smoking
- medically, amazingly
- mercury, saturnism.

6. Complicated pregnancy by:

- bone distortions
- presentation dystocia
- abnormal weight gain, last-trimester weight loss
- urinary, vaginal, skin infections
- abnormal uterine volume increase
- bleeding after week 20
- cervical incontinence
- false labour
- Rh or group incompatibility
- surgery
- diseases that occur during pregnancy
- duration of pregnancy beyond the normal term.

Mandatory analysis when pregnant:

- **CBC**
- **Blood group and Rh (and partner)**
- **VDRL**
- **HIV**
- **Blood glucose, urea, creatinine, uric acid**
- **ionogram**
- **serum iron**
- **Urine summary examination**
- **Serological tests for infectious diseases**
- **Examination of vaginal secretion, Examination cervical-vaginal cytology Babes-Panicolau**
- **ultrasound**
- **Screening for neural tube defects in women over 35 years old .**

Subsequent consultations should follow:

- general condition, weight curve
- BP, heart rate, test roll over S 28-32
- edema
- abdominal circumference, height of the uterus, fetal movements.

Leopold maneuvers are performed after week 36 to determine the position, presentation, employment of the fetus or existence of twin pregnancy or abnormal development of the fetus.

Laboratory analyzes:

- the urine summary is repeated monthly
- CBC in week 30-32
- Anti-Rh needle in week 24-28 and antepartum.

Access to a gynecology clinic is rather limited especially in the rural area, an important role for the family doctor who will confirm the pregnancy, highlight the pregnancy and, if necessary, attend the birth.

Pregnancy nutrition

Energy and plastic needs will need to be increased during pregnancy to meet the growing needs of the fetus and mother:

- A weight gain of **12.5-15.5 kg is optimal** for the lowest rate of complications, while an increase over 19-20 kg also increases risk three times.
- During pregnancy the **caloric needs increase to 30-40 Kcal / kg / day**, which makes the caloric requirement of the pregnant woman between **2,400 and 3,000 Kcal / kg / day**, depending on the physical activity carried out.
- The total caloric intake will be **50-60% carbohydrates, 20-25% lipids and 15-20% protein from the total caloric intake.**
- The need for **protein** in pregnant women will increase in the first trimester of pregnancy to **80-100 g / day**, of which two thirds will have to be of animal origin.
- **Carbohydrate** intake will increase by **5-6 g / kg / day** to cover increased caloric intake.

Pregnancy nutrition

	Energy contribution	Calcium	Iron	Vitamin D
Adolescence	2400 cal.	1200 mg.	16 mg.	200 mg.
Adult	2000 cal.	1000 mg.	16 mg.	200 mg.
Pregnant woman	2300 cal.	1000 mg.	30 mg.	400 mg.
The breastfeeding woman	2500 cal.	1000 mg.	10 mg.	400 mg.
Woman > 55 years old	1500 cal.	1200 mg.	10 mg.	400 mg.

Nutritional intake recommended for pregnancy

The role of vitamins in pregnancy

- **Vitamin A**
- Cell growth and differentiation
- Teguments and mucous membranes
- Reproduction, visual acuity
- Immune function, antioxidant role

Supplementation with vitamin A and beta-carotene reduces maternal mortality by 40% and 50% respectively.

Deficiency of vitamin A and beta-carotene (20-50% pregnant) causes:

- abortion, preeclampsia
- delayed pulmonary maturation
- renal impairment with nephron deficiency
- prematurity
- depressed immune function in newborns

Vitamin E

- antioxidant properties
- Immunomodulation
- inhibition of platelet adhesion

- inhibits the activity of C protein kinase
- favors gonadal function

Vitamin C

- antioxidant
- collagen synthesis
- role in antibodies, leukocyte reaction, phagocytosis
- normal placental development
- prevents *abruptio placentae*

Vitamin D

- regulation of phospho-calcium metabolism
- Reduce proliferation
- induction of cell differentiation

Vitamin B1

- coenzyme in the metabolism of carbohydrates and ketoacids
- stimulation of neuronal cells and other excitable tissues

Vitamin B2

- oxidation-reduction reactions
- absorption of iron,
- integrity of epithelial and nervous tissue
- adrenaline production
- synthesis of steroids, erythrocytes, glycogen

Vitamin B

- coenzyme in protein metabolism and neurotransmitter synthesis
- stimulation of PG production, antibodies, erythropoiesis, absorption

Vitamin B12

- regulation of mental processes and disposition
- synthesis of nucleotides, myelin and fatty acid chains
- hematopoiesis
- biological rhythm

Pantothenic acid

- Coenzyme A component, intervenes in the process of formation and restoration of epithelial tissue

Folic acid

- synthesis of nucleic acids
- decreased homocysteinemia
- Dietary folic acid supplementation has maximum efficacy if given preconceptionally and *enters* 0.4 mg / day or 4 mg / day (history of neural tube malformations)

Correct supplementation with folic acid prevents up to 75% occurrence and up to 72% recurrence of neural tube malformations.

Folic acid deficiency causes:

- congenital malformations (neural tube defects, facial clefts, heart malformations, limb malformations)
- miscarriage
- prematurity, low birth weight
- *abruptio placentae*, preeclampsia

Biotin

- fatty acid synthesis
- gluconeogenesis
- catabolism amino acids
- regulation of gene expression
- palatoschizis protection, short congenital limbs

Vitamin PP

- carbohydrate and fatty acid metabolism
- DNA synthesis

The role of minerals in pregnancy

Calcium

- bone tissue mineralization
- coagulation
- neuromuscular successibility ...

The recommended calcium intake remains constant: 1,000 mg / day. Additional calcium diets, if there are diets with insufficient Ca intake (<600 mg / day), pregnancy in pregnancy or pregnancies with risk of prematurity, low birth weight or preeclampsia.

The effects of calcium deficiency are:

- Maternal: Bone demineralization, pregnancy toxemia, decreased Ca concentration in breast milk.
- Fetal: developmental and ossification deficiency (fetal rickets)

Magnesium

- metabolism / vitamin D activity
- PTH synthesis / secretion
- excitability / neuromuscular transmission
- protein synthesis
- energy metabolism
- nucleotide synthesis
- RNA-ribosome binding

Dietary supplementation with magnesium has the following effects:

- significant reduction of antepartum hemorrhage
- 30% reduction in IGS risk
- previous administration of S 25 significantly reduces the rate of prematurity

Iodine

- synthesis of thyroid hormones with calorogenic effect
- tissue differentiation and proliferation
- RNA and protein synthesis
- physical and mental maturation of the fetus

The recommended dose of iodine is 200 f.lg. Adequate intake of iodine in pregnancy is essential for normal neurological development.

The deficiency favors: the risk of abortion, hypothyroidism in the mother and child, cretinism cretinism (annually, 100,000 children are born with cretinism cretinism).

Selenium

- the essential component of glutathione peroxidase
- protection of cellular structures from oxidative stress

- development of skeletal muscle, immune system and thyroid gland in the fetus
- selenium deficiency causes increased incidence of spina bifida and increased abortion rate
- supplementation with selenium prevents and reduces the incidence of gestational hypertension
- develops fetal skeletal muscle
- contributes to the protection against oxidative stress on DNA and cell membranes.

Zinc

- synthesis and stabilization of genetic material
- gametogenesis and gonadal function
- cell replication and differentiation
- synthesis and degradation of proteins, lipids, carbohydrates
- stimulation of immunity

Iron requirement increases by 50% during pregnancy. The need in the second and third trimesters is 1,000 mg, in order to increase maternal erythrocyte volume and in fetal erythropoiesis. Maximum required in trim. III is due to the massive transfer to the fetus. Insufficient dietary intake.

Effects of iron deficiency:

- maternal: aggravated postpartum anemia, puerperal infections
- fetal: prematurity, low birth weight, fetal death, reduction of persistent fetal deposits in the first year, anemia with developmental impairment, hypertension at maturity.

Prophylactically: all pregnant women in trim. II and III, 30 mg Fe / day

Therapeutic: Hb <100 g / 100 ml, Ht <33% in trim I and III

Hb <10.5 g / 100 ml, Ht <32% in trim. II

Nutritional risk factors in pregnancy

- significant deviation from the ideal antepartum weight
- excessive / inadequate weight gain
- pregnancy in adolescence, especially in the first 2 years after menarche
- pathological obstetrical history
- chronic diseases: diabetes, thyroid disorders, phenylketonuria