

# A healthy pregnancy

All that matters now



european foundation for  
the care of newborn infants



## Dear Parents-To-Be

Expecting a baby is a wonderful experience. Look forward to the coming months and the new life with your baby! A time full of life-enhancing changes lies in front of you.

This guide contains the main facts you need to know on the subject of pregnancy. It is not intended to be a comprehensive childbirth manual and is no substitute for the advice of an experienced midwife or doctor. However, we hope it will give you an idea of the most important aspects and will help you to enjoy a healthy and happy pregnancy. This guide will also be useful if you are planning a pregnancy. With the knowledge and options available today, you can help give your baby everything needed for a good start in life even before your baby is born.

We would like to thank Bübchen, Nestlé and Thermo Fisher Scientific for their commitment and support in the production of this brochure.

We wish you an exciting, carefree and – the most important thing of all – a healthy pregnancy and hope that you will find lots of useful and helpful advice as you browse through this guide.

Silke Mader

*Planning a baby? Newly pregnant? You probably have lots of questions in this new situation. This guide contains important information to get you started and may have the answers to a number of your questions.*

PD Dr Dietmar Schlembach

Head of Obstetrics Department, Vivantes Klinikum Neukölln, Berlin, Germany

*We know today that our lifestyle, environment and other factors influence the outcome of a pregnancy. This brochure explains many of those influences. Find out what can help you to do the best for your child and for yourself.*

Prof. Dr Kypros Herodotou Nicolaides

Director of the Fetal Medicine Foundation, Professor of Fetal Medicine, King's College and University, UK

For the sake of readability, masculine and feminine grammatical genders will not be used in combination in the rest of this document. All personal pronouns apply to both genders.

This brochure is intended to be a guide but cannot and should not be a substitute for in-depth discussion with your doctor or midwife. Please make a note of any questions you may have on the subjects covered in this brochure for your doctor or midwife to answer at your next visit.

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# Pregnancy

Stephanie Polus



## A little miracle in the making – in your body!

How the little miracle comes about never loses its fascination. It starts out very, very small. After conception, the fertilized egg travels down the fallopian tube and implants itself in your uterus. This takes about five to ten days. In the uterus, the ball of cells divides into the placenta and the embryo, which is tiny at first – smaller even than a pinhead. The placenta keeps the baby supplied with nutrients during the pregnancy. It also starts producing hormones immediately to prepare your body for pregnancy. You may have already noticed some of the typical signs of pregnancy: nausea, flatulence and digestive problems, changes in your sense of taste (perhaps a metallic taste in your mouth), a tugging sensation in your pelvis, sensitivity to odours, tender breasts, and feeling tiredness. These symptoms differ in severity from woman to woman but fortunately stop within three months in most cases.

A new human being comes into existence and continues to develop and grow over the forthcoming months to become a new person – your baby.

### Morning sickness?

Occurring mainly in the mornings but sometimes lasting all day, nausea may cause some discomfort during the first couple of months. The best advice is to have something small to eat before leaving your bed. How about having your partner bring you freshly brewed ginger tea and a piece of toast or a rusk in bed? You may also want to have several small meals spread throughout the day rather than a few large ones.

Please attend all your scheduled prenatal appointments. Doing so will give you peace of mind about your health and your baby's well-being.

## What happens during the months of pregnancy?

The length of your pregnancy is calculated from the first day of your last menstrual period. This adds up to nine calendar months (30 or 31 days each) or 40 weeks of pregnancy. Pregnancies are often divided into three-month periods (trimesters).

### 4 – 7 weeks of pregnancy

The embryo's heart starts beating roughly as early as about fourth weeks of pregnancy. The tiny creature inside you is making enormous strides in development during the first two months. The brain cells and nervous system are developing at an incredible pace. At the end of the second month, your baby is about three centimetres long and eyes and ears have already started to develop. Slight bulges indicate where arms and legs will grow.

### 8 – 11 weeks of pregnancy

The growth of your baby's arms, legs, nose, mouth, ears and the brain develop at a speedy rate. The changes in your own body are doing great things too. You are producing up to twice as much blood to keep your baby well supplied. Pregnancy changes the metabolism (biochemical and hormonal reactions in the body that keep the organs and cells working in optimal order) and circulation of the female body. Be sure to drink at least two litres per day. This and the gradually increasing pressure of the growing uterus on your bladder means you have to urinate more frequently.

### 12 – 15 weeks of pregnancy

During this time, your baby's brain starts controlling movements and reflexes. Your baby is now able to move voluntarily. Your baby continues to grow at a rapid pace and can swallow and suck their thumbs. Your stomach starts to show and any morning sickness prevails. You feel more stable and able to look forward to what lies ahead.

### 16 – 19 weeks of pregnancy

Do you ever notice a fluttering sensation in your stomach? It might be your baby moving about! Your baby can hear you and the things going on around you. If you find you are sweating more and need to take a breather every now and then, it's normal. Your body temperature is slightly raised because of the changes in your hormones.

## The first 1000 days – the lifetime impact of a healthy diet

### 20 – 23 weeks of pregnancy

Your baby is quite the acrobat these days, moving about so much that the kicking is visible from the outside and not just perceptible to you. The baby's father can participate more in the pregnancy and communicate with his child. Slight, regular lurching sensations reveal that your baby has hiccups.

### 24 – 27 weeks of pregnancy

Your child's facial features start forming. By the end of the seventh month, your little one can open the eyes and distinguish between light and dark. Your baby is putting on weight and you notice the effects of that, too. From 26 weeks of pregnancy, you may be gaining 0.5 to 1 kilogramme (1.1 – 2.2 lbs) per week. Things start to become more of a burden. The additional weight puts a strain on your back and legs, your organs are getting squeezed and you have less freedom of movement.

### 28 – 31 weeks of pregnancy

Your baby's memory develops during this period and already recognizes your voice. Your baby's sense of taste develops, being able to taste the slight sweetness of the amniotic fluid, which is similar to the sweetness of your breast milk. Your uterus is getting crowded as your baby grows. And your baby needs to rest more– just like you.

### 32 – 40 weeks of pregnancy

In the final two months, your body gets into gear for the birth. Your baby drops down into the pelvis during the final weeks of pregnancy with the head facing downward to get into the right position for delivery. You will notice this from the tugging sensation in your back and can even see it from the lowering of your stomach. Don't forget to pack a bag for the hospital four weeks before your due date so that everything is ready when you go into labour.

During a child's first 1000 days – **from conception until about two years of age** – it grows and develops at an amazing pace and is heavily influenced by environmental factors. The nutrition babies receive before and after birth, affects their health. The latest research data increasingly shows the importance of a balanced diet for the mother-to-be, breastfeeding mother and baby to keep the child healthy – in babyhood and beyond.

#### The first 1000 days




# How to give your newborn baby a good start in life

Prof. Jörg Dötsch

Healthy growth and prevention of obesity is a good example of an area influenced by habits formed before birth. Although many factors influence whether a child will become overweight or obese, one of the most important seems to be nutrient intake before and after birth.

If the mother is overweight, the child may be overfed during the pregnancy and is then more likely to become overweight or develop diabetes later in life.



If you are overweight, you should try to reduce your weight even before the pregnancy and switch to a lifestyle that includes more exercise and a healthy diet. It is also important to keep weight gain during the pregnancy within limits. Ask your healthcare professional about this.

Malnutrition of the baby in your womb may also cause complications for the child later on. A one-sided, nutrient-poor diet on the part of the mother – due to an eating disorder or similar – is not the only possible reason for malnutrition in the baby. Certain conditions such as pre-eclampsia, kidney disease, or smoking and alcohol during pregnancy may prevent the baby from growing adequately in the mother's womb, resulting in a lighter and smaller baby. A baby that doesn't receive enough nourishment in the womb learns to make do with less and may not be able to cope with a comparatively plentiful food supply outside the womb. This imbalance may make the child more susceptible to obesity, high blood pressure or diabetes.

Babies who are born too small and light do not need to gain the proper weight for their age quickly. In fact it seems that this (well-minded) overfeeding may make the child more likely to develop health problems later on. It is much better if the parents devise a plan with their child's healthcare professional for slow weight gain over a longer period to work toward a normal weight for the child's age.

Newborns should be breastfed if at all possible. As well as promoting a close bond between mother and child, breastfeeding helps prevent certain health issues later in life both for the child and for the mother.

If – for whatever reason – you are not breastfeeding, don't worry: your healthcare professional will be happy to advise you on infant nutrition and a healthy way to raise your child. Your loving care promotes your baby's development and is just as important.

## Exercise: How active should I be?

Exercise is good for you, trains your body and gets you fit for the birth. Ideally you should exercise for half an hour each day. Gentle activities like hiking, swimming, running/walking or yoga are good options for staying fit during your pregnancy. It is important that you listen to what your body is telling you and know your limits. Whatever activity you pursue, you should be getting enough air to be able to carry on a conversation or sing along to your favourite song. If you are an experienced runner, you are welcome to keep it up at first but should be all the more careful later in your pregnancy. The risk of injury is higher during pregnancy because your ligaments and joints become looser. You should also be aware of this fact if you do aerobics or weights and take care when performing sports that involve sudden stopping, such as tennis or squash. Most activities are not a problem until about the sixth month of pregnancy, which is when you should start taking things easier. You can take special classes for pregnant women to keep fit and improve your well-being.

**Important:** Daily pelvic floor exercises prepare your pelvis for the stresses and strains of labour and delivery.



## Healthy diet: quality not quantity

A balanced diet during your pregnancy is important not just for you but even more so for your baby's healthy growth and development through to adulthood. The recently published guidelines of the Young Family Network (see useful links and address at the back of this brochure) provide information you can rely on. Many women are unaware that their energy requirement at the end of pregnancy is only about 10% (i.e., about 200 kcal/day) higher than before pregnancy. Women often tend to overestimate their energy requirement during pregnancy in the belief that they have to „eat for two.“ Excessive calorie intake may cause unfavourable weight gain and affect your baby's health. Your requirement for specific nutrients rises much more than your energy requirement, so you should pay particular attention to the quality of your diet rather than quantity.

Women do not need to keep to a special diet during pregnancy but should follow the general rules for a healthy diet with plenty of vegetables, fruit, wholegrain products, low-fat milk and dairy products and low-fat meat. You should eat oily marine fish (e.g. salmon, mackerel or herring) twice a week. This gives your baby the needed omega-3 fatty acid DHA, particularly important for brain development. Women who eat little or no fish should take an omega-3 fatty acid DHA supplement (at least 200-300 mg/day).

You need to take care with some foods. Caffeinated drinks should be taken in moderation only. Up to three cups of coffee a day is fine. Caffeinated energy drinks are inadvisable and you should avoid alcohol altogether. Liquorice is not recommended in large quantities.

Also avoid raw animal products which may contain toxoplasmosis, listeriosis or salmonella pathogens that might harm your baby. Examples include raw or partly cooked meat (e.g. salami, tartar), raw fish (e.g. sushi, smoked salmon), unpasteurized milk and cheese made from unpasteurized milk, and dishes containing raw eggs (e.g. tiramisu). You should always wash vegetables and salad and avoid ready-to-eat packaged salads. You should also limit the consumption of sweet and salty snacks, sugary drinks and foods containing large amounts of saturated fats, such as high-fat meat and dairy products.

## Folic acid

Women planning a pregnancy or who might become pregnant should add a supplement containing at least 400 micrograms (µg) of folic acid/day to her balanced diet and continue taking it until at least the end of the first three months of pregnancy. This helps to protect your child from birth defects. It also makes sense to eat plenty of folic acid-fortified products such as folic acid-rich salt, flour and baked goods in addition to taking a folic acid supplement.

## Iodine

Before and during pregnancy and while breastfeeding, a good supply of iodine is essential because it influences thyroid hormone production and hence the development of the baby's brain. Good sources of iodine include marine fish, dairy products and iodized (and folic acid-fortified) salt. A daily iodine supplement containing 100 (to 150) µg of iodine is recommended for women who are pregnant or breastfeeding. If you have thyroid disease, you should ask your doctor for advice.

## Iron

A balanced diet with plenty of variety can help you to avoid iron deficiency during pregnancy. Iron in a form that our bodies can absorb readily is mainly present in meat, meat products and fish. A number of plant-based foods such as wholegrain products and dark-coloured vegetables contain iron that is, however, not as easily absorbed in the gut. Simultaneous intake of vitamin C in citrus fruits, for instance – improves iron absorption. Pregnant women should take an iron supplement only if so advised by a doctor on the basis of a blood test.

## Vitamin D

The mother's vitamin D supply has a direct impact on the baby's vitamin D supply and hence the baby's health. It is particularly important for healthy bones. Vitamin D intake is improved when you expose your skin to the sun. Our diet generally does little to supply us with vitamin D. Fair-skinned people get enough vitamin D during the summer season by exposing the face

and arms to sunlight without sunscreen for about five to ten minutes daily around noon. If you rarely go out in the sun, keep most of your body covered, use sunscreen or in case you have darker skin, you should take a supplement that supplies 800 units (IU) of vitamin D daily.

## Vegetarian and vegan

A balanced, mixed vegetarian diet with dairy products and eggs can meet your nutrition needs even during pregnancy. However, some nutrients may be in short supply. If you do not eat oily fish, you definitely need a supplement that gives you at least 200-300 mg of the omega-3 fatty acid DHA daily. An all-vegetable (vegan) diet requires the use of supplements to protect your child. You should remember to take vitamin B12 supplements to enable your baby's brain to develop normally. Make sure to discuss this with your doctor, who may recommend other supplements such as iron after an individual consultation and examination.

## When the baby is born

Breast milk is the best nutrition. Breastfeeding protects your baby against infection and is good for your baby's long-term development and health. The nutrient mix in breast milk is ideally adapted to meet your baby's needs. In addition to the nutrients provided in the breast milk (or formula), all babies receive vitamin K for protection against bleeding. Vitamin D and fluoride are supplemented to protect the babies' bones and teeth during the first 12-18 months.

While you are breastfeeding, you should continue taking a supplement of 100(-150) µg iodine a day, and also of 200 mg of the omega-3 fatty acid DHA unless you eat about two portions of (oily) marine fish per week.

If you do not breastfeed your baby at all or combine breast and bottle feeding, your baby will need starter infant formula (pre or 1-formula) for the first months. Starter formula can – but need not – be replaced by follow-on formulas (2-formula) once your baby starts taking solid foods. Ask your responsible healthcare professional for advice on which to choose. Provided that the quality of the protein is high, an infant formula with a lower protein content that is closer to the level in breast milk (not more than 2 g/100 kcal) promotes normal, age-appropriate growth and reduces the risk of later obesity. The starter infant formula should contain the long-chain fatty acids (LC-PUFA) DHA and arachidonic acid.

Babies who are not fully breastfed and whose parents or siblings have allergies (see allergy check) should receive infant formula with hydrolysed protein (HA formula) for the first four months as this may reduce the likelihood of allergies later on.

Important to know: Infant formulas of whatever kind should always be prepared fresh for each meal. Unused prepared formula must not be stored and reheated for the next meal. The reason it must be discarded is that prepared milk is an ideal breeding-ground for harmful bacteria. When preparing powdered feed, you should use the cold tap and leave it running until the water coming out of the tap is cold. Make sure the water is lukewarm (no hotter than 40° C) when you pour in the infant feed.

Babies should receive additional foods (baby food) at 17 weeks at the earliest and at 26 weeks at the latest. This applies even if there is a family history of allergy. Delayed introduction of solids does not help to prevent allergies. You can prepare baby food yourself or buy commercial ready-to-use products. The first solids a baby should eat are pureed vegetables, potatoes and meat (or fish) followed about one month later by an additional dairy-cereal mix and an additional cereal-fruit mix about another month later. Your baby does not need additional fluids – ideally water from a mug or cup – until the third meal is introduced. Avoid sugary drinks and avoid cow's milk as a drink for your baby until your baby is one year old.

You can actively contribute toward your baby's health and development with a balanced diet during pregnancy and during your child's first two years.



# Physiological skin changes during pregnancy

Prof. Klaus Vetter

## Allergy check: Is your child at risk of allergies?

One in three newborns today has an increased risk of developing allergies. Test now whether your child is one of them. Mark the relevant types of allergy with a cross. Your baby has an increased allergy risk if a family member (mother, father or sibling) has now or used to have any of the listed allergies.

Type of allergy (now or in the past)	No history	Mother	Father	Baby's sibling(s)
Eczema (atopic dermatitis, endogenous eczema, atopic eczema, dermatitis)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Allergic asthma	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Allergic nose and eye symptoms (Hay fever, seasonal or year-round rhinitis, allergies to household dust, animal hair, pollen)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Food allergies (e.g. cow's milk, soy, egg allergy)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Your child has an increased risk of allergy.**

Breastfeeding is best for your baby. If you are not breastfeeding or combining breast milk and bottle feeding, you can give your child HA formula for allergy protection. Your responsible healthcare professional will be glad to advise you.

The skin is often considered to be a mirror of inner health; during pregnancy, it reflects how the mother is adapting to her changing circumstances. For some women, it can feel like a second puberty – because of the hormones – with acne, greasy skin and greasy hair. The advice is to intensify cleansing and skin care, one good reason being that drug treatment is inappropriate during pregnancy.

Hormones are also what make freckles darker or cause chloasma – mask of pregnancy – in some women. To avoid this, wear adequate sunscreen. Hyperpigmentation of the nipples and genitals may reverse, likewise the linea nigra (pregnancy line), a dark line running from your bellybutton down your belly. Moles, however, should be taken seriously, especially if they change size or shape; becoming darker is allowed.

Distended veins during pregnancy cause thick swollen feet and legs as the blood loses the fight against gravity. Spider veins or varicose veins may form. Ask your doctor about support stockings, which your doctor can prescribe for you. Wearing support stockings regularly – especially during long car trips, air travel or at work if you have to sit or stand for long periods – can help you to prevent varicose veins and thrombosis. Although it may be a pain, particularly in the summer, it's worth it in the long run – for cosmetic reasons, sure, but mainly for health reasons!



Like varicose veins, stretch marks rarely disappear. Rapid fluctuations in weight – not only during pregnancy – become too much for the subcutaneous tissue, which tears under the strain. The resultant stretch marks are purple at first and then turn into permanent white marks. It is believed that skin moisturized with plant-based oils or lotions is more resistant to developing stretch marks.

Many women find „pinch massage“ helpful from about the 12 weeks of pregnancy. Twice a day, pinch up skin between the thumb and index finger, raise slightly and let go.





# Medicines during pregnancy

Prof. Christof Schaefer

You should omit the area over the pubic bone as massage in this area may cause uterine contractions. Pinching relaxes and softens the skin and may help it to stretch more easily. Late in pregnancy, your skin over the abdomen is too tight and engorged to grip or pinch. Gentle massage with a dry brush or the fingertips is a good alternative to pinching. The movements stimulate the circulation and help the skin to withstand the strain.

Bathing or showering? – is a question many women ask themselves during pregnancy. In theory, you can do either. However, bathing withdraws more oil and moisture from the skin than showering. Moreover, bathing in water that's too hot can affect your circulation and indirectly harm your unborn child. In the final weeks of pregnancy, hot bathing may even induce pre-term contractions. Therefore, brief showering is recommended especially toward the end of pregnancy.

Your hair and skin need more intense care all round during pregnancy. Soap-free cleansing followed by suitable moisturizing are recommended in view of the increased sweating and dry skin typical of pregnancy. This helps the mother-to-be to experience pregnancy as a harmonious and relaxing event.

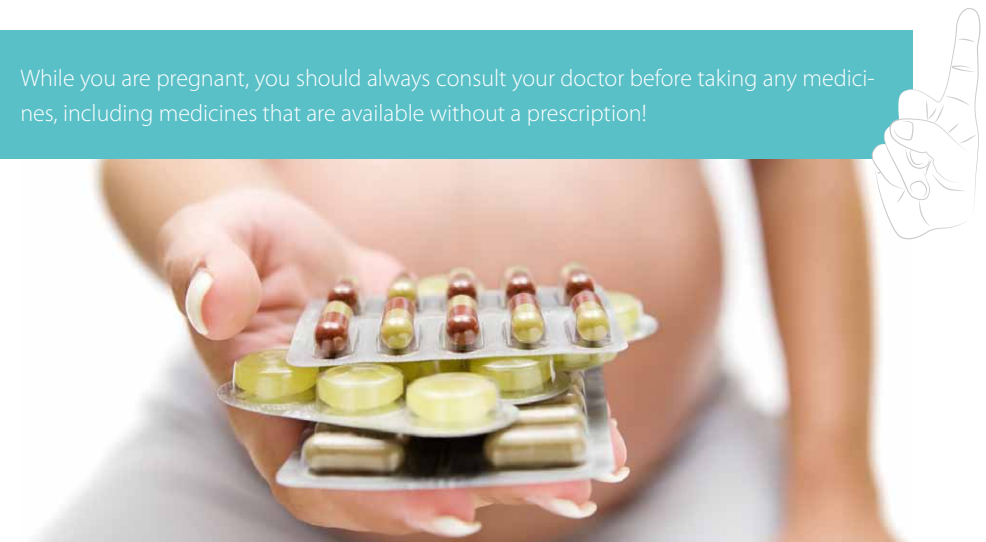
If you are ill, you can or must take medicines while you are pregnant. The medicines you take should be safe not just for you but for your baby as well. Sometimes the information in package leaflets may not be much use in helping you to choose the right medicine. The wording of the information tends to be too general to enable a person to understand how safe a medicine genuinely is during pregnancy.

For most illnesses, sufficiently well studied drugs are available which can be taken during pregnancy. All other medicines should be avoided during pregnancy. There are some medicines which you should stop taking a certain amount of time before you are even planning a pregnancy. If you are planning or already expecting a baby, you should play it safe and talk to your healthcare professional about any medicines you are taking. Your professional may switch you to a different treatment or contact your maternity unit for the sake of your safety and that of your child.

While you are pregnant, you should always consult your doctor before taking any medicines, including medicines that are available without a prescription!

## Dental and oral hygiene

It is important to pay attention to your oral hygiene while you are pregnant. The acid from throwing up and the increased blood supply to the gums during pregnancy are hard on your teeth and gums. More frequent brushing, flossing and regular visits to the dentist and professional tooth cleaning are urgently recommended to prevent cavities and periodontitis, which have been linked to preterm birth. For the best, make a dentist's appointment right away and don't forget to tell that you are pregnant!



# Alcohol and drugs during pregnancy

Prof. Joachim W. Dudenhausen

You should never just stop taking a medicine without first consulting your healthcare professional or start taking any new insufficiently tested medicines. On the other hand, taking a medicine that is not recommended during pregnancy does not necessarily equate with a major risk. In any such case, your healthcare professional can conduct a high-resolution ultrasound scan to check the baby's development in the uterus.

## Recommended medicines for a number of common conditions during pregnancy

Allergies	Loratadine
Heartburn and gastritis	Antacids, e.g. magaldrate Established H2 blockers such as ranitidine Omeprazole
Pain	Acetaminophen. Single-dose use: codeine Ibuprofen, diclofenac (only until 27 weeks of pregnancy) For migraines: sumatriptan
Nausea/vomiting	Meclizine Dimenhydrinate Metoclopramide



Again the same applies: to protect your baby, remember that you should only use medicines in consultation with your healthcare professional

## Vaccinations

You should check your vaccination status before becoming pregnant and ask your responsible healthcare professional to give you any vaccines you need. Any missing vaccinations should be given even if you are already pregnant, especially for tetanus, diphtheria, polio and the flu. No vaccine has ever been shown to put your baby at risk.

For most mothers, one thing is clear: no alcohol while I'm pregnant!

Experts believe that not only the amount of alcohol taken but numerous other factors may influence the harmful impact of alcohol during pregnancy. One thing that is certain is that alcohol in any amount can have serious consequences for the baby.

The harm alcohol causes during pregnancy has been known for more than 100 years. Alcohol enters the bloodstream of the unborn child and does the greatest harm to brain development. Affected children have a condition called foetal alcohol spectrum disorder (FASD). FASD manifests itself in a variety of symptoms which may differ in severity. Children with FASD tend to be physically and mentally underdeveloped, have problems with behaviour, major difficulties sleeping, eating disorders and motor agitation.

FASD children may have attention problems and reduced intelligence. As adolescents they are susceptible to aggression and depression and have difficulty forming bonds with others. However, some FASD children are of normal intelligence and only have behavioural difficulties. These „less severe cases“ are frequently not detected as such.

FASD is 100% preventable – simply and only by not drinking alcohol while pregnant. Experts therefore advise women to drink no alcohol whatsoever during their pregnancy. You should not have „that one glass“ at any time, be it toward the start of the pregnancy or in the final month. Be careful with cravings for liqueur chocolates or similar! That can easily cause you to have a significant amount of alcohol in your system.

Exactly the same applies while breastfeeding. While you breastfeed your baby, your baby drinks all that you drink. So the same rule applies during this period: Take no alcohol at all – not even the proverbial „glass of bubbly to get the milk flowing.“


Drug use of any kind should be totally off limits during pregnancy.

# Smoking and passive smoking during pregnancy

Doris Scharrel

Something many couples planning a baby do not know: Smoking has an effect on the chances of conceiving. Couples who smoke wait longer on average for a pregnancy than non-smokers. Men should know that smoking affects the quality and quantity of their sperm cells and may even make them infertile.

Unfortunately, many mothers-to-be still don't stop smoking even when the pregnancy has been diagnosed and take the risk of harming their unborn child by continuing to smoke. Right at the start of a pregnancy, fewer blood vessels form in the placenta of women who smoke, which impairs the supply of oxygen and nutrients to the baby.



If you smoke about two cigarettes a day and multiply that by 280 days of pregnancy, this gives the number of cigarettes your child has smoked before coming into the world, i.e. about 560 cigarettes. If you smoke about 10 cigarettes a day, your child has taken in the toxins contained in about 2500 to 3000 cigarettes by the time of delivery.

Your baby develops very rapidly during pregnancy and the high rate of cell division makes the baby vulnerable. The unborn child is entirely unprotected and the baby's body is defenceless against the toxins you expose yourself to while pregnant.

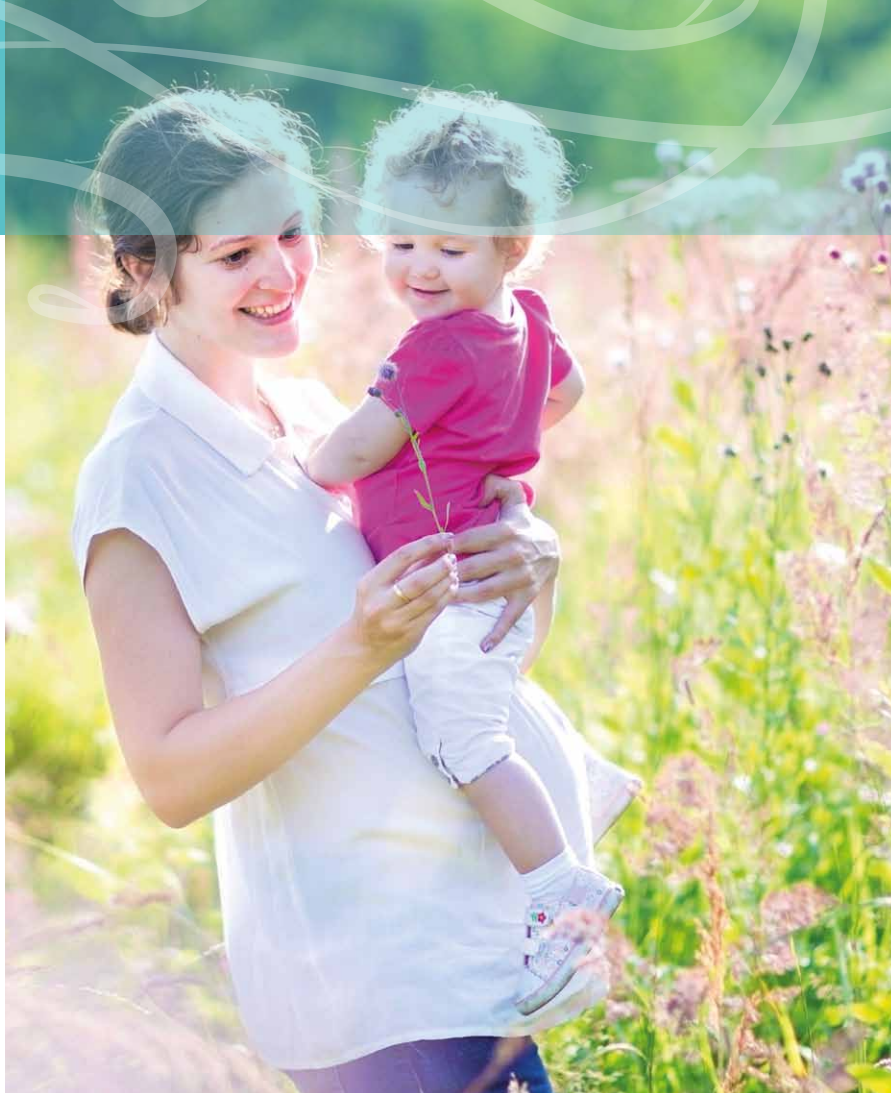
Smoking during pregnancy has been proven to increase the risk of miscarriage, doubles the risk of preterm birth, lowers the baby's chances of being born with a normal weight and delays maturation of the lungs in the foetus. An increased risk of birth defects, stillbirth and sudden infant death syndrome (SIDS) has also been linked with smoking. We are not saying this to scare you but to show how very serious and important it is to stop smoking. It is worth stopping smoking overnight at any time during pregnancy. Gradually stopping smoking while you are pregnant – „tapering“ – should not be an option and does harm to your baby.



The smoking ban applies while breastfeeding, too. The toxins from tobacco smoke pass from your breast milk to your child. If you are unable to stop smoking, you should reduce the contamination of your breast milk by deliberately not smoking before feeding your baby. Very heavy smoking is hardly compatible with breastfeeding a baby.

In many countries telephone help lines, online programmes or group therapies are offered to help you quit smoking. Some health insurances or other providers even offer specialized programmes for pregnant women to help them quit smoking. Inform yourself in your city for available programmes.





**Passive smoking** harms your baby's health just as active smoking and may even cause sudden infant death. Tobacco smoke is the most hazardous preventable toxin found in enclosed spaces today. It contains the same toxic and cancer-causing substances as directly inhaled smoke. The residence time of individual constituents of passive smoking in ambient air is substantial. These tiny particles deposit on walls, ceilings, floors, clothing and objects and are later released back into the ambient air. You should avoid interiors where smoking is allowed, even if nobody is currently smoking and the ventilation is good. Even small amounts of these particles can damage your baby's genes.

To protect your baby, you should ask the people around you, especially your partner, not to smoke in your presence. Smokers should change their clothes after smoking and wash their hands (hair, too, if possible) before going near you. These rules also apply after the birth of your child if you spend time in rooms where people have smoked.

„I had big problems stopping smoking. If you've had the habit for many years, it's really hard. The habit is the worst thing. What helped me most was that my partner quit the same time as I did, so we went through it all together. Ben is two now and we haven't touched another cigarette. For his sake.“

Hannah, 27 years old, mother of Ben (age 2)

### Toxins in everyday life

There are numerous other everyday substances that you should avoid if possible during pregnancy. You should avoid exposure to the fumes from solvent-containing paints used to paint interiors and ventilate rooms where acrylic paints and glues are in use. You should let others fill your car engine or at least spend as little time as possible standing by gas pumps. In most countries, laws protect pregnant women from hazards in the workplace, such as harmful fumes and gases. The usual everyday protective measures for handling aggressive cleaning products, pesticides, solvents and agricultural chemicals apply all the more during pregnancy. Additive exposure to a large quantity of chemicals from all sorts of areas in the world around us is especially significant. Therefore, minimize your contact with chemicals in everyday use as much as you can.

Try to use everyday products – cosmetics, cleaning products, detergents and clothing – with certified eco-labelling/Green Stickers.



# The pelvic floor during pregnancy and childbirth

*Prof. Thomas Dimpfl and Christiane Schiffner*

The pelvic floor is a layer of muscles spanning the area below the pelvis. It separates the abdominal cavity from the area beneath. Because we walk upright, our pelvic floor has a lot of weight to bear. Its job is to keep body orifices (vagina, urethra and rectum) „watertight“ and enable emptying as necessary.

Your pelvic floor comes under a lot of strain during pregnancy and labour. The growing foetus and uterus add to the weight on your pelvic floor. Hormone changes change the architecture in the muscle layers to make them softer and more elastic for childbirth. In very severe cases, the strains during pregnancy and birth may give women a weak bladder (urinary incontinence).

Specific risk factors make bladder dysfunction more likely: a large child, hereditary weak connective tissue, late motherhood, obesity or multiple pregnancy. Other risk factors for incontinence include a long labour, obstetric injury such as severe perineal tearing and operative vaginal delivery (forceps birth, for instance).

Prevention ideally begins with pelvic floor exercises starting before the pregnancy and continuing regularly throughout. You should aim to normalize your weight before pregnancy and avoid excessive calorie intake during the pregnancy. Perineal massage prior to the birth can make your perineum softer and help prepare it for the extensive stretching associated with childbirth. This will help you to prevent severe obstetric injuries.

Hormone changes after childbirth cause your pelvic floor to start changing during the postpartum period in order to return to the pre-pregnancy state. However, your pelvic floor is very soft and vulnerable to injury during the first weeks after birth. Therefore, you should take great care to avoid heavy physical effort during this period. You should not lift more than five to ten kilogrammes (11 to 22 lbs), which approximates the weight of your baby in the carrier. It is especially important for you to start postnatal exercising about three months after delivery (rule of thumb: no earlier than six weeks after an uneventful birth and ten weeks after a caesarean).

You should integrate pelvic floor exercises in your everyday life. Your pelvic floor will thank you for it.





# Infectious diseases

Prof. Udo B. Hoyme

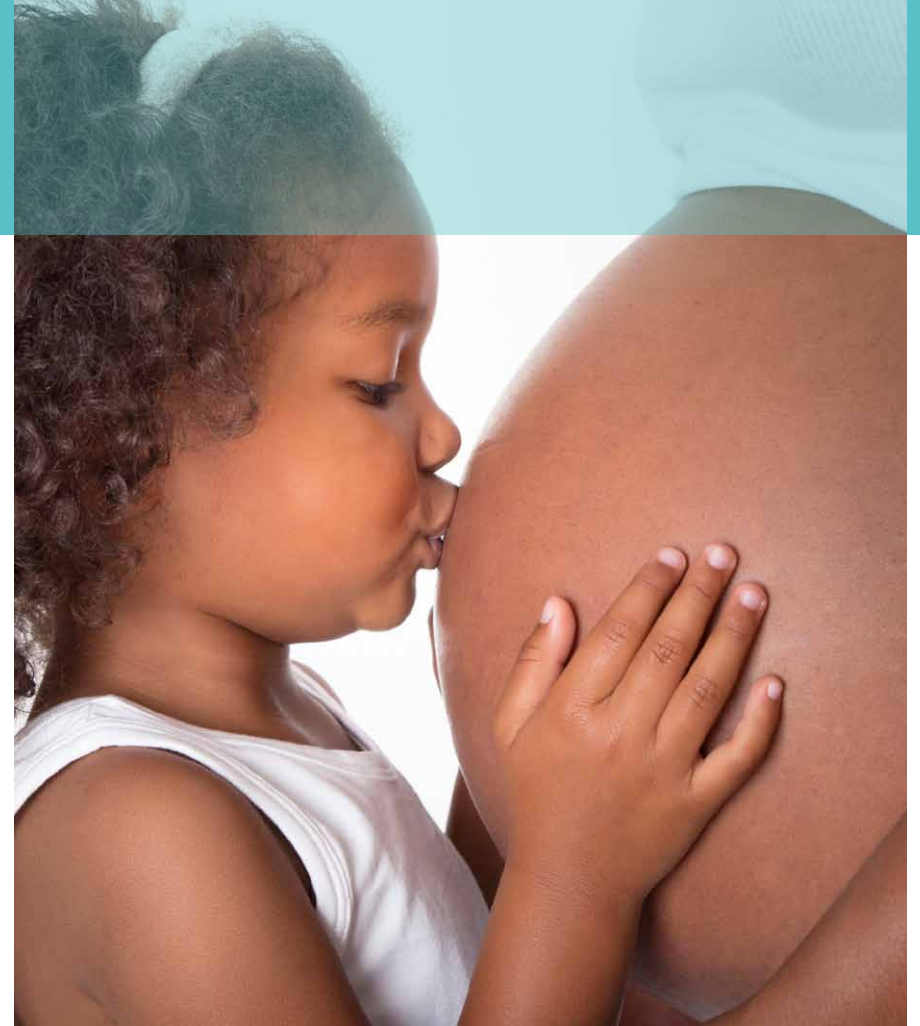
Right at the start of prenatal care, you will be screened for any conditions and infections so that nothing stands in the way of your baby's healthy development. Your healthcare professional can start treatment early to counteract and prevent any complications if necessary.

If anything seems unusual or different, you should see your healthcare professional right away. Please do not wait for the next scheduled prenatal visit. Recognized early, infections can be treated effectively with no harm done.

A – frequently unnoticed – vaginal infection may present a serious threat. The vaginal milieu usually has an acidic pH of 4.0 to 4.4. This level is maintained by lactic acid bacteria communities in the vagina which act as a natural barrier to the spread of harmful bacteria. During pregnancy in particular, this milieu may become disrupted more easily because of fluctuating hormone levels. A pH above 4.5 is a sure sign that certain types of bacteria are multiplying that might make you more susceptible to preterm contractions.

There are different ways these days to monitor the acid level of your vagina yourself for example with an indicator strip or self-measurement gloves. Please ask your healthcare professional which method is available in your country. To determine your own pH at home, you only have to compare the colour of the indicator strip you used on yourself against the colour spectrum shown. If the strip turns a colour that indicates a higher pH, it means the healthy acid level has been compromised. However, there is no immediate cause for concern. Repeat the measurement a couple of hours later or the next morning to see if the pH is still high or might only have been temporarily affected by other factors (for example if you had sex or you got urine on the indicator strip). If the strip continues to show a high pH, you should see your healthcare professional.

Other infections may put you and your baby at risk. These include gastrointestinal infections, urinary tract infections and sexually transmitted diseases. Not all of the tests may be paid for by your health insurance provider. Ask your responsible healthcare professional about your options.



It is a good idea to find out about dangerous virus infections such as cytomegalovirus, hepatitis and HIV, even though these infections tend to be rare.

Cytomegalovirus (CMV) is a widespread herpes virus that is completely harmless and non-hazardous to most people. The virus is widespread all around the world. In Europe, the rates of infected people vary from 30% to 100%. If a mother-to-be becomes primarily infected during pregnancy, the immune system of the foetus cannot cope with the virus yet. Possible consequences include miscarriage, preterm birth or damage to the baby's organs. There is no treatment so far which is what makes preventive measures so very important. Regular hand washing and careful hygiene are the best protection. A simple blood test can show whether you have CMV.

# Gestational diabetes

Prof. Moshe Hod and Anil Kapur



## What is gestational diabetes mellitus (GDM) and who is at risk?

Gestational diabetes mellitus, in short GDM, is a condition in which some women develop high blood sugar level (hyperglycaemia) during pregnancy (usually in the second half). In most cases the condition reverts back to normal after delivery. This form of temporary diabetes affects about one in eight to ten women. It causes few symptoms but can be harmful for both the mother and her unborn child. It is therefore important that women are tested for the condition during pregnancy at the appropriate time.



The risk for GDM is higher in women who are older (above 30 years of age); obese or overweight; have history of diabetes in the family (first degree relatives) or history of diabetes in a previous pregnancy or have had problems in previous deliveries such as a large baby, stillbirth or repeated abortions or in women belonging to ethnic groups with high rate of diabetes such as Asians, Pacific Islander, Latino etc; Over half of the women who develop GDM may have no known risk factors. Therefore all pregnant women should undergo testing for GDM as advised by their healthcare professional.

## How is GDM diagnosed?

In different parts of the world different standards are used to screen and diagnose GDM. The criteria and blood glucose values to rule out GDM differ slightly based on risk assessment, local circumstances and established practice.

The World Health Organization (WHO) has recently introduced a new criterion based on a 75 g (0,16 lb) oral glucose tolerance test (OGTT). For this test, pregnant women drink 75 g glucose dissolved in 300 ml of water after overnight fast. Blood samples are collected for glucose measurement just before and at 1 and 2 hours after the glucose drink. Diagnosis of GDM is made when test results indicate specific values. Ask your health professional about the practice for OGTT in your country. Ideally, all women not previously known to have diabetes should be checked for diabetes at the time when pregnancy is first confirmed. This is done using any one of the standard recommended tests to diagnose diabetes. If no abnormality is found the oral glucose tolerance test (OGTT) must be repeated between 24 and 28 weeks of pregnancy. Women at high risk may be tested in each trimester of pregnancy.

## What causes GDM?

To sustain pregnancy and ensure that the developing baby in the womb receives adequate nutrition from the mother, the placenta (the organ that anchors the baby to the womb) produces hormones which oppose the effects of insulin (required to use and store energy) in your body. The purpose of these counter insulin hormones is to increase your blood sugar and to make nutrients available for transfer to the baby. To balance this, your body produces more insulin to keep the blood sugar from rising and help store energy for requirements later during pregnancy and breast feeding; this results in weight gain seen during pregnancy.

During the second half of pregnancy when the placenta is fully developed and the baby starts to grow and requires more nutrition, the level and effect of these counter insulin hormones becomes substantial. To counter this, your pancreas has to produce more and more insulin. Some women (see risk factors listed above) are unable to raise their insulin production to overcome the effects of counter insulin hormones. In this situation blood sugar starts rising resulting in gestational diabetes.

When the baby is born the placenta gets detached and is pushed out from the womb. Now there is nothing to oppose the effect of maternal insulin, so insulin requirement goes down, insulin produced by your body is adequate to keep your blood sugar in check and the diabetes goes away. Unfortunately women who develop GDM continue to be at increased risk of developing GDM during subsequent pregnancies. Also, if no preventive action is taken after delivery to reduce weight and change to a healthier lifestyle, 50% or more women with GDM develop full-fledged diabetes within ten years of GDM pregnancy.

## What are the complications of GDM?

If GDM is diagnosed in time and well managed the chances that it will cause major problems is low. However, if the diagnosis is delayed or the blood sugar levels are not kept in check with proper treatment, the chances of complications affecting both the mother and the baby in the womb increase.

Pregnant women with diabetes have greater chance of developing high blood pressure, and pre-eclampsia.





High blood sugar transferred from the mother with uncontrolled diabetes to the baby, causes a large baby. This may cause difficulty during birth resulting in incapacitating injuries. During delivery, the large baby increases the risk of obstructed labour, birth canal injuries, and need for assisted or caesarean delivery and other complications. In the long term women with a history of GDM have higher risk of diabetes and heart disease. Uncontrolled diabetes in the mother can cause abortion and increase the risk of death of the baby in the womb or the baby being born early (preterm delivery).

Babies of mothers with GDM may develop respiratory problems or suffer from low blood sugar (hypoglycaemia) at birth or soon after. In the long term they are at increased risk of being obese in childhood, adolescence and adult life and at higher risk of developing diabetes and heart disease when they grow up.

### Can GDM be prevented?

GDM may occur in women who apparently do not seem to be at risk, it is therefore difficult to identify women at risk and take preventive actions. However, it is known that there are certain modifiable risk factors for. If these factors are addressed before and early during pregnancy, particularly amongst women with family history and those with ethnic background of high risk of diabetes; then the chances of getting GDM can be considerably reduced.

Eating a healthy and balanced diet which is low in fat and sugar and high in fibre; regular physical exercise; adequate sleep; avoidance of excessive weight gain; smoking; alcohol and aggravating factor such as stressful lifestyle help lower the risk of GDM.

### What is the treatment for GDM?

Most women with GDM can be managed by simple modification of their diet and physical activity.

The diet for pregnant women with diabetes should be healthy and well balanced. It is advisable to reduce refined carbohydrate rich foods and foods high in saturated fats. Taking foods that are rich in fibre such as fruits, vegetables and whole grains is beneficial. It is preferable to have frequent small meals (five to six) rather than two or three large meals. Supplementation with

vitamins, in particular, Vitamin B12 and Vitamin D may be required. Women with GDM should seek their doctors' or dieticians' advice for more information related to their specific needs.

Women with GDM without any complication should undertake physical activity suitable for other pregnant women and in line with the activity level they were used to before pregnancy, but avoid very strenuous activities. For women not previously physically active, the safest exercise is walking; 15 minutes' walk after each major meal is recommended.

Women with GDM should seek their healthcare professionals' advice about more information related to their specific needs. When diet and physical activity are not adequate to control blood sugar medications maybe required. The choice of medication is made by the treating physician keeping in mind various factors including patient's preference and convenience. It is natural for women to worry about the consequences of different medications on themselves and their baby. Women with GDM should seek their healthcare professional's advice about suitability of different treatments and their risks and advantages.

### How is the progress of GDM pregnancy evaluated?

Measuring and monitoring blood sugar levels regularly is very important in the overall management of GDM. This is best done by self-monitoring of blood sugar at home using a glucometer, supplemented by testing in the laboratory. How often this should be done is based on several factors including the level of control and is best decided in consultation with the team of healthcare professionals.

In addition, tests such as ultrasound and blood tests to assess other health parameters to ensure that the child is growing properly are recommended.

### Can mothers with GDM breastfeed?

Mothers with diabetes can breastfeed, as it helps loose pregnancy induced weight gain, lowers the risk of obesity in both the mother and the baby and significantly reduces the risk of future diabetes and heart disease in both. Breastfed infants have better immunity and lower risk of diarrhoea; and breastfeeding mothers have lower risk of breast cancer. Women with GDM should consult their health professional for more information.



Many women who want to have a child have a chronic illness. Some of them may not necessarily be that aware of their condition. Many illnesses nowadays enable people to live a normal life with no impairment on a day to day basis. Nonetheless, with some illnesses, advice, support and – as the case may be – treatment before becoming pregnant are important to give the baby a healthy start in life.

## Asthma

Asthma is the most common chronic illness in the first half of life. An asthma attack may reduce the oxygen supply to the mother and possibly also to the unborn child. However, with good medical care and control by drugs, there should be no complications during the pregnancy or birth.

## Diabetes

Diabetes is a condition marked by increased blood glucose levels. With optimum care and control of blood glucose levels prior to the pregnancy, a woman with diabetes can give birth to a healthy child like any other woman these days. However, very careful monitoring of the pregnancy with frequent blood glucose self-monitoring and the care of a health professional along with a diabetes expert (diabetologist) are very important.

If you have diabetes and want to have a child, you should aim for optimum blood glucose control for at least three months before becoming pregnant. Even with good glucose control, some women with diabetes may have a somewhat higher incidence of complications during pregnancy.

## Thyroid diseases

The thyroid gland controls numerous hormone processes in our bodies and thus influences the whole of our metabolism. Thyroid function deficiency in the first weeks of pregnancy can cause problems for your child during the first years of life in particular. Again, it is especially important to detect the dysfunction as early as possible, ideally before the pregnancy, and to seek medical treatment. This will prevent any risk to the baby.

## High blood pressure

Mildly increased blood pressure may respond to simple measures. Your healthcare professional will notice if your blood pressure exceeds these borderline levels and may prescribe drugs to counteract the problem. This means that, although women with high blood pressure can go ahead and enjoy pregnancy, they should take things easier and, above all, avoid stress.

Pregnant women with chronic high blood pressure are a high-risk group requiring additional medical care from a specialist throughout their pregnancy. Talk to your healthcare professional if you have chronic high blood pressure and are planning a pregnancy so that your medicines can be adjusted in a timely manner. Your healthcare professional will also tell you how to self-monitor your blood pressure to recognize any increases quickly. Your healthcare professional will be especially alert to increased protein excretion in the urine or other signs of pre-eclampsia.

*„I wasn't aware that my pregnancy was high-risk, although the doctor did tell me I should take more care and avoid stress. That's easier said than done for a mother of two small children – take things easy and look after yourself – high blood pressure or no high blood pressure! I was lucky in the end to meet another woman with high blood pressure. She made me see sense. Lucas was born after 39 weeks of pregnancy with no major complications, and he's a healthy and happy baby.“*

*Jennifer, 45 years old, mother of Christina (age 7), Alex (age 5) and Lucas (4 months)*

# Pre-eclampsia

Dietmar Schlembach and Stefan Verlohren

Pre-eclampsia is a complication of pregnancy affecting about 2–3% of pregnancies. This condition occurs before 31 weeks of pregnancy in about one out of 50 cases. Early pre-eclampsia of this kind can present a very serious hazard for both mother and child. It may progress to HELLP syndrome or eclampsia with the associated life-threatening complications for the mother.

Pre-eclampsia is one of the main causes of preterm birth. It is also associated with an additional risk of the baby being born too small and too light because it has not been receiving proper nourishment in the womb. These children may have mental and physical development problems later on as well as a higher risk of diabetes, cardiovascular disease and obesity.

Although the condition does not become outwardly apparent until 19 weeks of gestation, the root cause develops much earlier, in fact during the first trimester of pregnancy. The risk of pre-eclampsia should be identified as early as possible to enable timely initiation of preventive treatment.

A test between the 11 and 13 weeks of pregnancy (11+0 to 13+6) is now available to estimate your individual risk of developing pre-eclampsia. It involves measuring your blood pressure, an ultrasound scan and a blood test. Certain hormones in your blood are measured that indicate pre-eclampsia long before clinical problems start.

A number of risk factors promote the onset of pre-eclampsia, for example if you or a family member (mother or sister, for example) ever had pre-eclampsia or slow foetal growth. Other risk factors are the woman's age (very young or older mothers), pre-existing high blood pressure, kidney disease, diabetes or obesity. A first pregnancy, artificial fertilization/egg donation, multiple pregnancy and rising blood pressure may also increase the risk of developing pre-eclampsia.



# Reassurance for mother and child

Pre-eclampsia is a rare disorder affecting 2-3% of all pregnancies. This condition may be associated with severe complications for both mother and baby. It is possible to determine your individual risk of developing pre-eclampsia very early in pregnancy during weeks 11 to 13 and 6 days. If a woman is at high risk for developing pre-eclampsia the treating physician can counsel accordingly and advise for preventive measures in order to avoid severe complications.

## Early risk assessment of pre-eclampsia

• Further information: [thermoscientific.com/brahms](https://thermoscientific.com/brahms)

For further information about detecting your individual risk of developing pre-eclampsia please ask your physician!

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If the test shows that you are high-risk, low-dose aspirin prescribed by your doctor and a number of changes in your diet and lifestyle can help prevent pre-eclampsia. These precautions are particularly useful in preventing the onset of the serious early-onset form of pre-eclampsia.

Pre-eclampsia always requires the care of a specialist. You can do your bit by self-monitoring your blood pressure regularly. Be watchful and alert to possible warning signs such as headaches, disturbed vision, rapid weight gain (more than 1kg (2.2 lbs)/week), major retention of water in your body, upper abdominal pain, or restlessness. If you notice these symptoms, you definitely need to see your responsible healthcare professional for a check – no matter if the symptoms turn out to be harmless.

Timely recognition and treatment of pre-eclampsia is crucial, not just to avoid complications during the pregnancy. It is also essential in order to avoid lasting harm to yourself and your child: More than 90% of women with severe pre-eclampsia develop chronic high blood pressure 20 years after pregnancy and are more likely to have cardiovascular diseases. The children also have a significantly higher incidence of cardiovascular disease later in life. Good follow-up care for mother and child by a specialist and a healthy lifestyle (healthy diet, exercise, stress avoidance) are especially important to prevent these consequences.

Potential signs of disease during pregnancy can be identified by monitoring your blood pressure and checking your urine for certain proteins, which is a routine part at each prenatal care visit. Another important element in predicting the later onset of pre-eclampsia is high-resolution Doppler ultrasound in the middle of the second trimester. This will identify the likelihood of complications due to a placental implantation disorder. Alongside pre-eclampsia, these may include restricted foetal growth. However, the examination is quite imprecise and the findings return to normal in many cases later in the pregnancy with no complications expected. Fortunately, it is now possible to accurately predict the onset pre-eclampsia with a simple serum test in case of uncertainty.

The doctor can also estimate the risk of pre-eclampsia occurring later in the pregnancy with a blood test. In the second and third trimesters of pregnancy, the doctor can estimate the likelihood of pre-eclampsia or growth restriction with a high degree of accuracy. The test result predicts whether complications are likely to occur or whether the child needs to be born soon – which is the only way to stop the development of pre-eclampsia and its consequences. This procedure enables individual assessment of the risk and the test intervals can be adapted more precisely.

The earlier a risk of pre-eclampsia is known, the sooner it is possible to refer you for treatment to specialist perinatal centres that are equipped to deal with any eventualities. Optimum treatment of pre-eclampsia always involves an interdisciplinary team composed of experienced obstetricians, internists, anaesthesiologists, psychologists and paediatricians.

Fortunately, severe pre-eclampsia is very rare. Even if the woman's blood pressure is high and the doctor has detected protein in the urine, complications are seldom. The precision of the early recognition procedures has improved with the availability of the lab test and makes clarification possible even if risk factors apply. The most important things are watchfulness and thorough, regular prenatal care to recognize any warning signs quickly.

# Prenatal diagnostic testing

Prof. Karl Oliver Kagan

A healthy child is the greatest wish of all parents-to-be and their families. Parents would do anything to give their child a good start in life. In particular for parents with a higher risk of birth defects, it is very reassuring to know that their unborn child is in good health. This prompts many parents-to-be to avail of prenatal diagnostic procedures during pregnancy.

In many countries prenatal diagnostic tests during pregnancy are available to check the well-being of the mother and child and identify problems. Prenatal diagnostic tests can specifically screen for signs of any congenital malformations and developmental disorders in the foetus. It is important that you talk to your doctor beforehand about each procedure. You should get detailed information from your responsible healthcare professional and discuss with your professional and your partner the possible implications of an abnormal result.

An example of an additional screening procedure is what is called first trimester screening between 11 and 13 weeks of pregnancy. It enables early detection of a large number of risks in the pregnancy in a manner that does no harm to the baby. About half of foetal organ defects are identified during this time window and the potential risk of pre-eclampsia or a preterm birth can be determined.

You can also assess your individual risk of having a baby with Down's syndrome. Risk assessment is based on a combination of the maternal age risk, concentration of certain hormones in the mother's blood, and an ultrasound scan. The procedure includes measuring foetal nuchal translucency (transparency of the back of the neck). An increased diameter points to a higher risk of a chromosomal disorder including Down's syndrome.

If you opt for first trimester screening, you will be told the result in the form of a risk level, for example the risk of having a child with Down's syndrome.

This result is a probability. The procedure cannot give you absolute certainty. It is intended to help you decide whether to have additional invasive testing or whether to take no further action. Invasive testing would include amniocentesis (investigation of the amniotic fluid) or placental biopsy (chorionic villus sampling). These interventions are carried out to enable chromosomal disorders such as Down's syndrome to be identified or ruled out with certainty. The risk of miscarriage with these interventions is less than 0.5% (less than one out of 200 procedures). Direct comparison of their personal risk and the risk of miscarriage due to the procedure helps most couples to make the decision that is right for them.



# A couple becomes a family

Karl Heinz Brisch

## Soon to be parents

All at once, everything changes. Pregnancy introduces a new person into your life as a couple. Both of you need to get used to the idea. Even long-term relationships have to adapt to the changes in life circumstances that lie ahead. The process does not always run smooth. While you have a physical bond with your child and are very close for that reason alone, your partner's participation in the pregnancy is only indirect at first. He may be feeling left out while your body changes and you develop an ever closer bond with the baby in your womb. To complicate matters, the hormone changes are not making you more clear-headed – quite the opposite. Mood swings are completely normal. The main thing now is to talk to each other. Explain your feelings and thoughts to your partner. It may be just as difficult for your partner to understand your feelings and thoughts as vice versa.

„I was very emotionally unstable for the first couple of months, bursting into tears at the smallest thing. At some point we started talking more about us, our plans for the future and our life together. That got rid of all my anxieties and we stopped having problems in bed.“

Sarah, 28 years old, 34 weeks of pregnancy

## Love and sexuality

Your love life will very probably change during your pregnancy. Every woman has a different experience of pregnancy and different sexual needs. While some women have an increased sex drive, others just want cuddles and tender loving care. Sexual desire depends on a variety of factors: how you and your partner are feeling, how you are coping with the symptoms of pregnancy, and the stress levels of your everyday life and work.



Identification of potential genetic disorders in the foetus by testing the mother's blood during pregnancy will become more common in the near future. This procedure is significantly more reliable than first trimester screening but, like the latter, does not provide absolute certainty.

„Because of our combined ages, we thought for a long time about having first trimester screening. Despite the risk, we decided in the end not to have the procedure because we didn't want to know the result. Marie is three years old now. She's a perfectly healthy and happy little girl. But no matter what the outcome had been, we would have chosen to keep her.“

Sebastian, 41 years old, father of Marie (age 3)

An ultrasound scan between 18 and 21 weeks of pregnancy (please ask your healthcare professional about the general ultrasound practices in your country) can be performed to either measure your baby's size or to have a full screening for congenital abnormalities. This procedure requires special qualifications on the doctor's part. It makes sense in particular for couples with a high risk, for example because they have already given birth to a child with health problems in the past. The procedure in most cases confirms that the child's anatomy is normal and gives the couples the peace of mind that comes from knowing that their child is healthy and the pregnancy is proceeding well.



It is all the more important to be open and honest about your sexual needs. That way your partner will be in a better position to understand your feelings and the changes in your sex drive. He may be unsure of how to treat you as your body changes and your mood fluctuates. Some people worry that sex might disturb the baby inside or trigger a preterm birth. Please have no worries on that score. The evidence shows that no risk is involved. The basic rule of thumb is: Sex in an uncomplicated pregnancy is allowed provided you enjoy it and it makes you feel good – no matter how far on you may be.

### The father-mother-baby bond

Like many parents-to-be, you may be asking yourself whether you will be a good mother or a good father: „What will I do if the baby cries non-stop or doesn't sleep? What if I pass on my own insecurities or (traumatic) childhood experiences to my child?“ Parents today are inundated with information from books, TV, the internet and the contradictory opinions of friends and family members. Unfortunately, it all tends to be more confusing than helpful.

The main thing is to have a close bond between you and your baby. A bond is an emotional connection between two people across space and time. Babies are born with a desire for a secure bond and your baby will look for a reliable person to bond with who provides protection, care and support. Bonding between mother and baby starts during the pregnancy. Your baby gets to know your language and tone of voice in the womb, the way you talk, your taste and odour. The child recognizes you at birth. Equally, your baby will know the father's voice. Bonding grows during pregnancy when you as parents imagine what your baby will be like and the place your baby will have.

Scientists have now confirmed that secure bonding is the best start in life for a baby. Bonding forms the ideal basis for your child's healthy physical, psychological, mental and social development. Your child is ideally equipped to explore the environment with great curiosity. We know today that secure bonding even trumps breeding. Children with a secure emotional bond have better social skills and are less aggressive, better able to empathize and have more and better friendships as a result. They are more creative and have more staying power to do tasks, have better learning skills and are better able to cope with difficult situations.



Touch is an important element in bonding. The sense of touch develops as early as 7 weeks of pregnancy. Hence, touch is the best developed of all the senses. Information about bonding and touch with particular reference to baby massage is available at [www.iaim.net](http://www.iaim.net)



### The SAFE® programme for parents

An example for training programmes enhancing a secure attachment between children and their parents.

Training programmes such as the SAFE® seminars help you to develop security in the way you interact with your baby. Even during your pregnancy, you learn to react sensitively, immediately and appropriately to your child's signals. Your baby develops a secure bond with you as a result. That is the best base you as a parent can give your child. SAFE® is designed for all parents-to-be until about 7 months of pregnancy and continues in a closed group until the baby is one year old. Some parents can receive additional support in their child's second and third year.

Find out if there are SAFE® training courses near you: [www.safe-programm.de/english](http://www.safe-programm.de/english)

„Although at first I only went along because my wife thought it was important, I'm finding it very worthwhile for all three of us. I feel quite secure in how I should interact with my child which leaves me generally more relaxed. I met a couple of men on the course who attended for similar reasons as I. And being in contact with parents who have children of the same age is always a good thing.“

Daniel, former SAFE® course participant



# When life doesn't go as planned

*Wolf Kirschner and Prof. Klaus Friese*

The majority of children are born healthy after a mainly uneventful pregnancy. Despite our modern life, risks and threats remain for mother and child. Without wanting to make you anxious, we would nonetheless like to mention a few issues very briefly. Only if you know the risks can you take the right action and help prevent problems.

## Born too early

One baby in ten is born preterm. A preterm birth is the birth of a child before 37 weeks of pregnancy. Sadly, the incidence of preterm birth has been rising for years despite the fact that many of the risk factors for a preterm birth are known. Attending the scheduled prenatal care appointments and regular medical monitoring during the pregnancy can identify potential risks before it is too late and in that way prevent preterm birth.

A healthy lifestyle before and during pregnancy – no alcohol, no smoking, no harmful substance use – and a normal weight prior to the pregnancy can prevent some preterm births.

Factors known to increase the risk of a preterm birth include multiple pregnancies, pre-eclampsia, diabetes, vaginal infection, stress and psychological problems.

Thanks to the major progress in obstetrics and improved prenatal care, preterm babies have much better survival chances than even a couple of years ago, in many cases without major lasting disabilities. How a preterm baby develops overall depends on many different individual factors. Therefore, it is hard to predict the extent of lasting physical or mental impairment a child may have.



There are many local self-help organisations in each country around the world set up by affected parents who are glad to provide further assistance, information and support for families. Have a look at [www.efcni.org](http://www.efcni.org) for a list of national parent organisations that can help you.



## Gone too soon

Losing a child because of a miscarriage or stillbirth is one of the most devastating things that can happen to a parent. It is a terrible blow that parents and families find hard to accept. There is still a taboo around miscarriage and stillbirth in our society in many quarters, which makes it all the more important for us to mention the issues here.

Most miscarriages take place before 13 weeks of pregnancy. Many happen before the woman even knows she is pregnant. The possible causes vary greatly and are never established in many cases. Most women who have a miscarriage go on to have entirely normal pregnancies later on.

In very rare cases, a child may be stillborn. Stillbirth is when a child weighing at least 500 grams (1.1 lb) is born with no signs of life. Possible reasons may include genetic malformations or unmanageable complications during the pregnancy. The incidence of stillbirth is very low.

Couples who experience a miscarriage or stillbirth suffer greatly. For the parents, siblings and family members, it is very important and does them good to show their grief and talk about their loss. In this situation, they need people who understand and listen to them. It may be good to seek professional help and support. Fortunately, many different platforms, support organisations and self-help groups exist whose objective is to help the families of miscarried and stillborn babies to deal with their loss.

# I won't be coming alone!

## Multiple pregnancies

Prof. Franz Kainer

Are you pregnant with more than one child? In the last 30 years, the rates of multiple pregnancies have increased substantially. Multiple pregnancies are always treated as high-risk. That is because the pregnancy is associated with particular risks and you as the mother are exposed to more stresses and strains. Prenatal visits generally take place at shorter intervals so that your responsible healthcare professional can take timely action if they detect any complications. The risk of preterm delivery is always greater with a multiple pregnancy. You should pay even more attention to a healthy diet and lifestyle, drink plenty of fluids and take things easy in the last trimester in particular.

„I could hardly believe it when the doctor told us we were expecting twins. Two at once! The initial fright soon gave way to expectation. I only started worrying toward the end about whether everything would go well and the babies would be born healthy and not too early. I was glad to have a competent team of doctors who would have been able to provide the right care for the twins in an emergency.“

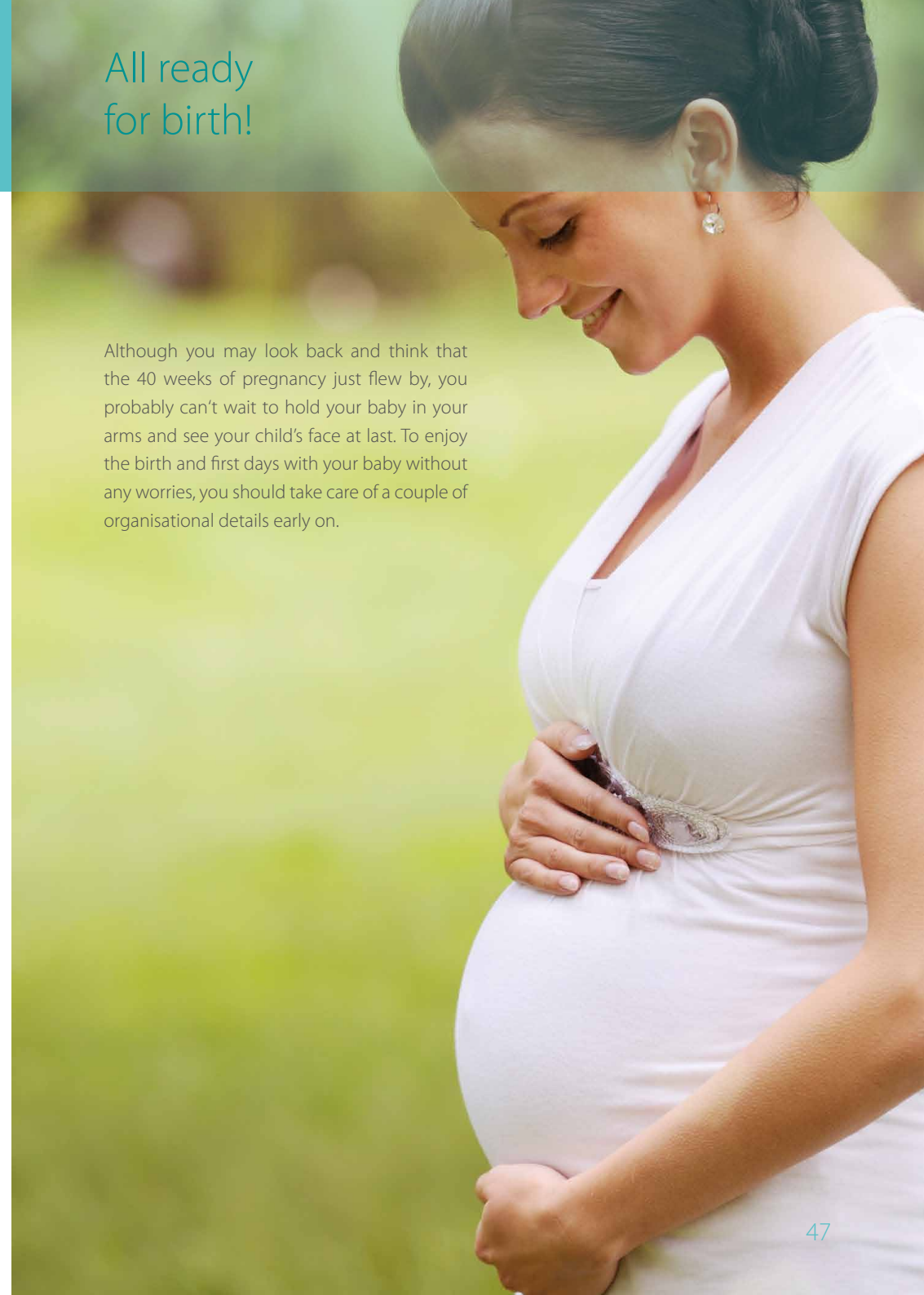
Christina, 35 years old, mother of Nick and Lara (2 months)

The care provided during pregnancy and the decision whether or not to opt for a normal birth depend on factors such as whether the children share one placenta. It is better for the babies to each have their own amniotic sac and placenta. That way there should be no problems during the pregnancy and a normal birth is possible. Children very rarely share one amniotic sac and one placenta. A caesarean section is always necessary in such cases. In a worst-case scenario, each child has its own amniotic sac but they share a single placenta. Sometimes one child develops better than the other. Experts call this „fetofoetal transfusion syndrome“. Special treatment successfully makes up for the imbalance in many cases.

An ultrasound scan in the first trimester easily establishes which of the above cases applies. Knowing this is a big advantage. It is not always possible to establish with certainty whether twins are identical or fraternal but the distinction is not actually relevant for the pregnancy and birth as such.

# All ready for birth!

Although you may look back and think that the 40 weeks of pregnancy just flew by, you probably can't wait to hold your baby in your arms and see your child's face at last. To enjoy the birth and first days with your baby without any worries, you should take care of a couple of organisational details early on.



# Here at last! – the birth

Prof. Michael Abou-Dakn

## Finances and formalities

One would think the arrival of a tiny baby may produce only small bureaucratic efforts, but in fact, you should prepare yourself for more time spent to organise your finances and clarify all formalities with the state, health insurance, your workplace, etc.

Be sure to think about these formalities early enough in your pregnancy to not be overwhelmed with decisions that have to be taken and documents to be filled out shortly before or after birth. For financial and other issues, there may be deadlines set many months before the actual birth.

### Who stays home when?

It can be very useful to devote some thought right at the beginning of the pregnancy to how you intend to share childcare during and after the parental leave period, if offered in your country. It gives you less to think about later and you can concentrate all your energies on your baby's arrival and your life as a family.



After all the months of waiting, the due date is almost here. Birth is an exciting and very moving time for every mother – and every father. You become parents and can hold your baby in your arms for the first time. You can look forward to the birth with more composure if you're well prepared for what is coming.



## What are contractions?

A contraction is the rhythmic tightening of the muscles of the uterus. You may experience small and mild „practice contractions“ sometime in the third trimester, which generally do not last more than a minute and are not regular. For some women, these contractions feel like period pains and are called Braxton-Hicks contractions. These practice contractions usually have no effect in terms of opening the cervix. If you feel uneasy, however, ask your responsible healthcare professional. From about 34 weeks of pregnancy, these contractions will push your baby deeper into your pelvis. You will notice that your stomach is descending and you can better breathe, sleep better and digest easier because your baby is no longer applying pressure to your stomach and diaphragm. Several days before the birth the contractions may appear again. They are irregular and may be painful to a greater or lesser degree. They are referred to as false labour.

Especially if you are giving birth for the first time, you should think about attending prenatal classes. You will learn techniques regarding birth and labour and will be shown relaxation exercises to use during birth. Many women greatly appreciate the support of their partner (or other trusted companion) during birth: relaxing massages, encouragement, reassurance or just the mere presence. It is useful if your partner is as well informed as you are about the process of giving birth so that he can be a good source of support.

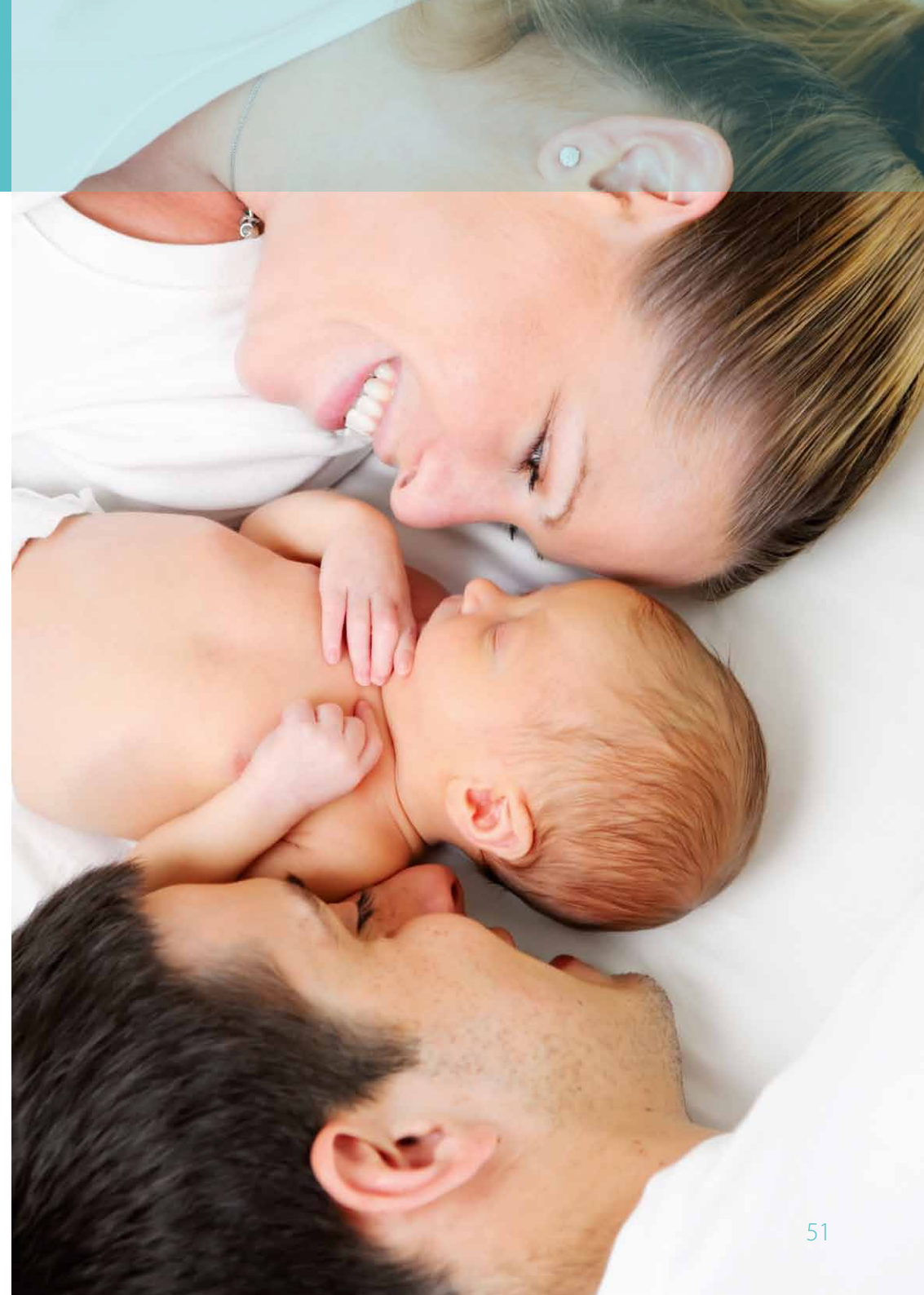
One thing you can be sure of: The moment you hold your baby in your arms for the first time after birth – when your baby opens the eyes and looks at you– will make you forget all the pain and stress of labour.



## How will the birth proceed?

When regular contractions begin, the cervix shortens and finally opens, extending to a diameter of 10 centimetres (3 15/16 in). Healthcare professionals usually call this „complete dilation.“ During this stage, your baby’s presenting part (usually the head) drops deeper into the pelvis and rotates to fit better through the true pelvis. The final stage of birth is referred to as the pushing stage.

Once your child is born, the placenta detaches (a process promoted by skin contact between you and your child) and is delivered. The health professionals check after the birth to ensure that the placenta is complete. After a final check and treatment of any injuries, you’ve made it! If your little one is in good health, your baby will be placed on your stomach immediately after birth to hear your heartbeat, breath and voice, to feel you and to smell you. Your baby will look for your breast within the next hour wanting to suckle. After a short period of monitoring in the delivery unit, you and your baby are ready to be moved to the postnatal ward.





## Your hospital bag checklist

- ☐ Identity card
- ☐ Health insurance card and other formal documents you may need
- ☐ Toiletries (fragrance-free washing lotion, toothbrush, toothpaste, hairbrush, hairdryer, small mirror)
- ☐ Towels and washcloth
- ☐ Bathrobe
- ☐ Slippers
- ☐ Warm socks
- ☐ Old nightgown/T-shirt for the birth
- ☐ Snacks and drinks (for Dad too!), corn sugar candy
- ☐ Whatever makes you feel good: books, music (earphones), cuddly pillow, ...
- ☐ Change



## For your time in hospital after the birth

- ☐ About 4 loose pyjamas (front opening for breastfeeding)
- ☐ Comfortable loose clothing (tracksuit)
- ☐ 2-3 nursing bras
- ☐ 1 pack nursing pads (washable if possible)
- ☐ 8 large old panties or disposable panties with plenty of stretch
- ☐ 1 pack thick menstrual pads
- ☐ 1 rolls soft toilet paper
- ☐ Mobile phone and charger; camera
- ☐ Anything else you'd like: notebook, pens, a book to read...
- ☐ Stuff for baby:  
2-3 bodies, romper suits (size 56-62), hats, cardigan, socks, car seat for the drive home (can be brought to the hospital later)

## Caesarean section

If a natural birth is not an option, delivery by caesarean section is necessary. Most caesareans are planned, but an unplanned or emergency section may be necessary if a threat to the health of the mother or child emerges during the birth. Although common, caesarean sections are major surgical procedures which should not be carried out „on demand.“

Many hospitals now allow the father to be present at a caesarean section. Regional anaesthesia is all that is required in many cases. This means that only the lower part of your body will be anesthetized so that you can welcome your baby immediately despite having had surgery. Your body needs more time to heal after a caesarean than after a natural birth. The natural hormones that initiate milk production and ensure that your uterus closes need somewhat longer to take effect. If you have put effort into preparing for a natural birth that could not after all take place, don't be disappointed. Discuss it with your healthcare professional and remember that the most important thing to give your baby a good start in life is being close to you.

Newborns have an extremely sensitive sense of smell. Your baby gets to know your own personal smell in the first weeks after birth and memorizes it. Perfume, perfumed shower gels and perfumed deodorants will confuse your little one. Ideally you should do without these products for the first few weeks.



## The first weeks after birth


The first weeks after birth are a time for resting, getting to know each other and emotional security. You will need lots of rest after the stresses and strains of labour. The support of your healthcare professional, parents or friends may be very helpful during this initial period. Have your healthcare professional explain everything to you and remember: being a parent is something that needs to be learned. Nobody has ever been the perfect parent from the word go. You will have to learn many new things, just like your child.

# Breastfeeding

Gabriele Stenz



In the weeks after the birth, you will experience a type of vaginal discharge known as lochia. Your uterus heals at the place where it was attached to the placenta. That is why it is very important for you to take things easy in this postpartum period. Pay special attention to hygiene to help the wound to heal quickly. While a lot of blood will come at the start, the lochia lessens after a few days, turning brownish at first and then yellowish-white. The odour is similar to the odour of menstrual blood. Changing your pads regularly, gentle washing with lukewarm water and other tips from your responsible healthcare professional will help you to heal quicker.



If the odour of the discharge changes or seems peculiar, you may have an infection. Confide in your responsible healthcare professional - midwife or gynaecologist.

## Baby blues or postpartum depression?

While some women have no trouble coping with the hormonal changes that start a couple of days after childbirth, others suffer more. Baby blues, mainly beginning on the third or fourth day, is a well-known phenomenon that affects many young mothers. This mood usually only lasts for a couple of days. Reassurance, calming words and support from your midwife, partner, family or friends are what help most. If these feelings last for weeks – beyond the postpartum period – or get worse, you really need to confide in your responsible healthcare professional and get yourself checked for postpartum depression. There are effective treatment options!

Before your child is born, you should devote some thought to whether you want to breastfeed your baby. Discuss your thoughts with your partner during the pregnancy. Both parents should be informed about the benefits of breastfeeding for the baby and for you.

Breastfeeding not only gives babies exactly the kind of nutrition they need for healthy development; breastfeeding also means closeness, security, trust and love. It may not always be easy at the start, but with the help of your healthcare professional, trust and proper encouragement and support from your partner, friends or family, the problems usually solve themselves very soon.

The hormones of pregnancy develop and prepare your breasts for breastfeeding. Bumps around your nipples and milk ducts in your breast grow to become functioning glands during your first pregnancy to enable you to breastfeed your child after the birth.

The breastfeeding relationship between you and your child evolves during the first days after the birth. It is something both of you will have to learn. Although your baby may find your breast immediately after the birth so as to drink the nutritious yellow pre-milk called colostrum – the next day both of you will have forgotten how you managed. Give yourself time and ask for information on the various breastfeeding positions. Later everything will come to be second nature to you and both of you will enjoy your breastfeeding sessions.

## Breastfeeding after a caesarean

Breastfeeding after a caesarean is not just good for your baby; it also helps your uterus to get back in shape – which is very important after a caesarean in particular. Try to express your milk if you are unable to breastfeed at first or you are separated from your baby. This ensures that your breast will continue to produce enough milk for your baby later. Breast milk is especially important to give term born and in particular preterm babies a good start in life.

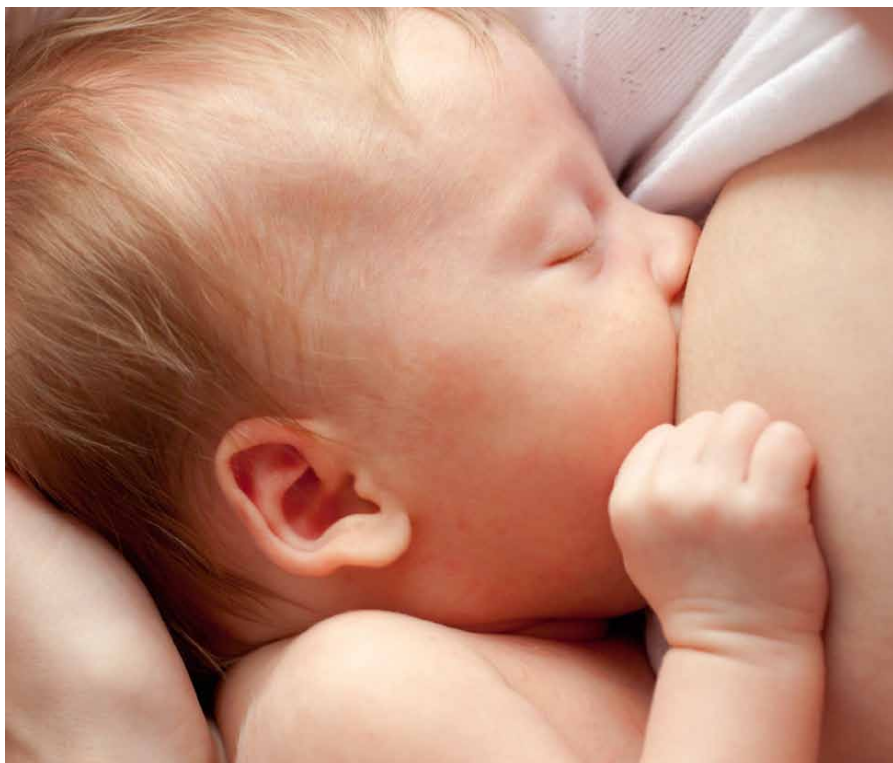


## Useful information and links

### Solids, employment and stopping breastfeeding

You should continue breastfeeding even when your baby starts taking an interest in new types of food at around six months of age. You can gradually replace a breastfed meal with solids. The quantity of breast milk produced will decrease automatically with time.

If you are working outside the home, you can express your breast milk in advance and have it fed to your baby in a bottle as soon as your child is able to distinguish between breast and bottle, which is the case from about four months of age. Breast milk keeps in the fridge for up to 72 hours and can be deep-frozen.



The best online information in your language is available from your country's health ministry or other national or local support groups.

### Pregnancy, birth and becoming parents

Pregnancy. MedlinePlus from the NIH USA

**[www.nlm.nih.gov/medlineplus/pregnancy.html](http://www.nlm.nih.gov/medlineplus/pregnancy.html)**

Your pregnancy and baby guide. NHS UK

**[www.nhs.uk/Conditions/pregnancy-and-baby/pages/pregnancy-and-baby-care.aspx](http://www.nhs.uk/Conditions/pregnancy-and-baby/pages/pregnancy-and-baby-care.aspx)**

### Sexual and Reproductive Health

European Society of Contraception and Reproductive Health **[www.esrh.eu](http://www.esrh.eu)**

International Planned Parenthood Federation **[www.ippfen.org](http://www.ippfen.org)**

### Fertility

Fertility Europe. **[www.fertilityeurope.eu](http://www.fertilityeurope.eu)**

### Midwives

European Midwives Association (EMA) **[www.europeanmidwives.com](http://www.europeanmidwives.com)**

International Confederation of Midwives **[www.internationalmidwives.org](http://www.internationalmidwives.org)**

### After the birth

Excellence in Paediatrics Institute. Parents' Talks **[www.talks.ineip.org](http://www.talks.ineip.org)**

International Association of Infant Massage **[www.iaim.net](http://www.iaim.net)**



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## Pre-eclampsia

Preeclampsia Foundation USA [www.preeclampsia.org](http://www.preeclampsia.org)

## Diabetes

International Diabetes Federation (IDF) [www.idf.org](http://www.idf.org)

## Preterm birth

European Foundation for the Care of Newborn Infants [www.efcni.org](http://www.efcni.org)

In almost every country there are national and local organisations supporting parents of preterm children. To see a list of national parent organisations visit the EFCNI homepage.

## Disability and illness

European Down Syndrome Association [www.edsa.eu](http://www.edsa.eu)

Down Syndrome Education International [www.dseinternational.org](http://www.dseinternational.org)

European Disability Forum [www.edf-feph.org](http://www.edf-feph.org)

Inclusion International [www.inclusion-international.org](http://www.inclusion-international.org)

International Confederation of Childhood Cancer Parent Organizations [www.icccpo.org](http://www.icccpo.org)

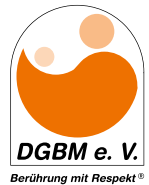
## Support after miscarriage and stillbirth

International Stillbirth Alliance [www.stillbirthalliance.org](http://www.stillbirthalliance.org)

BabyCare



Bundesverband  
„Das frühgeborene Kind“ e.V.



Deutsche Gesellschaft  
für Gynäkologie und Geburtshilfe e.V.



DGPGM  
Deutsche Gesellschaft  
für Pränatal-  
und Geburtsmedizin



EUROPEAN ASSOCIATION OF  
PERINATAL MEDICINE



Arbeitsgemeinschaft  
Gestose-Frauen e. V.



Stiftung für das behinderte Kind  
Förderung von Vorsorge und Früherkennung



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**Silke Mader** is a founding member and Chairwoman of the Executive Board of EFCNI. She chaired the German national association for preterm babies for many years. Silke Mader is a mother of preterm twins, one of whom died. She is co-editor of several prestigious scientific and political publications in maternal and paediatric health and preterm birth.



**Nicole Thiele** is Vice Chair of the Executive Board of EFCNI. After many years in various international organisations, she has been active since 2010 in promoting preventive action, treatment and care of neonates and effective continuing care with EFCNI. She is the author of numerous texts on these topics and co-editor of the „Caring for Tomorrow“ white paper.

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**Dietmar Schlembach, MD** (see editors)



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**Stefan Verlohren, MD, PhD** is a Consultant in Obstetrics and Gynecology and Senior lecturer at the Department of Obstetrics, Charité University Medicine, Berlin. He is specialized in Maternal-Foetal Medicine and DEGUM II certified with a clinical interest in prenatal diagnosis and foetal therapy. After studying medicine in Marburg, Lausanne and Berlin, he went on to do specialist training with research fellowships in Berlin and London. His main research interest is pre-eclampsia, he is the head of the Pre-eclampsia Research Group at the Charité. and Vice-Chairman of the DGGG Hypertension of Pregnancy/Pre-Eclampsia Association.



**Prof. Klaus Vetter, MD**, a specialist in prenatal medicine and obstetrics, has been Congress President since 1999 of the 2-yearly congresses of the German Society of Perinatal Medicine and was chief of staff of the Obstetrics Department in Berlin-Neukölln. As president of national and international specialist organisations including the German Society of Gynaecology and Obstetrics, he was a leading figure in the development of gynaecology and obstetrics. His passions today include further education and a variety of medical policy issues.



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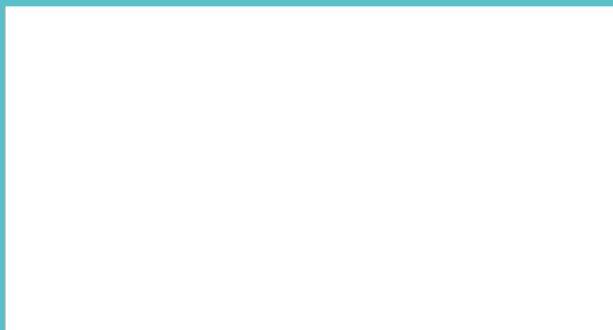
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