

Worldwide studies have shown that even with a good diet, extra nutrients may be necessary before and during pregnancy. Vitabiotics Pregnacare® has been carefully developed to help safeguard dietary requirements, for before conception, during all of pregnancy and up until the end of breastfeeding.

Pregnacare® includes the recommended level of 400mcg folic acid, plus 18 vitamins and minerals vital for mother and baby, including iron, zinc and B group vitamins.

Because Pregnacare® has been specially formulated by experts for pregnancy, it contains certain nutrients at levels above the Recommended Daily Allowance (RDA). All ingredient amounts are within safe levels for pregnancy.

- ✓ **To protect your growing child, Pregnacare® avoids excessive levels of iron and other nutrients.**
- ✓ **Pregnacare® does not contain vitamin A, as high levels are not advised during pregnancy.**

Pregnacare® Plus provides a special dual pack combining the original Pregnacare® tablet with a special omega-3 DHA capsule for even greater care. The comprehensive multivitamin tablet delivers essential nutrients for pregnancy including the recommended level of 400mcg folic acid. The additional omega-3 capsule provides a rich source of the important fatty acids, Docosahexaenoic Acid (DHA) plus Eicosapentaenoic Acid (EPA) for healthy fetal brain and eye development and the omega-3 fatty acid, Arachidonic Acid (AA).



Also available



Pregnacare®
Breast-feeding



Pregnacare®
Conception



Pregnacare®
His & Her Conception



Pregnacare®
Cream

For further information contact:

Vitabiotics Ltd,
1 Apsley Way
London
NW2 7HF

Telephone **020 8955 2645**

email pregnacare@vitabiotics.com

Visit www.pregnacare.com

This material is supported by **Pregnacare**
SUPPLEMENTS



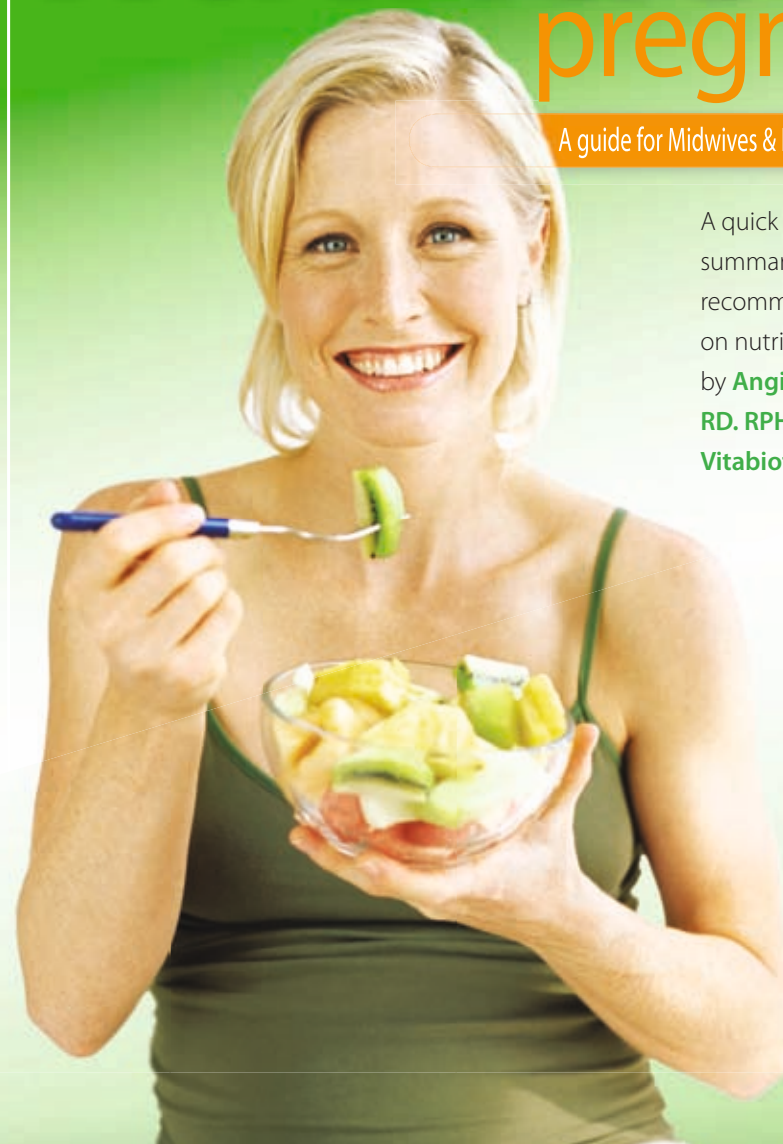
While every attempt has been made to ensure that the information contained in this guide is accurate and reliable, this is intended as a guide only and not a substitute for advice from a health professional. Please note Vitabiotics cannot guarantee the reliability of facts obtained from other third party information sources.

BRPRGTKASNW1

nutrition for pregnancy

A guide for Midwives & Health Care Professionals

A quick and concise summary guide to the latest recommendations and research on nutrition for pregnancy by **Angie Jefferson BSc. RD. RPHNutr.** Supported by **Vitabiotics Pregnacare®**



all the important **answers** you need
to help pregnant women

Introduction

It is well known that nutrition plays an important role during pregnancy, yet few resources exist for the health care professionals who care for women during this special time. In the majority of cases midwives and other health professionals get their information from the same diverse range of sources such as pregnant women, the internet and the media, which cannot always be relied on in terms of scientific accuracy or content. Little is produced to assist the very people who are advising pregnant women every day in keeping up to date and well informed on the vital role of nutrition during the journey from conception to new life.

This summary guide has therefore been written for busy midwives and health care professionals who want an up-to-date and accurate summary

of current dietary advice for women from conception and through pregnancy that is quick and easy to read.

I developed this toolkit and summary guide whilst pregnant, so the information provided is a mixture of scientific evidence and personal experience to the challenges of achieving optimum nutrition and overcoming the side effects of pregnancy while managing to cope with a hectic workload and attempting to maintain an active lifestyle. Having discovered the lack of good information for health care professionals I am grateful to Vitabiotics Pregnacare® for providing the funding to allow this toolkit to be developed and printed for the benefit of women in the UK.

Best wishes,

Angie Jefferson

BSc. RD. RPHNutr. Consultant Dietitian

Angie, a registered dietitian, has more than 17 years experience working within the NHS and more recently as a freelance dietitian. Current clients include health charities, the Food Standards Agency, the Department of Health and a variety of food manufacturers. Angie writes extensively for web based communications, print media and both consumer and health professional publications. For several years Angie has specialised in women's and children's health, developing practical solutions to the nutritional challenges of the modern world. Angie has co-authored two books: *The Natural Menopause Cookbook* and *High Blood Pressure – food facts and recipes*.



PROFILE OF AUTHOR

Diet, Fertility and Conception

Diet and lifestyle have a substantial influence on fertility and the successful outcome of conception so should be considerations for the 50 percent of pregnancies that are planned in the UK. For example being overweight (the most common nutritional problem among UK women) is a common cause of infertility among women¹ and also greatly increases the risk of potential pregnancy complications².

The baby is at its most vulnerable to the effects of diet during the days and weeks immediately following conception, so the more prepared a couple can be in terms of achieving a healthy diet and lifestyle the better. Ideally changes should be undertaken for 3 months before attempting to conceive in order to allow weight correction, minor vitamin and mineral deficiencies to be addressed and to allow adequate stores of vitamin and minerals to be built up. On average there is a 15-20 percent chance of conception each month, with 75 percent of couples conceiving within 6 months of starting to try.³ Therefore, even if no preparation time is allowed, most couples don't conceive in the first month or two allowing for considerable improvements to be made ahead of conception.

Diet during the preconception period should be based on a normal healthy balanced diet, with a few extra considerations for both mother and father-to-be. Several factors are known to affect fertility in women, including being under and overweight (due to hormonal changes suppressing ovulation), poor vitamin and mineral status, smoking and high alcohol intakes. Ideally weight correction, using healthy eating and increased activity levels should take place prior to conception in order to allow for body weight and menstrual cycle to stabilise. Steps should also be taken to safeguard the nutrient content of the diet by taking a prenatal vitamin and mineral supplement if energy intake is restricted.

Whilst there isn't extensive research on male fertility, several lifestyle aspects are known to have effects such as smoking, alcohol use and dietary factors such as low zinc and folic acid intake⁴ and low intakes of fruit and vegetables.⁵

In the UK, low vitamin and mineral intakes are of particular

concern as recent dietary surveys show many women of childbearing age to be eating diets containing inadequate levels of the vitamins and minerals vital for successful conception.⁶ Around 70 percent of women consume less than the recommended intake of folic acid and over 80 percent consume too little iron. All women should therefore be provided with preconception advice to boost the vitamin and mineral content of their diets.

The most prudent advice for both men and women prior to conception is:

- **Eat at least 5 portions of fruit and vegetables (fresh, frozen, canned, dried or juice) daily.**
- **Base each meal on starchy foods such as bread, pasta, rice and potatoes, choosing high fibre when possible.**
- **Eat protein rich foods twice each day, such as lean meat and chicken, fish, eggs and pulses (beans and lentils); these are also rich in iron.**
- **Try to eat fish at least twice a week including one portion of oily fish with a low mercury content (e.g. salmon, trout, mackerel, sardines etc).**
- **Increase intake of dairy foods such as milk, cheese and yoghurt, which contain calcium.**
- **Try to replace indulgent snacks with healthier choices.**
- **Moderate alcohol intake and increase the number of alcohol free days.**
- **Give up smoking.**

Key Advice Points:

- **Take a daily 400mcg folic acid supplement and choose foods rich in folates (for example fortified breakfast cereals or breads, dark green vegetables e.g. Brussels sprouts, spinach and broccoli, fruits such as oranges, beans and pulses).**
 - **Avoid supplements containing vitamin A and foods containing high levels of this vitamin such as liver, liver products and fish liver oils, as too much can harm the baby.**
 - **Take a 10mcg daily supplement of vitamin D.**
 - **Avoid shark, swordfish and marlin and limit tuna (fresh & canned) due to high mercury levels.**
- A one-a-day pregnancy specific multivitamin and mineral formula can be advised such as Vitabiotics Pregnacare® Conception or Pregnacare® Plus. Men may also wish to take a male multivitamin and mineral supplement designed for male reproductive health such as Vitabiotics Wellman®.**

¹ Crosignani PG, Vegetti W, Colombo M et al (2002) Resumption of fertility with diet in overweight women. *Reprod Biomed Online* 5: 60-64

² Williamson CS (2006) Nutrition in Pregnancy. *Nutrition Bulletin* 31: 28-59

³ Jarvis S, Stone J, Eddleman K & Duenwald M (2005) *Pregnancy for Dummies*. J Wiley & Sons

⁴ Wong WY, Thomas Sm, Merkus JM et al (2000) Male factor subfertility: possible causes and the impact of nutritional factors. *Fertil Steril* 73: 435-442

⁵ Wong WY, Zielhuis GA, Thomas CM et al (2003) New evidence of the influence of exogenous and endogenous factors on sperm count in man. *Eur J Obstet Gynecol Reprod Biol* 110: 49-54

⁶ Henderson L, Irving K & Gregory J (2003) *The National diet and nutrition survey: adults aged 19-64 years*. The Stationery Office London.



The Effects of Diet during Pregnancy

During pregnancy dietary requirements for the major nutrients, vitamins and minerals all increase. However numerous maternal adaptations occur such as increased energy efficiency and absorption of iron, calcium and other minerals, which reduces the actual dietary change required. In an ideal world a healthy balanced diet would provide all the nutritional needs for pregnant or breastfeeding women, however the combination of morning sickness, constipation and heartburn, combined with busy modern lives and exhaustion can make eating the ideal nutrient packed diet everyday challenging.

Dietary adequacy and excess can have a variety of effects on pregnancy: the most obvious impact of excess is unnecessary weight gain and increased risk of high blood pressure, gestational diabetes and complications during labour. The energy cost of a pregnancy has been calculated to be 77,000 kcal, however maternal adaptations mean that the actual increase in calorie requirement is low – around 200kcal per day for the last trimester.⁷ Scientific research has yet to determine the optimal pregnancy weight gain, and this appears to vary according to pre-pregnancy body mass index (BMI). Recently updated guidelines from the US Institute of Medicine are for weight gains of 12.5-18kg (28-40lbs) for BMI less than 18.5, 11.5-16kg (25-35lbs) for BMI of 18.5-24.9, 7-11.5kg (15-25lbs) for BMI of 25.0-29.9, and 5-9kg (11-20lbs) for BMI >30.⁸ Weight management is now a serious concern for pregnant women and their babies, with estimates that by 2010 almost one quarter of pregnant women will be obese with its concomitant increased risks of miscarriage, pre-eclampsia, difficult deliveries and caesarean sections.⁹ It is therefore important for midwives to have strategic pathways in place to tackle this difficult issue with women. The National Institute of Clinical Excellence is due to publish guidance on interventions for weight management during pregnancy in 2010.

In the UK, protein, carbohydrate and fat intakes tend to be adequate for pregnancy and are usually only of concern for strict vegetarians (which includes many Asian women), vegans and adolescent girls. Low intakes of these may result in growth retardation and low birth weight. Low carbohydrate diets should be avoided during pregnancy. Fibre intakes in the UK tend to be low and women should be advised to increase intakes of fibre and fluids during pregnancy to help avoid constipation and piles.

Long-chain polyunsaturated fatty acids play an important role in the development of the baby's brain, eyes and nervous tissues and a good intake of these during pregnancy has been associated with improved visual acuity and higher intelligence scores at 4 years of age.¹⁰ Women should be encouraged to eat at least one portion of oily fish with a low mercury content every week and choose foods enriched with omega-3 fatty acids e.g. milk,

eggs etc. A pregnancy supplement containing Long chain polyunsaturated fatty acids may also be taken, such as Vitabiotics Pregncare® Plus, particularly by women who dislike oily types of fish.

Vitamins and minerals play a wide range of roles during pregnancy, ranging from energy metabolism, to organ development and healthy growth rates. Low intakes of vitamins and minerals have been associated with a wide range of problems, including neural tube defects, cleft palate, low birth weight, pre-eclampsia and many others. Vitamins and minerals often work in conjunction with each other so single supplements should generally be avoided, unless prescribed by a doctor. Recent dietary surveys show that many women are entering pregnancy with low intakes of vitamins and minerals¹¹ and while the impact of this on pregnancy outcome has not yet been ascertained, this is cause for concern. Prenatal multivitamin and mineral supplementation is routinely advised in the USA for a wide range of women¹² and there is growing evidence of the wide-ranging benefits of a pregnancy specific multivitamin and mineral supplement on pregnancy outcome.^{13 14}

The Department of Health advise families with a history of allergy, eczema or asthma to avoid peanuts and products containing peanuts during both pregnancy and lactation to reduce risk of peanut allergy in the newborn.¹⁵ Peanuts and foods containing peanuts, such as peanut butter or unrefined or cold-pressed groundnut oil, should not be given to babies from atopic or allergic families until they are at least three years old.

⁷ Department of Health (1991) Dietary Reference Values for Food Energy and nutrients for the United Kingdom. The Stationery Office, London.

⁸ Institute of Medicine (2009) Weight gain during pregnancy – re-examining the guidelines. National Academies Press.

⁹ Som R. Maternal Obesity - a growing problem. Midwives Magazine June/July 2009

¹⁰ Greenberg JS, Bell SJ, Van Ausdal W (2008) Omega 3 fatty acids supplementation during pregnancy Rev Obstet Gynecol 1: 162-169

¹¹ Henderson L, Irving K & Gregory J (2003) The National diet and nutrition survey: adults aged 19-64 years. The Stationery Office London.

¹² American Dietetic Association (2008) Position Paper. Nutrition and Lifestyle for a Healthy Pregnancy Outcome. J Am Diet Assoc 108: 553-561 See www.eatright.org

¹³ Pelissetto S, Zonca M, Marozio L, Enrietti M, Gheorghe M, Benedetto C (2009) Vitamin Intake and Pregnancy. Minerva Ginecol 61:67-76

¹⁴ Wilson RD, Johnson JA, Wyatt P, Allen V, Gagnon A, Langlois S, Blight C, Audibert F, Désilets V, Brock JA, Koren G, Goh YI, Nguyen P, Kapur B; Genetics Committee of the Society of Obstetricians and Gynaecologists of Canada and The Motherrisk Program. (2007) Pre-conceptional vitamin/folic acid supplementation 2007: the use of folic acid in combination with a multivitamin supplement for the prevention of neural tube defects and other congenital anomalies. J Obstet Gynaecol Can 29: 1003-1026

¹⁵ <http://www.dh.gov.uk/en/Healthcare/Children/Maternity/Maternalandinfantnutrition/Maternalnutrition/index.htm> Accessed 23rd June 2009

Healthy Eating for Pregnancy

Healthy eating during pregnancy is based on the same healthy balanced diet that everyone should be eating, with a few additional do's and don'ts. Pregnancy provides an ideal opportunity for diet education, as the vast majority of women will have a high level of motivation to 'get it right' and do the best for the baby. Establishing healthy eating habits at this point also means that they are more likely to continue throughout breastfeeding and translate into family eating habits.

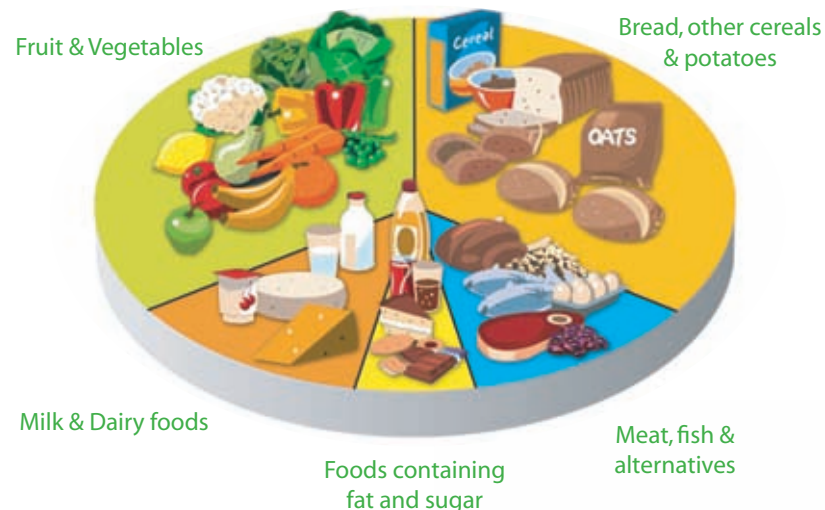
Never assume that women understand what a healthy balanced diet should be. Many people believe that their

diet is healthier than it actually is, and the fact is that the majority of people in the UK need to double their intake of fruit and vegetables, increase their intake of starchy carbohydrate foods and fibre, and cut back on salt and saturated fats. Taking the time to check that women understand what a healthy diet should be and that they are able to consume this is invaluable during pregnancy. A common assumption is that healthy eating means cutting out all things enjoyed, but for most, eating healthily simply means changing the proportion of foods eaten rather than completely cutting out favourite foods.

What is a Healthy Balanced Diet?

The diagram below is a pictorial representation of a healthy balanced diet, showing the balance and proportion in which each food group should be consumed. Two thirds of the diet should come from starchy foods and fruit and vegetables groups, with the remaining third made

up primarily of milk and dairy foods, and meat, fish and alternatives, with just a few foods containing fat and foods containing sugar.



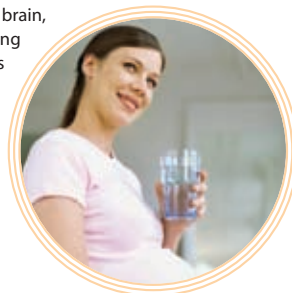
Some pregnant women have special dietary needs, such as teenagers, vegetarians, vegans, Asian women and women with gestational diabetes. More detailed information on

these needs can be found in the Nutrition in Pregnancy Toolkit (see section 6).

Ten tips for Healthy Eating

(pre-conception, pregnancy & breastfeeding)

- 1 Base every meal on starchy foods like bread, potatoes, rice, pasta, chapatis, yams and breakfast cereals.** Starchy foods provide the main source of energy for both mother and baby. They also provide bulk to keep us full and satisfied. Hormonal changes affect the body's use of blood sugar and so a regular intake of carbohydrates tops up blood sugar and helps combat fatigue.
- 2 Eat lots of fruit and vegetables.** Aim for at least 5 servings (each 80g) of a variety of fruit and vegetables every day. Fresh, frozen, canned, dried and juiced all count (juice can only be counted once each day).
- 3 Choose foods rich in protein** such as lean meat and chicken, fish (include one portion of oily fish per week), eggs, beans and lentils. These foods are also great sources of iron.
- 4 Eat more fibre rich foods** such as wholegrain breads & pasta, brown rice, wholegrain or high fibre breakfast cereals, pulses, fruit & vegetables.
- 5 Eat plenty of dairy foods like milk, cheese and yoghurts.** Dairy foods are the major source of calcium, important for both the mother's and baby's teeth and bones. Choose low fat varieties when possible.
- 6 Make snacks nutritious.** Snacking more frequently during pregnancy is common: to help combat morning sickness; due to altered blood sugar control; and to meet the energy demands of the growing baby. However too many indulgent snacks will lead to excessive weight gain. Healthier snacks include: malt loaf; currant buns; low-fat yoghurts; breakfast cereals; milky drinks or fruit smoothies and fruit.
- 7 Watch salt and salty foods.** High salt levels in the UK diet may contribute to high blood pressure. Check labels to compare salt content and choose foods with lower levels. Try not to add salt at the table and cut down on the amount used in cooking.
- 8 Get active and try to maintain a healthy weight.** Pregnancy weight gain varies between women, but on average is around 10-12 kilograms or 22-28 pounds. While excessive weight may lead to complications, restricting food intake may deprive the baby of important nutrients. Getting the balance between a healthy diet and active living to moderate weight gain is an important goal for all pregnant women.
- 9 Drink plenty of water and other fluids.** Pregnant women can dehydrate more quickly than normal and so advice should be to drink plenty of water and other fluids, especially when exercising or in hot weather. Good fluid intake will also work alongside fibre to help prevent constipation and piles. Sweetened drinks can quickly add large amounts of extra calories so try to limit the sugar added to hot drinks and watch intake of fizzy drinks.
- 10 Don't skip breakfast.** Eating breakfast is important to provide the brain, body and growing baby with an energy boost in the morning. Eating breakfast will also help to combat any problems with morning sickness during the first few months. Evidence shows that people who skip breakfast tend to be more stressed, have lower levels of concentration and lower intakes of vitamins and minerals than breakfast eaters, and are more likely to resort to indulgent snacks mid-morning. Fortified breakfast cereals are a great source of iron and folic acid.



The Do's and Don'ts of Pregnancy

Care must be taken during pregnancy to avoid food poisoning, such as salmonella, listeria and toxoplasmosis and to avoid foods containing potentially harmful substances such as mercury.

What	Action	Potential Effects
Toxoplasmosis	Carried in soil and cat faeces - wear gloves when changing cat litter or gardening, or preferably get someone else to do it. Wash vegetables and salad thoroughly – even pre-washed varieties. Cook meat and poultry thoroughly.	Miscarriage Still birth Blindness Epilepsy Brain damage
Salmonella, E Coli, Campylobacter and other food poisoning bugs	Cook eggs until white and yolks are solid. Avoid foods containing raw eggs e.g. fresh mayonnaise, cheesecake and mousse. Cook meat and poultry thoroughly. Cook ready meals until piping hot. Use a separate chopping board for raw meat. Store raw foods away from ready-to-eat foods. Avoid raw shellfish.	Severe symptoms Miscarriage Premature labour
Listeria	Consume only pasteurised milk and cheeses. Avoid blue and mould ripened cheeses such as stilton, brie etc. Avoid vegetable pâtés.	Flu like symptoms Miscarriage Stillbirth
Vitamin A toxicity	Avoid supplements containing vitamin A and fish liver oils. Avoid liver and liver products e.g. pâté, liver sausage etc.	Birth defects
Mercury toxicity	Avoid Shark, Marlin and Swordfish. Limit tuna intake to no more than 2 x140g servings of fresh tuna or 4 x140g cans of tuna.	Damage to nervous system
Dioxins and heavy metals	Limit oily fish intake to one portion each week (salmon, trout, mackerel, sardines, pilchards etc); this includes fresh tuna.	Birth defects Miscarriage
Peanuts and heavy metals	Avoid if mother, father or previous child have history of allergies or eczema, asthma and hayfever due to increased risk of peanut allergy. Other nuts are fine.	Peanut allergy

Alcohol

There is no safe agreed intake of alcohol during pregnancy. The Department of Health currently advise that 'When you drink, alcohol reaches your baby through the placenta. But the baby can't process it as fast as you can, so it is exposed to greater amounts of alcohol for longer than you are, which can seriously affect the baby's development. Pregnant women or women trying to conceive should avoid drinking alcohol. If they do choose to drink, to protect the baby, they should **not drink more than 1-2 units of alcohol once or twice a week** and should not get drunk.' Additional advice from the National Institute for Health and Clinical Excellence (NICE) advises women to avoid alcohol in the first three months in particular, because of the increased risk of miscarriage.¹⁶ This is in line with the Royal College of Obstetricians and Gynaecologists advice that is it safest not to drink at all during pregnancy.

Caffeine

The Department of Health currently advise limiting caffeine intake during pregnancy to no more than 200mg a day due to its links with low birth weight and miscarriage.¹⁷ Caffeine occurs naturally in tea, coffee and chocolate but it is also added to some soft drinks and 'energy' drinks.

Each of these contains roughly 300mg of caffeine:

- ✓ **2 mugs of instant coffee** (100mg each)
- ✓ **2.5 cups of instant coffee** (75mg each)
- ✓ **2 cups of brewed coffee** (100mg each)
- ✓ **4 cups of tea** (50mg each)
- ✓ **5 cans of cola** (up to 40mg each)
- ✓ **2.5 cans of 'energy' drink** (up to 80mg each)
- ✓ **4 (50g) bars of plain chocolate** (up to 50mg each)

NB. Caffeine in milk chocolate is about half that of plain chocolate

¹⁶ http://www.dh.gov.uk/en/PublicHealth/Healthimprovement/Alcoholmisuse/DH_085385 Accessed 23rd June 2009

¹⁷ <http://www.dh.gov.uk/en/Healthcare/Children/Maternity/Maternalandinfantnutrition/Maternalnutrition/index.htm> Accessed 23rd June 2009

Overcoming Common Nutritional Problems

Morning sickness

Morning sickness affects up to 80 percent of pregnancies, and in some 20 percent of cases continues beyond the first trimester. The cause is not actually known, but is thought to be related to hormonal changes e.g. human chorionic gonadotropin (hCG), progesterone and oestrogen, and other potential hormones associated with hCG such as leptin, placental growth hormone, prolactin etc. Why nausea and vomiting differ from woman to woman and from pregnancy to pregnancy has not been established. Morning sickness can be triggered by the smell of food, perfumes and cigarette smoke.

Consuming carbohydrate rich snacks at regular intervals appears to offer relief for most women. Many alternative therapies are also used by women for the relief of morning sickness, including ginger, chamomile, peppermint and raspberry leaf but only ginger has been evaluated in controlled trials, and is known to provide better relief than placebo with no adverse side effects.¹⁸ Acupressure over the Neiguan point (P6) in the wrist (e.g. wrist bands commonly sold for relief of travel sickness) and acupuncture have been found to have mixed results in trials, working for some women and not others.^{19,20} However acupuncture has no known adverse effects during early pregnancy²¹ and can be safely tried. For most women the solution will be to try a combination of approaches e.g. regular consumption of carbohydrate,

use of ginger foods and supplements, avoiding strong odours, acupressure wrist bands, sucking sweets and relaxation techniques etc.



Constipation

Many women in the UK suffer from constipation during pregnancy, increasing the risk of piles and urinary incontinence.²² The cause is likely to involve a combination of hormone changes e.g. progesterone slows the activity of the digestive tract, the physical impact of pregnancy, dietary changes and reduced levels of physical activity. The iron in supplements can also exacerbate symptoms in some women. Alleviation of constipation often requires a combination of approaches i.e. increased fibre (such as wholegrain cereals, wholemeal bread, fruit, vegetables and pulses), increased fluid intake, increase in moderate activity (which aids digestion and movement of food and residues along the digestive tract), and where necessary the use of faecal bulking agents.

Heartburn

Heartburn affects up to three-quarters of pregnancies, and can start as early as the first trimester, but is generally worst in the third trimester.²³ Heartburn occurs as a result of increased abdominal pressure, relaxation of the gastro-oesophageal sphincter due to progesterone and altered gastrointestinal motility.²⁴ Although discomfort can be severe and sustained, investigation is rarely required. Symptoms are often exacerbated by lying down, or by certain foods, particularly those that are spicy, fatty, fizzy or acidic. Symptoms will often be less severe with small frequent meals and snacks rather than larger meals, avoiding eating just before bedtime, avoiding spicy or fatty foods and use of antacids. Some women may also find milk and yoghurt soothing.

¹⁸ Borrelli F, Capasso R, Aviello G et al (2005) Effectiveness and safety of ginger in the treatment of pregnancy-induced nausea and vomiting *Obstet Gynecol* 105: 849-856

¹⁹ Werntoft E, Dykes Ak (2001) Effect of acupressure on nausea and vomiting during pregnancy. A randomised, placebo-controlled pilot study *J Reprod Med* 46: 835-839

²⁰ Knight B, Mudge C, Openshaw S et al (2001) Effect of acupuncture on nausea of pregnancy: a randomised controlled trial. *Obstet Gynecol* 97: 184-188

²¹ Smith C, Crowther C, Beilby J (2002) Pregnancy outcome following women's participation in a randomised controlled trial of acupuncture to treat nausea and vomiting in early pregnancy *Complement Ther Med* 10: 78-83

²² Ewings P, Spencer S, Marsh H et al (2005) Obstetric risk factors for urinary incontinence and preventive pelvic floor exercises: cohort study and nested randomized controlled trial. *J Obstet Gynecol* 25: 558-564

²³ Weyermann M, Brenner H, Adler G et al (2003) *Helicobacter pylori* infection and the occurrence and severity of gastrointestinal symptoms during pregnancy. *Am J Obstet Gynecol*

²⁴ Okholm M, Jensen SM (1995) Gastroesophageal reflux in pregnant women. *Ugeskr Laeger* 157: 1835-1838

Diet and Breastfeeding

The nutritional requirements for infants are high – in the first year a baby will triple its birth weight and increase its length by 50 percent. While breast milk (once feeding is established) provides complete nutrition for the first 6 months of life, its composition reflects the nutritional status of the mother and the diet she is eating so continued focus on consumption of a healthy balanced diet is important. A mother has to be available 24 hours a day to feed the baby, especially during the early weeks when feeding is likely to be frequent. This is exhausting so it is important that mothers receive a lot of encouragement, support and adequate time to rest during these first few weeks.

Adequate supply of milk

Many women worry about whether the baby is getting enough milk as they cannot see or measure the amount the baby is getting. Reassurance that a small dip in birth weight is perfectly normal (can be up to 10 percent during the first ten days) and that the baby will soon be regaining weight should be provided. It should also be highlighted that a woman's ability to produce milk far outweighs the volume the baby is likely to consume. A baby that is content and gaining weight is the best guide to adequate breastfeeding. Support and perseverance are required to avoid mother giving up too quickly.

Additional nutrient requirements

Following delivery of the baby, the maternal adaptations that have occurred during pregnancy, increasing energy efficiency and absorption and use of a range of vitamins and minerals are lost and therefore requirements increase above pre-pregnant or pregnancy requirements. In addition this is an exhausting time for parents, coping with the demands of a newborn, visits from relatives and friends, and for first timers a complete change of lifestyle, so achieving an adequate healthy balanced diet can be a tough challenge. Continued use of a one-a-day multivitamin and mineral supplement that is suitable for breastfeeding may therefore be advisable for many women.

Lactation places heavy nutritional demands on the mother for energy, calcium and many vitamins and minerals. In terms of energy, much of the requirement will be met from maternal fat stores laid down during pregnancy and from increased appetite. Women who were well nourished prior to and during pregnancy are likely to produce breast milk containing adequate levels of protein, fat, carbohydrate and most vitamins and minerals, even if the dietary intake is low, as body stores provide a back up for these nutrients.

However women who have had inadequate intakes of these nutrients during pregnancy, poor dietary intake may impact on breast milk composition resulting in a reduced content of calcium, folate, vitamins B₆, B₁₂, A and D.

Of particular concern is:

- **An adequate intake of calcium to preserve maternal bone health.** Recommended intake is 1200mg/day, considerably higher than the 700mg/day requirement during pregnancy, equivalent to 1 litre of milk per day (approx 2 pints).
- **An adequate intake of long-chain omega-3 fatty acids – essential for the development of the brain and eyes.** Levels in breast milk reflect mothers diet so consumption of oily fish once a week is recommended. Alternatively an omega-3 supplement may be taken.

Dietary recommendations are essentially similar to pregnancy. In addition breastfeeding women are advised to:

- **Take a 10mcg vitamin D supplement daily.**
- **Eat two portions of oily fish each week.**
- **Avoid eating more than one portion of shark, marlin or swordfish each week due to the high mercury content.**
- **Continue to avoid eating peanuts and products containing these if there is a history of allergy in the family.**
- **Limit intake of caffeine and alcohol.**



Useful Sources of Information

The Department of Health: Providing health and social care policy, guidance and publications. Also visit this site for Healthy Start campaign information.

www.dh.gov.uk

Food Standards Agency: Helping you make healthier choices. See food.gov.uk for official policy and advice and eatwell.gov.uk for consumer advice.

www.food.gov.uk / www.eatwell.gov.uk

Diabetes UK: The charity for people with diabetes.

www.diabetes.org.uk

Midwives Online: A website run by UK midwives which provides a reliable and practical source of information for both midwives and new parents.

www.midwivesonline.com

British Nutrition Foundation: The British Nutrition Foundation is a scientific and educational charity which promotes the wellbeing of society through the impartial interpretation and effective dissemination of evidence-based nutritional knowledge and advice.

www.nutrition.org.uk

NHS Direct: Information website from the NHS.

www.nhsdirect.nhs.uk

The Centre for Pregnancy and Nutrition, Sheffield: Run by the Obstetrics and Gynaecology Unit of the University of Sheffield this site contains information for parents and health care professionals, including a database of scientific research papers.

www.eatingforpregnancy.org.uk

Vitabiotics: Vitabiotics has been manufacturing vitamins and supplements for over 35 years and is the UK's largest supplier of healthcare products. Designed to support the human body in its own natural processes, Vitabiotics has created a unique portfolio of products at the forefront of scientific developments in key sectors, including nutrition and women's health.

www.vitabiotics.com

Pregncare®: A careful formulation of folic acid and 18 essential vitamins and minerals, Pregncare® is the number one pregnancy supplement in the UK, developed for women who are planning a pregnancy, as well as those already pregnant or breastfeeding.

Also available is **Pregncare® Plus** which delivers all the essential nutrients for pregnancy including the recommended level of 400mcg folic acid as well as additional omega-3 capsule to provide a rich source of DHA plus EPA for fetal brain and eye development.

www.pregncare.com

Please note that while the organisations listed above are thought to be of interest to health professionals, neither Vitabiotics nor Angie Jefferson endorse these sites or take any responsibility for their content or validity.

Other Resources

This summary guide is part of a series of resources for health professionals to use with mothers and fathers-to-be. Other available resources include:

Nutrition in Pregnancy Toolkit (for health professionals)



The Nutrition in Pregnancy Toolkit provides a comprehensive and detailed review of the latest research evidence behind the current recommendations for healthy eating during preconception, pregnancy and breastfeeding. Also reviewed are the vitamins and minerals of concern in UK women's diets and the potential consequences of these for conception and fetal development. The Toolkit has been written in such a way to enable professionals to dip in and out of sections to obtain the information they need quickly and easily.

A-Z of Pregnancy and Nutrition (to give to pregnant women)



This guide has been supported by Vitabiotics Pregncare®, the UK's number one pregnancy supplement, in conjunction with UK Dietitian, Angie Jefferson BSc. RD. RPHNutr. It is a quick and practical guide to eating the ideal diet to meet the nutritional needs of both you and your baby during preconception, pregnancy and breastfeeding.

Both resources are available from:

Vitabiotics Ltd, 1 Apsley Way, London NW2 7HF

Tel 020 8955 2645 or e mail pregncare@vitabiotics.com