

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



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Prevention of Miscarriage in Integrative Medicine



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Outline

- GI Disorders
- Hot and Cold Exposure
- Hot- and Cold-natured foods
- Fatigue
- Overeating
- Excessive Coitus
- Uterus with a Moist Temperament
- Prolonged Intense Anger and sorrow



Classification of factors

- External Factors
- Psychological Factors
- Physical Factors
- Fetal Factors



Risk Factors for Spontaneous Abortion

Modifiable

- Smoking and tobacco use
- Alcohol consumption
- Caffeine excess
- Obesity or underweight
- Poor nutrition (e.g., low folate)
- Uncontrolled maternal diseases (e.g., diabetes, thyroid disorders)
- Genital and systemic infections
- Exposure to environmental toxins (drugs, chemicals, radiation)
- Psychological stress

Non modifiable

- Maternal age (advanced age)
- Genetic and chromosomal abnormalities (fetal or parental)
- Previous history of miscarriage
- Anatomical uterine abnormalities (e.g., septate uterus, fibroids)
- Thrombophilic disorders (e.g., antiphospholipid syndrome)
- Endocrine conditions with genetic basis (e.g., autoimmune thyroiditis)
- Inherent immune and genetic factors



Association Between Irritable Bowel Syndrome (IBS) and Miscarriage

Study Design

Population cohort
UK GPRD
1990–2008
>100,000 pregnancies
Exposure: IBS

Proposed Mechanisms

Inflammation
Dysbiosis
Gut-brain axis
Immune dysregulation
Stress

Adjusted Risk

IBS: aOR 1.21 (1.13–1.30)
IBS+Anxiety: aOR 1.28 (1.18–1.40)

Reference: Khashan AS et al. Clin Gastroenterol Hepatol. 2012;10(8):902-909.
doi:10.1016/j.cgh.2012.02.014



IBS-D and Recurrent Miscarriages

- "The pro-inflammatory state of the gut in IBS-D patients may disrupt the immune tolerance mechanisms at the fetal-maternal interface, thereby increasing the risk of recurrent miscarriage."

Clark DA, Moayyedi P. Impaired Epithelial CD200L Tolerance Signaling in Irritable Bowel Syndrome Cases With Diarrhea May Be Associated With Recurrent Miscarriages. *Am J Reprod Immunol*. 2024;92(2):e13912. doi:10.1111/aji.13912



Continue

- In this pilot study, colonic epithelial CD200L (but not CD200S) expression was markedly reduced in patients with diarrhea-predominant IBS (IBS-D) compared to healthy controls. · This reduction in CD200L may impair local tolerance signaling, potentially leading to the activation of pro-inflammatory Natural Killer (NK) cells and macrophages at the fetal-maternal interface. · Such inflammatory activation is hypothesized to disrupt the immune tolerance required for successful pregnancy maintenance, thereby contributing to the loss of chromosomally normal fetuses in cases of recurrent miscarriage.



Continue

- The authors suggest that evaluating colonic epithelial CD200L could provide valuable pathogenic insight into unexplained recurrent miscarriages, particularly in women with IBS-D. • Furthermore, they propose that fecal CD200 might serve as a potential non-invasive biomarker for assessing this risk—a hypothesis they further explore in their subsequent 2025 publication.



Continue

- In short, the paper concludes that the inflammatory gut environment in IBS-D may compromise the immune system's ability to accept the fetus, and that measuring CD200-related markers could help identify at-risk patients.



Insulin Resistance and SA

- Recent studies, confirm that insulin resistance (IR) is an independent risk factor that significantly elevates the odds of recurrent spontaneous abortion, even after adjusting for confounding variables.

1. Zheng S, et al. (2026). Correlation between insulin resistance-related index and recurrent spontaneous abortion: a retrospective study. Am J Transl Res.

2. Insulin resistance in women with recurrent miscarriage: a systematic review and meta-analysis (2022). BMC Pregnancy and Childbirth.



Insulin Resistance and SA

- A pivotal 2025 mechanistic study reveals that IR exerts direct deleterious effects on the placenta by inducing hyperactivation of the SIK1 protein in trophoblast cells, which critically impairs their **proliferation**, **migration**, and **invasive** capacity essential for proper **placentation**.
- This trophoblast dysfunction, leading to defective placental bed vascularization and insufficient maternal-fetal perfusion.

1. The dynamic interplay between insulin resistance and autophagy... (2026). ScienceDirect.

2. Insulin resistance and SIK1 hyperactivation... (2025). American Journal of Physiology-Endocrinology and Metabolism.



Insulin Resistance and SA

- Severe IR (HOMA-IR > 4.5) correlates with a spontaneous miscarriage rate of approximately 47.8% in ART cycles, highlighting how aberrant maternal metabolism directly compromises placental integrity and pregnancy maintenance.

1. High Insulin Resistance in Saudi Women with Unexplained Recurrent Pregnancy Loss (2023). Saudi Journal of Medicine & Medical Sciences.

2. Impact of Insulin Resistance on Ovarian Sensitivity and Pregnancy Outcomes in PCOS Patients Undergoing IVF (2023). Journal of Clinical Medicine.



عوارض مقاومت به انسولین

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مقاومت به انسولین زمینه‌ساز بسیاری از بیماری‌ها، متابولیک و مزمن است.



1

دیابت نوع ۲

- کاهش حساسیت به انسولین و افزایش قند خون
- پیشرفت تدریجی و بروز عوارض مزمن دیابت



2

بیماری‌های قلبی - عروقی

- افزایش خطر آترواسکلروز
- افزایش خطر سکته قلبی و سکته مغزی
- آسیب به عملکرد عروق و اندوتلیوم



3

فشار خون بالا

- افزایش فعالیت سیستم سمپاتیک
- احتیاس سدیم و افزایش حجم خون
- افزایش مقاومت عروقی



4

کبد چرب غیرالکلی (NAFLD)

- افزایش ورود اسیدهای چرب به کبد
- تجمع چربی در کبد
- التهاب کبد، فیبروز و سیروز



5

سندرم متابولیک

- چاقی شکمی
- قشار خون بالا
- افزایش قند، تری‌گلیسرید و کاهش HDL.



6

اختلال چربی خون

- افزایش تری‌گلیسرید
- کاهش HDL (کلسترول خوب)
- افزایش LDL و کوچک و متراکم



7

اختلال شناختی و افزایش خطر آلزایمر

- آسیب به عملکرد مغز
- اختلال یادگیری و حافظه
- افزایش خطر زوال عقل



8

بیماری مزمن کلیه

- افزایش فیلزاسیون گلوмерولی
- آسیب به عروق و بافت کلیه
- افزایش خطر نارسایی کلیه



9

سندرم تخمدان پلی‌کیستیک (PCOS) و ناباروری

- افزایش مقاومت به انسولین
- افزایش آندروژن‌ها
- اختلال تخمک‌گذاری و ناباروری



10

افزایش خطر برخی سرطان‌ها

- سرطان پستان
- سرطان کواورکتال (روده بزرگ)
- افزایش خطر سایر سرطان‌های وابسته



11

التهاب مزمن و کاهش کیفیت زندگی

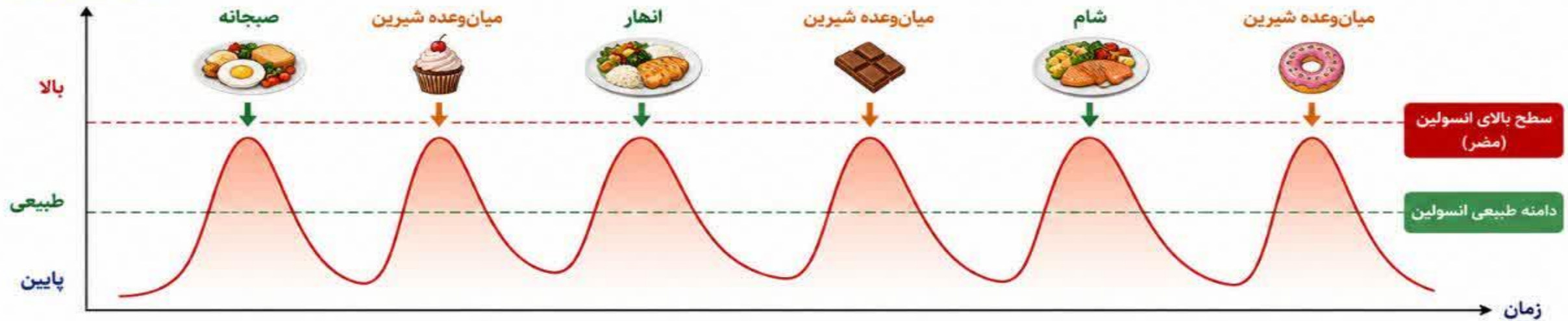
- افزایش سیتوکین‌های التهابی (مانند CRP, IL-6, TNF-α)
- خستگی مزمن، دردهای عضلانی و مفصلی
- کاهش کیفیت و طول عمر



مقاومت به انسولین، محور اصلی بسیاری از بیماری‌های متابولیک و قلبی-عروقی است و تشخیص و مداخله زودهنگام می‌تواند از بروز بسیاری از این عوارض پیشگیری کند.

نقش وعده‌های غذایی و میان‌وعده‌های شیرین در بالا رفتن انسولین و ایجاد مقاومت به انسولین

سطح انسولین در خون



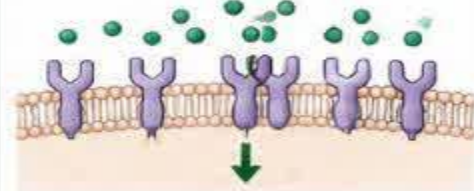
هر بار خوردن غذا یا میان‌وعده‌های حاوی قند و شیرینی → افزایش ترشح انسولین → بالا ماندن مداوم انسولین در خون

۱. افزایش مکرر انسولین



هر وعده و میان‌وعده باعث ترشح زیاد انسولین از پانکراس می‌شود.

۲. قرارگیری طولانی در معرض انسولین بالا



قرارگیری مداوم سلول‌ها در معرض انسولین بالا، گیرنده‌های انسولین را کم‌حساس می‌کند.

۳. مقاومت به انسولین



سلول‌ها به انسولین پاسخ نمی‌دهند و برای جذب قند، به مقدار بیشتری انسولین نیاز است.

۴. پیامدهای متابولیک

- افزایش قند خون
- اختلال در چربی‌سوزی و افزایش ذخیره چربی
- افزایش خطر دیابت نوع ۲
- افزایش خطر بیماری‌های قلبی - عروقی



کلید پیشگیری: کاهش دفعات خوردن، حذف یا محدود کردن میان‌وعده‌های شیرین و ایجاد فاصله مناسب بین وعده‌ها به بدن فرصت می‌دهد تا سطح انسولین کاهش یابد و حساسیت سلول‌ها به انسولین حفظ شود.



Cold as a Pathogen

Specially in Reproductive system



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Cold Exposure

• **اصابت سرمای شدید به مادر سبب سقط می شود نمونه حیوانی (میش)**

Laburn HP, Faurie A, Goelst K, Mitchell D. Effects on fetal and maternal body temperatures of exposure of pregnant ewes to heat, cold, and exercise. Journal of Applied Physiology. 2002 Feb 1;92(2):802-8.



Hot Exposure

- The results suggested that high-temperature exposure in short times during early pregnancy might increase the risk of SAB. Thus, our findings highlight the potential risk of short-term high-temperature exposure during early pregnancy, and more evidence was given for the effects of climate change on maternal health.

Zhao S, Xu J, Li W, Lu Y, Huang L, Xu H, Shi M, Wang Y, Zhu Q, Xu Q. High-temperature exposure and risk of spontaneous abortion during early pregnancy: a case-control study in Nanjing, China. *Environmental Science and Pollution Research*. 2023 Mar;30(11):29807–13.



Seasonal Variation and Spontaneous Abortion

- Risk was highest in late August, with a peak/low ratio of 1.3 (95% confidence interval [CI] = 1.1, 1.6).
- Associations were stronger in the Southern and Midwestern United States.

Wesselink AK, Wise LA, Hatch EE, Mikkelsen EM, Savitz DA, Kirwa K, Rothman KJ. A prospective cohort study of seasonal variation in spontaneous abortion. *Epidemiology*. 2022 May 1;33(3):441-8.



Other Factors

- Having a cold during pregnancy, decoration, keeping pets, near mobile communication base station within 100 m around the residence and high SAS are the independent risk factors of spontaneous abortion in Beijing. (Self-Rating Anxiety Scale)

Zhou LY, Zhang HX, Lan YL, Li Y, Liang Y, Yu L, Ma YM, Jia CW, Wang SY. Epidemiological investigation of risk factors of the pregnant women with early spontaneous abortion in Beijing. Chinese journal of integrative medicine. 2017 May;23(5):345-9.



Pet Ownership

- Pets like cats and dogs might be infected by toxoplasma. Toxoplasma is a zoonosis and a parasitic protozoa disease. When pregnant women are infected, resulting in abortion, stillbirth, premature delivery and congenital malformation.

Zhou LY, Zhang HX, Lan YL, Li Y, Liang Y, Yu L, Ma YM, Jia CW, Wang SY. Epidemiological investigation of risk factors of the pregnant women with early spontaneous abortion in Beijing. Chinese journal of integrative medicine. 2017 May;23(5):345-9.



Exposure to air pollutants

- Exposure to high levels of air pollutants may be a cause of increased risk of spontaneous abortion.

Li J, Liu L, Gu J, Cao M, Lei J, Li H, He J. The impact of air pollutants on spontaneous abortion: a case-control study in Tongchuan City. Public health. 2024 Feb 1;227:267-73.



Decoration and SA

- The decoration will increase the concentration of chemical substances in the room such as **formaldehyde** and **benzene**, which has adverse effect on the replication of chromosomes.

Zhou LY, Zhang HX, Lan YL, Li Y, Liang Y, Yu L, Ma YM, Jia CW, Wang SY. Epidemiological investigation of risk factors of the pregnant women with early spontaneous abortion in Beijing. Chinese journal of integrative medicine. 2017 May;23(5):345-9.



Chemical and Heat Exposure

- increased risks were observed with exposure to sulfur dioxide (OR = 1.60, 95% CI: 1.20–2.13), ozone (OR = 1.27, 95% CI: 1.01–1.60), carbon monoxide (OR = 1.48, 95% CI: 1.06–2.06), nitrogen dioxide (OR = 1.17, 95% CI: 1.00–1.38), particulate matter (OR = 1.15, 95% CI: 1.06–1.24), and high ambient temperature/heat exposure (OR = 1.39, 95% CI: 1.07–1.79). Subgroup analyses showed that exposure to high temperature was associated with an elevated risk of spontaneous abortion among women living in lower-middle-income countries and abortions before 20 weeks of gestation. Evidence on floods and wildfire smoke exposure also suggested an increased risk of spontaneous abortion.

Angaw DA, Andargie BA, Muhumuza N, Nakanwagi G, Mulumba M. Impact of climate change on spontaneous abortion: a systematic review and meta-analysis. *Frontiers in Global Women's Health*. 2026 Mar 20;7:1709985.



A fetus is shown curled inside a transparent, glowing womb. The womb is surrounded by a cluster of pink and purple flowers. A red DNA double helix is visible, winding around the fetus. The background is a soft, warm gradient of pink and orange, with faint floral patterns on the right side.

Hot- and Cold-natured foods



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A decorative horizontal flourish with a central floral motif and symmetrical scrollwork on either side.

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A fetus is shown curled inside a transparent, glowing sphere. The sphere is surrounded by a cluster of purple and pink flowers. A red DNA double helix is visible, winding around the fetus. The background is a soft, warm gradient of orange and pink, with faint floral patterns on the right side.

Fatigue



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A decorative horizontal flourish with a central floral motif.

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A fetus is shown curled inside a transparent, glowing womb. The womb is surrounded by a cluster of pink and purple flowers. A red DNA double helix is visible, looping around the fetus. The background is a soft, warm gradient of pink and orange, with faint floral patterns on the right side.

Overeating



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A decorative horizontal flourish with a central floral motif and symmetrical scrollwork on either side.

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Excessive Coitus



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A fetus is shown curled inside a transparent, glowing sphere. The sphere is surrounded by a cluster of pink and purple flowers. A red DNA double helix is visible, looping around the fetus. The background is a soft, warm gradient of pink and orange, with faint floral patterns on the right side.

Uterus with a Moist Temperament

Vaginal Discharge or Leukorrhea
Hypersalivation
Vaginal Gas
Eyelid Puffiness



A fetus is shown curled inside a transparent, glowing womb. The womb is surrounded by a cluster of pink and purple flowers. A red DNA double helix is visible, winding around the fetus. The background is a soft, warm gradient of pink and orange, with faint floral patterns on the right side.

Prolonged Intense Anger and sorrow



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A decorative golden flourish with symmetrical scrollwork.

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A fetus is shown curled inside a transparent, glowing womb. The womb is surrounded by a cluster of pink and purple flowers. A red DNA double helix is visible, looping around the fetus. The background is a soft, warm gradient of pink and orange, with faint floral patterns on the right side.

Obesity & underweight



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A decorative horizontal flourish with a central floral motif and symmetrical scrollwork on either side.

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احتباس طمث و سقط

• الیگو هیپومنوره

• PCOS

- (1) Matorras R, Pijoan JI, Martín L, et al. Polycystic ovarian syndrome and miscarriage in IVF: systematic revision of the literature and meta-analysis. Arch Gynecol Obstet. 2023;308(2):363-377.
- (2) Ma L, Cao Y, Ma Y, Zhai J. Association between hyperandrogenism and adverse pregnancy outcomes in patients with different polycystic ovary syndrome phenotypes undergoing in vitro fertilization/intracytoplasmic sperm injection: a systematic review and meta-analysis. Gynecol Endocrinol. 2021;37(8):694-701.
- (3) Wang W, Zhang B, Zhou J, et al. Risk factors for clinical pregnancy loss after IVF in women with PCOS. Reprod Biomed Online. 2023;46(1):107-114.
- (4) Soria-Contreras DC, Bellavia A, Chavarro JE, et al. Menstrual cycle length and adverse pregnancy outcomes among women in Project Viva. Paediatr Perinat Epidemiol. 2022;36(3):347-355.
- (5) Association Between Menstrual Patterns and Adverse Pregnancy Outcomes in Patients With Polycystic Ovary Syndrome. Frontiers in Endocrinology. 2021.
- (6) Identification of epidemiological risk factors associated with missed abortion in polycystic ovary syndrome: a retrospective analysis. BMC Pregnancy and Childbirth. 2025.



آرامش نصیب قلبی است که در گرو خداوند است

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موفق باشید



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