

INFORMATION FOR PREGNANT WOMEN AND WOMEN WHO WANT TO CONCEIVE

There are few things in life that are as impressive and fascinating as pregnancy and the birth of a child. If you think about the complexity of the processes involved in the run-up to the birth of a healthy child, you have to ask yourself if there is anything you can or have to do to help a pregnancy run smoothly, and if so, what these things are. Fortunately, the mechanisms involved in pregnancy and birth have been tried and tested for thousands of years and the necessary processes usually work optimally without any need for intervention. Normal pregnancy is not an illness and therefore only needs little influencing.

Despite the above, there are several things that we can influence before and during a pregnancy to change its course and outcome. I will take a look at these things in the sections below, differentiating between what you can do as a pregnant woman and what I have to do as your doctor. I have intentionally avoided the subject of pregnancies in cases of illness and pre-existing health problems.

WHAT YOU CAN DO TO MAKE YOUR PREGNANCY RUN AS SMOOTHLY AS POSSIBLE:

Diet

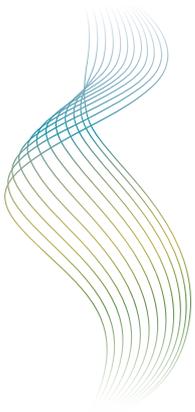
There is no such thing as a specific 'pregnancy diet'. It therefore suffices to ensure that you have a balanced diet with plenty of fruit, vegetables and fish. It also makes sense to consume milk and dairy products due to the increased need for calcium. Ensure good kitchen hygiene and thoroughly wash fruit and vegetables before eating them. Do not forget to wash your hands after touching raw meat. Fish and meat should be cooked or roasted well before they are eaten. These measures enable you to reduce the risk of an infection as a result of pathogens in food (e.g. toxoplasmosis).

You should avoid:

- Raw meat
- Raw fish, e.g. Sushi
- Products made from unpasteurized milk, e.g. raw milk cheese

During the second half of a pregnancy, many women experience a painful backflow of stomach acid into the oesophagus. To prevent this harmless but unpleasant complication, it is advisable to eat your last meal in the evening a reasonable length of time before you go to bed.

Avoid being excessively underweight or overweight, or rectify this before your planned pregnancy. There are no strict standard values with regard to weight gain during pregnancy but a weight gain of between 5 and 15 kg seems to be optimal.



Dietary supplements during pregnancy

Most pregnant women will take dietary supplements during their pregnancy. The most frequent supplements are multi-vitamins, magnesium, calcium and omega-3 fatty acids. Often, the reason that these are taken is that women want to 'do something good' for the baby. As women need more **folic acid, iron, magnesium, calcium, iodine and vitamin D** during pregnancy, it seems to make sense to take supplements of these. However, there are no scientifically-proven benefits of taking general multi-vitamin products during pregnancy.

Folic acid: Folic acid is an essential vitamin that we have to absorb into our bodies through food. It is of major importance in the early stages of pregnancy. The main purpose of this vitamin is to reduce the risk of Spina bifida ('split spine') although it is also able to reduce the risk of other malformations. The optimum time to start taking folic acid supplements seems to be three months before a planned pregnancy. The minimum recommended daily dose is 0.4 mg.

Intoxicants

Since alcohol and nicotine are harmful both before and – in particular – during pregnancy and breastfeeding period, you should refrain from consuming these substances completely.

Medication

Fortunately, most forms of medication have no seriously negative consequences if taken before or during pregnancy. However, there are also certain active ingredients that can cause sometimes devastating damage to a foetus. If you are currently taking medication, you should therefore speak to me or your pharmacist to discuss whether it is safe to continue this or if you need to change to different medication. If you are prescribed medication during pregnancy, you should have a specialist confirm that this is safe. You should also be careful when using natural remedies as these are often not tested with regard to their negative impact on pregnancy, making it difficult to predict their effect on the unborn child.

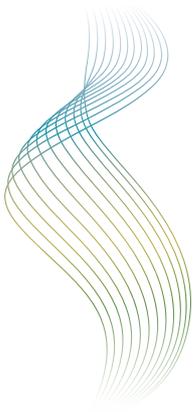
Physical exercise

Physical exercise can have an immensely positive effect on the course of the pregnancy and the birth. To list all the benefits of exercise would take far too long. The general rule, however, is that, during pregnancy, you can do everything you used to do before becoming pregnant. The concerns about risks to pregnancy due to sport are unfounded. Your body will tell you if you are doing more than you should be. A healthy pregnancy is fortunately very well protected and cannot be disturbed by moderate physical exercise.

Sex during pregnancy

It is generally safe to have sex during pregnancy although certain caution is recommended in the event of:

- Bleeding during pregnancy
- Placenta praevia (when the placenta covers the lower uterine segment)
- Premature labour



Travelling during pregnancy

Travelling, including over long distances, during pregnancy is perfectly possible. When flying, especially on long-haul flights, you should take into account the higher risk of thrombosis during pregnancy. Here, I recommend that you wear compression stockings and, if necessary, take anti-thrombosis medication. It is possible and essential to take anti-malaria medication during pregnancy if travelling to endemic areas. As complications during pregnancy cannot be foreseen, always make sure that medical care is available in the destination country. Since the risk profile of the destination countries might change (e.g. Zika-virus in South America) it is recommendable to consult a specialist in traveling medicine prior to your planned trip.

Communicable diseases

Some of the communicable diseases might affect the unborn child. Therefore preventive measures make sense.

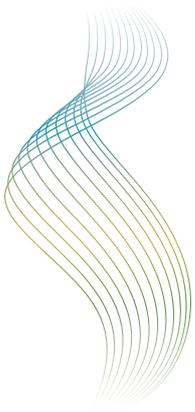
Infection with CMV (Cytomegaly-virus): These infections are common and symptoms in adults are rare. On the other hand the virus can cause severe diseases in the foetus. Small children (especially their faeces, urine and saliva) are probably the main transmitters to pregnant women. To reduce the risk of transmission normal hygienic measures are recommended.

Measles, Rubella: Pregnant women without immunity (vaccination or undergone disease in the past) should avoid contact to sick children with suspected infection of Measles/Rubella. After delivery vaccination should be caught up.

Varicella (chickenpox): Most of the pregnant women will be protected against Varicella by undergone disease in the past. If not it is advisable to avoid contact to children with symptoms of chickenpox. After delivery immunity should be acquired by vaccination.

Dental health

Do not forget about your teeth. It is a known fact that 'bad teeth' can give rise to a risk of premature birth. As dental treatment is more complicated during pregnancy, any existing dental problems should be resolved prior to becoming pregnant.



WHAT I CAN DO AS A DOCTOR TO MAKE YOUR PREGNANCY RUN AS SMOOTHLY AS POSSIBLE

During your pregnancy I primarily take on an advisory role. It is also my responsibility to identify and treat any health issues that affect you or your child. Pregnancy check-ups are therefore conducted every four to six weeks. The statutory hospital insurance fund pays for seven check-ups and two ultrasound scans. Additional consultations or ultrasound scans are subject to special indications.

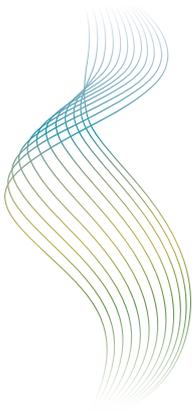
The pregnancy check-ups will include:

- Checking your weight, blood pressure and heart rate
- Urine test, certain lab tests
- Occasional vaginal smears to rule out infections
- Check of the foetal heart tones, growth and position in the uterus
- Two ultrasound tests
- Additional tests in the event of problems

Ultrasound scans and prenatal diagnostics

The prenatal diagnosis looks at the health of your unborn child. In most cases, the test results are normal. In rare cases, however, problems can be identified that can have consequences and force you to make difficult decisions. It is extremely important for you to know that none of these tests on the unborn child are obligatory (you have the right not to know). You choose which tests I do and do not conduct. The sections below outline the various prenatal diagnostic options. It is also important for you to know that normal prenatal diagnosis results, in particular the ultrasound scan, cannot provide any guarantee of a healthy baby. Chromosomal abnormalities, in particular, can exist without obvious physical changes and are therefore not always detectable.

- 1. First ultrasound scan with or without first trimester test (desired by most couples):** The scan is conducted around the 12th week of pregnancy. As well as ruling out serious malformations, this also measures the 'nuchal translucency'. The thickness of the nuchal fold correlates with the risk of Down's syndrome and other problems. The accuracy of this test can be enhanced by combining the nuchal fold thickness with the results of a blood test and the maternal age. The test is safe but the result solely provides an estimate of the level of risk. A certain amount of uncertainty still remains.
- 2. Non-invasive prenatal diagnostics (NIPD):** These tests have been available since approximately 2012. They use the maternal blood to detect certain chromosomal abnormalities in the child with relatively high diagnostic certainty. No non-genetic illnesses are detected. Health insurance funds will cover the cost of these tests if the risk of the first trimester test exceeds the probability of 1:1000. The NIPD currently costs around CHF 1,000. As false positive test results are possible, a positive result must be confirmed by an amniocentesis. This test can be conducted at any time after the 9th week of pregnancy.

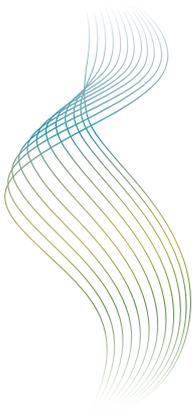


- 3. Amniocentesis and chorionic villus sampling:** These tests can rule out or prove the existence of certain chromosomal abnormalities with high diagnostic certainty. However, they are dangerous for the unborn child. Approx. 1% of unborn babies will die as a result of these tests. The tests are largely made redundant through the use of the aforementioned non-invasive tests. They are mainly used to confirm a positive NIPD or answer very specific questions. They are additionally applied if ultrasound-findings raise the suspicion of underlying genetic disease.
- 4. Ultrasound anatomy scan:** This scan is conducted around the 22nd week of pregnancy. The aim of the scan is to determine the child's size and position as well as to check the normal development of the internal foetal organs. The scan is extremely useful as it is now possible to treat several foetal organ development disorders during pregnancy or after birth. It must also be mentioned here that despite the high accuracy of the ultrasound scan, this is again unable to detect all disorders.

Immunisations and infections

Prior to a planned pregnancy I will discuss the need for immunisations with you. I would therefore be grateful if you could bring your immunisation record with you to your appointment.

- 1. Rubella:** Immunisation against Rubella is of particular importance as there is a high probability that infection with this virus would severely damage the unborn baby. Immunisation against Rubella (usually by means of a combined measles, mumps and rubella vaccine) must occur before pregnancy as immunisation with this live vaccine during pregnancy is prohibited. Most people receive this vaccine as a child. If you are unsure as to whether you received the vaccine, this can be checked by means of a blood test.
- 2. Chickenpox (varicella):** Protection against chickenpox is also important. Most people suffer from this illness as a child and therefore have lifelong immunity. If you did not have this illness as a child, you should be immunised twice before pregnancy at intervals of at least four weeks. If you are unsure about your immunity, this can again be checked by a blood test.
- 3. Whooping cough (pertussis):** A recommendation that was introduced quite recently is for a booster vaccine against whooping cough (pertussis). This vaccination should be performed in every pregnancy. Immunisation should occur optimally in the third trimester. The recommendation is based on the risk of the newborn baby becoming infected with whooping cough. Immunisation achieves two things: firstly, you ensure that you cannot infect your baby (you yourself are protected) and secondly, you transfer the protective antibodies to your baby during your pregnancy (passive immunisation). Your partner and other people who come into close contact with the baby (grandparents, nannies) can also infect the newborn and should therefore also be immunised. For such people, a booster vaccine is recommended if immunisation took place over ten years ago.
- 4. Flu (influenza):** During flu season, the annual flu jab is also among the recommended immunisations, especially for people with a heightened risk of infection.



Chagas disease (Enfermedad de Chagas, Doença de Chagas)

Women from rural areas of Bolivia and Brazil in particular are at risk of infection from the pathogen *Trypanosoma cruzi*. It is therefore important to eliminate the risk of such infection, which can remain in the body without symptoms for years and have negative effects on you and your growing baby. If a child becomes infected while in the womb, it must be treated after birth.

Registration with a hospital

At around your 30th week of pregnancy, I will register you with a hospital of your choice. Upon registration, the hospital will receive all the relevant information about the course of your pregnancy.

I hope with all my heart that you experience a healthy pregnancy and a complication-free birth.

Dr Helge Köhler
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Important note:

Since medicine is not static, guidelines and recommendations need to be adapted continuously. During consultations I will inform you about new relevant information.