

## Nutrition in Pregnancy: A Healthy Weight Before, During and Afterwards

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What happens to children in their earliest years and even before birth is critical to health in later years.

A nutritious diet during pregnancy is essential for the health of both mother and baby and the consequences of becoming overweight or obese during pregnancy or of conceiving while obese include:

- Gestational diabetes
- Pre-eclampsia
- Caesarean section
- Macrosomia ( delivery of large infants>4000g birth weight)
- Still-birth and post term pregnancies [1]

In addition, the obese pregnant woman may encounter obstetric difficulties; for example, there are considerable limitations in foetal ultrasound due to the impaired acoustic window. Rates of caesarean section are increased.

Maternal obesity in the UK is increasing [2] 16% of women are obese and 50% of women are overweight at the start of pregnancy [3] However, pregnancy is a key time of change in women's lives, when targeted interventions can have positive outcomes. More information and specialist support is needed to help women prevent excess weight gain during pregnancy and improve outcomes of women who start pregnancy with a high BMI.

It is worth here adding a qualifying note about BMI - an estimate of body size which is widely used in health, medical and sports science contexts. As a result of its ease of calculation ( body mass in kg divided by height in metres squared), BMI is frequently used as a substitute for measuring body fatness; with BMI score of 18.5-24.9 suggesting a person's normal weight, one of 25-29.9 indicating a person is overweight and a score of over 30 defining someone as obese. Despite its widespread usage, and the continued popularity of the measure, (new studies continue to report BMI as a reference against previous research) there is clear evidence that the measure is flawed in its role as an estimate of body fatness. For instance, females of the same BMI as a male and older people with the same BMI as a younger person tend to have a higher body fat percentage than their counterparts. Similarly, a commonly cited example is that of athletes who can have a high BMI, one that might put them in the overweight category, but in reality, they often have a low body fat percentage. The high BMI (a false positive) is in fact, the result of their higher muscle mass resulting in their BMI score providing an incorrect estimate of their body fatness. For children, their level of maturation can affect the accuracy of their BMI as an estimate of body fatness.

*'One of the most vocal critics of BMI is Dr Margaret Ashwell, a leading obesity and nutrition researcher at City University, London. She believes that the best- and simplest- way of assessing health is to work out your waist-height ration' (The Daily Mail, 15th September 2015).*

As a widely accepted and easily calculated measure of body size/fatness, BMI will in all probability continue to be used; however, readers should view with caution the results of this particular approximation.

While levels of weight gain can be monitored during the antenatal period, often this is too late. The best way forward is to encourage women of childbearing age to attain a healthy body weight. There is work to be done here with the latest figures indicating that over half

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of women in the UK (57%) are overweight and one fifth (23%) obese [4]. Also, the highest rates of unintended pregnancies are found amongst UK women aged 20-34 years (62.4%), as reported by the third national Survey of Sexual Attitudes and Lifestyles (NATSAL-3) survey – the first to measure rates of unplanned pregnancies since 1989 [5].

Women are likelier to adopt healthy lifestyles if given advice from healthcare professionals, notably before conception. Unfortunately, current provision of support during this crucial window of opportunity is insufficient, partly because frontline professionals are struggling to cope with an increasing number of complex births (*Parliament UK. NHS midwives shortage remains despite increasing numbers – Maternity Services Report*) many of which are linked to maternal obesity. Mothers (particularly young ones) say that they want more nutritional advice during pregnancy. The Infant and Toddler Forum continues to advocate this cause (*Infant and toddler Forum, early Nutrition for Later Health: Time to Act Earlier, November 2014*) but stresses that many healthcare professionals are unable to offer such assistance due to their own inadequate training. They have neither the resources nor practical guidance to help expectant mothers in this way and 45% of those who responded to an Infant and Toddler Forum poll said that they would appreciate training in behavioural change specific to nutrition and lifestyle in pregnancy.

Current NHS guidelines advise pregnant women to eat a variety of foods from all food groups including fruit, vegetables, portions and carbohydrates. They also note that the familiar cliché ‘eating for two’ should not be practised and that while women may feel hungrier during pregnancy, they should eat healthier snacks such as fresh salad, vegetables and soups (<http://www.nhs.uk/conditions/pregnancy-and-baby/pages/healthy-pregnancy-diet.aspx>). The Infant and Toddler Forum’s factsheet is also a practical source of clear and informative nutritional advice [6].

However, no amount of research in isolation can be a real alternative for advice given in person to the expectant mother by the appropriate health professional. Such people often have unique and well-established relationships with families based on trust and respect. For example, GPs and practice nurses meet individual family members at different stages of their lives; midwives work with women before, during and after pregnancy, health visitors get to know children soon after they are born and teachers support children throughout their school careers. During a family’s lifetime, its members will interact with some or all of the following professionals:

- Midwives
- Health visitors
- GPs
- Practice nurse
- Clinical specialists
- Mental health professionals
- Social workers
- Teachers
- School nurses

During pregnancy women need advice on healthy eating as well as meal content and energy requirements (dependent upon individual height, weight and activity levels). There are no UK evidence-based recommendations on appropriate weight gain during pregnancy unlike in the USA where guidance is supplied by The American Institute of Medicine (IOM). Most UK women do not receive guidance on appropriate weight gain depending on pre-pregnancy weight.

Other issues can be raised by a trusted professional. The link between smoking and low birth weight is widely known beyond the medical community. But far less women will be aware that epidemiological evidence suggests it is also increasingly acknowledged to be a risk factor of the incidence of childhood overweight and obesity based on the consistent positive associations reported among studies [7].

One explanation for excess weight gain in children whose mother smoked during pregnancy is the production of leptin and its link to weight gain. Another important ingredient in maintaining health during pregnancy is physical activity and again a conversation between

the healthcare professional and the expectant mother can establish that while current NHS guidelines advise that those who are active during pregnancy are less likely to experience problems in later stages and during labour, people who are unused to it would be unwise to take up any strenuous activity for the first time during the antenatal period [8]. Many leisure centres offer pregnancy-specific classes such as prenatal yoga or water-based classes. However, they are frequently held during the day or early evening and are not always accessible to women who work full time. Leisure centres (including those run by local authorities) could be encouraged to make the times of classes more flexible.

Personalised advice (especially in the area of nutrition, portion sizes and physical activity) given by supportive professionals is important for people who are difficult to engage. Marmot states that families in low-income households are more likely to eat less healthily and be less physically active than those with higher incomes [9]. Reasons for this include food and leisure opportunities, lower educational attainment and the cultural dietary preferences of different ethnic groups. Women experiencing disadvantage (low SES, ethnic barriers, domestic violence etc) do not access antenatal and neonatal services with regularity [10]. And often have lower trust in healthcare professionals. Steps must be taken to maximise communication channels within the community. There are also gender divides - in women, the risk of obesity rises steadily with falling household income. The trend is less straight forward in men [11].

People most in need of dietary guidance may well be the most disenfranchised and hard to reach. Many people also feel uncomfortable in both raising and discussing the matter of body weight. Society takes a negative view of overweight and many professionals may worry that raising this topic could be interpreted as a personalised slight; irreparably damaging the relationship as a consequence. NICE guidance (May 2014) considered how lifestyle weight management programmes can help people who are overweight or obese to lose weight and keep it off. It is essential that healthcare professionals are aware of the risks of excess weight gain in pregnancy and support women to manage their weight healthily. To enable this, government should advocate and support a national training programme for professionals in raising the issue of obesity and weight control at this time in ways that are respectful and considerate. This is important because the perceptions of judgemental attitudes by healthcare professionals can prevent weight loss in patients and cause alienation and lack of trust in the healthcare system in the next generation.

Post birth, healthcare professionals should be encouraged to ensure that support and guidance is ongoing and includes:

- a. Continuing advice to the mother on lifestyle and weight monitoring to ensure that after she discontinues breastfeeding she works towards a healthy weight, as retention of any excess gestational weight is a risk factor for her own obesity and that of any subsequent offspring.
- b. Advice and support on best practice for breastfeeding (which will also help the mother to return to her pre-pregnancy weight) and for those not choosing to breastfeed, guidance in the preparation of formula milk and responsive feeding.
- c. Advice to ensure that a mother's mental health needs are addressed and information about how a routine of eating well can promote positive mental health.

Nutrition and lifestyle guidance pre, during and post pregnancy should be a public health priority. This early life focus should be the foundation of a life-course approach to optimising nutrition and lifestyle so that families are empowered to make healthy choices that offer their children the best start in life.

### Recommendations

- a. Leadership from Government in up-skilling healthcare professionals in obesity prevention and weight loss support and patient-centred approaches including instruction on how to communicate messages about healthy nutrition and lifestyle
- b. Updated and personalised pregnancy weight gain guidelines
- c. All pregnant women to be weighed regularly during antenatal visits and given appropriate and supportive advice
- d. Healthy lifestyle strategies (diet and activity schemes) targeting women of childbearing age

- e. Greater emphasis within primary care to guide all parents-to-be on nutrition, lifestyle, portion size and ideal personalised pre-pregnancy weight
- f. Dietary assessment, advice and body weight measurement to be integral components of the first midwifery visit with regular follow-up reviews throughout the planned visits
- g. To continue encouraging mums to stop smoking, advising of the additional links to obesity in late life and the associated risks.

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