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# 医学信息速递
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# 妊娠期肥胖及血栓风险管理

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THE SOCIETY OF OBSTETRICIANS AND GYNAECOLOGISTS OF CANADA

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# 加拿大妇产科医师协会临床实践指南第391号-妊娠和产妇肥胖第1部分:孕前和产前管理

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## Guideline No. 391-Pregnancy and Maternal Obesity Part 1: Pre-conception and Prenatal Care

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# 表2 与正常体重相比，母亲肥胖的风险

**Table 2. Maternal risks associated with obesity as compared with normal weight**

| | | Odds ratio/adjusted odds ratio compared to women with normal weight BMI <25 kg/m$^2$ | | |
|---|---|---|---|---|
| | | Overweight BMI 25–29.9 kg/m$^2$ | Obese I–II BMI 30–39.9 kg/m$^2$ | Obese III BMI ≥40 kg/m$^2$ |
| Gestational diabetes | 妊娠期糖尿病 | 1.68–4.25[5,6] | 2.60–6.28[5–7] | 7.44[4] |
| Hypertension | 高血压 | 1.74–2.15[4,6,12] | 2.50–6.31[4–8] | 4.87[4] |
| Preeclampsia | 子痫前期 | 1.44[5]<br>1.91[6] | 2.14–3.90[5–7,9] | 4.82[9] |
| | 孕期静脉血栓栓塞 | 1.44–1.91[5,6] | | |
| Venous thromboembolism in pregnancy | | 1.80[12] | 9.70[10] | |
| Placental abruption | 胎盘早剥 | | 1.40[8] | |
| Spontaneous miscarriage | 自然流产 | 1.67[8,13] | 1.20[3] | |
| Recurrent miscarriage | 复发性流产 | | 3.50[3] | |
| Hemorrhage/blood loss >500 ml | 出血>500ml | 1.16[5] | 1.39–1.50[5,14] | |
| Genital tract infection | 生殖道感染 | 1.24[5] | 1.30[5] | |
| Urinary tract infection | 尿路感染 | 1.17[5] | 1.39–1.90[5,14] | |
| Wound infection | 切口感染 | 1.27[5] | 2.24[5] | |
| Induction of labour | | 1.27[5] | 1.60–1.70[5,11] | |
| Failure to progress in labour | 引产/引产失败 | | 2.60[8] | |
| Caesarean birth | 剖宫产分娩 | 1.50[4] | 1.60–2.02[4,11] | 2.54[4] |
| Emergency Caesarean birth | 急诊剖宫产 | 1.30–1.52[5–6] | 2.02[4]<br>1.91[6]<br>1.83[5]<br>2.00[15]<br>1.83–2.02[5,6,14] | 2.54[4] |
| Instrumental delivery | 器械助产 | | 1.16[9]<br>1.18[9]<br>1.60[14] | 1.34[9] |
| | 器械助产失败 | | | |
| Failed instrumental delivery | | | 1.75[11] | |
| Breastfeeding issues | 母乳喂养问题 | 0.86[5] | 0.58[5] | |

BMI: body mass index.

妊娠期产妇体重对母儿的健康有着深远的影响。

近年来，随着全球范围内肥胖人群比例显著增加，妊娠期肥胖导致母儿相关风险也在增加，例如更高的流产风险，更高的妊娠不良结果如妊娠期高血压、子痫前期、血栓栓塞性疾病，更有可能增加干预措施包括引产和剖腹产，围产期风险包括死产、巨大儿、肩难产，胎粪吸入，肥胖母亲所生的儿童本身肥胖的风险增加以及糖尿病和心血管疾病等相关疾病的风险增加。

## Pre-pregnancy Counselling and Screening

Pre-pregnancy counselling constitutes the ideal time for health care providers to screen the woman with obesity for associated comorbidities, as weight loss can improve many of these conditions.[66] More particularly, obesity is associated with an increased risk of chronic hypertension, type 2 diabetes mellitus, dyslipidemia, cardiovascular disease, arrhythmias, stroke, osteoarthritis, non-alcoholic fatty liver disease, chronic kidney disease, depression, obstructive sleep apnea (OSA), and venous thromboembolism.[66,67] In fact, the major contributor to type 2 diabetes mellitus is excess weight,[68] and the degree of insulin resistance is highest with central/abdominal obesity, defined as a pre-pregnancy waist circumference ≥88 cm in women.[69] Hypertension occurs in approximately 40% of individuals who have obesity,[70] and blood pressure

# 孕前咨询和筛查

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孕前咨询是保健工作者对肥胖妇女进行相关共病筛查的理想时机，因为减肥可以改善许多此类疾病。更具体地说，肥胖与慢性高血压、2型糖尿病、血脂异常、心血管疾病、心律失常、中风、骨关节炎、非酒精性脂肪肝、慢性肾病、抑郁症、阻塞性睡眠呼吸暂停(OSA)和静脉血栓栓塞的风险增加有关。

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# 加拿大妇产科医师协会临床实践指南第392号-妊娠和产妇肥胖第2部分: 分娩和产后管理

## Guideline No. 392-Pregnancy and Maternal Obesity Part 2: Team Planning for Delivery and Postpartum Care

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**Recommendations:**

1. Electronic fetal monitoring is recommended for women in active labour with a body mass index >35 kg/m$^2$. Intrauterine pressure catheters may assist in assessment of labour contractions. Fetal scalp electrodes may be helpful to ensure continuous fetal monitoring when indicated (III B).
2. Women with obesity may benefit from higher dosage of preoperative antibiotics for Caesarean birth (I A).
3. It is recommended to reapproximate the subcutaneous tissue layers at the time of Caesarean birth to reduce wound complications (II-2 A).
4. Antenatal assessment with obstetric anaesthesia may assist in planning for safer birth for women with obesity (III A).
5. Postoperative thromboprophylaxis is recommended, at appropriate dosing for the given body mass index, due to the greater risk of venous thromboembolism following Caesarean birth with women with obesity (II-3 A).
6. Women with obesity should be offered lactation support in the postpartum period (III C)
7. Women with obesity should be screened for postpartum depression and anxiety given that maternal obesity is a risk factor for these conditions (II-2 A).
8. Counselling regarding weight management in the postpartum period is suggested in order to minimize risks in subsequent pregnancies (II-2 A).
9. Obstetric team planning may be helpful for women with obesity to navigate the steps in antenatal, labour and delivery, and postnatal care (III-3 A).

指南推荐：肥胖产妇剖宫产术后发生VTE的风险增加，建议适时按体重指数给予合适剂量的产后血栓预防治疗（Ⅱ-3A）。

## Venous Thromboembolism Prevention

Pregnancy, particularly the postpartum period, and obesity are independent risk factors for venous thromboembolism (VTE). VTE in pregnancy and postpartum can include deep vein thrombosis (DVT) and pulmonary embolism (PE).[81,82] The incidence of VTE is 2–5 times greater in the postpartum period compared to antepartum, and the risk is highest in the first 6 weeks postpartum.[83–86]

Additional factors including operative delivery (especially emergent) and other maternal demographic and medical factors (maternal age, smoking, infection, varicosities, thrombophilia, obstetric hemorrhage) are also associated with an increased risk of developing a VTE.[83–86] A combination of risk factors leads to an increased risk of VTE, which is a significant cause of morbidity and mortality.[87,88] Studies have demonstrated an increasing risk of VTE with increasing levels of maternal BMI compared to patients with a normal BMI.[72,89]

# 产后预防静脉血栓

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妊娠，特别是产后，和肥胖是静脉血栓栓塞的独立危险因素。妊娠和产后静脉血栓栓塞包括深静脉血栓(DVT)和肺栓塞(PE)。

产后VTE的发病率是产前的2-5倍，在产后的前6周风险最高。

其他因素包括手术分娩(特别是紧急分娩)和其他孕产妇人口统计学和医学因素（产妇年龄、吸烟、感染、静脉曲张、易栓症、产科出血）也与VTE发病风险增加有关。多种危险因素的结合导致VTE风险增加，是发病率和死亡率的重要原因。

研究表明，与体重指数正常的产妇相比，随着产妇体重指数水平的增加，VTE的风险也增加。

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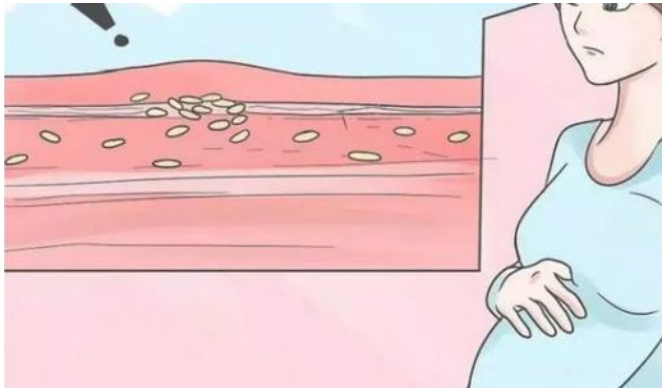
For vaginal birth there is no evidence for routine thromboprophylaxis. Individual risk factors other than an increased BMI should guide management. Early mobilization and adequate hydration should be encouraged. For Caesarean birth, early mobilization is beneficial. Physical therapy to assist with ambulation may be helpful, particularly in patients with mobility limitations. The use of appropriately fitted pneumatic compression devices and thromboprophylaxis should be considered for women with obesity, due to the increased risk of VTE.[78,87] There is a lack of consis-

- 对于阴道分娩，没有常规血栓预防的证据，鼓励早期活动并充分补水。除体重指数增加以外的其他危险因素应指导管理。
- 对于剖宫产产妇也应及早活动，行动受限者可辅助物理治疗。由于静脉血栓栓塞风险增加，肥胖者应考虑使用合适的气动加压装置和血栓预防。

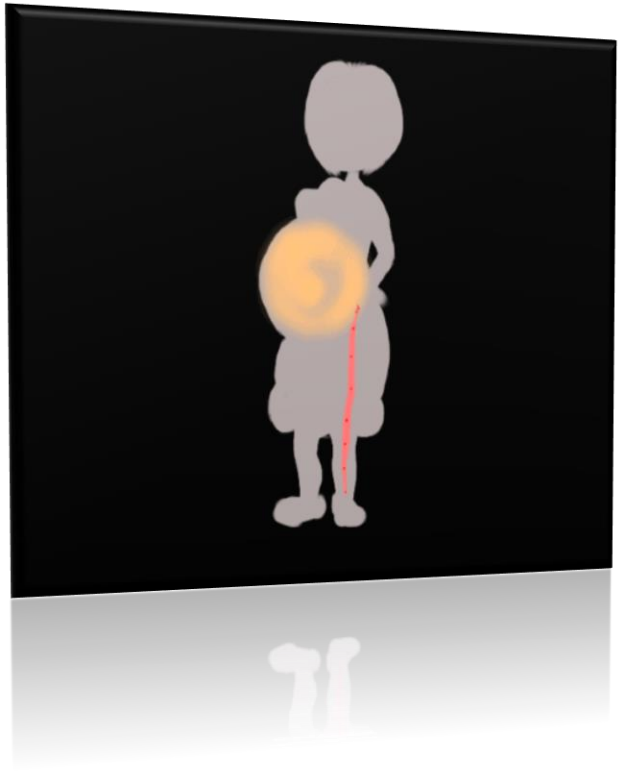
to the increased risk of VTE.[78,87] There is a lack of consistent evidence for recommending routine dosing and duration of thromboprophylaxis in this population. In high-risk patients, particularly those women with obesity as well as additional clinical and/or maternal risk factors, thromboprophylaxis should be considered. Unfractionated or low-molecular-weight heparin has been utilized, with stronger evidence for low-molecular-weight heparin.[90] Weight-based dosing may be more effective than BMI-stratified dosing.[91] Continuation of thromboprophylaxis at least until the patient is fully ambulatory is suggested. Individual patient factors and delivery considerations should guide decision making around the duration of use and the dose.



- 对于肥胖产妇尚无推荐血栓预防的常规剂量和持续时间的证据。
- 对于高危患者，特别是合并肥胖以及其他临床和/或产妇危险因素，应考虑血栓预防。**普通肝素或低分子量肝素**已被使用，**低分子肝素的证据更强**。

- 基于重量给药可能比体重指数分层给药更有效。建议血栓预防至少持续到患者完全可以走动。应根据产妇的个体因素和分娩考虑不同制定不同的用药时间和剂量。

# 附：妊娠期及产褥期孕产妇发生VTE的危险因素评分



2015 RCOG

## 孕前危险因素

- 导致VTE发生最重要的独立危险是既往存在血栓病史。
- 易栓症（遗传性和获得性）
- 其他因素：年龄、内科合并症、产次、肥胖、吸烟、静脉曲张等

| 孕前危险因素 | 评分 |
|---|---|
| VTE病史（与手术相关的VTE病史除外） | 4 |
| 与手术相关VTE病史 | 3 |
| 已知的高危易栓症 | 3 |
| 内科合并症 | 3 |
| 无明显诱因的VTE家族史，或一级亲属罹患与雌激素相关VTE | 1 |
| 已知的低危易栓症（无VTE病史） | 1 |
| 孕产妇年龄≥35岁 | 1 |
| 肥胖（BMI≥30kg/m$^2$，BMI≥30kg/m$^2$） | 1或2 |
| 产次≥3次/吸烟史/静脉曲张 | 各1 |

# 谢谢关注！

thanks for your attention.