Standing up to diabetes
Avoiding foot problems
About eight million federal citizens suffer from the people’s disease of diabetes. Common accompanying signs of diabetes include dry skin and excess callus on the feet. They are partly responsible for severe foot complications such as diabetic foot syndrome. In the worst case, these complications and wounds may lead to amputation. However this doesn’t have to happen with the right care.

Diabetes is a chronic metabolic disorder which is marked by elevated blood sugar levels. There are two types of diabetes. About 90 percent of those who are ill have type 2 diabetes. Other diabetics have the insulin-requiring type 1. The symptoms of “sugar disease”, as diabetes is commonly referred to, are not always clear, so that it often takes some time before it is discovered. The earlier the illness is found, the easier it is to help patients. This also applies to the illnesses which accompany diabetes.

From foot problems...
Diabetic foot syndrome is one of the most common consequential disorders. It is sometimes also called diabetic foot. All diabetics should be well informed about it. This consequential disorder mainly affects the skin on the feet. Its circulation is not as good as normal. The skin nerves show disorders. Consequently the skin forms fewer fats and moisture. But fat in particular is an important component of the skin barrier. A lack of skin fats means that the moisture which is stored in the skin evaporates more easily. The skin quickly dehydrates and starts to itch. Strong scaling and cracks occur. These cracks are painful. They also allow fungi and bacteria to enter, further impairing the skin’s defenses.
During these inflammations, ulcers which may extend to the bones can form, usually on the soles of the feet. Such wounds can also form easily underneath callus weals. If the function of the skin nerves is impaired, the person’s gait may change. Certain areas of the foot sole are more severely strained in this case. The skin reacts to this strain with a natural protective mechanism: the callus layer thickens in the affected areas. Left untreated, however, the weal intensifies the pressure effects on the underlying tissues until a wound forms. In the worst case, such wounds or ulcers may lead to amputations. About 70 percent of all amputations in Germany are performed on diabetics. This applies to approx. 42,000 patients every year. It is especially problematic that due to a nerve disorder, many diabetics feel no pain and do not even notice the foot problems or wounds. This makes it impossible to treat them at an early time.

Pay attention to your feet
Preventive measures are important for all persons with diabetes and patients with impaired pain sensation or circulatory disorders. It’s important to consistently avoid dry skin and excess callus on the feet, discover and treat problems at an early time, and ensure sufficient pressure relief for the feet. Diabetics should use qualified help for this and regularly have their feet inspected by a professional foot caregiver or podologist. Foot fungi, inflammation on the feet or between the toes and first signs of a wound must be treated immediately by a specialist, such as a dermatologist, in a diabetological specialty clinic or in the outpatient foot department of a hospital.

Even the tiniest injuries in dry skin serve as entry points for pathogens and fungi.

Diabetics should therefore consistently avoid dry skin and excess callus on the feet.

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A bout six million people in Germany state that they have diabetes. However, there are numerous indicators that the true figures are much higher. Foot problems such as excess callus, foot and toe deformities, dry skin, gait changes as well as foot and nail fungus are among the most common consequential complications of diabetes. According to the recommendations by the Federal Physicians’ Chamber and the Federal Association of Health Insurance Funded Physicians, regular foot care can prevent this.

However, many diabetics do not even know that they need to do something for the health of their feet. This is shown by current results of the GEHWOL Diabetes Report. For this investigation, the research institute INSIGHT Health surveyed 3,459 diabetics from a treatment pool of 369 doctors’ practices jointly with IDS GmbH. Two thirds of patients (63 percent) are not at all aware that they have to pay attention to their feet. Nearly half of them (45 percent) practice foot care only rarely or occasionally, if at all. And less than half of them (47 percent) regularly seek care from a foot specialist. One third (29 percent) do not see a foot care professional at all, or only rarely.

Know-how builds trust
As far as the right foot care is concerned, diabetics trust in the expertise of physicians,
diabetes consultants and foot care professionals. The majority also follow the recommendations of a foot care professional (19 percent), physician (20 percent) or pharmacist (19 percent) in the selection of suitable foot care products. Those surveyed particularly valued the exclusive availability of high quality foot care products in foot care practices and pharmacies (26 percent). However important care measures are only partly implemented correctly. This includes daily foot inspections. Less than half (47 percent) of patients comply with this measure. And by far not all diabetics use a file for nail care. Instead, they use shears or clippers with which they can easily injure themselves.

Finding the right measure
When cleaning the feet, many of those surveyed exceed the duration of the foot bath, which should take no longer than three to five minutes at a maximum of 37 to 38 °C. Only 15 percent of diabetics bathe their feet at all, mostly longer than three minutes. Treating the feet and legs with a foot care product is also part of the care ritual for only 29 percent of diabetics. Some patients simply lack the mobility and endurance for such a procedure. If a foot care product is used at all, most patients (73 percent) therefore prefer creams and lotions which are easily applied and absorbed.
Dry skin, cracked callus or foot fungus – the problem is easily recognisable as soon as you notice itchy areas on the feet for the first time. This is different in diabetics. Since diabetes may also impair pain perception, alarm signals are frequently not noticed initially. Therefore foot problems frequently go unnoticed.

Fundamentally, proper treatment of diabetes mellitus must also include regular foot examinations. A professional medical foot care provider or podologist is the first contact for this. They will have well-founded medical knowledge and work together closely with the treating doctor or an outpatient foot department. The foot specialist is especially able to develop treatment concepts jointly with the family doctor, diabetologist, orthopaedist or internist. This cooperation provides the basis for optimal patient care. Since 2002, podological care is therefore part of the regular services in diabetic care. That is, doctors can also issue certain prescriptions for diabetic foot.

Early recognition and treatment

Foot care providers and podologists can provide competent advice to their patients and recognise even the smallest changes at an early time. In this way, foot problems can usually be corrected at an early time, or at least greatly reduced. Foot inspections or treatments should take place at least every four to six weeks. If it is not possible to visit the foot care practice, many foot care professionals visit patients at home upon request. During these routine check-ups, foot specialists check whether there are e.g. fungal disorders, ingrown toenails, pressure spots, weals, corns or other changes of the feet and toenails. Finally, they are treated with suitable care.
For instance, if there are ingrown nails, the professional makes a nail brace and applies it to correct nail growth. He or she removes weals or painful corns with the greatest of care, using modern foot care equipment which guarantees high hygiene standards. Foot care pros can also reduce pressure load on the foot with pressure relief articles made from polymer gel or with a special orthotic (custom made pressure relief article). This measure is suitable for preventing further weals or corns. A pressure measurement or gait analysis can also be done for this purpose to check whether strain is being wrongly applied to the feet. This is often responsible for weals or corns recurring after a short time. In this case or if it is shown that the patient wears unsuitable shoes, podologists can also initiate care with an orthopaedic shoe.

**Competent advice and care tips**

Luckily most foot problems pass more or less quickly with early detection and appropriate treatment – in other words, with professional care. Trust a specialist here. But also trust yourself. If you don’t take care of your feet, the work of a foot care pro will not be successful in the long run. Your foot care pro can provide you with information on how to look after the well-being of your feet, as well as the right care and exercises.

Every person travels nearly 160,000 km on foot in their life. This distance is four times as long as the middle circumference of the earth. Foot problems are therefore not unusual. They affect everyone.
So that the shoe won’t squeeze you

Wrongly fitting shoes often cause foot injuries. Therefore orthopaedic shoe technology is very important in both prevention and therapy for diabetics. With consistent pressure relief, it contributes to avoiding tissue damage. Mobility without risk is the objective.

For this purpose, the orthopaedic shoemaker first determines the stress zones. This is done with a computer guided, electronic pressure measurement on the soles of the feet while walking (dynamic pedography). During this procedure, the patient wears flexible measuring insoles or steps on a measuring plate with many integrated sensors which record the pressure load on the feet.

Gait analysis can be used to find out whether body statics are altered. Each step is directed by a complex interplay of bones, joints, muscles, ligaments, tendons and nerves which is distributed along the body axis via the hips, knees, feet and toes. Each change along this axis – such as an angled hip or stiffened joints (e.g. in arthritis) may disturb the natural progression of movement while walking. The foot arch suffers from this. Pressure weals form, and the foot and toes lose their natural shape.

Reducing strain
Orthopaedic shoemakers use various measures to correct these disorders and ensure sufficient, comfortable pressure relief. Care includes:

- **Individual insoles** (diabetes-adapted foot beds): Several soft layers evenly distribute pressure under the foot sole, reducing pressure in especially strained areas.
- **Orthopaedic shoe adjustments**: The shoe technologist adapts the desired confection shoe individually so that there are no pressure and friction spots. For this purpose, he may make changes to the walking sole, heel, front and/or back caps and the tab.
- **Made-to-measure orthopaedic shoes**: Custom shoes can be made for pronounced foot deformities or if there is a high risk of wounds due to a nerve or circulatory disorder. They have a raised heel cap, spacious interior, soft upper leather with no hard front cap and a seamless inner lining. The sole is rigid or flexible as needed.
Confectioned therapy shoes: These shoes are used if a foot wound or infection is already present. This generally affects the frontal feet. The relief shoe therefore has a raised and lengthened heel. This means that the frontal foot does not make ground contact during the rolling motions, relieving the wound area.

If you do not require special orthopaedic shoes, you should still pay attention to the right quality and fit precision for diabetics when buying confectioned footwear (also see the box).

Tips for choosing the right shoes
Make sure that the shoe is sufficiently wide and long and has a wide entry. There should be enough room for insoles. Heels should have a maximum height of 4 cm for women and 3 cm for men. A stiff sole is good to allow later adjustments. The material should consist of actively breathing leather and have no sharp-edged eyelets. Test new shoes: walking in them for 10 – 15 minutes is enough. Then check your feet for pressure spots. Never walk without shoes, not even at home, and best of all, wear cotton socks.

Look for foreign particles before and after every use, and change your shoes in the course of the day (take out the insoles to air them out). Don’t use chemical cleaners. Worn inner liners, soles or heels which are worn off at an angle and traces of secretions are signs that the shoe does not fit correctly. Therefore, regularly have your shoes inspected by a doctor or orthopaedic shoemaker.

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High heels are taboo due to the severe foot strain which they apply. Special orthopaedic shoes are better suited. They ensure individually adapted pressure relief.
Regular visits with a foot specialist are mandatory. You also have to engage in regular, intensive home foot care. Errors during foot care, e.g. using shears and sharp planes or clippers, often result in dangerous foot injuries. Turn foot care into a daily ritual. Measures recommended by diabetes experts quickly become routine. They help you to avoid dry skin, excess callus, foot fungus, inflammation and similar risks. It is best to obtain advice from your foot care specialist. Special trainings with a diabetes consultant are also helpful for learning to take diabetes into account every day.
What you should note

- You should examine your feet and soles with a mirror at least once daily to check for redness, pressure spots, blisters, cracks, foreign bodies and injuries. Also do this after long walks, or after breaking in new shoes.

- File your nails off straight once a week with a sandpaper or diamond file. The nails should end parallel to the tip of the toe. Extremely rounded nail corners encourage nail bed inflammation and painful ingrown toenail edges. Absolutely avoid sharp instruments such as clippers, nippers, shears or pointed files. They are always associated with a risk of injury.

- Sharp tools are also completely taboo when removing excess callus. Especially avoid callus planes, metal rasps, knives or shaver blades. Sandpaper callus files, natural pumice stone or a fine callus sponge are much more suitable. If you prefer a callus cream, pay attention to choosing foot care products with no skin-irritating salicylic acids.

- Foot baths are allowed when the skin is intact, however not longer than 3 - 5 minutes and with a maximum water temperature of 35 °C to avoid scalding. You should always measure the temperature of your footbath with a bath thermometer. Clean your feet with your hands or a soft washcloth – never with a hand brush or massage gloves. After the bath, dry the skin with a soft towel, and the spaces between the toes with a cotton swab.

- Use a foot care product with a sufficiently high fat and moisturiser content to treat dry skin once and very dry skin twice daily (but not in the spaces between the toes).

- Use socks with no seams on the inside, preferably made from cotton. Synthetic socks are unsuitable, since they barely allow body sweat to evaporate.

- Disinfection and a sterile bandage are mandatory for small injuries. You should immediately see a doctor if you have larger injuries, signs of inflammation, fever or chills.

- You can encourage your foot circulation with mild home foot exercises and also strengthen the foot muscles in this way. The old principle also applies to diabetes: Exercise brings mobility.
If the skin lacks fats and moisturising substances, it dehydrates. Suitable care products equalise such deficiencies.

Dry, brittle skin which tends to develop callus is a frequent accompanying symptom of diabetes. The cracked skin barrier allows moisture to escape. Pathogenic agents can also enter easily. Care must aim to preserve the protective functions of the skin.

Obtain advice for product purchases
When the skin is dry, the uppermost skin layer – also called the callus layer – lacks moisture and fatty substances (lipids). The skin feels rough, is scaly, lacks shine and elasticity, and tends to form more callus. Itchiness is another symptom, and a major problem for diabetics. Itchy skin leads to scratching. This can injure the skin, allowing it to become infected with pathogens. This may cause deep foot wounds – namely, diabetic foot syndrome.

How does dry skin form?
The outermost skin layer forms a kind of protective barrier. It keeps pathogens out, but also ensures that the amount of skin moisture which is evaporated out does not exceed the required amount to regulate body temperature. The barrier consists of various skin fats, dead skin cells (callus cells) and moisturising substances which store water in the callus cells. Due to its composition of various fats (lipids) and bound moisture, this outer protective layer is also called the hydrolipid barrier. The barrier function fails when there are too few fats and moisture. More moisture evaporates in this case, dehydrating the skin (also see the graphic).

What should care focus on?
Consequently, the goal of caring for dry foot skin must be to increase skin moisture. The Association of Dermopharmacy recommends care products which equalise dry skin’s lack of moisture and fats, improving its barrier function. Suitable products should be easily absorbed from the user’s perspective, but must absolutely have a sufficiently high fat content and may need to contain additional moisturising substances. Suitable products intensify the barrier effect, leading to better water inclusion into the upper callus layer. Furthermore, products used by diabetics should not contain allergy-triggering scents and preservatives.

Choices, choices...
Advertising often tells us that certain active substances are good for skin moisture. Of course there are such substances. However this should not distract us from the fact that a substance alone is never responsible for its efficacy – it’s the entire recipe. The recipe should be composed according to pharmaceutical and dermatological perspectives so that its individual ingredients are of high quality and optimally complement each other’s effects. The recipe should at least fulfill statutory requirements, but should ideally also be oriented to scientific recommendations and guidelines. At the same time, this means that the efficacy of the products should be proven by suitable scientific processes insofar as possible. This means better security for users. Choosing the right products by these criteria requires a certain amount of expert knowledge which e.g. the dermatologist, consulting pharmacy personnel and well trained foot care pros and podologists possess.

Dr. Joachim Kresken, Viersen
CEO of the GD Gesellschaft für Dermopharmazie e.V.
It’s the recipe which matters

Foot care products have to do a lot. Removing excess callus, providing protection against callus and foot fungi and returning lost moisture to dry skin are important care goals.

GEHWOL brand products are available exclusively in foot care practices, cosmetics institutes and pharmacies. There are good reasons for this. Each foot care cream is developed strictly according to dermatological and pharmaceutical criteria. That is, the ingredients are selected so that their effects complement each other as well as possible. However this leads to complex recipes which require explanation. Well trained expert personnel can assess whether a product is suited to your needs. This expertise is available in pharmacies, foot care practices and cosmetics institutes. Consequently GEHWOL has always been available only from such outlets.
Reducing callus

For instance, GEHWOL med Callus Cream removes excess callus. Its skin-tolerant recipe ensures intensive moisture care. Among other things, it contains urea. This natural substance which was discovered in 1773 and repeatedly proven in cosmetics is one of the most important skin moisturising factors. In high concentrations, urea softens callus and loosens the compound of the callus cells. They are able to scale off normally again. Allantoin – a substance which occurs in horse chestnuts among other things – and silk extract also have skin smoothing properties. The combination of these ingredients reduces excess callus after a few days. After about 28 days, the foot skin has returned to a normally smooth, supple appearance.

Preventing callus

However, permanently avoiding callus means long-term foot care. GEHWOL med Lipidro Cream is suitable for this purpose. It supports the barrier function of the skin. An elastic skin barrier is better able to resist strains. Since the barrier is formed from a special mixture of lipid and moisture components between the callus cells, Lipidro Cream provides the skin with these specific components: The cream contains skin-friendly, rapidly absorbed fats of sea buckthorn and avocado oil and other moisturising substances. Urea is absolutely necessary. While reducing callus, it also binds moisture in and between the callus cells. Another protagonist from nature which is a master in storing nature: sea algae. They contain numerous minerals and moisturising substances. In the Lipidro Cream, a sea algae extract which is processed especially for cosmetic purposes supports the performance of urea. Together, these ingredients ensure that the barrier stays intact, limiting water loss. With good care, the skin cannot become cracked and dehydrated.

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You can also complete and send the questionnaire online:
www.fussvital.info/standhaft-bleiben

I have answered all eight questions and would like to win a foot care set!
Participate and win now!
Do the foot check! Find out which answers are wrong and win one out of 100 foot care supply sets, consisting of: 4 x 75 ml GEHWOL med Lipidro Cream, 2 x 75 ml GEHWOL med Callus Cream – with a fluffy soft foot bath towel.

1. The foot inspection should be done ...
   a) weekly,
   b) daily,
   c) after long walks,
   d) when you start breaking in new shoes.

2. Toenails should always be
   a) filed off straight,
   b) filed off round,
   c) filed with a diamond file,
   d) filed with a sandpaper file.

3. To remove excess callus, use
   a) a salicylic acid free cream,
   b) a callus plane,
   c) a callus sponge,
   d) a natural pumice stone.

4. Foot baths should only be done
   a) when the skin is intact,
   b) at a maximum temperature of 37–38°C,
   c) not for longer than 3 - 5 minutes,
   d) with a massage glove for the feet.

5. When drying the skin, use
   a) a soft towel,
   b) absorbent material which picks up moisture well,
   c) a hair dryer on low heat,
   d) a cotton swab for the spaces between the toes.

6. Dry skin should be treated with cream
   a) at least once daily,
   b) to protect against foot fungus,
   c) to supply it with lipids and moisture,
   d) to protect it against infections with disinfectants.

7. Stockings and socks should
   a) have no inside seams,
   b) breathe actively,
   c) be made of cotton,
   d) have an antimicrobial coating.

8. Foot exercises are done
   a) to strengthen the musculature,
   b) to activate the circulation,
   c) for mobility,
   d) should only be done with a physiotherapist.

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Which statement is wrong? Please check it off! (Submission deadline: 31 August 2014)

1. Foot inspections should ...
   A  B  C  D

2. Toenails should always ...
   A  B  C  D

3. When removing excess callus ...
   A  B  C  D

4. Foot baths should ...
   A  B  C  D

5. When drying the skin, use ...
   A  B  C  D

6. Dry skin should ...
   A  B  C  D

7. Stockings and socks should ...
   A  B  C  D

8. Foot exercises are done ...
   A  B  C  D

Please remember to fill out the back of the sheet!