AN OVERVIEW
FOR PATIENTS

Psoriasis

NOVARTIS

CONTENTS

FOREWORD

Dear Patient,

The skin changes that you may have observed on yourself already for some time now have been diagnosed by your doctor as psoriasis.

What this disease is, what effects it has and how well it can be treated are likely only some of the thoughts that are now occupying you.

With this brochure, we would like to answer for you the first questions that normally follow such a diagnosis. We will make it deliberately short in order to give you a quick overview and provide you with a basis for further conversations with your doctor. But first, a few facts and figures at a glance.

IN FOCUS: PSORIASIS

FACTS AND FIGURES

- Psoriasis is a chronic inflammatory skin inflammation affecting approx. Two million people in Germany.
- By far the largest share (approx. 85 %) suffers from the form „plaque psoriasis“.
- Approximately 75 % of patients develop the disease at an early age (between 15 and 25), the other quarter not until between ages 50 and 60.
- The exact causes are still unknown today. However, it is assumed that different factors must come together that trigger psoriasis.
- It is certain that a kind of malfunction of the immune system is mainly responsible for the inflammatory processes.
- Psoriasis is not yet curable, but is easily treatable. The typical symptoms can be greatly alleviated; sometimes they even disappear entirely.

Psoriasis has been known for over two millennia. It is most conspicuously marked by whitish flakes on reddened skin.

Psoriasis is derived from the Greek word psora (for „itching“ or „scratching“).

PSORIASIS – WHAT IS IT?

Psoriasis has been known for over two millennia. Sources from antiquity and the bible describe the skin disease, which is marked by whitish flakes on reddened skin. The name „psoriasis“ comes from the Greek work psora (for „itching“ or „scratching“).

Psoriasis is a „chronic“, i.e., slowly-developing and permanent disease. It is not an “exotic” disease, on the contrary: in Germany alone approximately two million children and adults are affected by psoriasis. In general, it is one of the most frequent chronic inflammatory skin diseases in industrialised countries.

In the vast majority of cases, the doctor diagnoses so-called Psoriasis vulgaris („common“ psoriasis). The typical symptoms: reddened, silvery-whitish scaling skin spots, which are often accompanied by itching, burning and painful cracked skin. The scales can be up to a few centimetres in size.

Especially elbows and knees, the tailbone region and hairy areas of the head are affected by characteristic skin changes. But psoriasis may also affect joints, tendons and nails. It is important to know that the disease is not contagious, so it cannot be transmitted through contact with an affected person.

A „classic“ cure for psoriasis is currently not possible in modern medicine – but, and this is the positive news: **it is easily treatable.**

FOR WHAT REASON DOES ONE DEVELOP THE DISEASE?

To this day science does not know exactly. But it is certain that several factors play a role in the formation of psoriasis. Psoriasis itself is not hereditary, but the predisposition to it is. Persons may also develop psoriasis in whose family such a disease has never been observed.

But what genes are responsible for this? Researchers are not yet absolutely certain on this point. And it is just as little understood how the genetic predisposition is transmitted. The disease appears in some families frequently. But not all persons who have such a genetic predisposition automatically develop psoriasis. Sometimes the disease can also skip generations.

Thus it is clear that one factor alone is not enough for the break-out of psoriasis; rather, other factors must be involved. Certain infections – one example is tonsillitis – present a risk factor.

But certain drugs, physical and mental stress, an unhealthy lifestyle, hormonal changes (e. g., puberty) or external stimuli (rubbing, pressure, extreme heat or cold) may have a role in this complex interplay and trigger the psoriasis. These „provoking“ factors are also called trigger factors.

However, it is clear that no one can predict how, when and even whether an outbreak of the disease will occur.

WHAT HAPPENS UNDER THE SKIN?

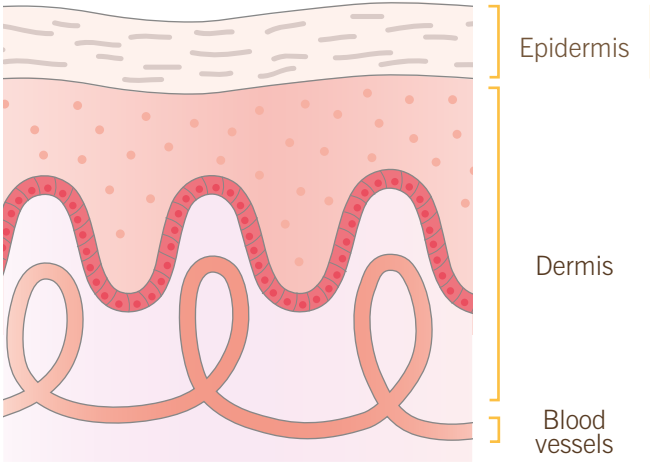
In psoriasis, there are pathological changes in the skin: the growth and the proliferation and maturation of the cells in the epidermis (Keratinocytes) no longer proceed normally.

While Keratinocytes in healthy skin form in the deep skin layers and reach the skin surface after roughly one month, this time period is greatly shortened with psoriasis: the process plays out in approx. three days.

The consequence of this „turbo“ cell division: compared to healthy skin, the regeneration of corneocytes is increased many times over. A large number of not yet completely matured corneocytes reach the upper skin layers, where they cannot be shed quickly enough. Scaling, redness and swelling occur.

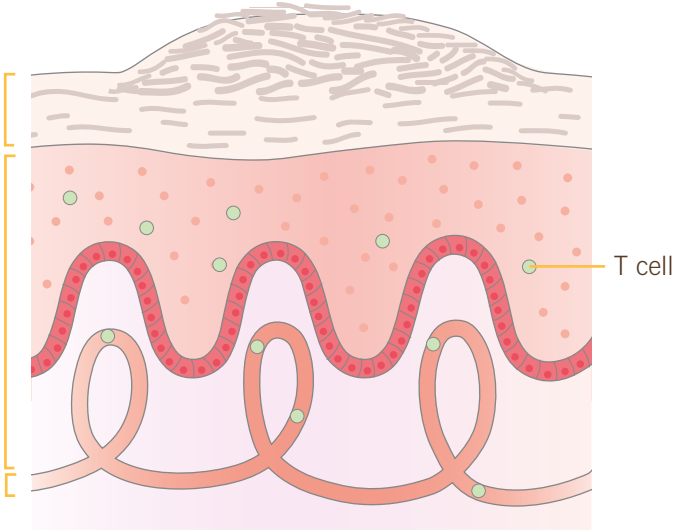
An expansion of small blood vessels in the dermis is responsible for the inflammatory skin redness: vascular walls become more and more porous, allowing for increasing penetration of lymph and so-called inflammatory cells into the tissue.

Healthy skin



Healthy skin without inflammatory processes.

Psoriasis inflammatory process



Psoriasis is an inflammatory process in which T cells from the blood migrate to the skin and release various „inflammatory messengers“ there. The skin cells start to divide much more frequently than normal.

HOW IS THE IMMUNE SYSTEM INVOLVED?

Psoriasis is a disease that is attributed to a malfunction of the immune system. The immune system is supposed to protect against pathogens and harmful substances. But with psoriasis, certain immune cells – so-called T cells – are triggered by external factors (such as smoking or stress) and become overactive. Exactly how these processes take place and are intertwined remains unclear to experts.

But research assumes that overactive T cells from the blood „migrate“ to the skin. Here, they release different messenger substances like so-called tumour necrosis factor (TNF) or interleukins 12, 17 and 23 and thereby cause inflammation.

Interleukin 17A in particular has been detected in higher concentrations in the blood and in the skin of psoriasis patients. The same is true for tumour necrosis factor alpha (TNF), which plays an important role in the inflammatory process.

The immune system is thus a crucial starting point when it comes to the question of how psoriasis can be treated.

Overactive immune cells are responsible for the inflammatory reactions.

WHAT ARE THE FORMS OF PSORIASIS?

Psoriasis takes different forms, with skin alterations playing the largest role.It is assigned according to the alterations in the skin.

Plaque psoriasis (Psoriasis vulgaris) is the most common form, occurring in approximately 85 % of persons with psoriasis. It is characterised by reddened, scaling „plaques“ (patches, spots) of different sizes, which may appear on the entire surface of the body. But it is most common in both adults and children for the scalp to be affected. For that reason it is sometimes called scalp psoriasis.

It is not uncommon for plaque psoriasis to also cause alterations in the fingernails and, to a lesser extent, the toenails (nail psoriasis). Small dents (pitted nails), discolouration (oil stains), crumbling of the nail plate and detachment of the nail plate are typical for this psoriasis. But these alterations may also occur in other forms of psoriasis. Often, nail psoriasis is also an indication that psoriatic arthritis is present.

In **psoriatic arthritis,** there is arthritis in addition to psoriasis, i. e., inflammation in the joints, especially the finger and toe joints. It occurs in approx. one-third of afflicted persons.

Guttate psoriasis (guttata: „drop-shaped“) frequently occurs after infections. It is characterised by severe itching and small, drop-shaped lesions that are spread over the body by the dozens.

Pustular psoriais is more rare: in this type, pus-filled blisters form on red skin patches. It may affect individual patches only (for example, the palms of hands and soles of feet), or the entire surface of the body.

The frequency of **erythrodermic psoriasis** (redness of the entire skin) is less than one percent.

DOES PSORIASIS HAVE OTHER EFFECTS?

Psoriasis, as doctors describe it, is an inflammatory systemic disease. This means: even if mainly the skin is affected, the disease is found throughout the entire body. The malfunction of the immune system also affects other organs or the joints. Psoriasis is associated with concomitant diseases in almost 85 % of cases.

Roughly one-third of psoriasis patients have psoriatic arthritis at the same time (inflammation of the joints). But metabolic diseases like type 2 diabetes or cardiovascular diseases are also a common concomitant feature. The eyes or the intestines may also be affected by the inflammatory process.

In most cases, psoriasis is associated with concomitant diseases.

IN FOCUS:
PSORIASIS THERAPY

WHAT IS THE OBJECTIVE OF THE THERAPY?

A cure for psoriasis is not yet possible in today's medical science. But modern treatment approaches with very effective drugs may substantially improve the condition of the skin, frequently prevent another flare-up and often even alleviate all symptoms.

Which therapy your dermatologist prescribes for you depends on the severity of the psoriasis that you have and the extent of the affected skin areas. But age, profession, general health and any existing concomitant diseases also play a role in the choice of treatment.

The requirement for optimal therapy is that you and your doctor reach a decision for continued therapeutic procedures together. These should be the goals of therapy:

- improvement or complete disappearance of skin symptoms, like flaking or redness,
- prevention of new flare-ups,
- suppression of itching,
- treatment of any concomitant diseases,
- improvement in quality of life.

Modern treatment approaches with very effective drugs may substantially improve the condition of the skin.

WHAT ARE THE DIFFERENT THERAPY OPTIONS?

Generally, the following treatment options may be used:

- external/topical treatment
  (e.g., ointments, creams, lotions)
- physical therapy
  (treatment with UV light or bath light therapy)
- traditional systemic therapy
  (tablets or injection)
- systemic biologic agents
  (injections or infusions)

WHAT IS SPECIAL ABOUT TOPICAL THERAPY?

For some psoriasis patients, only external treatment is considered, because only limited areas are affected or they have mild forms of psoriasis. The advantage of this therapy: only the affected parts of the skin are treated and side effects in the whole organism are usually few.

In topical therapy, the skin areas affected by psoriasis are treated with ointments, creams, lotions and tinctures. Special shampoos and, more recently, foams may be used for the treatment of hairy regions of the skin.

Cortisone preparations like vitamin D3 and its derivatives (for example, calcitriol, calcipotriol and tacalcitol) are among the active substances that are frequently used for external treatment of psoriasis.

What is understood by „physical therapy“?

In light therapy, also called phototherapy, the effects of natural or artificially produced ultraviolet (UV) radiation are used. Treatments with UV light lead to substantial improvement of psoriasis. In this treatment, modern radiation equipment is used to generate radiation in a certain wavelength range, which has a particularly favourable effect in psoriasis.

Generally, the phototherapy procedures are tolerated well by the patient. Treatment with UV light alone and a combination with external therapy are possible. For example, photo-sole therapy as part of a stay at a health resort at the Dead Sea – whose salt content is extremely high – is especially well-known for being effective for psoriasis. In many specialist clinics, artificial photo-sole therapy is one standard therapy.

WHAT THERAPY CAN BE CONSIDEREDFOR SEVERE FORMS?

For patients with moderate to severe psoriasis, systemic, i.e., internal therapy is recommended. With this therapy, the active substance of the drug used is distributed throughout the entire body via the circulatory system. In this way, even the fine blood vessels that course through the skin are reached.

The different systemic substances are methotrexate, retinoids, cyclosporine and fumarate on the one hand, and biologic agents on the other. They are all supposed to influence the immune system differently, which, as already mentioned, in psoriasis has an influence on the skin and sometimes also on the joints.

Since all systemic therapies reach not only the skin areas and joints affected by psoriasis, but also have effects on the entire body, their use must be considered carefully and checked regularly. In that way, possible side effects can be identified in a timely manner and frequently avoided.

WHAT IS THE PARTICULAR APPROACH OF BIOLOGIC AGENTS?

The so-called biologic agents that have existed for some years have a targeted effect on certain parts of the immune system.

These highly effective substances are biotechnologically produced proteins (monoclonal antibodies), which are able to intervene in immune system processes in a targeted way and influence it.

They are directed specifically against certain messenger substances or immune cells that are produced naturally in the body that cause the inflammatory processes in psoriasis. Scientific knowledge about the development of psoriasis and the importance of messenger substances in the immune systems has entered into the development of these drugs.

Biologic agents are generally used only in cases of moderate to severe psoriasis and psoriatic arthritis, when other treatments have not been successful or were not tolerated.

Biologic agents are administered as an injection under skin (subcutaneously) or as an infusion, because the proteins would be destroyed by stomach acid if they were taken normally by mouth. As a rule, they take effect relatively quickly: with administration by infusion, within one to two weeks; by injection, after two to four weeks.

We hope that you feel good again in your own skin!

CONCLUSION

We hope that this brochure has provided you with interesting and useful information and perhaps has even opened new perspectives for the treatment of your psoriasis. It is our hope that you find a type of therapy that improves your skin appearance as you desire. Given the current state of science, that is more possible than ever.

IS IT TRUE THAT ...

... psoriasis is contagious?

... high alcohol consumption has an unfavourable effect on psoriasis?

... psoriasis is only a skin disease?

... smoking has an unfavourable effect on psoriasis?

... diet has an effect on psoriasis?

... psoriasis develops due to poor hygiene?

... tattoos can worsen psoriasis?

... certain fish can nibble away at psoriasis?

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