

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



تغذیه در دوران بارداری

ارائه دهنده:

دکتر زینب مختاری

(دکترای علوم تغذیه ، استادیار دانشگاه علوم پزشکی اصفهان)

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گروه هدف: کارشناسان تغذیه، معاونت بهداشت



Gestational diabetes mellitus (GDM)

Fetal implications include

- Hyperinsulinemia
- **Macrosomia** (often defined as a baby weighing more than 4000 g)
- Increased risk of delivery complications, including shoulder dystocia and cesarean delivery

❖ GDM is a condition associated with exacerbated maternal insulin resistance due to:

- Placental secretion of diabetogenic hormones including:

❖ Growth hormone (GH)

❖ Corticotropin releasing hormone (CRH)

❖ Human placental lactogen (hPL)

❖ Progesterone

- Increased maternal adipose deposition

- Increased caloric intake

- Decreased exercise

عوامل خطر دیابت بارداری

✓ داشتن اضافه وزن ده درصد بیشتر از وزن مناسب قبل از بارداری و یا شاخص توده بدنی بیشتر از ۲۹

✓ سن بیشتر از ۲۵ سال

✓ وجود قند در ادرار

✓ اختلال تحمل گلوکز و اختلال در گلوکز ناشتا

✓ سابقه خانوادگی ابتلا به دیابت به خصوص در بستگان درجه اول

✓ سابقه تولد نوزاد بیش از ۴ کیلوگرم در گذشته

✓ سابقه توجیه نشده تولد نوزاده مرده در گذشته و یا سقط مکرر و یا نوزاد با نقص مادرزادی

عوامل خطر دیابت بارداری

✓ سابقه ابتلا به دیابت بارداری در بارداری قبلی میزان خطر دیابت بارداری را در دفعه بعد ۲ تا ۳ برابر می نماید.

✓ داشتن مایع آمنیوتیک بیش از حد

✓ مادر سابقه سندرم تخمدان پلی کیستیک

✓ سابقه اخیر مصرف کورتون

✓ فشار خون بالای حاملگی

TABLE 14.14**Screening and Diagnosis of Gestational Diabetes Mellitus (GDM) at 24 to 28 Weeks of Gestation: Blood Glucose Thresholds and Testing Protocols**

Approach	Fasting mg/dL	1-hour mg/dL	2-hour mg/dL	3-hour mg/dL	Source
TWO STEP: universal screening; only those \geq cutoff need diagnostic test					
Screening: (nonfasting) 50 g glucose load, value \geq		130, 135, or 140			
Diagnosis: (fasting) 100 g load, 2 values \geq	95	180	155	140	Carpenter and Coustan
100 g load, 2 values \geq	105	190	165	145	National Diabetes Data Group
ONE STEP: universal testing					
Diagnosis: (fasting)	92-125*	180	153-199*		World Health Organization (WHO)**
75 g load, 1 value \geq					
75 g load, 1 value \geq	92	180	153		International Association of the Diabetes and Pregnancy Study Groups

*Values above these cutpoints are considered diagnostic of diabetes mellitus in pregnancy rather than GDM, as is a random plasma value of ≥ 200 mg/dL with diabetes symptoms.

**Considered diagnostic of GDM when found any time during the pregnancy.

Adapted from National Institutes of Health consensus development conference statement: diagnosing gestational diabetes mellitus, March 4-6, 2013. *Obstet Gynecol* 122:358. 2013; World Health Organization: WHO recommendation on the diagnosis of gestational diabetes in pregnancy.

Table 2. Diagnostic Criteria for Overt Diabetes and Gestational Diabetes Using a 2-Hour 75-g OGTT at 24 to 28 Weeks Gestation^a

Diagnosis	Fasting Plasma Glucose, ^b mg/dL (mmol/L)	1-h Value, mg/dL (mmol/L)	2-h Value, mg/dL (mmol/L)
Overt diabetes (type 1, type 2, or other)	≥126 (≥7.0)	NA	≥200 (≥11.1)
Gestational diabetes	92–125 (5.1–6.9)	≥180 (≥10.0)	153–199 (8.5–11.0)

Abbreviation: NA, not applicable.

^a These criteria for diagnosing overt diabetes based on the results of the 24- to 28-week glucose tolerance test differ somewhat from those of the American Diabetes Association (56) and the IADPSG (69).

^b Testing should use plasma glucose analyzed at a laboratory, not capillary blood glucose analyzed with a blood glucose meter.

- The ADA and ACOG recommend screening all pregnant women for GDM (unless already identified with diabetes) **at 24 to 28 weeks of gestation**
- Women with GDM should be screened for persistent diabetes at **4 to 12 weeks postpartum**, usually with fasting and 2-hour (after a 75g glucose load) blood sugars, and at least every 3 years for diabetes or prediabetes, using non-pregnancy diagnostic criteria

Management

- Exercise recommendations for GDM Treatment
- Nutrition and Weight Recommendations
- Pharmacological Treatment Options

۳. خانم ۲۸ ساله با وزن فعلی ۴۳ کیلوگرم و قد ۱۵۷ سانتیمتر در سه ماه دوم بارداری به شما مراجعه کرده است، رژیم غذایی مناسب را برای وی تنظیم کنید؟

- **BMI= 17.5**
- $BMR: 43 * 24 * 0.9 = 928$
- $TEE: BMR + 0.3(BMR) + 0.1 (BMR + P.A) = 1326$
- **Energy requirement:** $1326 + 300 + 340 = 1966 \text{ kcal}$

- **Pro** = $(1326 + 300) * \%17 = 276 / 4 = 69 \text{ gr}$
- $69 + 25 = 94 \text{ gr}$
- $(94 * 4) / 1966 = \%19$

- **FAT** = $1966 * \%30 = 589 / 9 = 65 \text{ gr}$
- **CHO** = $1966 * \% 51 = 1002 / 4 = 251 \text{ gr}$

Edema and leg cramps

- ❖ No dietary intervention is required, assuming her protein intake is adequate.
- ❖ **Mild lower extremity edema is normal**
- ❖ If, however, her urine is dark and/or she has swelling in her hands, **increased fluid intake** is recommended and **excessive salt consumption should be reduced**. Increased fluid intake also is recommended for leg cramps.
- ❖ Women should be advised to stretch with their toes pointing back toward their bodies rather than away from them. Massage and heat application may help treat the cramp.
- ❖ **Optimal calcium** intake may reduce the prevalence of leg cramps.
- ❖ The literature is conflicting about the benefit of magnesium supplementation for prevention or treatment of pregnancy-related leg cramps
- ❖ Caution is advised against large intakes of supplements

References:

- Mahan LK, JL R. Krause and Mahans Food & the Nutrition Care Process. St. Louis, MO: Saunders. 2020.
- Applications and case studies in clinical nutrition, Isabelle Giroux,
- Escott-Stump S. Nutrition and diagnosis-related care. Lippincott Williams & Wilkins; 2015.



THANK YOU

FOR YOUR KIND ATTENTION