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EDUCATION

MY REVISION NOTES
Cambridge National Level 1/Level 2
CHILD DEVELOPMENT

Cambridge National

Level 1/Level 2

CHILD DEVELOPMENT

SECOND EDITION

For the J809 specification

- + Plan and organise your revision
- + Reinforce skills and understanding
- + Practise exam-style questions

Judith Adams



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My revision planner

R057 Health and well-being for child development

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EXAM
READY

TA1: Pre-conception health and reproduction

1.1 Factors affecting pre-conception health for women and for men

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'Pre-conception' refers to the period of time before a woman becomes pregnant (conceives).

Factors affecting 'pre-conception health' involve health, fitness and lifestyle *before* trying for a baby, to improve the chances of becoming pregnant, and to give the baby a good start to life.

Being in good health before **conception** can help to avoid **fertility** problems and other risks during pregnancy. Maximising pre-conception health, for women and men, will create the best conditions for conception and development of a healthy baby.

Conception This occurs when the egg is fertilised by a sperm.

Fertility A woman's ability to conceive a child and a man's ability to produce fertile sperm.

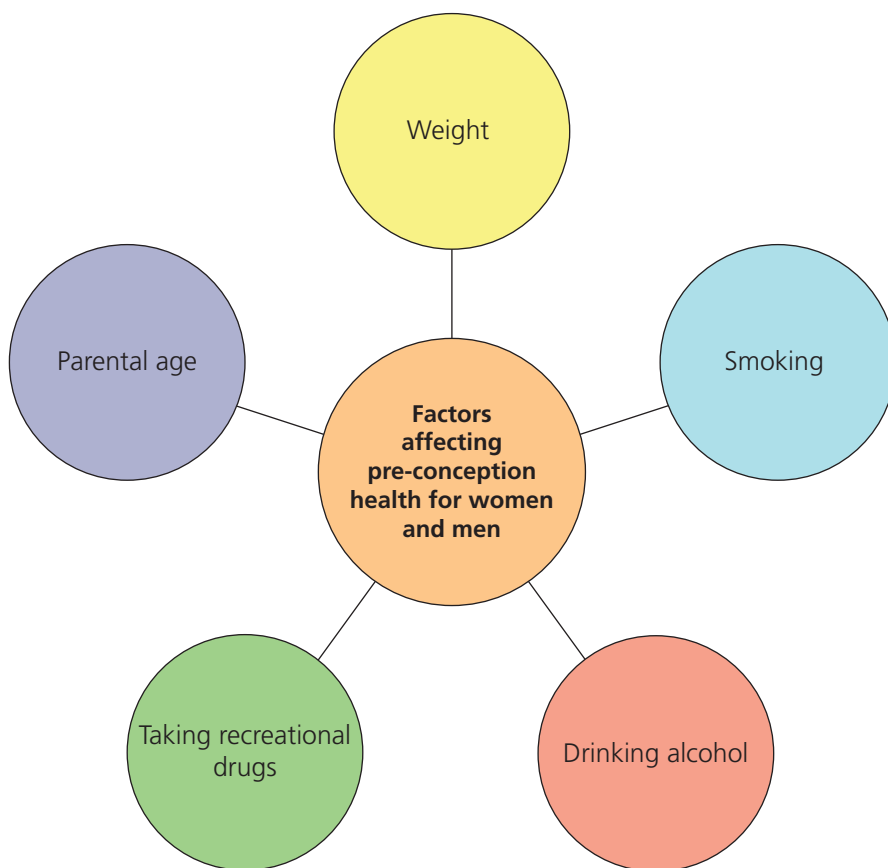


Figure 1.1 Factors affecting pre-conception health for women and men

Weight

- The National Health Service (NHS) states that if a woman is **overweight** they may have problems becoming pregnant and/or fertility treatment is less likely to work (www.nhs.uk/pregnancy/trying-for-a-baby/planning-your-pregnancy/).
- Eating a healthy, balanced and nutritious diet for both men and women will provide the best start for a pregnancy.

Overweight Having a BMI over 25.

- Being overweight or **obese** increases the risk of developing high blood pressure, **pre-eclampsia** and **gestational diabetes** during pregnancy. Being a healthy weight before becoming pregnant is advisable, otherwise:
 - the risk of miscarriage is higher than average
 - the likelihood of needing a caesarean section is increased.
- Research indicates that men who are overweight or obese have reduced quality sperm and significantly lower sperm counts than men of healthy weight.
- Being underweight or overweight/obese can affect a woman's **ovulation** and so reduce fertility.
- To prepare for conception and pregnancy, women should keep to a healthy weight by having a balanced diet and doing regular exercise. Healthy weight can be measured using body mass index (**BMI**) – it measures height against weight.

Revision activity

Look at the NHS BMI calculator: www.nhs.uk/live-well/healthy-weight/bmi-calculator/. Then work out which of the following women are a healthy weight in preparation for becoming pregnant:

- **Manjula:** age 22, 5 feet 6 inches (1.67 m), 10 stone (63.5 kg), moderately active
- **Deb:** age 30, 5 feet 10 inches (1.78 m), 12 stone 10 pounds (80.7kg), inactive
- **Alex:** age 19, 5 feet 7 inches (1.70m), 8 stone 2 pounds (50.8 kg), moderately active.

Obese Having a BMI over 30.

Pre-eclampsia A condition that needs urgent medical attention as it can lead to serious complications. Symptoms include very high blood pressure, swelling of the face, hands and feet, and protein in the urine.

Gestational diabetes The body's sugar levels rise to a high level. This occurs when the woman's body cannot produce enough insulin (a hormone that helps control blood sugar levels) to meet the extra need in pregnancy.

Ovulation When an egg is released from one of the woman's ovaries.

BMI Body mass index uses height and weight measurements to calculate whether an individual is a healthy weight for becoming pregnant.

Smoking

- Stopping smoking for both men and women is one of the most important things to do in preparation for pregnancy.
- Smoking is known to reduce natural fertility for both men and women.
- Smoking is linked to premature birth and miscarriage.
- Smoking is a cause of low birthweight.
- Chemicals from smoking will pass from the mother via the placenta to the developing baby, meaning the baby may have breathing problems after the birth that may last into childhood.



Figure 1.2 Smoking causes harm to an unborn baby

Drinking alcohol

It is generally advised not to drink alcohol when planning a pregnancy and throughout the pregnancy. Both male and female fertility can be negatively affected by drinking alcohol.

- Drinking alcohol prior to conception (for both men and women) is associated with a higher risk of heart defects for babies, with high consumption and binge drinking having the biggest impact.
- Drinking alcohol may cause a man to have a lower sperm count.

Source: www.drinkaware.co.uk

A baby born to a mother who drinks very high levels of alcohol during pregnancy is at risk of developing **foetal alcohol spectrum disorder (FASD)**.



Figure 1.3 Drinking while pregnant may cause harm to an unborn baby

Taking recreational drugs

- Taking recreational drugs can have serious effects on the reproductive system. It can lead to permanent infertility due to poor sperm quality and quantity in men, and disrupted ovulation and **menstrual cycles** in women.
- Some recreational drugs are known to adversely reduce male and female fertility. These include:
 - cannabis
 - cocaine
 - anabolic steroids
 - heroin
 - ecstasy.
- Anyone taking recreational drugs needs advice and support to give them up before trying to become pregnant.
- Most drugs will cross the placenta and reach the baby. This can result in slow growth of the foetus, miscarriage and birth defects. Individuals should see their doctor (GP) before trying to become pregnant for help in achieving a successful conception and healthy pregnancy.

Foetal alcohol spectrum disorder (FASD)

This may damage the baby's brain and body, stopping them from developing normally in the womb.

Menstrual cycle The process of ovulation over 28 days when women are fertile and have their periods.



Figure 1.4 Reproductive health: taking recreational drugs can affect your ability to conceive, as well as cause harm to an unborn baby

Parental age

The age of parents-to-be can affect the likelihood of conception. Increasing age has also been linked with premature births, resulting in health problems for the baby.

Women

As women get older:

- their fertility and ability to conceive reduces due, in part, to a decrease in egg count
- the quality of their eggs reduces
- age combined with being overweight reduces fertility by affecting ovulation
- they are not able to become pregnant naturally due to the **menopause**.

Generally, the advice is that the best time for becoming pregnant is between a woman's late twenties and early thirties. A woman's decline in fertility speeds up after her mid-thirties.

Men

Men are physically capable of fathering children well into old age. They can produce sperm for their whole adult life, although the quality of sperm declines with age.

Sometimes a man's age can result in:

- a low sperm count
- sperm that are not moving properly (motility), meaning how well sperm travels from the vagina to the egg.

In older age groups, these factors may negatively affect male fertility, and delay or prevent conception.

Typical mistake

Students often neglect to give specific examples of how pre-conception health may be affected. For example, drinking alcohol may be a cause of miscarriage, low birth weight and premature birth; taking recreational drugs or smoking may cause fertility problems; and being an unhealthy weight may affect pregnancy and birth.

Menopause When a woman's periods stop. This transition usually happens between the ages of 45 and 55.

Revision activity

Read more about pre-conception health at:

www.babycentre.co.uk/a7170/how-to-get-your-body-ready-for-a-baby

Exam tip

You need to be able to give specific examples of how to achieve good pre-conception health.

Now test yourself

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- 1 Write a definition of 'pre-conception health'.
- 2 How can taking recreational drugs affect fertility?
- 3 How can being overweight affect a woman's chances of becoming pregnant?
- 4 Suggest three factors that could negatively affect male fertility.
- 5 How can smoking affect a woman's fertility?
- 6 Why do men remain fertile longer than women?

Answers on p. 69

Revision activity

Create a factsheet giving advice for women wanting to become pregnant about important aspects of pre-conception health relating to diet, alcohol, smoking and drugs.

1.2 Other factors affecting the pre-conception health for women

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Folic acid

Folic acid is a supplement that should be taken:

- before a woman becomes pregnant, ideally three months before
- for the first 12 weeks of pregnancy.

Folic acid helps red blood cell formation and the growth of healthy cells. It is highly recommended to:

- help the baby develop normally
- protect the baby against conditions such as spina bifida
- help the baby's brain, skull and spinal cord to develop properly during pregnancy
- reduce the risk of neural tube defects (NTDs) by approximately 70 per cent.

A baby's neural tube becomes the baby's spinal cord, spine, brain and skull. Spina bifida is one of the NTDs that can occur when the baby's spine or brain does not develop in the normal way. For example, it can mean that they will be unable to walk or control their bladders.

A baby's neural tube starts to develop in the first four weeks of pregnancy. So, as the woman may not know that she are pregnant, it is best to start taking folic acid supplements as soon as she starts planning to become pregnant.

NTDs Malformations of the spinal cord, such as spina bifida.

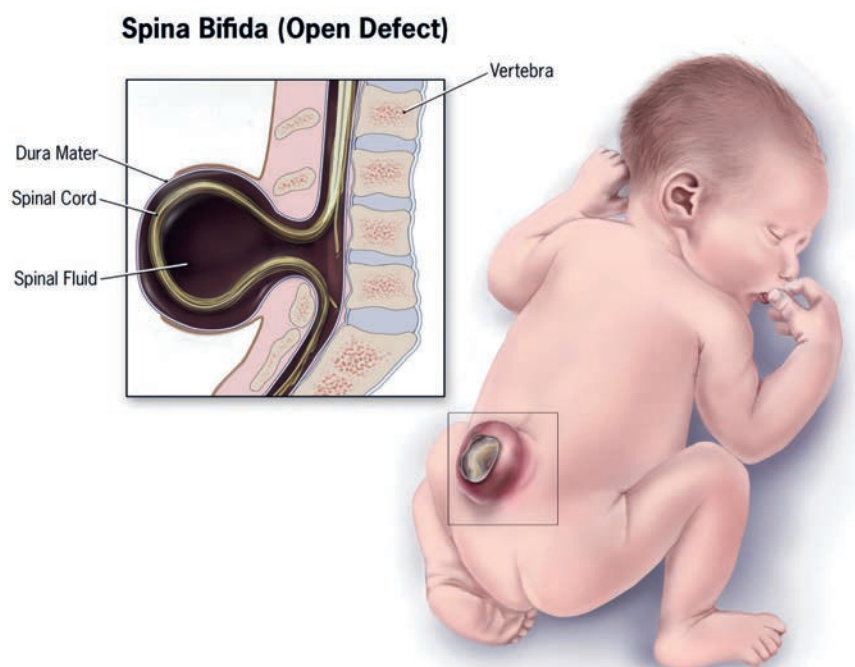


Figure 1.5 A baby with spina bifida

The NHS recommends that a dose of 400 micrograms is taken, once a day.

This should be taken along with a diet of folate rich foods such as:

- spinach, kale, asparagus, brussels sprouts, cabbage and broccoli
- peas, lentils and beans, including chickpeas and black-eyed beans
- yeast and beef extracts, including Marmite and Bovril
- oranges and orange juice
- wheat bran and other wholegrain foods
- poultry, pork, shellfish and liver
- fortified foods with added folic acid, including some brands of breakfast cereals.

Source: www.nhs.uk

- spinach, kale, asparagus, brussels sprouts, cabbage and broccoli



- peas, lentils and beans, including chickpeas and black-eyed beans



- yeast and beef extracts



- oranges and orange juice



- wheat bran



- poultry, pork, shellfish and liver



Figure 1.6 Food and drink rich in folate

For anyone planning a baby, or if they could become pregnant, it is important to take folic acid:

- whatever their age
- even if they are in good health
- whether it is their first baby or they already have healthy children
- even if there is no family history of NTDs such as spina bifida.

If someone finds out that they are pregnant and haven't been taking the supplement, it is still worth starting to take folic acid, until the end of the 12th week of pregnancy.

Revision activity

Read about folic acid in more detail here: www.nhs.uk/medicines/folic-acid/common-questions-about-folic-acid/

Make flash cards about what you have read, for example – what folic acid is, how it works and when to take it, what types of food have natural folic acid, and the benefits of taking folic acid before and during pregnancy.

Vaccines Injections that make the body produce the antibodies to fight a specific disease.

Immunity The ability of the body to resist infection.

Up-to-date immunisations

During pregnancy, a woman's immune system is weakened and the body is less likely to be able to fight infections. Some **vaccines**, such as the seasonal flu vaccine and the whooping cough vaccine, are recommended during pregnancy to protect the health of the woman and the baby. Vaccines provide **immunity** against disease.

Exam tip

Learn the names of the vaccines and why it is important to have them.

Table 1.1 Immunisations in pregnancy

Disease	What is it?	Immunisations
Flu	<ul style="list-style-type: none"> • A viral infection that affects the nose, throat and lungs. 	<ul style="list-style-type: none"> • Pregnant women are more likely to get flu complications than women who are not pregnant, and are more likely to be admitted to hospital.
Whooping cough	<ul style="list-style-type: none"> • A highly contagious disease affecting the lungs and airways. 	<ul style="list-style-type: none"> • If the mother has this vaccine during pregnancy, at any stage after 16 weeks, she will produce antibodies that pass to the baby. This gives the baby some protection until they have their own vaccination at eight weeks old.

Table 1.1 continued

Disease	What is it?	Immunisations
Coronavirus (COVID-19)	<ul style="list-style-type: none"> An infectious disease caused by the SARS-CoV-2 virus. 	<ul style="list-style-type: none"> If pregnant, a woman is at greater risk of being seriously ill with COVID-19. If it is late in the pregnancy, the baby could also be at risk. It is safe to have the vaccine at any stage of pregnancy. It is not recommended to delay it until after the birth.
MMR (Measles, Mumps, Rubella)	<ul style="list-style-type: none"> Measles is an infectious viral disease in which the child has a rash and fever. Mumps is an infectious viral disease that causes swelling in the salivary glands in the face. Rubella is a contagious viral infection with a red rash which is especially dangerous for pregnant women. 	<ul style="list-style-type: none"> Most women will have had the MMR vaccine as a child. It is not recommended to be given to pregnant women because it is a 'live' version of the virus, and can cause birth defects if it is given in the first three months of pregnancy. It is therefore important to have had the vaccine well in advance of pregnancy.

Source: www.nhs.uk

Now test yourself

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- When should folic acid be taken?
- Why is folic acid so important?
- Name two vaccines a pregnant woman should have.
- Why is the MMR vaccine not recommended during pregnancy?
- List three foods that contain folate.
- What are neural tube defects?

Answers on p. 69

1.3 Types of contraception method and their advantages and disadvantages

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Barrier methods

These are contraceptives that create a barrier to prevent the male semen (which contains the sperm) from passing through the cervix and coming into contact with the female egg. Barrier methods prevent conception.

Typical mistake

Avoid mixing up the terms 'contraception' and 'conception'. **Contraception is a method of avoiding pregnancy, and conception is when an egg is fertilised. Make sure you remember the difference.**

Table 1.2 Barrier methods of contraception

Male condom	
<ul style="list-style-type: none"> Male condoms are made from latex. Polyurethane condoms are available for men with a latex allergy. The condom is put onto the erect penis before it comes into contact with the vagina. Condoms are designed to prevent pregnancy by stopping the sperm from meeting an egg. 	
Advantages	Disadvantages
<ul style="list-style-type: none"> It is 98 per cent effective if used correctly. It protects against sexually transmitted infections (STIs) including HIV (human immunodeficiency virus). It is easily obtained and sold widely, e.g. at pharmacies, supermarkets and pubs. It is available for free from most family planning clinics or sexual health clinics. 	<ul style="list-style-type: none"> If not used properly, it can slip off or split, limiting its effectiveness. It is single-use only and then discarded. Putting one on can interrupt or impair enjoyment. The penis has to be quickly withdrawn from the vagina after ejaculation while it is still erect so that no semen escapes. You have to plan ahead/have one with you.

Table 1.2 continued

Diaphragm or cap	
<ul style="list-style-type: none"> This is a circular dome made of thin, soft silicone. It is inserted into a woman's vagina to cover the cervix. It prevents sperm from entering the womb. 	
Advantages	Disadvantages
<ul style="list-style-type: none"> It is 92–95 per cent effective when used correctly with spermicide. It can be put in place any time before having sex to avoid interruption. It is removed and washed after sex so can be used multiple times. It is available from sexual health clinics, family planning clinics and pharmacies. 	<ul style="list-style-type: none"> It needs to be fitted by a doctor or nurse to make sure the correct size is used. More spermicide is needed if it is in place for more than three hours. It needs to be left in place for at least six hours after sex. It does not protect against STIs. The woman can develop cystitis (a bladder infection). It should not be used during a woman's period. It takes time to learn how to use it correctly.
Female condom	
<ul style="list-style-type: none"> Female condoms are made from polyurethane. The condom is worn inside the vagina to prevent semen from getting inside the uterus. It must be inserted into the vagina, using the closed-end ring; the other ring creates the open end of the condom. 	
Advantages	Disadvantages
<ul style="list-style-type: none"> It is 95 per cent effective if used correctly. It can help protect against STIs including HIV. There are no side effects. It can be inserted up to eight hours before sex. It does not have to be inserted/fitted by a health professional. 	<ul style="list-style-type: none"> If used incorrectly, it may tear or split. Sharp finger nails can tear it. It is more expensive than the male condom. It is not as widely available as the male condom. It is single-use only. If not put in beforehand, sex is interrupted to put one in. It must be removed immediately after sex.



Figure 1.7 What type of contraception is this?

Revision activity

Name the method of contraception shown in Figure 1.7, and describe how it works.

Hormonal methods

Hormonal methods of contraception use chemical substances – oestrogen and progesterone – that affect the functions of cells and organs within the body to prevent conception occurring.

These methods:

- thicken the mucus in the neck of the womb so it is harder for sperm to penetrate and reach an egg
- thin the lining of the womb, so there is less chance of a fertilised egg implanting into the womb and being able to grow.

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1.6 The signs and symptoms of pregnancy

There are quite common signs and symptoms of pregnancy, but not everyone will have all the symptoms. Women will experience them at different times. A missed period is a common first sign for someone with a regular monthly cycle.

Signs and symptoms of pregnancy

- Breast changes: larger, tender, dark nipples
- Missed period: often the first and most reliable sign
- Feeling of nausea and vomiting: often called morning sickness
- Passing urine more frequently than usual
- Tiredness: due to hormonal changes in the body

Figure 1.15 Signs and symptoms of pregnancy

Now test yourself

- What is usually the earliest and most reliable sign of pregnancy for someone with a regular monthly menstrual cycle?
- Give three signs of pregnancy.

Answers on p. 20

Exam-style questions

- Name two barrier methods of contraception. For each one state its effectiveness, if used correctly. (4)
- Jane and Stella have decided they want to start a family. Explain how drinking alcohol and smoking could affect their pre-conception health. (8)
- Stella has been finding out about how to improve her pre-conception health. She has decided to start taking folic acid. Explain two reasons why folic acid is needed. (4)
- Describe the function of the following parts of the female reproductive system: (4)
 - Uterus
 - Cervix
- Complete the table with a description of what happens at each stage of reproduction. (6)

Reproduction	Description of what happens
Ovulation	
Conception	
Implantation	

Revision activity

Read the information about signs and symptoms of pregnancy on the NHS website. Using the link below: www.nhs.uk/pregnancy/trying-for-a-baby/signs-and-symptoms-of-pregnancy/ Create a leaflet explaining what signs and symptoms to expect.

Typical mistake

Avoid thinking that 'morning sickness' only happens in the morning. It doesn't – it can happen at any time of day or night.

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