

Weight Management During Pregnancy



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Meet Dana

A severely obese, pregnant woman in her twenties planning pregnancy within two years was referred to our obesity clinic for evaluation and management. Given her condition, pregnancy was not recommended. She had a sedentary lifestyle, and an unremarkable medical history: normal menstrual cycle, took no medications, and had a family history of obesity and cardiovascular disease. On physical examination, her weight was 96.6 kg, her height 157 cm, for a Body Mass Index (BMI) of 39.2 kg/m². Laboratory assessment revealed an abnormal lipid profile with total cholesterol of 5.39 mmol/L (211.7 mg/dl) and a high level of LDL-C of 3.59 mmol/L.

Overweight and obesity are classified based on the BMI: Overweight is a BMI of 25.0 to 29.9 kg/m²; obesity is a BMI of ≥ 30.0 kg/m².

The proportion of overweight and obese women in Canada rose from 34% in 1978 to 40% in 1992 and 53% in 2004. Consequently, a significant increase in pre-pregnancy BMI has been observed. Among Canadian women with singleton pregnancies who delivered between April 2001 and March 2007 in a region of Newfoundland and Labrador, 26.4% were overweight, 20.0% obese, and 4.3% extremely obese (BMI ≥ 40.00 kg/m²). In a retrospective study performed in Montréal, involving 18,633 pregnant women, the percentages of overweight, obesity and extreme obesity were 16.5%, 6.1%, and 0.6%, respectively.

This high level of overweight and obesity in women of reproductive age presents a serious

Table 1
General recommendations for counselling in overweight or obese women

Pre-conception Period

Since approximately half of pregnancies are unplanned, pre-conception counselling is recommended early in the routine care of women of reproductive age, especially those who are overweight and obese.

An effective intervention for improving pregnancy outcomes in these women is weight loss before pregnancy, followed by maintaining an appropriate rate of weight gain during pregnancy.

During Pregnancy

Excessive weight gain during pregnancy is associated with maternal weight retention postpartum, contributing to obesity comorbidities.

As in the pre-conception period, the best solution for obesity prevention during pregnancy begins by promoting a healthy maternal lifestyle.

health concern: these individuals are at greater risk for pregnancy-induced hypertension, gestational diabetes mellitus, preterm delivery, prolonged labour, stillbirths, macrosomia, congenital anomalies, increased cesarean deliveries, low birth weight infants and other long-term adverse outcomes on childhood obesity.

Risks to the Patient

To address these concerns, the following issues were discussed with the patient during pregnancy:

1. Risk of complications for both mother and foetus
2. Lifestyle counselling and intervention to achieve optimal pre-pregnancy weight and rate of weight gain during pregnancy (Tables 1 to 4)
3. Other issues, such as folic acid supplementation

Because of Dana's strong desire to have a baby, her severe obesity, and no contraindications, she was given a very-low calorie diet (VLCD) for 16 weeks (the time recommended with this type of diet), and was enrolled in a comprehensive intervention program. She was monitored regularly by a physician, a dietician and a kinesiologist in charge of promoting lifestyle modifications.

Very-low Calorie Diets

VLCDs are designed for rapid weight loss and preserving lean body mass, by providing large amounts of high-quality dietary protein (70 to 100 g daily or 0.8 to 1.5 g of protein/kg ideal body weight). These diets provide up to 80 g of carbohydrate/d and 15 g of fat/d; they include 100% of the recommended daily allowance for essential vitamins and minerals.

VLCDs are considered safe and effective for appropriately selected individuals under careful medical supervision. They are designed for patients with a BMI of at least 30 kg/m², a group considered to be at increased risk for cardiovascular disease that derive the most benefits from substantial weight loss. Side effects are usually mild and easily managed by physicians.

Effect of VLCD and LCD on the Patient

Following a VLCD, combined with the need for advice for progressively engaging in regular physical activity, she lost 23.9 kg, decreased her BMI

Table 2

Recommendations for nutrition counselling and interventions before and during pregnancy for overweight and obese women

Pre-conception Period

- referral to dietician for advice on healthy foods
- appropriate portions
- caloric intake, and
- macronutrient intake

Pre-pregnancy weight loss diets should be carefully planned to include a well-balanced diet of fruits, vegetables, and foods that are rich in iron, calcium, high quality protein, and 400 µg a day of folic acid for a healthy pregnancy start.

Guidance and psychosocial support to encourage changes in eating and physical activity habits.

Referral to an obesity clinic for comprehensive evaluation and monitoring in more complicated cases.

During Pregnancy

Individualize total energy intake according to the pre-pregnancy BMI and the rate of growth required

- Ensure 40 to 55% of total energy intake comprises of carbohydrates, while distributing carbohydrate intake throughout the day with three balanced meals and three to four snacks per day, (choose complex carbohydrates and low-glycemic index foods)
- Ensure 30% of total energy intake is from fats (replace saturated, and trans-fat with monounsaturated fats).
- Ensure 20 to 30% of total energy intake is from high quality proteins
- Meet micronutrient and fluid needs recommended during pregnancy

by 8.7 kg/m² and normalized her lipid profile, within 16 weeks.

She then was placed on low-calorie diets (LCDs) and became more physically active for the following 15 weeks. Surprisingly, she became pregnant at a BMI of 26.9 kg/m². Subsequent visits involved counselling to ensure appropriate rate of weight gain during pregnancy.



Table 3
Recommendations for physical activity counselling and interventions before and during pregnancy for overweight and obese women.

Pre-conception Period

- Emphasize aerobic exercises using large muscle groups, including walking stationary cycling, aquatic exercise, and low-impact aerobics
- Regular physical activity for 30 to 60 minutes/day for five or more days per week
- Performance at an intensity based on the “talk test” is suggested (if an individual can speak while exercising, it confirms patient is not over-exerting).
- Include a five to ten-minute warm-up preceding exercise, starting with 15 minutes per session, and building up to 30 minutes; then follow with a five to ten-minute cool down.
- Promote active living, such as taking the stairs rather than the elevator, or park farther away from buildings to increase daily walking

During Pregnancy

- Ensure pre-screening by the PARmed-X for pregnancy by their health care provider (low-risk pregnancy should be established before initiating an exercise program).
- Maternal exercise prescription should use the same principle as in the pre-conception period.
- Walking three to four times per week is the most popular activity during pregnancy, and combined with nutritional control, can effectively prevent excessive weight gain during that period.
- Do not engage in contraindicated exercises including, contact sports, gymnastics, horseback riding, downhill skiing, soccer, high/low altitude activities (scuba diving), and basketball, or any other exercises involving increased fallrisks, abdominal trauma, or collision

Conclusion

Counselling and interventions targeting diet and exercise should help get achieve an appropriate pre-conception of weight and prevent excess

Table 4
Recommendations for weight gain and weight rate gain during pregnancy for overweight or obese women

Pre-pregnancy BMI 25.0 to 29.9 kg/m²:
The recommended total gain is 7 to 11.5 kg (or 15 to 25 lb), with a weight-gain rate during the 2nd and 3rd trimester of 0.27 kg/week.

Pre-pregnancy BMI \geq 30 kg/m²: The recommended total weight gain is 5 to 9.1 kg (or 11 to 20 lb,) with a rate of weight gain during the 2nd and 3rd trimester of 0.22 kg/week.

weight gain during pregnancy. Appropriate weight control; a prerequisite for a safer pregnancy, is not always achievable by diet restriction and exercise. In such cases, VLCD becomes the therapy of choice in the pre-conception period. With VLCD, this severely obese dyslipidemic woman had a rapid weight loss, which contributed to a significant improvement of her pre-conception health status enabling her to achieve an appropriate pre-conception BMI. Then by combining diet and exercise she had an appropriate rate of weight gain during pregnancy.:

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