Pregnancy

The NUK guide on pregnancy was produced in collaboration with Professor Dr. B.-Joachim Hackelöer, Chief Physician, Obstetrics and Prenatal Medicine, Asklepios Clinic Barmbeck, Hamburg, Germany.

This book represents the third publication of NUK's library and contains precious information on the following subjects:

- ***Antenatal/postnatal care***
- ***Complaints during pregnancy***
- ***Birth and lying-in period***
- ***Breastfeeding and much more***

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Pregnancy

The NUK guide on pregnancy, antenatal/postnatal care and birth produced in collaboration with Chief Physician and gynaecologist Professor Dr. B.-Joachim Hackelöer

Dear Reader,

So you're pregnant? Congratulations! Pregnancy is a wonderful thing and is completely normal and natural. Yet every woman experiences pregnancy in a different way: some women feel so great that they wish they could always be pregnant. Others feel awful throughout the whole pregnancy. But whether it's all joy or fear and scepticism, please consider one thing: no two people are the same and no two people are born completely the same. Nature does not distinguish between good and bad.

Today's antenatal care aims at ensuring that the pregnancy proceeds in a natural way yet, at the same time, utilising the help available in recognising the potential dangers and risks. This brochure should help to dispel any fears you may have, as well as preparing you to meet the challenges arising during pregnancy in the best possible way. It is meant to be highly informative and enlightening, offering you support from the medical side, but not neglecting the simple, natural aspects and personal tips. You should therefore use this brochure to help prepare you for a significant, and generally wonderful, phase of your life.

So we say: enjoy your pregnancy, the birth and the lying-in period – together with all

their potential physical and mental exertions. This is a very special time, as well as a decisive phase both for you and your child.

I hope you enjoy reading this guide!

Yours,

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Part I

Every pregnancy is a miracle. A single egg is fertilised by a sperm cell and produces a new life. But, of course, this is not "only" the appearance of a new human being. Pregnancy represents the transition to a completely new phase of life: whether family, partnership, accommodation, household budget, allocation of time or your figure – so much has to be reconsidered. And it is a good thing that this process lasts for nine months, because it is not just your baby that needs so long to develop; both you and your partner need this time to prepare yourselves, too. In the first part of this pregnancy guide we will be presenting you information both on the essential and practical details of pregnancy, birth and the lying-in period. The second part explains the progress of your 40 weeks of pregnancy.

General

Duration of pregnancy

The period between the penetration of a sperm into the single egg cell and delivery is between 273 and 281 days. As our calendar months differ in length, doctors and midwives calculate in days, weeks or lunar months. These lunar months are fixed at 28 days – therefore the duration of a pregnancy will be approx. 280 days or 40 weeks or ten months. The expected date of delivery is calculated not from the day of actual fertilisation, but from the first day of the last menstrual period, as many women find this easier to remember. The date of birth can then easily be determined by applying Naegele's Rule.

This date does not, however, mean that your child will necessarily be born on that day; it merely indicates that the child will likely be ready to be born. In fact, only four per cent of all children are born on that specific day – but more than two-thirds are born within 14 days of the expected date. This date helps doctors and midwives to judge the likelihood of a premature birth or one that is later than that date and to assess the situation more easily if problems occur. The 28th and 32nd weeks of pregnancy may only be one month apart, yet the degree of maturity and problems of a potential premature birth notably differ.

What happens to your body

The pregnancy is divided into three phases, the so-called trimesters or trimenons. The major hormonal changes occur in the first 12 weeks, the first trimester, and these often make themselves felt by the expectant mother feeling unwell. The breasts become tense, morning sickness may occur and you may suffer from extreme fatigue the whole day long. This will change in the second trimester (13th to 24th weeks): your body will now have accepted these changes, and you may well feel as calm as you have ever felt. This is the phase during which you experience a feeling of well-being with your child. During the third trimester your child undergoes a tremendous growth spurt. This is the time when your body becomes physically heavy and burdensome.

Naegele's Rule:

First day of the last period plus 1 year minus 3 calendar months plus 7 days
= calculated date of birth (for a regular 28-day cycle)

Example
Last period: 7.7.2010 (regular 28-day cycle)
plus 1 year: 7.7.2011 minus 3 months = 7.4.2011 plus 7 days

the calculated date of birth: 14.4.2011

Care during pregnancy

Gynaecologist

Your doctor should have sufficient time to discuss your concerns and answer your questions, maybe together with your partner. It is also important for him to find out the changes that you will be experiencing. Many countries have a law to protect expectant mothers, which explains working conditions and financial aid. Your doctor should also supply you with this information. It may be important for the surgery to be technically well equipped, but not every doctor needs to be able to do everything. It can also be considered a sign of medical quality, if you can obtain a referral for special examinations to be undertaken by doctors equipped and qualified to specialise in this area.

The midwife

In addition to this, a midwife can also be a point of contact for any questions you may have and for examinations right from the start of your pregnancy. The ways that freelance midwives work can differ quite considerably. Most of them undertake house visits. Some work together with a gynaecologist's practice or hospital. Many midwives run antenatal classes and offer postnatal care.

What examinations are undertaken?

Many women enjoy regular medical examinations that take place during the course of their pregnancy. The examinations, which may comprise blood tests, ultrasound and physical examinations, monitor the progress of yourself and your child during the pregnancy. In addition to these, your doctor and/or midwife should have an extensive discussion with you during the first few months of pregnancy as to whether there have ever been any complications with pregnancies in your family or with any previous pregnancies. If this is the case, then further, more specialised tests could be undertaken which extend beyond the scope of the regular antenatal checks.

Nutrition during pregnancy

Old habits die hard. Whenever the subject of eating during pregnancy came up there was always this deep-rooted idea: "Now I have to eat for two". This may have been well meant, but nowadays we consider this misguided. You don't need to eat more – just more sensibly. And this does not necessarily have to be costly or timeconsuming. Often just modifying your choice of food will suffice, such as the type of bread you eat, or perhaps changing how you put your meals together, like having fruit or muesli as a snack to improve your diet. Apart from a few exceptions more or less the same rules apply to your diet whether you are pregnant or not.

During pregnancy the increased requirement of some essential vitamins and minerals is more important than the calorie requirement. But it is not only your child that needs food to grow; your body also has to grow new tissue. Based on experience most women do not need an extra 250 calories each day until the fifth month. You should therefore ensure that you take even greater care in your choice of foods that have preferably fewer calories, but even more important, contain ample essential nutrients. These include, in particular, plant-based foods such as fruit, vegetables, potatoes and wholefood products, as well as animal-based foods such as semi-skimmed milk, lean meat and fish in moderation. Many foods with a high sugar content such as confectionery, biscuits and fizzy drinks, on the other hand, contain lots of calories, yet hardly any vitamins or minerals. These are therefore not very suitable.

Recommended increased consumption of food per day for pregnant women

	Basic requirement	Additional requirement for pregnant women
Energy (kcal per day)	2,100	250
In ample quantities		
Fluids (in ml)	1,500	250
Bread, cereals (flakes) (in g)	260	50
Potatoes, rice, pasta (in g)	180	50
Vegetables (in g)	250	50
Fruit (in g)	250	50
In moderate quantities		
Milk and dairy products (in g)	425	50
Meat, cooked meats, sausages, etc. (in g)	60	100 g or 1 portion per week
Fish (g/week)	200	100 g or 1 portion per week
Eggs (No./week)	2–3	–
Sparingly		
Oils, margarine, butter (in g)	35	5
High fat (chocolate, cake, crisps, etc.) (in g)	10	–

Source: research institute for nutrition in children

1.

Tip

Folic acid is particularly important in the first few weeks of pregnancy, as well as beyond this point, for cell production and the development of your baby's brain, spinal cord and spinal column. In addition to this, the baby needs iodine, and not only for the formation of the thyroid; it is also essential for the development of the brain and for bone growth. It is therefore recommended that you take a folic acid-iodine preparation, as the increased requirement cannot always be met through your diet.
When pregnant you should completely avoid unpasteurised milk, as well as soft cheese made from this. The cheese rind should not be eaten either. On the other hand, pasteurised milk, which is heated to above 80 °C, as well as any type of cheese made from such, is harmless, likewise hard cheeses such as Emmental, also made from unpasteurised milk. Raw meat (e.g. sausage meat, tartare, carpaccio), smoked meats (e.g. salami, smoked beef/pork sausages and spreads) and raw fish (e.g. sushi) should also be avoided. You should always read the label on the packaging or ask at the fresh meat or fish counter.

Additives in drinks

As far as drinks are concerned you should also consider the calories (such as in fruit juices, for example) as well as any ingredients which may produce side effects. Caffeine, for example (found in coffee and Coca-Cola), tannin (found in black and green tea) and quinine (found in tonic water and bitter lemon) are ecbolic, i.e. they may cause contractions. Some good alternatives to tea include rooibos or redbush tea, fruit and herbal teas. Rooibos tea comes from a South African plant and, like fruit and herbal teas, contains no tannin.

As alcohol poisons the cells, you should completely avoid it. Regular consumption of alcohol can result in serious malformations in the child.

Smoking is particularly bad, not only for you, but especially for your child. Smoking can lead to your child being grossly underweight and also premature. In later life it could also frequently result in diseases of the airways and asthma. Perhaps it is now time to put good resolutions into practice. Your child will thank you for it. If you are a smoker, you should definitely speak with your gynaecologist, irrespective of whether you are able to give up smoking or not.

Bacteria may be present in the following foods:

Food	Bacteria
Unpasteurised milk	listeria
Soft cheeses made from unpasteurised milk e.g. brie or camembert	listeria
Raw meats such as sausage meat, tartare, carpaccio	toxoplasma
Smoked meats such as salami, smoked beef/pork sausages and spreads	toxoplasma
Raw eggs	salmonella
Dishes made from raw eggs, e.g. home-made mayonnaise, tiramisu	salmonella
Soft ice-cream	salmonella
Raw fish	listeria

Weight increase during pregnancy

Putting on weight during pregnancy is important. It is certainly not easy in our slimming-focused world to regard putting on weight in a positive light. So just enjoy it! However, if weight increase occurs quickly to start with, although this may be put down to an increase in fluid consumption, it will usually be due to a yearning to eat. Your baby, together with the weight of the tissue supplying the nutrients, will initially have no determinable weight. In the 20th week of pregnancy your infant will weigh around 300 g, the main increase not occurring until the final three months of pregnancy.

Your weight increase during the course of the pregnancy will give an indication as to whether you are eating sufficiently, in other

words, not too much and not too little. Not only putting on too much weight, but also not enough weight, can constitute a risk to the healthy development of your child. The desirable level of weight increase during pregnancy will depend on your weight at the start.

Sport during pregnancy

Basically, any sport that you normally enjoy pursuing, you can continue with – but in a reduced form. You should not continue with competitive or strenuous forms of sport, as these place too much strain on the body. But even with "normal" sports you should not take any additional risks, such as might bring about premature labour pains, opening of the cervix or similar. You may, for example, continue to ride a bicycle, but you should be aware of the risk of falling off. Skiing may also be continued, with langlauf skiing being preferable to the alpine type. You should avoid altitudes of more than 2,000 metres, as the potential changes to the blood cannot be dismissed as being harmless for your

The recommended weight increase is derived from the Body Mass Index (BMI) before pregnancy*:

$$\frac{\text{Body weight in kilograms (kg)}}{\text{Body size in metres x body size in metres}} = \text{BMI}$$

Initial BMI of the expectant mother	Recommended weight increase in kg
BMI up to 19.8 (low)	12.5 – 18.0
BMI from 19.9 to 26.0 (average)	11.5 – 16.0
BMI above 26.0 (high)	7.0 – 11.5

For an average weight increase of 12 kilograms during pregnancy the weight is distributed as follows:

Weight of child	3,400 g
Placenta	600 g
Amniotic fluid	1,000 g
Uterus	1,000 g
Breast	500 g
Blood	1,500 g
Fat	1,750 g
Water	2,250 g
Total	**12,000 g**

* Source: Deutsche Gesellschaft für Ernährung (German Society for Nutrition)

child. Every type of sport carries its own risks that need to be considered, e.g. strain on the pelvis when horse riding, danger of falls with winter sports. Swimming is the sport really to be recommended, as it relaxes the whole body simultaneously, yet exercising it at the same time. There are also special courses available for expectant mothers.

Sports that are considered inadvisable:
diving, horse riding, water skiing, surfing, weightlifting

Sports with proven negative aspects:
marathon running, competitive sports, team and contact sports (football, karate), alpine skiing, langlauf skiing at altitudes of over 2,000 metres, climbing

A general tip as regards exercise during pregnancy: sitting and standing are bad, lying down and walking are good.

Travelling during pregnancy

There is basically nothing against travelling during pregnancy – even flying, with the best time being between the fifth and seventh months of pregnancy. During the initial phase the nausea and much later in pregnancy the larger girth and greater probability of going into labour will hinder worry-free travel. You may even fly shortly before the due date of birth. However, with long-haul flights the risk of their inducing the birth is increased. For this reason many airline personnel are not prepared to take a pregnant woman once they see her fat tummy.

You should avoid excessively long flights, as circulation problems (thrombosis) may occur from sitting with knees bent. Insufficient pressure compensation or a low oxygen level on long-haul flights can also have an unfavourable impact. To your organism a flight is equivalent to staying at an altitude of 2,000 metres. Blood flows more slowly, it can also thicken, and when combined with a long period of sitting, the risk of thrombosis is increased. This does not, however, mean that a nine to ten-hour flight is completely out of the question. You do need to consider very seriously though, when it comes to long-haul flights, especially in the latter part of pregnancy. Two to three-hour flights to popular holiday destinations are certainly acceptable.

If you really feel you have to travel, then more moderate climate zones are preferable, as too great a heat combined with direct sunrays are not without consequence for your skin or your circulation. Your child too may become uncomfortably hot if you lie with your tummy exposed to the sun without protection. Furthermore, the skin of a pregnant woman is more sensitive.

Tropical lands should be avoided at all costs. This is because the vaccinations and prophylactic measures required (e.g. mal-

Tip

Many airlines offer in-flight exercises via video and radio (while seated). Ask about these special programmes and take advantage of them.

aria and yellow fever) are not permitted during pregnancy, as these can harm your child. You will also need to take into account any medical care at your holiday resort, including hospital facilities, as well as ensuring that your health insurance covers you for foreign or tropical diseases or that there is a reciprocal arrangement with other health care providers. You can obtain this information from your travel agent or relevant health insurance.

Complaints during pregnancy

Your body undergoes some immense changes during the months of your pregnancy. For many women these changes are accompanied by health issues. You may have many symptoms that you have never encountered before – so if you are having problems you should seek medical advice. Only a doctor can explain whether these are harmless side effects or whether there is a serious health problem that needs to be treated.

Out of breath?

It is completely normal for you to become more easily out of breath in the second half of your pregnancy. Your baby is pushing against the rib cage, limiting the breathing motions of your lungs. It will often be helpful to stretch your arms up high and breathe in deeply. However, if you experience a serious shortness of breath, then do pay a visit to your doctor.

Tension in the breasts

Circulation within the breasts is increasing and they will start to increase in size. This process often goes hand in hand with a feeling of tension in the breasts. A well-supporting bra and breast massages with the oil that you use for your tummy will help here. However, please take care to ensure that the nipples are left clear.

Stretch marks

The skin is stretched immensely during pregnancy. Although this predominantly applies to the tummy, the breasts and upper thighs are also affected. Whether or not cracks or stretch marks develop in the tissue beneath the skin will vary, depending on the individual and on the skin type. This is because some women have a more elastic skin than others. You can rub skin cream on, tug at it and brush it dry, and this will help make you feel more comfortable. Lotions, creams and natural body oils also make the skin soft and elastic.

Tip: no cream should be put on the tummy for three to four days before a planned ultrasound examination, as this can worsen the image display to a considerable extent.

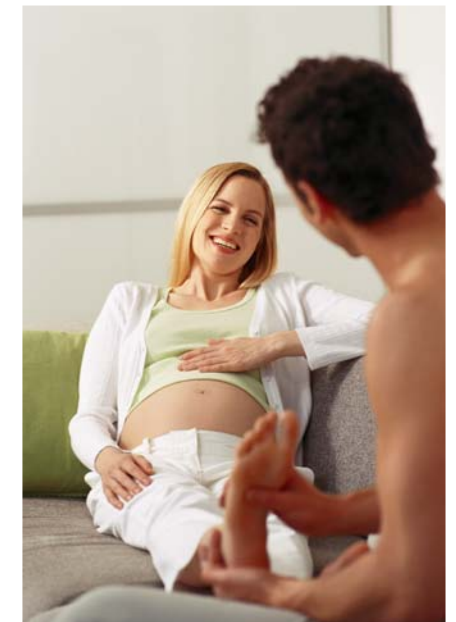
Haemorrhoids

The main cause of painful piles or haemorrhoids at the sphincter is general weakness in the connective tissues, which is more pronounced due to the hormonal changes during pregnancy. After the birth the haemorrhoids usually disappear by themselves. You should eat food rich in fibre and drink ample fluids. Try to avoid pushing when on the toilet. Swimming and cycling can have a preventive effect.

If, however, the haemorrhoids are causing considerable pain, you should seek advice from your doctor.

Frequent urge to pass water

During the first three months of pregnancy virtually all pregnant women experience a more pressing need to pass water. This is caused by the increased production of the hormone progesterone, which has a relaxing effect on the bladder muscles. Furthermore, the increased blood circulation stimulates the kidney function, producing more urine. During the next three months this pressure eases off: the uterus in the meantime will have straightened up and stretched upwards, thus relieving the pressure on the bladder. In the final three months the



urge to pass water increases once more, as the infant's head presses downwards onto the bladder. This urge can also be a sign of a bladder infection. In this case it is usual for other symptoms to appear too, e.g. a burning sensation while passing water. In case of doubt it is essential to get your doctor to clarify why this is happening.

Irritant skin

An irritant skin may also become a more frequent problem during pregnancy. This is caused first of all by your skin stretching, especially during the second half of the pregnancy. Furthermore, the skin can become irritant from perspiration collecting in large folds of skin, e.g. under the enlarged breasts or in the groin area. Washing or bathing with apple vinegar can help soothe, as can a bran or whey bath. In most cases irritant skin is harmless. It may, however, also be a sign of a serious gall bladder acid disorder. It is therefore imperative that you contact your doctor and be examined.

Headaches

Tension or a cramped posture can cause headaches. They can also be an indication of high blood pressure and this should be checked if the headache continues over an extended period.

Varicose veins

If the connective tissue is weak there is a danger you may develop varicose veins during pregnancy. This is because the body produces precisely the hormone, which makes the tissue and muscles more elastic to facilitate the birth later on. At the same time, the elasticity of the veins will also be reduced, as they have to transport up to 25 per cent more blood during pregnancy. You should avoid becoming overweight; also try and put your feet up as much as possible. Wear flat-heeled shoes and walk around barefoot when you can. Do not use saunas or sunbaths. Talk about this to your doctor, who will be able to prescribe support stockings.

Nosebleeds

Nosebleeds, a blocked nose and sinus infections can occur frequently during pregnancy. The reason for this lies in the hormonal changes and the increase in the quantity of blood, which swells up all the mucous membranes in the body. If you experience a nosebleed, you should place a cold compress or ice on the back of neck or on the nose. With a blocked nose it can help if you sleep with your head raised. Vaseline or a basic skin cream will help protect your nasal mucous membranes from drying out and becoming sore. Should you experience further symptoms such as headache or pain in the upper part of the tummy, high blood pressure or flickering before the eyes, this could mean toxaemia, a poisoning of the blood. If in doubt you should consult your doctor.

Backache

As the tummy becomes rounder, the back has to support several kilos more and therefore bends to compensate. This often puts extra strain on the muscles, resulting in a painful tenseness. Stretching and relaxing help build up the back muscles. We suggest you ask your doctor or midwife about exercises.

Problems with sleeping

During the first three months of pregnancy many women suffer from extreme fatigue, yet despite this, are unable to sleep properly. Towards the end of the pregnancy the tummy often gets in the way when lying in bed. Sleep then becomes lighter. A pregnant woman will also wake up more frequently. This is how the body prepares itself for the time when baby is there and you have to get up in the night on a regular basis. If you really need to sleep a lot you should not fight against it. Take an afternoon nap and go to bed early. If you are unable to get to sleep certain rituals may help: calming music, drinking warm milk with honey. Do not drink tea or coffee after 4 p.m. Sleep on your side and find a comfortable way to lie by trying out different positions with extra pillows. Using a special nursing pillow can help and you can use this later for your baby when you are breastfeeding, for example.

Heartburn

The main cause of heartburn is the lack of space: the uterus, which is continuously increasing in size, pushes the stomach together from below. It pushes on the pylorus muscle to such an extent that it is no longer able to close the stomach properly. This permits irritating stomach acids to enter the oesophagus, resulting in a burning feeling. Heartburn can be treated by eating hazelnuts and almonds – well chewed – or with medication.

Tip

Acupuncture is used with considerable success in the treatment of morning sickness.

Nausea

If you suffer from nausea or morning sickness it can help to eat a rusk around 30 minutes before you get out of bed. You should consult your doctor, however, if the vomiting becomes extreme and you are losing weight. Occasionally, a drip may be necessary to prevent the body from dehydrating.

Constipation

As the abdominal movements slow down, this can cause more frequent constipation. You can compensate for this by increasing your fluid intake from two to three litres per day. Foods that cause flatulence (e.g. cabbage) should be avoided and replaced with plant-based products that the abdomen can cope with (e.g. linseed).

Premature contractions

Even during the final three months of pregnancy the uterine muscles exercise contractions (alternate contracting and relaxing motions). These are known as premature contractions or labour pains and they serve as training for the uterus. In some cases they will be considered to cause discomfort, but they do not normally cause pain as such. The tummy becomes hard during these contractions, which will often occur when either the mother or the baby actively moves. You should ensure that you get sufficient sleep and that you remain inwardly and outwardly calm. The contractions should not occur more than ten times a day; otherwise you should seek medical advice.

Leg cramps

These may occur frequently during the second half of the pregnancy and are caused by a magnesium deficiency. If magnesium is lacking, then the muscle cells will become taut. As the requirement increases during pregnancy, leg cramps are the first indication that magnesium is not being sufficiently absorbed from the food you are eating. In extreme cases stretching can help: stretch your leg and push it hard against the wall. Or pull your toes up to your body. Magnesium tablets are also to be recommended.

Water retention

Around 40 per cent of all women suffer in the latter stages of pregnancy from aching legs and swollen ankles, feet and hands. This water retention or oedema is caused predominantly by hormones produced during pregnancy, but it may also be the result of high blood pressure. You should try not to sit or stand in the same position for too long; lie as often as you can with your feet up and do exercises by circling your toes while seated. Sports such as swimming, cycling and gentle running are ideal. A foot massage can offer relief, with your partner massaging or "kneading" the feet from the base upwards. If you are putting on several kilos a week and you are also suffering from serious water retention, then you should seek medical advice.

Relaxation

Expectant mothers should avoid stress and hectic. This may be easier said than done. Career, household, possibly small children – who can still find the time to put her feet up on a regular basis and stroke her tummy? Yet this is so important: mothers who really want to take in the experience of their pregnancy will have an intensive relationship with their child right from the start and will be able to manage the little (or bigger) pains. You can relax and switch off in a variety of different ways, for example through:

- Breathing exercises
- Yoga and autogenic training
- Qigong
- Massages, especially with your partner tenderly working your muscles
- Music
- Aromatherapy
- A warm bath
- Making contact with your baby

You should make yourself comfortable and try and listen inside your tummy. Try and imagine what your baby is doing and how he or she looks. Talk to your baby, at the same time stroking your tummy. If you can already feel the infant moving, then you can reply with a countermotion of the hand and maybe even feel a tiny foot.

Sex during pregnancy

Sex during pregnancy is a touchy subject for many couples. You can feel that something has changed, but do not like to talk about it. Yet why should in particular sex during pregnancy remain unaffected by a frequent changing of feelings? It is seldom that everything remains the same. Usually, any wishes for change come from the expectant mother. Some women like to have frequent sexual relations during this time, but as a rule the woman's desire is not as strong. What is much stronger now is the desire for tenderness, cuddles or a loving massage. The most important advice that can be offered to the partner is to speak openly and honestly about feelings and changes and to try and be as understanding as possible towards each other. Even if it does not come easy to talk about it, you should really try and overcome this. Especially during this phase it is very important. From the medical standpoint there is absolutely no reason to cease having sexual relations throughout the whole pregnancy. The fear that either the child or the amniotic sac can be damaged is unfounded.

The birth

Duration of the birth

The duration and labour of giving birth vary from one woman to the next, and even with the same woman may differ from one birth to the next. The duration will depend on several factors, whether, for example, this is your first child or whether you have already given birth. Generally, we can say that the birth of a first may last 12 to 14 hours, whereas subsequent births are, on average, shorter. You can never predict the duration of a birth, though.

Labour pains or contractions are the alternating interplay between the contracting and relaxing of the uterus, which is triggered by hormones. We distinguish between contractions that descend, dilate and expel. Descending contractions cause the uterus to drop, dilating contractions initiate the birth and expelling contractions push the baby out. The precise mechanism for initiating contractions has yet to be conclusively researched. Exactly how pains are felt will depend considerably on the sensitivity of the expectant mother – what one person may consider painful may hardly be felt by another.

Preparation for the birth

Antenatal classes are a good source of information for preparing you for the birth. You may start attending these classes from around the 20th week of pregnancy. Here it is more a case of preparing yourself mentally and physically for the birth rather than actual "training". You will learn how to breathe correctly during contractions and how to confidently handle the bodily changes that you have not experienced before. You will be able to dispel fears and uncertainties under the guidance of experienced midwives or doctors by discussing these issues with them. Your partner will usually be welcome too. These classes focus on the following points:

- Relaxation and breathing exercises
- Information on and clarification of issues relating to pregnancy, birth, the lying-in period and breastfeeding
- Getting in touch with your child, consciously feeling your child
- Preparation for the birth together with your partner, massages, etc.
- Preparation for life with baby
- Homeopathy and acupuncture

The complete birth process is divided into three stages:

1. The first stage of labour, dilatation

This initial stage, during which the cervix dilates completely, i.e. up to nine or ten centimetres, is generally the most arduous and drawn-out part. The pains are weak at first and interspersed with long intervals of calm.

2. The second stage of labour, expulsive

This second stage begins as soon as the cervix has completely dilated. It ends with the moment for which you have been waiting for so long: the birth of your child.

3. The third stage of labour, placental

The third or afterbirth stage lasts from the birth of your child until the placenta or after-birth has been expelled, together with the umbilical cord and the membranes.

Choosing the place of delivery

As giving birth is an individual process and is determined by a combination of many factors, you should take time when deciding where you would like the delivery to take place. Ask friends and acquaintances about their experiences and read the information provided by the hospitals and maternity clinics.

Tip

When should you set off for hospital or clinic or, if opting for a home delivery, when should you call the midwife? Signs that the birth is imminent: your waters break, you experience bleeding or you are having contractions at intervals of five to ten minutes.

You should also find out about the different types of birth and birth aids such as the birth chair, wall bars and tubs or birth pools, the type of Caesarean section undertaken there and whether with or without your partner, as well as the possibilities of nursing care and combined care from nurses, paediatric nurses and midwives after birth. You basically have the following choices for giving birth:

- Home delivery
- Maternity clinic delivery
- Hospital delivery

What do I need to pack?

It is wise to pack your bag for your stay in hospital before the expected delivery date. Apart from the items needed for your personal hygiene, the following are recommended:

- Two shirts or long t-shirts for during the labour phase (not longer than knee length,

Examples of risks:

Multiple birth, breech or shoulder presentation (transverse lie), placenta sitting on or above the cervix, conditions pertaining specifically to pregnancy, e.g. gestosis, premature contractions and the threat of a premature birth, any type of childhood condition already established during the pregnancy by ultrasound, incompatibility of blood groups, infections such as hepatitis and HIV (Aids), conditions such as diabetes and heart or kidney diseases.

but covering your bottom)
- One proper facecloth (for when you perspire)
- Bathrobe or long jacket
- Nightdress or nightshirt with buttons at the front (easier for when breastfeeding) or a nursing T-shirt
- Boilable panties
- Nursing bra, breast pads
- Slippers, bathing shoes
- CDs of your favourite music
- Suitable outdoor clothes for when you go home
- And – last but not least – biscuits, fruit or similar for the expectant father

For baby's journey home:
- 1 all-in-one, body
- 1 jacket
- Warm socks
- 2 diapers (nappies)
- 1 romper
- 1 going-home outfit with hat
- Portable child's car seat

Important papers should be kept to hand. But don't worry if you are not perfectly organised – the baby will be born even if you haven't packed your bag!

Tip

Each woman has her own personal pain threshold. Even if you originally intended giving birth without anaesthetic, you can still change your mind spontaneously.

What are the various delivery options?

Moral support during the birth

Relaxation techniques during the birth can take the form of massages, exercises on wall bars and relaxing baths. The presence of someone close to you is important, but you should discuss with your partner as to whether this would actually help you or whether it is more likely to be a hindrance. Not every man who appears big and strong, for example, can necessarily cope with the emotional tension. In this case it would be better to approach a female friend to be with you, maybe one who has already given birth herself.

Pain relief

Everyone knows that giving birth can be very painful. The intensity and types of pain experienced during labour and the birth do, however, vary considerably with each woman. On the one hand, because the course of each birth differs, and on the other hand, because no one perceives pain in exactly the same way as someone else. Expectant mothers face the day of birth with just as much impatience as the fear of the unknown and the pain. What we do know today, though, is that women experience less pain when giving birth if they understand the birth process that is going on. Antenatal classes can offer considerable help here. Find out about the options concerning the handling or treatment of pain during the birth. In addition to homeopathic remedies, these range from relaxation and acupuncture through to painkilling injections and the anaesthetising of the spinal chord region (epidural anaesthetic). Your wishes should always be taken seriously, whether you intend to proceed without any painkilling measures – or whether you make clear that you want to experience a completely pain-free birth right from the start.

Giving birth in hospital offers a range of medicinal aids to alleviate the pain or to make it more bearable. Firstly, there is the possibility of being prescribed general remedies for pain, sedatives, painkillers and narcotics (e.g. laughing gas) or remedies containing opium. Secondly, there is the option of temporarily anaesthetising either all or part of the lower abdomen via local anaesthetic, thus blocking the sensation of pain totally. However, the administering of medication during childbirth can also bring on side effects both for mother and child, so monitoring by a professional is important here.

A few words on the episiotomy

An episiotomy is no longer carried out as a matter of course, but may still be required,

The types of local anaesthetic available are as follows:

The pudendal nerve block

The pudendal nerve block, by which means the outer genitals and perineum are anaesthetised. This is frequently used for the episiotomy, the suture following this, as well as for births aided by vacuum or forceps.

The epidural block

The epidural block (PDA) is injected via a catheter, which remains in place until the birth to enable the anaesthetising substance to be topped up at intervals. It works by "switching off" the nerves responsible for sensing pain. This can also be carried out if a Caesarean section has to be performed. The advantage of the epidural is the fact that its effect is focussed on causing you and your child as little inconvenience as possible.

in particular with women giving birth for the first time. This procedure is undertaken for two possible reasons:

1. If the condition of the child deteriorates, as episiotomy shortens the birth channel, sparing the infant a few contractions.
2. In order to prevent the perineum tissue from being torn too much, especially if vacuum or forceps have to be used to accelerate the birth.

Experienced midwives and obstetricians can also decide in isolated cases whether there is a risk of the perineum tearing and it would be sensible to perform the snip or whether the perineum is elastic enough for the baby to slide out without a snip. The midwife can also support the perineum here to avoid an episiotomy. This involves the midwife gripping the area between the end of the vagina and the perineum. This grip relieves the considerable pressure on the perineum caused by the infant bearing deeper down and helps the muscles to slowly adapt. In an emergency an episiotomy is absolutely essential.

You can also do something yourself to minimise the necessity of an episiotomy:

- Massaging the perineum on a daily basis with a suitable massage oil or a cream enriched with vitamin E will help. Do this by holding the tissue between the fingers and massaging. The perineum is part of the pelvic floor muscular system. It is therefore advisable to repeat on a regular basis the exercises learnt at the antenatal classes for training and relaxing the pelvic floor.

Caesarean section

A Caesarean section will be necessary on medical grounds if it appears that, e.g. the cervix is not sufficiently dilated or if the baby's heartbeat is becoming weaker. Caesareans are also performed when the baby is lying with the feet facing downwards (breech presentation) or across the pelvis (transverse lie) or if the size of the baby is disproportionate to the pelvis.

A Caesarean involves an abdominal operation with full anaesthetic or numbing of the spinal chord. The operation commences with the surgeon opening the abdominal wall and the lower part of the uterus, lifting the baby out, cutting the umbilical cord, removing the placenta and then repeating the steps in reverse to suture the incision.

Excursus: transverse lie or breech presentation

With the transverse lie or breech presentation the risks are increased both for mother and child, so a higher percentage of such births requiring Caesarean section must be reckoned with. You should discuss these risks with your gynaecologist and your hospital at the end of the pregnancy. In isolated cases it may be possible to turn the baby. Exercises and certain alternative methods can bring about a change in the foetal position to the normal position with the head facing down.

Elective Caesarean – pros and cons

Some older women, either due to bad experience or simply immense fear, do not wish for a normal birth, which may involve long labour and probably be fraught with unforeseeable events and pain. They opt instead for an "elective Caesarean", as the term has become known. This means that there are no known medically accepted grounds; the expectant mother simply wishes to have a Caesarean at a predetermined time. This places doctors in the dilemma of performing an operation that puts the mother at risk, yet without a recognisable emergency. Although there is the impression that complications with a Caesarean section have diminished considerably, examinations show that the rate is still up to three times higher than with a normal birth. Moreover, the rate of complications with Caesareans that are necessary even only among the births already taking place is, for various reasons, markedly higher, not only for the mother, but also for the child (e.g. due to the full anaesthetic). The scar from a Caesarean section can also cause problems in subsequent pregnancies and births (e.g. tear, inwardly grown placenta). Examinations also show that the pelvic floor in normal births is placed under so much strain that this can result in frequently occurring problems with the pelvic floor, abdomen and bladder.

Increasingly more doctors are agreeing to the request of expectant mothers for a Caesarean. However, this should only be undertaken after extensive discussion of the risks from this operation. The expectant mother also has to accept that the doctor approached by her may not follow up her wish. The planned Caesarean is generally performed under a spinal block. In contrast to an epidural no

catheter is used, as the administered dose will suffice and therefore no top-up is required. The partner or close friend or relative can usually be present at the birth and may also hold the infant immediately after the birth and once the doctor or midwife has carried out the initial examination. After the operation mother, child and partner will usually be in a room reserved for observation, before being transferred to the ward.

After the birth

Bonding

Either before or directly after the cutting of the umbilical cord the midwife will lay your infant on your tummy. Wrapped in a previously warmed blanket your baby will feel comfortable and secure. The newborn baby recognises the heartbeat, the scent and the voice of his or her mother and will obtain the warmth and security desired through the direct skin contact. For up to two hours the sucking reflex of the newborn baby is particularly strong, so baby's sense of smell will direct the way to the breast. You should use this time to relax and recover from the experience of the birth together with your baby. This bonding or intensive contact with the parents characterises the beginning of the intimate parent-child relationship.

Rooming-in

In many hospitals mother and baby stay together in the same room day and night: this is called rooming-in. It enables mother and baby to get to know each other without disturbance, thus building up a firm, close relationship at an early stage. Directed by nurses the mother learns everything that she needs to know about caring for her little one. Breastfeeding often works better if the two of them spend a lot of time together at the beginning. If you are too exhausted at any point, you need not have a guilty conscience, as it is also possible for the newborn baby to just stay with his or her mother during the daytime, spending the nights on the neonatal ward and leaving mummy to have a good night's sleep.

Lying-in

The lying-in period or puerperium is the term used for the time after delivery and lasts for six weeks or 40 days (maternity leave). In some cultures it is still common practice today for the mother to be freed from all work around the house. This time is then spent solely looking after her baby. You may feel after the birth that you could move mountains. The effect of "happy hormones", or endorphines, will remain for a few days yet. If, however, the birth was strenuous, you will be more likely to feel the need to recover. Whichever applies, the first week after the birth is the most important for your recovery. You should take all the time you need and put your feet up for a break whenever you can.

Much happens to your body after the birth. What took nine months to grow is now shrinking really quickly due to major hormonal changes. The uterus is restored to its original shape, the large wound within the uterus is healing, also the wound from an episiotomy or Caesarean section if relevant. And you begin breastfeeding – providing you wish to, that is.

In earlier days this was the time that mothers feared most, as this was when puerperal fever could occur. Due to the lack of treatment options available then, this was a very dangerous time. Generally speaking this fever is caused by infection and a building-up of the wound secretion or lochia from the uterus. After the placenta is removed from the uterus, a large wound area remains, which needs to heal. This is helped by the contraction of the uterus, which itself is stimulated by the infant's urge to suck when laid to the

breast. For this reason breastfeeding is also of significance and beneficial to the mother. The extent of what the uterus achieves can be seen in the fact that its weight immediately after birth is approx. 1,000 grams; after around six weeks and once the uterus is completely restored, it weighs a mere 70 grams. You can feel the uterus after the birth at around the height of the navel, on the fifth day after delivery it is lying with its upper side already between the navel and the pelvic bones. Once the uterus is restored it can only be felt by the doctor undertaking an internal examination.

Personal hygiene during the lying-in period

Immediately after the birth and with the expulsion of the placenta, the wound will begin to bleed, and this becomes the postnatal period or lochia. As you will already know from the healing of a wound in general, the bleeding changes from a pure blood discharge to a brownish, thinner discharge by the end of the first week, progressing to a yellowish colour by the end of the second week. From the end of the third week this secretion should have considerably reduced and become ever lighter in colour, stopping completely after four to six weeks. It is not normally infectious, as had been claimed for a long time. You should, however, use pads and not tampons, to ensure that the flow is not obstructed.

Tip

You should arrange well in advance for a midwife to help you during the time after the birth. The midwife will, amongst other things, be able to give you support when breastfeeding; she will also monitor the lochia and the restoration of the uterus, as well as offering you tips on handling your newborn baby. A midwife can visit you at home – and if you are breastfeeding this may be for up to a year. Your doctor or your place of delivery will be able to provide you with a list of midwives.

In the first few days it is advisable to flush the outer genital area with warm water each time after going to the toilet. You can also add a remedial substance such as camomile, essence of marigold or sea salt, and then dry the area with a hair dryer. This promotes the healing process and, while the labia still feel sore, is considerably more comfortable than toilet paper. When doing her rounds the midwife can check each time that the body is recovering as it should.

Postnatal depression

Eighty per cent of all mothers experience a period of feeling depressed, normally three days after delivery. This condition is known as the baby blues or minor postnatal depression. Other symptoms include a tendency to weep, mood swings, irritability, anxiety and exhaustion. The radical change in hormones after the birth plays a part in this, as do the woman's personal circumstances. Even after overcoming this minor depression after around a week, you will still need considerable active and moral support from your partner, family and friends during this time. You should not overexert yourself and you need to put aside some time for yourself. In the event that the depression continues, this may mean a more serious form of postnatal depression. It is then essential that you talk to your gynaecologist or your midwife.

Important

You should ensure each day that the bleeding continues. If it stops, wrapping a simple warm, damp towel around the tummy for around ten minutes should help. However, if it stops completely during the first few days, then you should contact your midwife or doctor.

Contraception after birth

The first menstruation can occur at the earliest four to six weeks after the birth. With most women there will be no periods until they stop breastfeeding. However, breastfeeding as a means of contraception is not recommended, as it is not safe enough. When you recommence sexual relations you should use condoms to start with, also to prevent infection. Incidentally, it is also completely normal if you don't feel like having sexual relations soon after the birth. You may also have a dry vagina, this being caused by the particular combination of hormones.

Breastfeeding

The child develops sucking and swallowing reflexes as early as the first week of pregnancy, and this can be observed on an occasional basis during ultrasound examin-ations. This sucking and swallowing reflex reaches a high point during the first minutes of baby's life. In addition to these reflexes external influences can also affect breastfeeding. When baby cries this can trigger production of the hormones required for the breastfeeding process. Anxiety and stress, on the other hand, can make breastfeeding impossible, both for mother and child. This is why it is important to guide mother and child carefully towards breastfeeding. Experience shows that practically every woman is able to breastfeed. Keep at it, as it takes time initially before all goes smoothly. Therefore – be brave!

Breastfeeding offers the most natural, as well as the best nourishment for the newborn child. In the first three or four days after the birth baby is fed the high-protein, low-fat colostrum. This is easy to digest and gives the infant the most important antibodies required. After this phase follows one to two weeks of the interim breast milk, which is lower in protein content but richer in carbohydrates and fats. This is followed by the final mature breast milk.

Tip

Breastfeeding premature babies is also very important and it is possible. If the infant is not yet able to suck independently, it helps and is stimulating to pump off the breast milk and feed to your little one. Yet no matter how important breastfeeding may be, no mother should feel that she absolutely has to breastfeed, if, for whatever reason, she does not consider herself in a position to take this on. It is always worth a try – but forcing it will just result in an unhealthy tension for both mother and child.

While being breastfed the infant receives a pre-milk that is low in fat and thirst-quenching, then full-fat breast milk and, from the second breast, usually a mixture of both. The daily quantity of milk will be regulated according to requirement and the frequency with which the infant is put to the breast. Hospital nursing experts and midwives are available to help you by answering your questions on breastfeeding and offering practical advice with problems. The milk quantity should amount to one-sixth to one-fifth of the infant's weight, in millilitres. Weight increase should then be around 25 to 30 grams a day during the first three months and 20 to 25 grams in the next three months. The birth weight will thus double within four months.

Important

As breastfeeding is also important to the mother, time should always be made available for good advice on this subject. In some hospitals care during the lying-in period is undertaken on a combined basis by nurses, paediatric nurses and midwives, with a special breastfeeding expert also on hand.

However, you should not go too strictly by the figures, but rather observe closely the behaviour of your child. A cheerful, alert and active child is never undernourished.

With premature babies you should talk extensively with paediatricians, as bottle-feeding may be necessary here on leaving hospital.

Part 2

Dear Expectant Mothers,

Within 40 weeks a fertilised egg becomes a little person – a complex, independent human being develops at breakneck speed, equipped with everything required for life. And there is a lot happening in your body, too. In the following you will find information on all these changes going on with you and your child, from the first week right through to the 40th week of pregnancy.

An overview of 40 weeks of pregnancy

Week 1

Child/Mother: During the first week of pregnancy – starting with the first day of the last period – you are not actually pregnant yet. This serves solely as an aid to determining the due date.

Week 2

Child/Mother: Ovulation takes place. During the hours that follow the chances of fertilisation taking place are optimal. If a male sperm cell and female egg cell meet and fuse, these become the first cell of your baby: the zygote.

Week 3

Child/Mother: The fertilised egg cell moves through the fallopian tube to the uterus. On its way there it separates again, forming a spherically shaped group of cells. Once the egg cell enters the uterus it embeds itself in the uterine mucous membrane. The egg cell is referred to as a blastocyst at this stage.

Week 4

Child: Embedded in the uterine mucous membrane the blastocyst starts to develop to become an embryoblast and trophoblast. The embryoblast becomes the baby and part of the afterbirth or placenta. The trophoblast develops later, forming in particular the placenta.

Mother: You are still unaware that you are expecting a baby. There is nothing to indicate a pregnancy. Yet inside your body the organism is already working at high speed to prepare you for the coming months.

Week 5

Child: At the end of the week the embryo already has a heart which is beating. It measures a whole four millimetres at this point.

Mother: You miss your period. The pregnancy test is positive.

Week 6

Child: The embryo is now around six millimetres in size and looks like a tiny bean. Essential organs are already developing: the heart is beating powerfully, liver, stomach, intestines and entrails are taking shape. The foundation for the brain is being laid, the spinal cord is present. Arms and legs look like fine buds of limbs.

Mother: The development of your child may well be accompanied by nausea and exhaustion. You may feel nauseous, particularly in the morning, and you may even vomit. Sleep patterns may also be disturbed. On the other hand, some expectant mothers are completely spared all these classic symptoms of pregnancy.

Week 7

Child: The embryo will now measure around 14 millimetres. The first signs of nose, ears and mouth are already visible. Arms and legs are still very short, but hands and feet are already taking shape.

Mother: Your breasts are becoming larger and heavier. They are already preparing themselves for their later duty – breastfeeding.

Week 8

Child: In the meantime the embryo weighs in at around 1.5 grams. The heart is beating 140 to 150 times a minute – that's twice as frequently as the mother's. The head is becom-

ing ever larger and appears to be trying to overtake the rest of the body in size. The optic nerve is starting to develop and in the mouth a tiny tongue is appearing. The vertebrae are forming around the spinal cord: the spinal column is now developing.
Mother: A pregnant woman should not take on too much. Major physical exertions should be avoided. These can lead to contractions of the uterus and cause a miscarriage. As a general rule, however, the course of a normal pregnancy is not easily disrupted.

Week 9

Child: The embryo is developing at a fast pace: it is around 20 millimetres in size, the head taking up most of the room. The neck is developing and separating the head from the rest of the body. The face is continuing to take shape: eyes and eyelids are already completely formed, space is being made for the lips and teeth.
Mother: A healthy and balanced diet will supply the embryo in its rapid development in an optimum way. Healthy food that is easy to digest will ensure the supply of adequate vitamins and minerals.

Week 10

Child: The outer ear and tip of the nose are growing. Thumbs and index fingers are gradually developing from the hand. The eyes are wide open and are not yet covered by the eyelids. The heart is complete and is subdivided into a left and a right half. The embryo is now around three centimetres in size and weighs approx. 13 grams. It is now "completely formed", as all the organs are now present. From this point it "only" needs to grow to maturity.
Mother: For you, too, the pregnancy is a "high-performance" sport. The kidneys are stepping up their function, the quantity of your blood is increasing by around 35 per cent and your uterus is growing, from around 70 grams at the start of the pregnancy to approx. 1,000 grams at the end.

Week 11

Child: The embryo now becomes a foetus. The development of the face in particular means that the foetus no longer looks like a tiny primordial creature: eyes and ears are positioned correctly. Mouth and nose are continuing to develop. Eyelids now cover the eyes and, concealed behind these, the eyeball is developing.
Mother: You will now start becoming out of breath. The heart is beating faster as the quantity of blood increases, making the heart work harder: the placenta takes directly around 25 per cent of your blood.

Week 12

Child: Baby is moving. Although completely by reflex, the infant's muscles allow movement of the arms and legs, let the head turn and fists be clenched. Beneath the milk teeth, which are already in position, the battery for the second or permanent set of teeth is forming.
Mother: The nausea and fatigue are disappearing. You have been working hard for three months already and your weight will have increased by up to two kilos – yet only around 48 grams of this makes up your baby. The remainder is distributed over the placenta and amniotic fluid, the breasts and the uterus, which has increased in size.

Week 13

Child: The first bones have developed on the cartilage. Leg and hip bones are recognisable and the ribs are being formed from these.
Mother: All things in moderation and stop when it becomes too much. This also applies to sport. In water, for example, the pregnant body feels great, the limbs become lighter and movements otherwise arduous become easy again.

Week 14

Child: If your baby is a boy, he will already have a tiny penis. If it's a girl, the ovaries are making their way to abdomen. The sex glands are now starting to produce hormones, which are necessary for the complete development of the external sex organs.
Mother: Are you over 35? If so, no need for concern. Providing you are experiencing no problems, the pregnancy will be taking its natural course.

Week 15

Child: Your baby is now able to open and close his or her mouth to complete the sucking motions. The skeleton is continuing to form and with the help of ultrasound the circumference of the head can be measured.
Mother: Your waist is continuing to disappear, your tummy is becoming rounder, and trousers and skirts no longer fit. Pregnant women often appear to have a softer facial expression as well. This may be from water being retained beneath the skin.

Week 16

Child: During this week the thyroid gland is starting to produce its hormone. Amongst other things the thyroid ensures that your baby will grow.

Mother: For your baby's thyroid to function correctly it needs iodine, which is supplied via your nourishment. Many doctors recommend a supplement of iodine in tablet form.

Week 17

Child: Your baby now measures around 16 centimetres from head to toe and weighs around 135 grams. Oxygen continues to be supplied via your blood. Yet breathing motions are already taking place – irregular and of no significance. The infant is practising the complex interaction of breathing and swallowing.
Mother: You will be starting to perspire more easily now. This is caused by the natural increase in body temperature during pregnancy. Incidentally, it is quite normal for vaginal secretions to increase noticeably during pregnancy.

Week 18

Child: Your child will now be moving his or her whole body – and kicking or boxing you.
Mother: Suddenly you can feel your baby moving. During this phase of the pregnancy most women feel both physically and mentally in great shape. The earlier complaints have finally disappeared and you are now feeling over the moon about your child. It's quite normal to be more sensitive to heat now – in winter this will actually be pleasant; in summer, on the other hand, it will start to become a burden.

Week 19

Child: Your baby's nerve fibres are increasingly linking up; the muscles are becoming stronger, the movements more defined and the fine motor system is starting to develop. Your child has worked out his or her own "fitness programme" to continue building up the muscular system by gripping, turning, kicking and boxing. The foetus is now also slowly beginning to gain weight.
Mother: By now, at the latest, your tummy will be noticeably growing. The pregnancy will probably now be visible to others as well.

Week 20

Child: Halfway there – and your baby can now hear, and this means not only your heartbeat or the rushing sound of your blood; baby can also hear noises from the outside world. There is now also a final total of 12 to 14 billion nerve cells. Once the brain has fully developed at the age of 18, the cells will gradually start to die off.
Mother: To breastfeed or not to breastfeed? Are you still undecided? It is no cause for alarm if there are already a few isolated drops of milk leaking from your breast. Nature's preparation of your body for the time after delivery is already in full swing.

Week 21

Child: Baby now measures somewhere around 21 centimetres from head to toe, weighs approx. 330 grams and sleeps between 16 and 20 hours a day – sometimes a deep sleep, sometimes lighter. The rest of the day is spent on "fitness training".
Mother: One in two women will suffer from heartburn. This occurs when the pylorus muscle that closes off the stomach sometimes remains open due to the pressure from the uterus. This causes acid to flow back. In addition to this, hands and feet may swell up slightly due to increased water retention. Although this may cause discomfort, it is quite normal.

Week 22

Child: Your baby's skin now has a reddish tinge and is no longer transparent. However, it is still very wrinkled, as the body of the unborn child is still thin and is not yet covered by sufficient fat. Facial features are now very similar to those of a newborn child.
Mother: Personal hygiene (e.g. moisturising the skin and "plucking" massages) are now becoming more important to you, as the tummy and breast tissue is being stretched to the maximum due to the rapid growth. The first stretch marks may appear. These will not disappear after the birth either, but they will fade with time.

Week 23

Child: Your child will now be growing hair – it may be sporadic, but nevertheless. The nails,

too, are beginning to grow. The brain cells are developing and your child is able to both grasp and remember things.
Mother: Itchiness, a heavy feeling in the legs, varicose veins and haemorrhoids may also be complaints you suffer from during your pregnancy.

Week 24

Child: The diameter of your baby's head has now reached the six-centimetre threshold. From head to toe your little one measures around 26 centimetres and weighs about 500 grams. Although the eyes are still closed the eyelashes are now growing.
Mother: Around the end of this week the uterus may reach the height of the navel.

Week 25

Child: Your baby can now absorb amniotic fluid through the mouth and skin, and this is then partly excreted in the form of urine. At the end of the pregnancy the amniotic fluid is replaced within two hours. The amount of amniotic fluid will fluctuate between 300 millilitres and 1.5 litres during the whole pregnancy.
Mother: The baby, who is growing at a fast rate, is now pushing your organs away from their normal position. Your breathing may become more laboured and you will need to go to the toilet more frequently.

Week 26

Child: Your child now measures approx. 30 centimetres from head to toe and weighs in at about 650 grams. If you were to have a premature birth now, your baby would stand a chance of survival.
Mother: Your tummy may well be very round now and the taut skin can become increasingly itchy. At the beginning of the pregnancy you may often have been tired; now sleeplessness will be adding to the more unpleasant side effects.

Week 27

Child: Your baby's skin is now losing its numerous wrinkles and starting to become smoother, as the tiny bolsters of fat that are growing become noticeable. Your infant is now "experiencing" life, being able to pick up voices, sounds and even your feelings. You can tell this by the way baby kicks and punches.
Mother: There may already at this point be colostrum or pre-milk forming in your breasts. This milk is easily digestible and supplies your child with nourishment in the initial feeds after birth until the real breast milk starts being produced.

Week 28

Child: Your baby is now opening his or her eyes and is able to distinguish between light and dark. More and more amniotic fluid is being drunk. Virtually all the fluid is being filtered by the kidneys through the digestive system and is then excreted. Up to half a litre of urine may end up in the amniotic fluid each day.
Mother: You are now fast putting on weight. Not only is your child growing, but also the placenta and the amniotic sac are pushing up the scales. Fat bolsters are becoming embedded in your body – as a natural reserve that you cannot dispose of.

Week 29

Child: Your baby's brain is continuing to develop. A complete network is appearing, which is needed for transmission of the nerve stimuli. Every "train" of this network is insulated with a protective sleeve for swifter transmission. The nerve fibres have also appeared.
Mother: It is not uncommon for you to put on half a kilo in this week alone. Your tummy is stretching all the time and your navel will also be starting to protrude.

Week 30

Child: The skin of the unborn child is changing colour from red to pink. The tiny body is becoming rounder, thanks to the fat deposits, which now comprise up to eight per cent of the body weight.
Mother: Are you noticing a straight dark line in the centre of your large tummy? This is the so-called "linea nigra", which can appear due to the increased amount of pigment in your skin. This will, however, disappear again a while after the birth.

Week 31

Child: Your baby is continuing to swallow lots of water, which is then processed by the kidneys, stomach and intestines. It is assumed that the amniotic fluid changes its taste depending on the mother's diet. Your little one is starting to discover the sense of taste.
Mother: Take extra care not to catch infectious illnesses or diseases. Bacteria or viruses can pass through the placenta wall at this stage, as the villus is now thinner in order to allow through larger quantities of nutrients.

Week 32

Child: Space in your tummy will now be getting somewhat tight for your baby, who is now moving less and concentrating more on finding a comfortable position. If your baby were to be born now he or she would stand a good chance of survival. Even though the lungs may not yet be fully developed, thanks to medical progress it is possible to assist the breathing function.
Mother: In preparation for the birth the uterus may contract. These contractions will last around 20 seconds and you may not even notice them. But you may notice that your pelvis aches, as this will have been stretched.

Week 33

Child: Your child may already be 40 centimetres long and weigh approx. 1,700 grams. Baby will be turning around to find the birth position. Normally, the head will be face down and will be the first part of the infant's body to appear. This applies to 95 per cent of cases.
Mother: Try to avoid compensating for your extra weight by leaning back: the perspective changes and thus also your centre of gravity.

It may well happen that you continually bump into things or drop things.

Week 34

Child: Your baby now has a higher calcium level in the blood than you do. Baby needs this quantity for the bone growth. The placenta provides the calcium by tapping the reserves of the mother.

Mother: In some countries maternity leave starts at the end of this week.

Week 35

Child: A greenish-black, sticky mass now fills your child's bowel – the meconium. It consists of residues of cells and fat from the amniotic fluid, hair, mucous and bile. After the birth your child will excrete this mass. Most babies will have turned by this time into the final birth position.

Mother: Your thoughts are turned more and more towards the birth and the child you are expecting. So what will he or she look like?

Week 36

Child: The fine fluff or lanugo, which covers the whole of the body, is now falling out. Your baby still has no immune system of his or her own. Antibodies are passed on via your body, giving your baby total protection against everything you have built up antibodies against.

Mother: You may now experience irregular preliminary contractions. Some of these may be strong and painful. However, they are infrequent and not at regular intervals. This is the fine difference between these and the real contractions, which occur at regular intervals.

Week 37

Child: Your child is continuing to grow, measuring about 45 centimetres already and weighing approximately 2,400 grams.

Mother: Your placenta now measures 20 to 25 centimetres; it is three centimetres thick and weighs around 500 grams. This is a sufficient size to enable the exchange of nutrients and waste to take place between you and your baby.

Week 38

Child: Your baby is now producing cortisone, a hormone, which prepares the lungs for the first intake of breath; for immediately after the birth the infant's blood circulation will be connected to another system and no longer to yours.

Mother: If you are approaching the birth with apprehension and anxiety: this is completely normal. Many pregnant women become extremely active shortly before the birth, cleaning windows, cleaning out cupboards. The "nest" is being cleaned ready for the new addition to the family. You don't need to resist this "nest-building instinct" either. Your bag should now be packed ready for hospital.

Week 39

Child: Room has become too tight. Your "lodger" has to keep arms tight to the chest and legs bent and he or she is hardly moving around now.

Mother: Don't become concerned if your baby's movements lessen. After all, baby now measures around 50 centimetres and weighs approx. 3,000 grams.

Week 40

There are many small signs that you can recognise as indicators that the birth is imminent: e.g. sudden fatigue or nausea. The reason for this lies in the hormonal changes that trigger the birth. If your waters break or you start bleeding, you should make your way to the hospital or clinic. Regular contractions every five to ten minutes over a minimum of an hour are another sign that you need to set off.

Notes

Space for your own notes

Notes

Dates

You can enter appointment details here of the examinations with your doctor or midwife and note down any questions.

Ultrasound examinations

Date	Time	My questions

Further appointments

When?	Who?	What? (Type of examination)	My questions

Epilogue

Dear Reader and Expectant Mother,

The aim of this brochure is to give you a general overview of the pregnancy and the course it takes, as well as supplying you with information on the topic of antenatal care. Of course you won't find a comprehensive answer to all your questions, for pregnancy is actually a complex phase in the life of a woman. So get in touch with your gynaecologist or midwife and don't be afraid to keep asking questions. What's more, the health service or health insurance companies and family planning clinics will also be able to help you.

You are "expecting" a baby – a term we still sometimes use. Antenatal care is here to help ensure that this becomes a reality. Yet you also need to trust your body, as a "normal" pregnancy is much more frequent than one with complications. Make your pregnancy a time to experience calm and joy with your child – because it is something really special and unique!

I would like to wish you all the best!

Yours,

Professor Dr B.-Joachim Hackelöer
(Chief Physician, Obstetrics and Prenatal Medicine, Asklepios Clinic Barmbek, Hamburg, Germany)

The author

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