

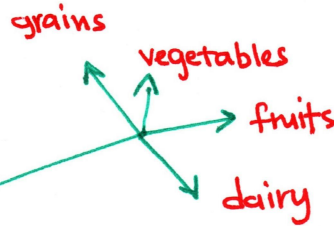
Pre-pregnancy - Nutrition

- Many women do not eat a well-balanced diet before pregnancy and may not have the proper nutritional status for the demands of pregnancy.
- The USDA (United States Department of Agriculture) and the U.S. Department of Health and Human Services have prepared the following food plate to guide in selecting foods:

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 لا تأخذ النساء والقيصر

Lecture 2

according to USDA :-
 Plate icon is divided into five food groups:



Grains: Foods that are made from wheat, rice, oats, cornmeal, barley, or another cereal grain are grain products.

Examples include whole wheat, brown rice, and oatmeal.

Vegetables: Choose a variety of vegetables, including dark green, red, and orange vegetables, legumes (peas and beans), and starchy vegetables.

خضراوات

بقوليات
 خضراوات

العدس /
 معكبة / مغزونه /
 جافة / طماطة / مقطعة /
 مطبوخة

Plate icon is divided into five food groups (Cont.):

Fruits: Any fruit or 100 percent fruit juice counts as part of the fruit group. Fruits can be fresh, canned, frozen, or dried, and may be whole, cut-up, or pureed.

Dairy: Milk products and many foods made from milk are considered part of this food group. Focus on fat-free or low-fat products, as well as those that are high in calcium.

منتجات خالية من الدهون
 ارضية الدهون

والغنية
 بالكالسيوم

Plate icon is divided into five food groups (Cont.):

> **Protein:** Choose low-fat or lean meats and poultry. Vary the protein routine by choosing more fish, nuts, seeds, peas, and beans.

روايج طوم علفة الدهن

فنا - مصادر بروتين متنوعة

> Oils are not a food group, yet some, such as nut oils, contain essential nutrients and can be included in the diet. Others, such as animal fats, are solid and should be avoided.

> *Exercise and everyday physical activity should also be included with a healthy dietary plan.*

> In addition to the Plate icon food groups, the following nutrients should be included that may affect the chances of conception or the success of pregnancy for example:

▪ **Vitamin D:** موارد غذائية يجب دمجها لمؤثر على صحة الحمل ونجاحه
Based on the findings, study researchers are recommending that pregnant women take 4,000 international units (IU) of vitamin D every day.

- vit. D
- FA
- Iron
- Calcium

الزيوت ليست من مجموعات الطعام
ولكن زيوت المكسرات = فهي موارد غذائية
صحة ..

- ↓ GDM - ↓ infection } high dose ↓ risk of
- ↓ PTB

> Women who take high doses of vitamin D greatly reduces risk of complications, including gestational diabetes, preterm birth, and infection, during the pregnancy.

Folic acid:

The U.S. Public Health Service recommends that all women of childbearing age consume 400 micrograms (0.4 mg) of folic acid each day. It can be obtain from nutrient found in some green leafy vegetables, most berries, nuts, beans, citrus fruits, fortified breakfast cereals.

مصادر الفوليك ايسيد
الحضن - العروسة - القوت - المكسرات

Trials on the prevention of **Neural Tube Defects (NTDs)/ Spinal bifida** have shown that supplementing the diet of folic acid reduce the risk of NTDs in fetus.

SPINE AFFECTED BY SPINA BIFIDA

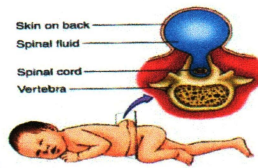


Figure 9-30 Neural tube defects. Poor folate status during the early stages of pregnancy, even before a woman may realize she is pregnant, increases the risk of a neural tube defect.



FA during 1st trimester will ↓ risk of NTD (spina bifida)

▪ **Iron:**

Many women have low iron stores as a result of monthly menstruation and diets low in iron.

Building iron stores helps prepare a mother's body for the needs of the fetus during pregnancy.

Good sources of iron include the following:

Meats such as beef, pork, lamb, liver, and other organ meats.

Poultry such as chicken, duck, and turkey (especially dark meat).

Leafy greens of the cabbage family such as broccoli, kale, and Legumes.

- أفضل المصادر للحديد
1. اللحوم
 2. الدواجن
 3. الخضار الورقية - البقوليات

Pregnancy

Pregnancy is the fertilization and development of one or more offspring, known as an embryo or fetus, in a woman's uterus.

الحمل

▪ **Calcium:**

Preparing for pregnancy includes building healthy bones.

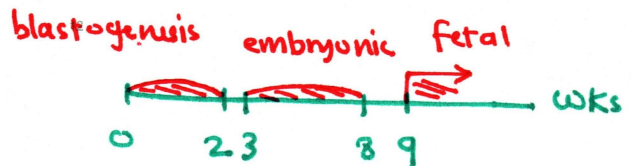
If there is not enough calcium in the pregnancy diet, the fetus may draw calcium from the mother's bones, which can put women at risk for osteoporosis later in life.

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Stages of pregnancy:

1. **Blastogenesis:** 0 - 2 wks

- The preimplantation period, about two weeks following conception .
- At the end of this stage the fertilized ovum become implanted in the wall of the uterus and the placenta begins to develop.



Stages of pregnancy (Cont.):

1. Blastogenesis:

➤ In this stage the fertilized ovum divided rapidly and two layers are distinguished:

- A) Inner cell forms embryo. ICM → Embryo
- B) Outer cell forms placenta. OCM → placenta .

3-8
wks

Stages of pregnancy (Cont.):

2. Embryonic stage (3-24 weeks):

➤ In this stage embryonic cells differentiate into three germinal layers as:

- A. Ectoderm: form brain, nervous system, sensory organ.
- B. Mesoderm: form skeleton, systemic organs of body.
- C. Endoderm: forms lining of respiratory, urinary and digestive tract.

الجنين هنا يتكون من 3 طبقات =
بطانة الجهاز التنفسي
والبولية و الهضمية

Stages of pregnancy (Cont.):

3. Fetal stage: 9 wk → birth.

➤ The period of rapid growth of specialized cells of the fetus and the establishment of the maternal reserves in preparation for lactation and milk production from the eighth week to term.

1. rapid growth of special cells in fetus .

2. establishment of maternal reserves (lactation - milk production)

في هذه الفترة يتم اكتمال الجنين
في المرحلة الثالثة

Embryo weight

Embryo growth rapidly throughout the third stage of

* Conception, the weights at the three stages are:

- 6 grams at 3 weeks.
- 640 grams at 24 weeks.
- 3.250 kg at birth.

Nutritional Precautions at the Time of Conception

- Feeding low-calorie or protein diets can interfere with the ability of mother to conceive.
- It can produce death and resorption or abortion of the fetus or produce malformation or retarded growth.
- Protein-calorie malnutrition can impair energy metabolism in fetus cells by interfering with synthesis Deoxyribo nucleic acid (DNA), glycolysis enzymes and citric acid cycle.

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Nutritional Precautions at the Time of Conception

- Inadequate supplies of amino acids and energy led to cell function break down.
- As well as placenta weight is affected by energy supplementation and affect birth weight.
- Placenta as approximately 11% less with low energy supplementation.

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