

Information about the leaflet

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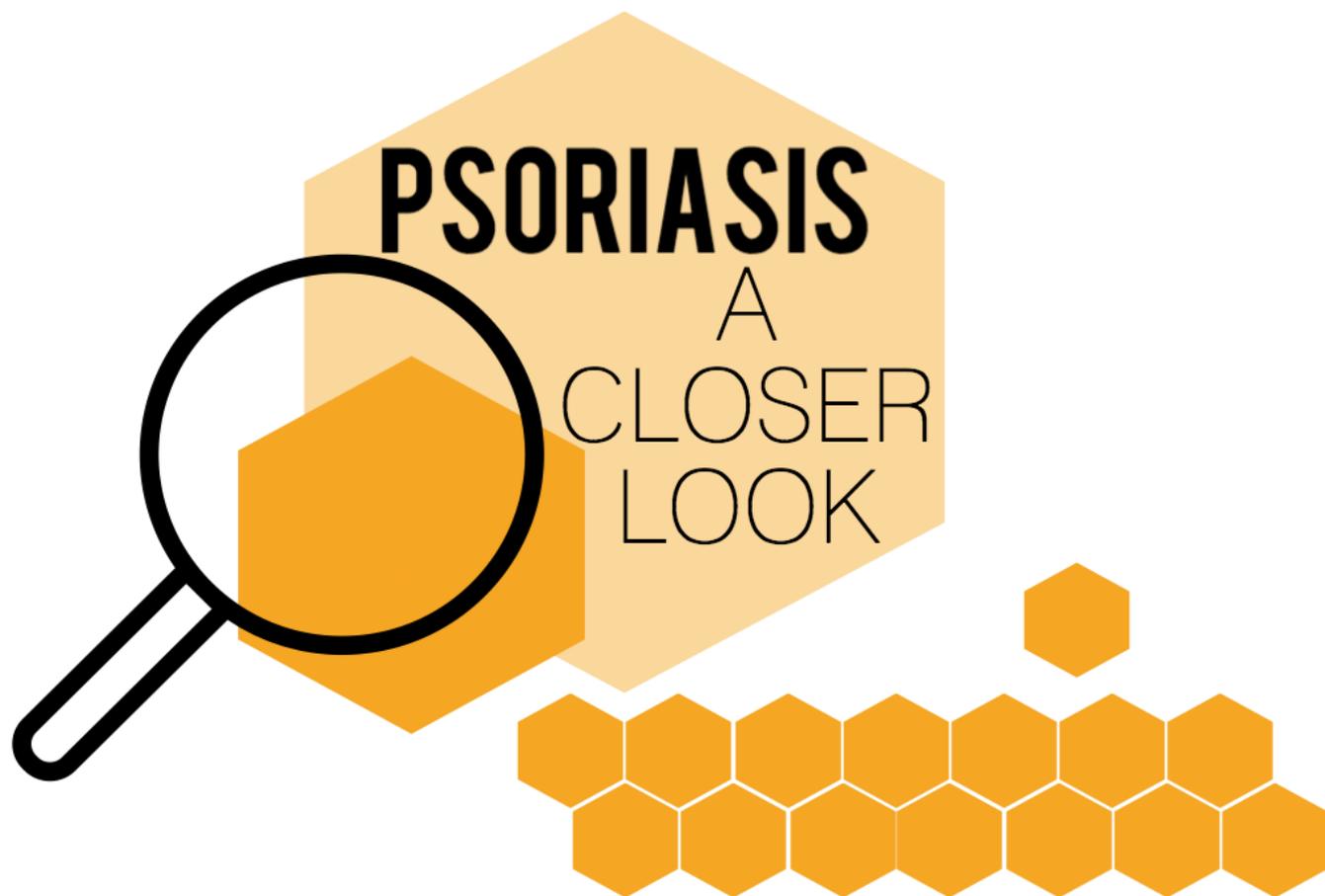
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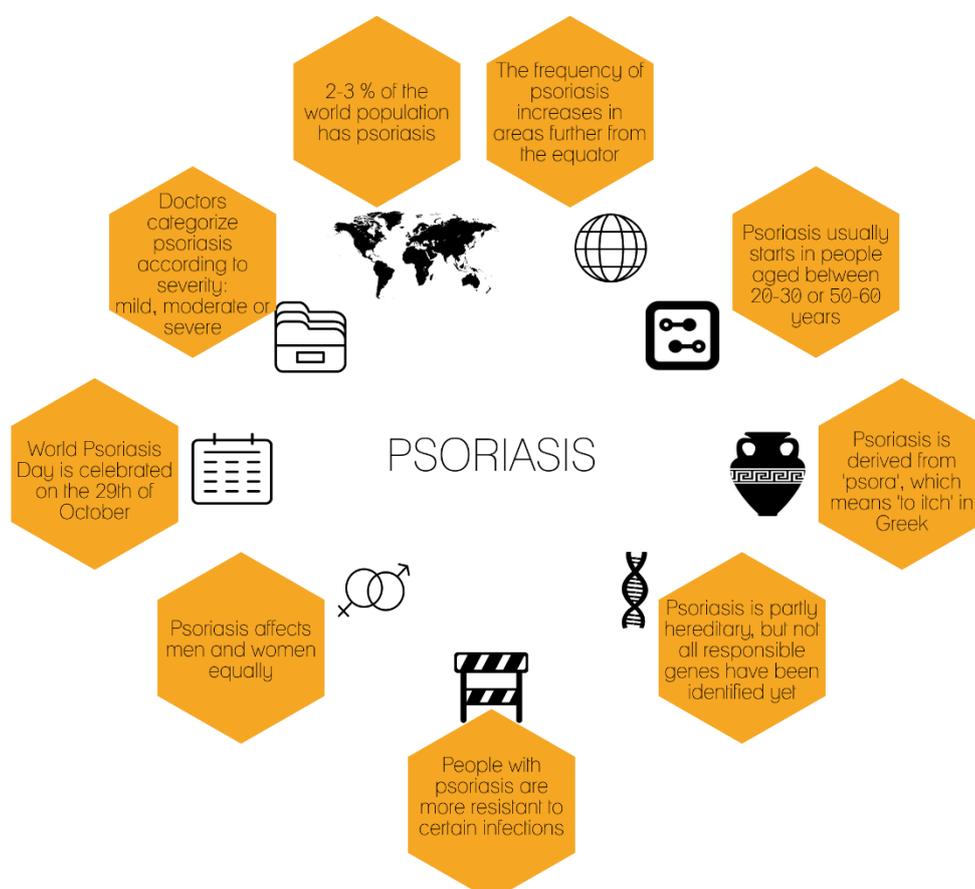
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Introduction

Red, scaly spots that seem to come out of nowhere and cover your body. Psoriasis is a chronic skin disease that affects 2-3% of the world population. Currently, various treatments are available, with their own set of advantages and pitfalls, with some treatments more suitable for you than for someone else. Yet, there's no definitive cure for psoriasis, and due to its chronicity, psoriasis requires lifelong treatment. That's why the diagnosis 'psoriasis' may be devastating and overwhelming. But that's why it is so important to be correctly informed and to have a good connection with your doctor, who will be your ally throughout this challenge. You need to be in control of psoriasis so you can lead the life you were meant to live. And though psoriasis is complex and treatment may be challenging and time-consuming, this leaflet is meant as a guidance to find your way through it.



Psoriasis in- and outside your body

What's going on in your skin?

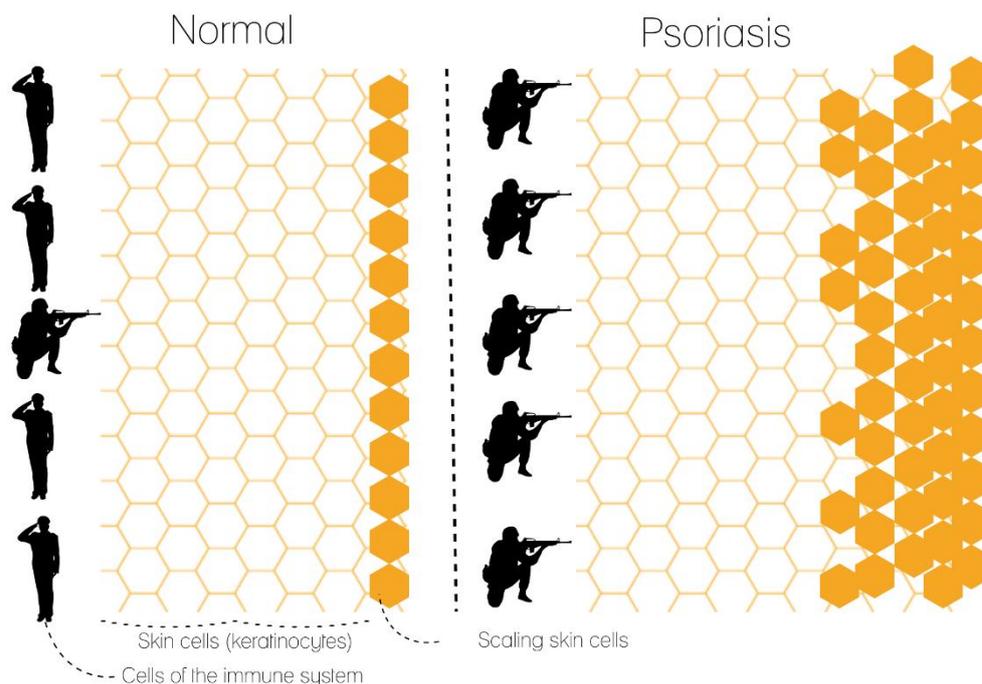
Your skin is a very important organ, which protects you against the outside world and is in essence the first barrier of your immune system. Inside your skin, your immune system is each day busy trying to make a distinction between what's a part of your body and what's foreign, such as bacteria, viruses, fungi, but also objects such as splinters. In the case of psoriasis, it seems that the immune system is confused and therefore overactivated. This explains why psoriatic lesions are typically red; it indicates the dilation of your blood vessels allowing your immune system to do its job. Another consequence is the abundance of signals that grant permission to your skin cells to divide much faster than usual: where healthy skin will renew every 26-27 days, this only takes 6-7 days for psoriatic skin, which is 4 times faster! That's why psoriatic skin is so flaky and explains the elevated psoriatic plaques.

The immune system gone haywire

Although science already understands a great deal about psoriasis, it is still not clear about why some people develop psoriasis, whereas others don't. Causes are multifactorial, meaning its development is dependent on various factors: genetic predisposition (psoriasis occurs more frequently within families); geographic location (the further from the equator, the higher the prevalence); occurrence of other diseases and risk factors (comorbidities or 'related' diseases, as they often appear together); and so on.

However, we do know that the immune system is overactive in people with psoriasis. To understand what's going on, imagine our immune system as an army, consisting of various levels with each its own task. For instance, one part of the army is responsible for fighting off bacteria, another one fights the viruses and another one takes on invading parasites. Psoriasis can be seen as an exaggerated reaction of our immune system to an intruder, such as a virus or a fungi, and afterwards forgets to turn off the defense system. At the same time, this makes people with psoriasis less vulnerable to certain skin infections compared to people without psoriasis, because the army is always ready for attack. In other words, the army remains alarmed and builds a fort, resulting in the typical psoriatic lesions, also called plaques.

And just like the army, our immune system listens to commands and these commands can be shouted by one cell to another cell. Some commands mean 'attack' and are interpreted as pro-inflammatory: they drive inflammation. TNF is a very famous example. Other commands mean 'stand down' and are seen as anti-inflammatory signals and thus suppress inflammation. Corticosteroids are well known anti-inflammatory commands, a hormone that we produce ourselves and often used to reduce inflammation. When we look at psoriasis lesions in detail, we observe an abundance of pro-inflammatory commands compared to healthy skin. Based on this finding, 'biologicals' were introduced on the market ten years ago. These biologicals silence certain commands and can thus selectively and specifically interfere with the commands of our immune system.



So psoriasis can be easily solved?

In reality of course, our immune system is much more complex, making it much more difficult to understand what is precisely going on during psoriasis. In addition, the itch and pain that are typically associated with psoriasis render the picture much more complex. Itch and pain are part of our nervous system, signaling to our immune system with different commands. All these signals complicate our understanding and scientific research is still currently investigating how both systems communicate with each other.

Not just a skin disease...

Psoriasis is not only present in the skin, but also systemically in the body. This can lead to comorbidities: diseases that are more likely to develop when you have psoriasis. It is believed that this is due to the low but chronic state of inflammation throughout the body. Therefore, it is very important to have your psoriasis under control so you can avoid the development of comorbidities. If you do not succeed, those comorbidities will pose a heavy burden on your health and will require additional treatments. Although psoriasis itself is not deadly, severe and uncontrolled cases of psoriasis have been associated with a reduced life expectancy of up to 10 years! As such, the diagnosis of psoriasis is much more than just treating the skin lesions, it requires a good and stable approach to tackle the disease; a task to be done together with your doctor.

Koebner phenomenon

Perhaps your physician may mumble something about a 'Koebner' phenomenon when he/she's examining you. What he/she actually means to say is that damage (trauma) to the skin may be a trigger for a psoriatic lesion to develop. This may occur through an injury, a surgical cut or even tattoos. This

phenomenon was first described by a German dermatologist, called Heinrich Koebner, hence the exotic name. Indeed, the psoriatic lesions may actually follow the shape of the skin trauma. Naturally this phenomenon is rather bothersome to people with psoriasis, complicating life once more for them. It is therefore essential to protect your skin carefully and avoid skin damage. Note: a very dry skin is also a form of skin damage, so keep your skin hydrated!

Koebner phenomenon: from skin injury to psoriasis

Normal



Healthy psoriasis skin



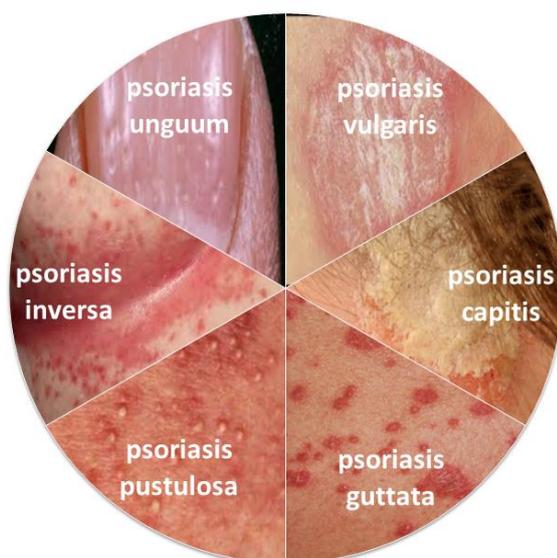
The many faces of psoriasis

Subtypes of psoriasis

Actually psoriasis is regarded as a collective term for various forms of skin rash. The most common and well known form is psoriasis vulgaris, also known as plaque psoriasis. However, other forms exist as well. Fortunately, they don't all present in 1 person, although it is possible to have more than one form of psoriasis. Therefore, the difficulty of psoriasis is to distinguish it from other skin diseases. Oftentimes the physician will be able to recognize psoriasis by examining your skin closely, but sometimes a small piece of skin (biopsy) may be needed to examine it in greater detail under a microscope. Unfortunately, not all general practitioners are familiar with the various forms of psoriasis and oftentimes a dermatologist is needed to confirm the diagnosis. All this adds up to the fact that it may take some time to correctly diagnose psoriasis. Sadly, by then, you may have faced various diagnoses, treatments and a lot of frustration.

Let's summarize the different forms of psoriasis:

- Plaque psoriasis: elevated red lesions with silver-white flakes that may get loose. Lesions may cover the entire body, but are most likely present on the elbow, knees, back and scalp.
- Psoriasis of the scalp (capitis): ranging from mild (light scaling) to severe (thick crusts covering the entire scalp) and appears behind the hair line, forehead, neck and behind the ears.
- Psoriasis guttata: small, red spots with scales that may appear over the entire body. This form is often associated with a streptococcal throat infection and may evolve into plaque psoriasis.
- Psoriasis pustulosa: pustules on hand and feet, but is usually acute.
- Inverse psoriasis (psoriasis in the folds, also called flexural psoriasis): bright red and smooth spots that are mainly found in the armpits, groin, under the breasts and other skin folds (eg. around genitalia and the intergluteal cleft). At the edge of the lesions, skin can be cracked.
- Nail psoriasis (psoriasis unguum): abnormality of nail(s) that may present on fingers or toes. Abnormalities include thickening of nail, change in colour or shape, oil drop (yellow-orange spots in the nail bed), ridges or grooves in the nail, loosening of the nail from the skin, nail pitting, pustules in the nail plate, and redness and swelling where skin and nail meet (paronychia).
- Psoriatic arthritis: this is a very special, yet not uncommon form of psoriasis where the joints are affected as well. It is characterized by swollen, painful joints and affects about 30% of people with psoriasis. All joints can be affected, including tendons and ligaments. For more information about this special form of psoriasis, see page XX.



Genital psoriasis

Psoriasis can occur in the pubic area and is referred to as genital psoriasis. Half of the people with psoriasis will be confronted with genital psoriasis, independent of age and gender. Yet, these lesions can pose a heavy burden on the quality of (sex) life. Treatment is possible, but is generally different from 'normal' psoriasis since the concentrations of the active ingredients are often too high for genital psoriasis. The skin in your pubic area is thinner and thus more sensitive, leading to side effects if treatment is not adapted. Therefore less concentrated treatments are required. Mostly, mild ointments and creams will be used and an oily ointment will be recommended to increase comfort. It is best to avoid hot water and soaps that may dry out the skin. Generally, it is also recommended to avoid scented products in the pubic area. Finally, make sure not to diagnose genital psoriasis yourself; many skin rashes in your genital area may look alike. Consult an expert for correct diagnosis.

Nail psoriasis

Half of people with psoriasis suffer from nail psoriasis. This includes nail pitting, separation of the nail with (brown) colouration, known as the oil drop phenomenon, thickened and crumbling nails (nail dystrophy). It is difficult to treat, especially since your nails only grow 0,1 mm each day: it may take a long time before you see any improvement when treating your nails! However, there are some tips to control your nail psoriasis: keep your nails short, but trim carefully without inflicting wounds and use a nail file to smoothen the edges. Wear gloves when you're cleaning or working (e.g. dishes or gardening). Do not trim the cuticle, avoid rough cleaning of your nails when dirty, avoid acrylic nails and avoid damage to your nails in general. It is however recommended to apply a protective layer of nail polish, this may be transparent or coloured.

Psoriasis on your face

Having psoriasis on your face is annoying: not only because you can't hide your face, but because your facial skin is also thinner and thus more sensitive to treatments. Although it is not a common place for lesions to appear, it is crucial to know that it requires a different approach than lesions elsewhere on your body (eg. legs or trunk). If you have lesions on your face, try to see a physician as soon as possible so he/she can prescribe you the most appropriate treatment for facial skin. Be careful whilst applying the treatment, especially around the eyes. Eyelids are very thin and can thus be easily damaged. In case the medicine gets in contact with your eyes, make sure to rinse excessively with water and ask your physician for advice. For instance, excessive use of corticosteroids around and in your eyes may lead to glaucoma and cataracts. So be careful and ask for advice whenever you're not sure about a treatment for your face.

Should you have psoriasis around your ears and the ear canal, make sure to be careful when applying ointment or creams as eardrums are very sensitive. If you feel that the psoriasis is deep within your ear canal, it is best to see a doctor: it may be possible that the lesions block your ear canal and thus impair your hearing. Luckily, the psoriatic blockade can be removed by your doctor. Careful though, do not attempt to do this yourself: your doctor has special instruments for this procedure to guarantee your safety. It is in your best interest not to do this yourself as you may cause some skin injury within your ear canal, resulting in Koebner phenomenon and more lesions...

As facial skin is more sensitive, you can take preventive measures. When you rinse your face, make sure to use mild cleaning products. Consult your doctor or pharmacist for the most appropriate products, suited to your skin quality. When drying your skin, gently pad your skin dry with a towel instead of rubbing. Rubbing will only aggravate lesions. Follow immediately with an appropriate moisturizer.

Psoriasis and shaving

Also use mild products in case you need epilation (eyebrows or above the upper lip) or shaving (beard, mustache, legs, etc). Do not use wax, as this will only exacerbate or induce lesions.

As shaving may be a part of the daily routine, it is essential to do this as gently as possible. Below are some tips that are applicable for face and the rest of the body.

Shaving tips

- Always be gentle
- Avoid warm or cold wax, even on healthy looking skin to avoid the Koebner phenomenon
- Avoid skin damage, due to Koebner phenomenon
- Use high quality (electric) razors and make sure the blades are clean and not clogged with rests of soap, hair and flakes (avoid disposable razors)
- Avoid irritation, due to Koebner phenomenon
- Do not use aggressive (scented or alcohol-containing) hair removal products
- Avoid peeling products
- Find a mild shaving oil with natural ingredients
- Try a cheap mild conditioner for sensitive skin as a shaving product
- Do not shave the same area repeatedly in one go
- Take good care of your skin afterwards: moisturize well, avoid aftershaves
- Consider permanent laser hair removal; ask your doctor for advice
- Always apply a moisturizing product to your face and body to protect you from weather elements such as wind, rain and sun (sunblock)

Flakes!

One of the most frustrating things about psoriasis has got to be the flakes, especially when the scalp is affected! In addition to following your treatment as prescribed, you can take additional measures to keep those flakes in control. Firstly, if you use a topical treatment, your lesions should be accessible which is often hampered by the layer of flakes on top of your lesions. You can use salicylic acid or ureum to remove the scaling. Do not scrub or exfoliate as this will aggravate your lesions!

In case you have scalp psoriasis, you can loosen the scales by 'incubating' your scalp with coconut oil or a prescribed ointment overnight. Make sure to avoid staining on your pillow by putting on a shower cap and a towel over your pillow. The next morning, you can use a mild shampoo to remove as much oil or ointment as possible, before rinsing it with water. Water will not dissolve the oil or ointment, so make sure to apply sufficient shampoo to neutralize the oil or ointment. Scales and crusts can be removed with a comb, but gently to avoid skin injury. Next, wash your hair as usual: either with a mild shampoo or a coal tar shampoo. Some may dislike the smell of coal tar shampoo; you can 'hide' the smell by washing your hair with a good smelling shampoo: apply the scented shampoo on the tip of your hair locks, make the shampoo lather and distribute the foam upwards on the remaining length of your hair; stay 3 cm away from your scalp. Gently rinse your hair.

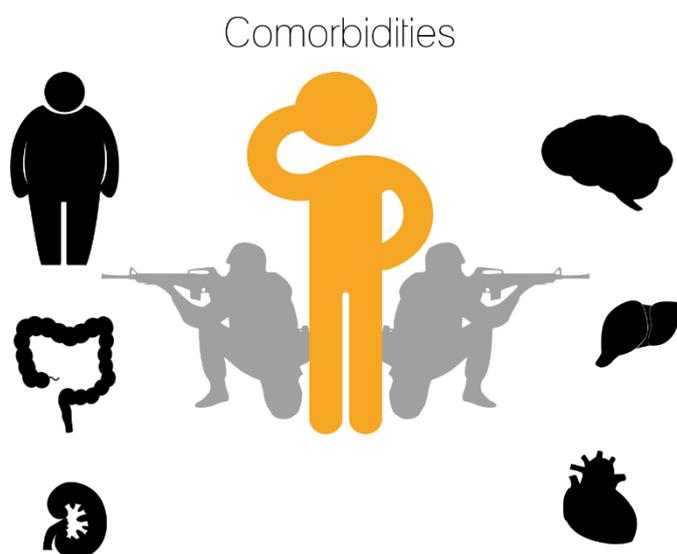
Another alternative is to discuss with your hairstylist which hairdo suits you best: longer hair will conceal lesions near your hairline. Lastly, if you are very conscious of flakes, you could camouflage these by wearing lighter colours or patterns. Adding a (patterned) scarf to your outfit allows you to easily shake off the flakes.

Psoriasis is a chronic disease

The chronicity of psoriasis: what does it mean?

Psoriasis is an unpredictable disease: some will experience it continuously whereas others may suffer from periodic flares. Both situations are frustrating, especially as a definitive cure does not yet exist, leading to a lot of error and trial. This may include visiting various doctors in one year time or trying non-medical treatments. As described earlier, psoriasis is chronic as your immune system continues to overproduce 'attacking' commands. Therefore, it is crucial that you aim to keep the inflammation at a minimum and the disease under control. This can be achieved when you have a good relationship with your doctor, where long-term collaboration and good communication are key to success. In this leaflet, we will discuss the possible medical treatments. However, this should not stop you from using non-medical treatments, but you must understand why you should use those under medical supervision, since psoriasis comes with comorbidities.

So, psoriasis is a chronic inflammatory illness, which means that there is always a little bit of inflammation present in your body. This chronic inflammatory status in your body allows for other inflammatory diseases to develop, such as metabolic syndrome, Crohn's disease and depression; 3 well known comorbidities of psoriasis. Therefore, keeping psoriasis under control may be key to keep comorbidities at bay. We will discuss the most important comorbidities in detail, as well as some tips to prevent them. A healthy lifestyle is an essential part to avoid comorbidities. Should you suffer from anything else, do not hesitate to talk about this with your physician; this may help him/her to recognize and treat comorbidities in a timely manner.



A chronic disease: what should you do?

Or what shouldn't you do...

Most people with psoriasis risk to go 'shopping' amongst doctors. Depending on the country you live in, you may be able to freely choose your physician and change whenever you like. However, as psoriasis takes time to treat, many may switch between physicians too quickly, before seeing the actual treatment results. But this may also happen when a treatment fails or isn't well tolerated, you look for another physician. However, it is important to know that in most countries, psoriasis is treated according to a 'treatment pathway': you have to try the available treatments in a certain order before being allowed to go to the 'heavier' (and more costly) treatments. Why is this relevant to 'doctor shopping'? Each physician will usually want to start at the beginning of the treatment pathway. So if you change frequently between physicians, chances are high that you'll be starting the pathway over and over again; instead of walking it through entirely with one doctor. Of course it is very important to feel comfortable with your physician, but moreover, it is essential to be able to share the burden of psoriasis and the treatments together with your physician. After all, your doctor can only take the next step with you if you tell him/her that the previous treatment didn't work or wasn't comfortable for you. This will be key to finding the right therapy for you during the treatment pathway!

What's a healthy lifestyle?

The chronicity of psoriasis poses a heavy burden, carried throughout your life. But a healthy lifestyle will make it easier to bear and help you control psoriasis and its comorbidities. What is a healthy lifestyle? It includes a wide range of habits: a balanced diet, sufficient exercise, minimal stress, well-balanced sun exposure, and so on.

1. **Varied diet** means introducing variation into your diet instead of a narrow diet (omitting certain foods). Unless this is prescribed by a doctor, omitting foods is not in your best interest. Recently, many 'foodies' claim to have found a diet based on superfoods, but this is an example of a narrow diet and thus harmful in the long run. So let's look at the basic principles for a healthy diet.
 - First of all, stay hydrated by drinking a lot of water. Not only does your skin need hydration, but you do, too. You think water's too boring? Add flavour to your water by adding cucumbers, blueberries, strawberries, mint, lemon, spices, and so on. Make a refreshing combination by adding 1 slice of lemon with 5-6 leaves of mint and 6 thin slices of cucumber in 1 liter water; adapt to your liking.
 - Secondly, always start a meal by choosing vegetables. Actually, we're supposed to eat 300 grams of vegetables each day; however most of us only get to about 140 grams. So it's time to do something about it. A very good hint is to fill at least half of your plate with vegetables, during lunch and dinner. Vegetables provide important nutrients as they contain juice, fibers (essential for a good intestinal transit), vitamins and minerals and more importantly: they are low in calories. So no holding back! As soon as you have chosen the vegetables for your meal, complement them with proteins, carbohydrates and fats. For instance, a spaghetti is actually a very good combination of these nutrients, but oftentimes the proportions are not balanced. It is better to first fill half of your plate with the sauce (based on vegetables) than to fill with pasta first. So in essence, fill half your plate with sauce, one quarter with spaghetti (75-100 grams dry weight/adult) and one quarter with proteins. The latter can be meat or legumes. Regarding carbohydrate sources such as pasta and rice, it is best to opt for whole-wheat. Not used to the flavour? Don't worry, tastes can be acquired. Start by mixing whole wheat and non-whole wheat and gradually increase the amount of whole wheat.

You're probably thinking why you need to go through this. As it turns out, your intestinal transit will improve, but you'll also take up much more iron, which is often thought to be beneficial to dry and scaly skin. In other words, this is how foods can help you improve the quality of your skin. It will take some time, but if you keep this up for 2 weeks, you might see results.

We all know the terms saturated and unsaturated fats. Generally, we can assume that unsaturated fats are healthier than saturated fats. But how can you make a distinction? Both fats differ in their composition chemically, which gives them different characteristics. Saturated fats have a solid consistency at room temperature whereas unsaturated fats are typically liquid at room temperature. Let's start with unsaturated fats. These healthy fats are mainly found in plant foods and fish. The most famous fish fatty acids are omega-3-fatty acids, which can be bought as supplements as well. On the contrary, saturated fats are usually found in animal foods; meat and dairy products are often high in saturated fats. An exception to the rule is coconut oil: this tropical fat originates from a plant but is solid at room temperature and thus a saturated fat! Nowadays, coconut oil is hyped as a 'healthy' fat, but rest assured, as a saturated fat, it is not a suitable replacement for healthy liquid fats. However, coconut oil may be justified when food needs to be heated to 220°C, which makes it healthier than animal fat. In addition, its neutral taste may be preferred in the preparation of some dishes. Yet, it is important not to be swept away by the 'superfood hype' surrounding coconut oil. Use unsaturated fats as much as possible while cooking.

- A third basic principle is to eat in moderation. Often, we're not conscious about how much we eat in one day, but this can turn out trickier than thought. Generally, men can take in up to 2500 kilocalories (kcal) per day, whereas women should eat up to 2000 kcal per day. However, this is on average: the person should not gain or lose weight. In other words, calorie-uptake is well-balanced with calorie-burning. So the take home message here is to adapt your calorie-uptake according to how much energy you will spend in a day. For instance, a day at your desk without exercise will demand less calories than a day where you're exercising and managing your household. Of course, eating in moderation is not easy; especially when eating and drinking is linked to social events. So, how do you eat in moderation then? Start your day with a healthy and balanced breakfast, laying the foundation of your energy supply for the rest of the day. Depending on what kind of breakfast you'll have, you can actually control how many 'snacks' you'll need during the day. Eating in moderation also means looking at your portion sizes. To get an idea of how much you eat, keep a diary for one or two weeks: register everything you eat and drink, including the little treats at work or the appetizers at a friend's place. Take it a step further and calculate how many calories, fats, sugars and salts you've consumed. Nowadays, there are many websites and apps that help you keep track. Be honest and register everything. This way, you'll end up with an overview of where those extra calories sneak up on you and hopefully, this'll make you more conscious when you eat and drink. If you're used to eating snacks, opt for healthier alternatives such as fruit and vegetables that are easy to take along and don't leave a mess; e.g. blueberries, apples, cherry tomatoes or carrots. Soft drinks may also be a hidden source of extra calories and so are alcoholic beverages: consume in extra moderation and opt for (flavoured) water instead.

As mentioned earlier, social events are often intertwined with eating and drinking, but this shouldn't stop you from eating healthy in moderation. Feeling pressured? Try these tips: make a deal with yourself in advance how many soft drinks and alcoholic beverages you're allowed to drink on a night out. Drink water in between the high-calorie drinks, or once you reached the maximum amount of allowed drinks, switch to water for the rest of the event. If you're out for dinner, ask your companion to share the appetizers or dessert; that way you can still enjoy the menu, but in moderation. As for dinner, try a salad for a change, or order a vegetable side dish to make sure you're eating enough

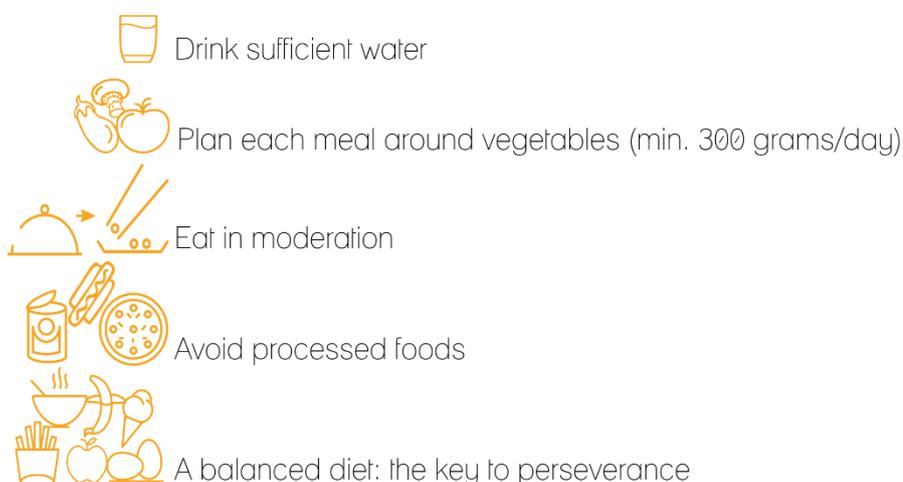
vegetables. More importantly, let people know you're trying to eat in moderation and ask their help: let them know that you don't want them to insist with snacks. Moreover, introduce them to healthier variants of appetizers and snacks to inspire them for next time. You'll see, there are plenty of ways to make healthy and moderate eating a habit, without putting your social life under pressure.

- The second last basic principle is much more difficult, but important as well: avoid processed foods. These are often full of sugars, fats and salts in imbalanced proportions. This will be especially clear when you register them in your diary. If you have a very busy life, or you just don't enjoy cooking a healthy meal each day, try to look for recipes that you can make in bulk. Preferably, select meals you can freeze, as this will enable you to thaw and heat them on the busy days. Let 'ready-to-serve' dishes in the store and make your own, avoiding excessive sugars and fats. In case of snacks, it's still best to use these opportunities to eat fresh food, and many options do not require any preparation such as fruit and vegetables. In case you're not a morning person, prepare everything the night before so you're all set for the morning. If there's a fridge available at work, use it to stock some of your food; that way you won't end up without lunch on the busy days, avoiding to be forced to eat unhealthy bought lunches.
- And finally, vary. This last basic principle is the key to persevere for success. The best diets are the dietary habits that you continue for the rest of your life. Going on a strict diet is bound to fail, because you can't maintain this, which leads to the yoyo-effect. Variation is fun and thus easier to maintain; so vary in your food and exercises.

A good tip for food variation are recipe boxes: these are well-balanced meals assembled in advance and delivered to your home. As such, you don't have to feel inspired to invent healthy meals or go grocery shopping, which reduces the risk to get seduced by less healthier options. Do you prefer a bit more freedom, opt for veggie boxes from a local farm. This'll guarantee that you'll start each meal from vegetables and will increase the variety in your meals as many veggie boxes are seasonal. And on top of that, you support your local economy: extra bonus! If you're a picky eater, know that it takes around 15 times of trying to acquire a taste. Our taste buds are dynamic and can easily adapt. So keep trying; you may end up liking a lot more. Of course, variation is also varying in seasoning: perhaps something isn't tasty when prepared the Italian way, but may be really tasteful when prepared the Chinese way.

Finally, don't be too hard on yourself, it is okay to enjoy less healthier foods once in a while, but take your calorie-uptake and burning into account: try to compensate that day by working out a bit more or eat extra healthy during the other meals. Don't be too strict, because that won't last either.

Varied diet: 5 basic principles



2. Sufficient **exercise** may seem like a great deal to many of us. Yet, if you'd ask a prehistoric person to remain still in one spot for 8 hours straight, he/she'd have looked at you with a puzzled look. Sitting at a desk is not what we were meant to do as human beings, our bodies were not designed like that, evidenced by the increased risks associated with a sedentary lifestyle. Regular exercise is necessary and the best way to keep our bodies fit and healthy. However, this doesn't necessarily mean you have to join a gym instantly or hire a personal trainer for the next few months. You can start by doing more exercises through changing small habits, such as taking the stairs instead of the elevator. You may also consider moving the printer further away or use the bathroom on a different floor to walk around a bit more. If you go to work by car, park a little bit further to walk the remaining distance. Similarly, if you take public transport, consider getting off a stop earlier or later than your regular stop and walk the remaining distance. When doing your household, put on a song that will make you dance, you'll see that physical exercise is actually easier than thought. There are many ways to move around more. If you need extra motivation, you can purchase an activity tracker, which allows you to see how many steps you took in one day. Maybe take it even a step further and ask your colleagues to join you for a walk or a run during lunch break! However big or small your step towards exercise may be, the most important thing is to actually take the step.

3. A healthy diet and sufficient exercise are key to fight **overweight**, but what exactly is being overweight? It is a mistake to only take your mass, the amount of kilograms or pounds you weigh, into account when talking about being overweight. It is important to take your height into account as well; a well-known index that considers both weight and height is called the body mass index (BMI). But doctors and scientists lately agree that next to BMI, it is also important to look how fat is distributed over your body. Actually, fat distribution may be more important: abdominal fat is much more dangerous to your health than fat below your waist. Briefly, depending on the location, fat can be pro-inflammatory, which is the case for abdominal fat (often measured as the waist circumference). As such, a waist circumference of more than 80 cm for women or 94 cm for men is associated with poorer health. If the circumference exceeds 88 cm (women) or 102 cm (men), then the person's health is at great risk. As such, people with the 'apple shape' may suffer more than people with a pear shape. Although being overweight is something visual, skinny people may actually also be at danger. Here, we see a disturbed 'fat profile' in the blood: there's an imbalance between good and bad cholesterol, as in too low levels of the first and higher levels of the latter. So being skinny does not necessarily protect you. People with psoriasis are more prone to this imbalance and therefore face a higher risk to develop metabolic syndrome and cardiovascular diseases. Especially young people with psoriasis have a higher risk. Therefore, if you suffer from psoriasis, it is important to maintain a healthy lifestyle and regularly check your blood and waist circumference.

4. **Stress** is often associated with unhealthy effects. However, it is nearly impossible to never experience stress, so what is more important is how you cope with stress. If you don't know how to begin, start small. Write: what did you find stressful today and why? Perhaps you'll find a solution to the problem whilst writing it down. Do you find it difficult and you think of stress as something overwhelming? Perhaps you should ask your doctor for advice. Stress is actually very normal and your body is designed to respond to it. However, the problem arises when stress turns into a chronic situation, continuously demanding your body to respond to it. As psoriasis may stress you, or act as a reflection of how stressed you are, it is important to cope with stress. Still, finding a way to cope with stress is not about finding one strategy: each stressful situation may require a different approach in coping. Should you experience

difficulties in finding a coping strategy, do not hesitate to ask your doctor for advice or look for a course about stress management.

5. **Exposure to sunlight** is paramount not only for people with psoriasis, but for everybody. It is important for the production of vitamin D, which is essential for a healthy body and especially works well against psoriasis. However, our 'sun exposure behaviour' has dramatically changed during the previous century, as we stay a lot indoors but consider a tan attractive. Yet, getting a tan often comes with sunburns, which increases your risk to develop skin cancer. This is also true for tanning beds. Understandably, the relationship between sunlight and psoriasis is somewhat complex: most people with psoriasis will benefit from sunlight as they see the plaques (temporarily) diminish. This is a result of sunlight suppressing the overactive immune system in psoriasis, and has given rise to phototherapies such as ultraviolet (UV)-B and psoralen UV-A (PUVA). However, even with psoriasis, one must be wary of 'too much light' in view of skin cancer. That's why you need to track the amount of sun exposure and the number of light-therapy sessions you get. The latter will be controlled by your doctor, but you are in charge of how much sun exposure you're getting. Remember to wear sunscreen, even when you want to tan. You may also want to consider self-tanners, although the colour will possibly fade a bit quicker on the psoriatic lesion than on your healthy skin. So try it out first on a discrete lesion and see whether you're comfortable with how it looks. However, know that the best tanning result is obtained by eating the right food: carrots are filled with beta-carotene, and will help darken your skin. Actually a study showed that a tanned skin through diet is considered more attractive than through sunlight or tanning beds.

6. **Avoid cigarettes and excessive alcohol consumption.** Both habits do not require any further introduction: they're bad for your health. But for someone with psoriasis, tobacco and alcohol may negatively affect psoriasis, its treatments and the development of comorbidities. If you find it difficult to quit smoking, or you're not sure whether you consume too much alcohol, see your doctor. He/She will help you to quit. Should you stop smoking and drinking excessively today? Actually yes: studies have shown that people with psoriasis may be more prone to addictions. So don't hesitate any longer and try to get rid of bad habits today.

Psoriasis: unfortunately not once in a lifetime...

The challenges per life phase

Psoriasis can affect people of all ages, but usually develops at 20-30 or 50-60 years. Although symptoms are generally very similar between those affected, it affects everybody differently, depending on where they are in life. Indeed, oftentimes the impact is age-related: young people are often concerned with the way they look and how it affects their social life, adults usually complain about how it affects their career and family life whereas older people worry how psoriasis affects their overall health. Indeed, each has its own challenges, which may be addressed differently. Psychological support may be required now and then, but should never be underestimated.

1. Teenagers

Teenagers with psoriasis may require intense psychological support. The impact of a chronic skin disease may take its toll, as teenagers highly value a social life. It may be tiresome to hide the spots, so in the end it will pay off if you're honest about psoriasis from the start with people. It is important to be able to talk about psoriasis with your family, friends, boy/girlfriends and your school. As a teenager, you're used to breaking taboos as you're not afraid to share experiences with your peers. So don't be afraid to talk about psoriasis as if you were talking about homework. At such a young age, it is important to realize that you're not alone: talk about your frustrations and fears with your parents, friends or a psychologist. The biggest issue for teenagers is that oftentimes your problems may seem overwhelming, but most of the time they're not. Try to follow the advice that you may give a friend whose parents are getting a divorce or who is going through a depression: talk about what worries you.

Regarding skin care, it's important to find a routine suitable for your skin. If you have acne, avoid harsh products that may irritate your skin and opt for mild products. Talk to your dermatologist to find a routine that tackles both your acne and psoriasis in a comfortable way. Although psoriasis may require more time and attention, it shouldn't hold you back for (extracurricular) activities. A healthy lifestyle is essential to keep your psoriasis under control, now and in the future!

2. Young adults

Young adults are mostly occupied by studies, starting a career and on the lookout for a partner. The psychological impact of these challenges in combination with psoriasis should not be underestimated and are best countered by dialogues. If you feel that your environment is not open to discuss psoriasis with, talk to your physician or a psychologist. Be aware that although you're in the prime of your life, it is essential to have a healthy lifestyle: healthy habits are key to controlling your psoriasis and its comorbidities. For instance, young adults with psoriasis have an increased risk for future cardiovascular diseases and diabetes. Healthy habits include regular exercise, balanced diet and avoidance of cigarettes and excessive drinking.

If you experience anxiety or a lot of stress and you feel this leads to flares, it is important to address the underlying issue. This may include learning to organize (e.g. avoid procrastination), including yoga or mindfulness in your daily routine, or signing up for a stress management course. Confront your performance anxiety by seeking help from a psychologist.

When you start working, it is best to be open about psoriasis, don't treat it as a mystery – this would only add to the stigmatization. Similarly for dating, don't let psoriasis hold you back. Moreover, your partner is more likely to accept psoriasis when you can talk about it and have accepted it yourself.

3. **Pregnancy**

If you are actively trying to have a baby, you should discuss this with your dermatologist: make sure that your treatment is not getting in the way, whether you're the mother- or father-to-be. Discuss your case with your dermatologist and gynecologist. Some anti-psoriasis treatments can affect the development of the foetus and must be avoided when pregnancy is desired. For some drugs, you need up to 2 years of drug-free time before you can get pregnant. However, this doesn't mean that you can't treat psoriasis whilst trying to get pregnant. Moreover, having severe psoriasis during pregnancy might lead to a lower birth weight. So talk to your dermatologist to find a treatment that controls your psoriasis and doesn't pose a threat to a successful pregnancy.

Pregnant? Congratulations! It is, however, difficult to predict how your psoriasis will behave during pregnancy; most women find relief, but some may experience a flare. After childbirth, flares are not unusual. If you're suffering from genital psoriasis and you don't want a cesarean section, talk to your dermatologist and gynecologist so they may offer you a suitable solution.

4. **Ageing**

Skin care may differ from person to person, but will also vary from time to time for an individual. Skin ageing is dependent on external factors such as sun exposure, tobacco and alcohol consumption. However, internal factors such as your genetic composition also play a role in how your skin ages. But what is skin ageing? With time, your skin will become thinner and lose elasticity. In addition, its healing capacities will diminish due to reduced blood supply, and the sebaceous and sweat glands will decrease in numbers and activity, leading to dry skin. Subsequently, aged skin is more sensitive to infections and injuries; increasing the risk for the Koebner-phenomenon. So be careful, avoid injuries and allow your skin to need more time to heal. Should you get an injury, monitor its healing.

In case of hair colouration, know how this affects your scalp. If you suffer from scalp psoriasis, make sure to take extra care of your scalp on the day you'll dye your hair by treating your scalp as recommended by your doctor. Do not wash your hair with shampoo 24 hours prior to using a hair dye. Ask your hair stylist to be careful and not to scratch your scalp in order to avoid irritation and injuries. Always choose your skin care in view of what suits you best: gels and lotions contain much more alcohol and are therefore not desirable if you already have a dry skin. Rather opt for creams in that case. Furthermore, adapt your treatments to your skin needs as well: older and thus thinner skin doesn't need highly concentrated corticosteroids. Also make sure to talk to your doctor about other drugs you're currently taking; he/she will make sure to avoid combinations of drugs that may interact with one another.

5. **Menopause**

Menopausal women may experience a worsening of psoriasis, as well as women who have undergone hysterectomy (removal of uterus and ovaries). Scientists presume this is due to the reduction of estrogen, yet this does not explain why not all pregnant women experience improvements when their estrogen peaks. However, for the moment there isn't sufficient evidence that hormone replacement therapies improves psoriasis in menopausal women. Nevertheless, if you feel that your psoriasis is acting differently, it may be time to reconsider some previous treatment options that failed in the past.

Need surgery?

Ask your doctor's advice, perhaps it may be best to stop your treatment before surgery to optimize the healing process after surgery. If possible, try to plan the surgery when your psoriasis is clear or stable to avoid the development of a Koebner-phenomenon at the site of the scar tissue.



Kids and teenagers affected by psoriasis may require psychological support

Teenagers with psoriasis should use mild products for acné

It is important to learn a healthy lifestyle at a young age to combat psoriasis and its comorbidities



Young adults with psoriasis have an increased risk for health problems

Psoriasis shouldn't interfere with your love life: accepting your psoriasis makes it easier for your partner to accept it as well!

The effect of pregnancy on psoriasis is unpredictable, however, most women will experience a flare after childbirth



Skin ageing is dependent on your genes, sunlight exposure, alcohol consumption and smoking

As you age, your skin becomes thinner and thus more susceptible to injuries: watch out for Koebner-induced psoriasis!

Menopausal women may see a change in their psoriasis and require a change of treatment as well

Accept psoriasis, but don't ignore it!

Why accept it?

Psoriasis is a heavy burden, but luckily you don't have to be alone to bear it: your partner, family, friends, doctor, ... Everybody wants to do an effort to guide you through the tough moments. Therefore, it is important not to see psoriasis as a taboo, but rather be open about it instead of hiding it. Acceptance is important, but doesn't mean that you give in to psoriasis! Accepting psoriasis means that you organize your skin care into your daily routine; acceptance is avoiding injuries. Moreover, acceptance doesn't mean to give up looking for the right treatment; it's accepting that some treatments will work and others won't. Accepting psoriasis doesn't mean you're not following your dreams because of psoriasis, instead you will try to live to the maximum with psoriasis. In other words, acceptance is an attitude and it's up to you to have a positive or a negative attitude towards psoriasis.

Acceptance and patient association

But acceptance is difficult and may require time, energy and courage. This is where a support group may come to the rescue: sharing your experiences with people who understand exactly what you're going through is a very powerful tool towards acceptance. Moreover, these are people who are often experienced and may give you some solutions to everyday problems that you encounter. Sometimes practical solutions you won't hear from your doctor! Acceptance can come through realizing that you're more than a person with psoriasis; which will be obvious when surrounded by different and unique personalities in such a support group. Although all members will be unique and have their own set of experiences, values such as optimism, determination, openness and pragmatism are key in a support group and are essential in a life with or without psoriasis!

However, many people will wait a long time before joining a support group; because it may seem as if you've given up on the fight against psoriasis. But afterwards, many admit that membership is more like joining an army against psoriasis, which has helped them accept psoriasis. If you want to find out more about a support group, keep reading on page XX where XXXX (country's patient organization) is introduced.

Why so shy?

For many people, the worst thing about psoriasis is shame and therefore they choose to hide the spots. This can be tiresome and give you a sense of being a slave to psoriasis, especially during summertime when you don't feel like wearing short sleeves or shorts. Yet, once you've accepted psoriasis and you stop hiding it, you'll feel freer. Furthermore, other people will finally understand the mystery of why you were wearing sweaters during summertime. If you have psoriasis, you don't have to hide it; just like you don't have to hide a cold.

Still worried that people will look at you? Usually, you actually imagine people looking at you for your psoriasis. Yet, it's possible that people look at you because you are wearing a cute pair of shoes or because you're wearing the same sweater as their brother was wearing last Christmas. You may look at people as well, without being judgmental, it's human. It may be possible that a few people will be looking at your spots, but luckily this has never resulted in more spots on the spot. In such cases, you can actually make use of the situation and educate people about psoriasis: what it is or what it isn't (e.g. it's not contagious). So, don't be embarrassed, because it's not embarrassing. Next time it's a sunny day, make sure to wear short sleeves or a skirt/shorts and a funny hat or sunglasses. That way, it will be impossible to tell if they're looking at you because of your spots or the funny accessories. Build up your confidence in small steps, you deserve to live as freely as anyone else!

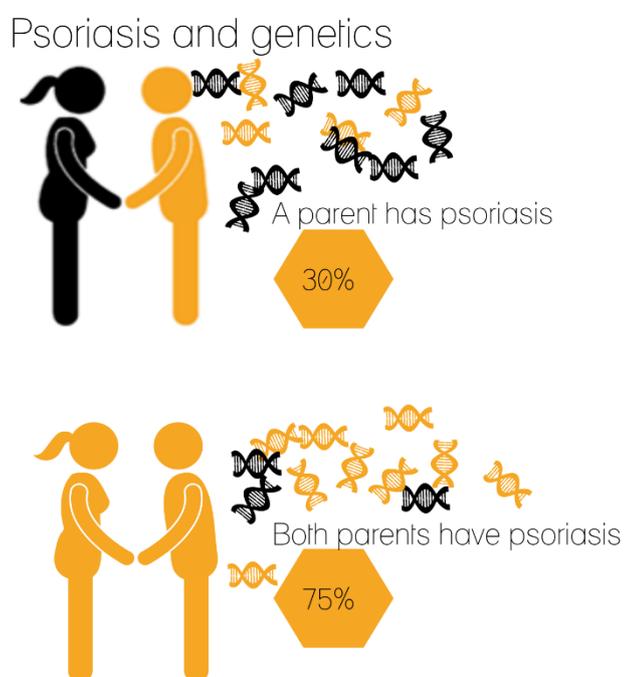
Acceptance: admitting you need care

Finally, acceptance is admitting to yourself that you have a chronic illness and that you need to take good care of yourself. Admitting this to yourself and your environment might be a difficult task, but pride will not save your body from the chronic inflammation of psoriasis. Your body is giving a clear signal that it needs more care. So accept that you have your own rhythm, accept that you may require treatment, accept that you need another coping strategy for stress and accept help from other people. Accepting you need care will give you more energy to actually take care of yourself and get better.

Psoriasis and children

Psoriasis is hereditary, talking about it isn't

Parents with psoriasis may pass the disease on to their children, which often worries them about how to tell this. You might be afraid that your child will face the same difficulties you did/do. However, an open dialogue about psoriasis is essential to the well-being of your children. Talk to them about the risks: if only one parent has psoriasis, your child has a 30% increase to develop psoriasis. If both parents are affected by psoriasis, this increases up to 75%. Yet, it's still not possible how to predict who will develop psoriasis. Therefore, be open and honest about the disease by setting an example on how to deal with psoriasis. Like many issues in education, your child will mainly remember your example rather than your advice!



Psoriasis has a hereditary component and will thus appear more than once in a family. However, it's still not possible to test for this, since many genes are found to be associated with the development of psoriasis and new ones are identified almost annually. Unlike some other genetic diseases, it's not just one faulty gene, but an intimate interplay between many genes, your immune system and the environment.

Let your children know that psoriasis can develop at any time, but usually at 20-30 years or 50-60 years, but earlier is possible, too. It is important for them to timely recognize the symptoms and to see a doctor. This will facilitate diagnosis and ease acceptance. Moreover, it's important to teach your children the importance of appropriate skin care, with or without psoriasis: the skin is an important organ which needs to be taken care of from the in- and outside. This includes prevention of injuries, sunburns, and irritation, whilst avoiding aggressive products. Teach them the importance of sufficient

moisturization through creams and drinking sufficient water. In addition, a healthy lifestyle with a balanced diet and exercise will also help them in the short and long term. More importantly, teach them valuable coping strategies for stress, this will definitely help to control flares.

When your child has psoriasis, you may want to hide the spots to minimize embarrassment. This will lead your child to believe that he/she should be ashamed of psoriasis. Unfortunately, this may increase the burden of the disease for your child, making him/her afraid of being open about psoriasis. If you notice any behavioral changes since the onset of psoriasis, try having a candid conversation with your child to discuss any feelings of shame or fears. If you fail to have a connection, do not hesitate to involve a psychologist. You may also want to consider to involve his/her school in the dialogue, since they may see another side of your child. Let the school know which difficulties your child may face from psoriasis. For instance, itch may affect your child's concentration significantly, but may be too embarrassing to talk about in front of a class. Lastly, if your teenager suffers from psoriasis, you need to make him/her understand that it is very important to build a good relationship with his/her doctor, especially when acne may be involved.

It is essential to talk openly about psoriasis, this will definitely help your child to accept the disease.

Psoriasis and intimacy

Taking (back) control over your sex life

Psoriasis can strongly affect your sex life due to fear and shame. However, letting psoriasis ruin your sexual experience is a real shame, it's admitting that psoriasis controls your life.

If you're afraid that your partner will be overwhelmed by your spots, talk to him/her before being intimate: that way, you're in control of the situation and you get to decide when to show the spots. Moreover, this will aid your partner into accepting your psoriasis and not see it as taboo. You may be conscious of the psoriatic lesions, especially in the pubic area, so it is important to take good care of the spots that bother you most. This is taking control of the situation; you'll feel better and more confident. Consider involving your partner into your skin care routine; this is also intimate and may lead to more intimate moments.

Taking control of your psoriasis also includes controlling your thoughts. Don't let a negative thought ruin an intimate moment; focus on your partner instead. Breathing exercises can help you relax and increase your focus, which will help overcoming your fears.

Discuss with your partner your comfort zone; sex is an intimate experience and each person has his/her own array of comfort; with or without psoriasis. Discussing this in advance will help both of you to enjoy the moment to its fullest.

Should you have any other concerns, or you find yourself unable to let go of negative thoughts or fears, seek help from a sexologist. Don't wait around too long, time may increase your threshold and make it more difficult to overcome fears.

Tips to overcome your fears

When you feel ready to overcome your threshold, you may want to use the following tips to set the mood: dimmed lights or candlelight will create an intimate atmosphere and make you feel more comfortable about revealing your body. Wearing undergarments may increase your confidence as well, but opt for 100% cotton to reduce the risk of feeling itchy; avoid synthetic fabrics altogether.

People with psoriasis may prefer cooling lubricants over warm to avoid irritation. If you're not sure if a lubricant will work for you, try it out first on your lower lip: the skin is thinner and more sensitive and thus more likely to react similarly to skin in your genital area.

If you suffer from psoriasis on your penis, opt for a condom with lubricant so your skin won't get irritated. If you experience erectile dysfunction, which may be linked to psoriasis, talk to your doctor about it. Women with insufficient vaginal discharge, should not attribute this to their psoriasis, but should nevertheless address this issue. Otherwise, sex will become painful. A perfect solution for instance is zinc oxide paste.

After an intimate moment, it is important to take the time to rinse your genitals and skin (folds) and reapply topical (medicinal) creams/ointments afterwards. No matter how hard the treatment is for lesions in your genital area, it is crucial that you follow the treatment as prescribed to achieve the best results.

Some will readily apply the tips above, others will need more time. And that's just fine, because intimacy is more than having sex. It's enjoying each other's company and spending time together. But if you feel that being intimate is a big challenge, consult a sexologist. He/She will address your fears more effectively. Of course, it's up to you whether you involve your partner in this as well, but usually it will bring you closer together.

A variety of treatments...

No cure, but many treatments

Although we are better at understanding psoriasis, a cure hasn't been found yet. Scientific research, however, did teach us that psoriasis is more than just a skin disease; it is the response of an overactivated immune system. This insight has led to the development of more specific treatments, which reduce the symptoms of psoriasis. However, our understanding of psoriasis is complicated by the role of our genetics: the blueprint of who you are. Since multiple genes have been associated with psoriasis, it is difficult to find a cure. You cannot change multiple faulty genes at once. Yet, external factors have been associated with psoriasis as well, as explained on page XX. This means that psoriasis needs a holistic approach, where a healthy body and healthy mind are decisive. As a result, some people may control their psoriasis, simply by changing their lifestyle. However, many others require a treatment.

Treating psoriasis: we've come a long way

Psoriasis was already acknowledged as a skin disease in 460 B.C. with Hippocrates suggesting tar and topical arsenic treatments. Yet, it took another few centuries (150 ad) to actually name it psoriasis and suggest another treatment: snake venom! It wasn't until the 19th century that anti-psoriasis treatments added ammoniated mercury to the list. Afterwards, dithranol, sunlight, salicylic acid and salts from the Dead Sea were found helpful for psoriasis. But it wasn't until 1950 that corticosteroids, were introduced because of their anti-inflammatory properties. However, all treatments had significant side effects and the quest for a cure continued. As a result, the positive effects of sunlight were exploited in the form of light therapy, by using special lamps (1970). Today, this is known as the UV-B and PUVA treatments (1980). But meanwhile in the fifties, foliate acid was also found to have anti-inflammatory properties, as it blocked fast-dividing cells and the immune system. Today, it remains well-known as methotrexate, also known as MTX.

Simultaneously, our understanding of psoriasis increased as scientific research showed that psoriasis is associated with an abundance of 'attack' signals that stimulate inflammation. By using tools from our own immune system, called antibodies, we can neutralize or block these signals. TNF is a very well-known attack signal of the immune system and is the main culprit in diseases such as psoriasis, rheumatoid arthritis and inflammatory bowel diseases (Crohn's disease). Treatments that target TNF are often termed 'anti-TNF'. Today, we are still identifying other culprits, similar to TNF, in the overactive immune systems of people with psoriasis and treatments are being designed to specifically target these culprits. Honestly, if one looks at the evolution of anti-psoriasis treatments during the last decades, one can't help but be hopeful that one day we will overcome psoriasis!

Anti-psoriasis treatments can be categorized into 4 classes: topical therapy, light therapy, and conventional and biological systemic therapies. The latter two are systemic treatments, but vary in forms. We call them systemic since the drug spreads throughout the body. Know that your doctor will often opt for these classes when topical or light treatments were unsuccessful (not effective enough or too many side effects).

Topical treatments

This class includes all treatments that are applied on your skin and are therefore sometimes referred to as 'local' treatments. These medications are available in the form of ointments, creams, lotions or gels. The main active ingredients are corticosteroids or vitamin D-derivates, or a combination of both. Depending on the location and severity of your lesions, your doctor will determine the 'strength' of

these treatments. Sometimes, it is possible to choose the form, ask your doctor for the possibilities in your case. For instance, ointments are greasier than creams and lotions and gels are more suitable for hairy body parts. When prescribed with topical treatments, ask your doctor how many times you need to apply them and make sure to include this into your daily routine. See page XX for practical tips.

Light therapy

Also known as phototherapy. It uses ultraviolet (UV) light, which is a very specific array of sunlight that we cannot perceive with the naked eye. In light therapy, we distinguish UV-B and PUVA treatments; the first only includes exposure to UV-B light, whereas the latter involves an oral medicine (psoralen), which makes your skin more sensitive to UV-A light. The psoralen should be ingested before the light treatment. Proper use of light therapy warrants safety measures due to the risk of skin cancer. Especially if you're an outdoor person and you already have a lot of natural sunlight exposure, you should let your doctor know (see page XX). Your doctor will monitor the number of sessions you're allowed to have. Light therapy often works really well, but isn't popular because of the organizational efforts it requires. Since this therapy cannot be done at home, you need to schedule this in your weekly routine. Recently, a mild form of light therapy was developed, called 'blue light' (LED), which is less harmful than UV light. The devices are designed to be worn on the lesions. For more information, consult your doctor.

Blue light treatment

Nowadays, it is possible to have a mild version of phototherapy at home. This type of phototherapy does not rely on UV light, but on blue light and doesn't require medical supervision. However, it is less effective than UV-based therapy and thus only relevant if you have small lesions (mild to moderate psoriasis) or if you are in the maintenance phase. Local, temporary hyperpigmentation is possible. As this is a new treatment based on light, regular skin checks are recommended.

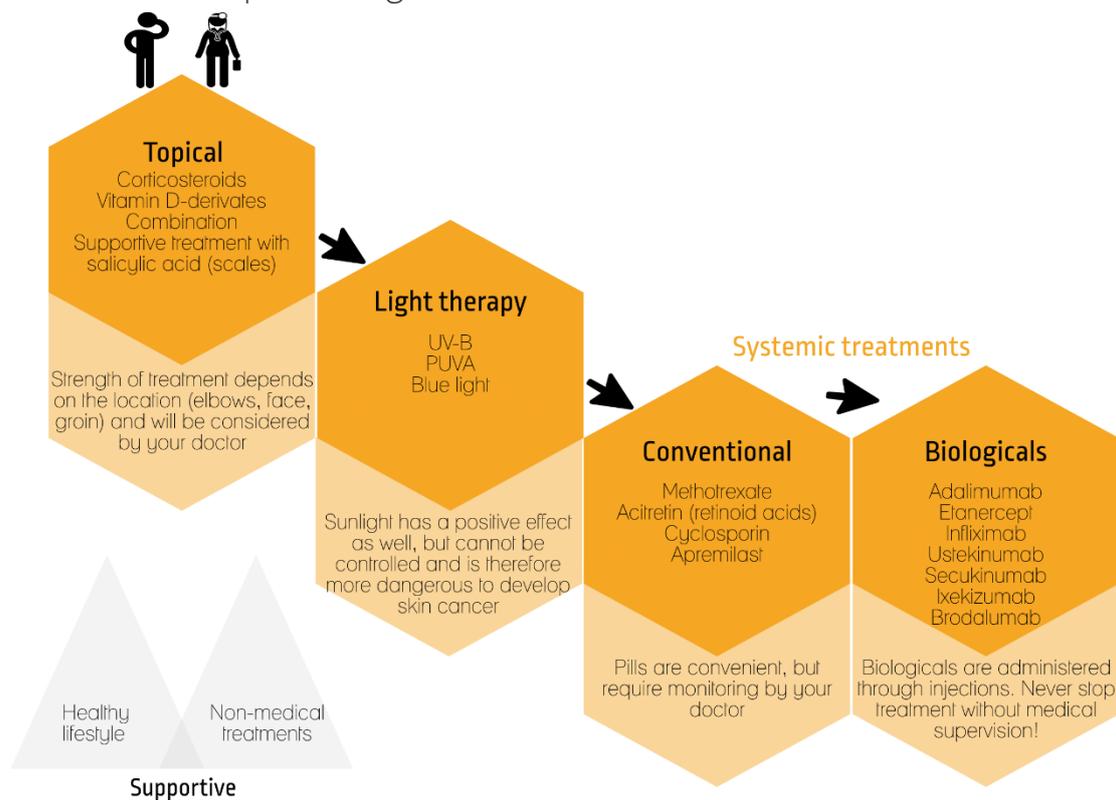
Conventional systemic treatments

All systemic medications in tablets (oral), including methotrexate (sometimes also injected), acitretin (also known as retinoids), cyclosporin, and recently added to the list, apremilast. All of them are of synthetic origin. These drugs do not work specifically on the immune system and may cause side effects in the long run (not yet known for apremilast). Sometimes, your doctor may opt for a combination of a conventional systemic treatment with either topical or light therapy.

Biological systemic treatments

This class includes drugs that are of biological origin and usually need to be injected. They act specifically on the immune system and are biological due to their forms (antibodies or decoy receptors), which can also be found in our bodies. Due to their biological forms, they can recognize unique structures (such as TNF) and therefore specifically silence signals within our bodies. This class of drugs is one of the most expensive drugs on the market for psoriasis and are therefore reserved as a last treatment option. The costs for one patient vary between 15 000 and 30 000 euros per year, and are only reimbursed if all other treatment options have failed.

Treatment pathway



Can you treat psoriasis with food?

Be very careful when it comes to treatments that promise to take care of your psoriasis through food, especially if the proposed diets are low in variety. Your body needs a great variety of nutrients, which may depend on your body type, health status, and activity. The only way to provide all the right nutrients is by varying your diet. It is often suggested that by avoiding one type of food, you can cure your psoriasis. But is the food really responsible for this? When it comes to your diet, the saying 'you are what you eat' has a ring of truth: your diet will determine your gut microbiome. What on earth is a gut microbiome? In our intestinal system, bacteria are present to help us digest our food. Some bacteria are good for your health, others less, but they all make up your microbiome. Depending on your diet, you may skew the balance into the direction of healthy bacteria, or the lesser healthy bacteria. Unfortunately, we still don't completely understand how these bacteria affect your psoriasis, but their role should not be underestimated. The benefits of a healthy gut microbiome, however, are becoming apparent, and are associated with a healthy diet. That's why

When you don't want a medical treatment...

Non-medical treatments, ie. not prescribed by your doctor and not subjected to strict regulations like medical treatments, should not be taken lightly. The medical treatments, as described above, rely on scientifically proven mechanisms and have been subjected to strict clinical trials for your safety. Moreover, the production of medical treatments is strictly monitored to avoid impurities and are precisely dosed. These aspects are not always guaranteed for non-medical treatments, which are generally not based on scientific research. However, this shouldn't mean they can't work, but you should be aware that the doses are not precisely determined and side effects are not monitored by official institutions. Furthermore, you should know that side effects are possible as well. Potential cross-interactions with other medication or even foods are possible. If anything, tell your doctor what type of non-medical treatment you're using to avoid the possibility of cross-interactions. In addition, herbal medicine should be regarded similarly. Although all ingredients may be natural, there's still a possibility for cross-interactions and side

<p>it's best to stick to a healthy diet for the sake of your microbiome and psoriasis. Should you start eliminating certain foods from your diet, make sure to do this under medical supervision. If you do this on your own, you risk developing 'intolerance' to that specific food, which in the end is more harmful.</p> <p>Curious what a healthy diet looks like, check out page XX. If you have specific questions about food, ask your doctor or dietitian.</p>	<p>effects. For instance, snake venom is natural as well, but may kill you whilst plums, also very natural, have the tendency to overstimulate your intestinal system (laxative effect). You can use non-medical treatments as a supportive way to control psoriasis, but don't take them lightly.</p>
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Treating psoriasis: how to succeed?

Realistic expectations

Depending on the mode of action per treatment, you might need to adapt your expectations. Some medications will work faster than others. And depending on what lesion you're treating, your patience may be put to the test. For instance, nails only grow 0,1 mm per day, so it may take a few weeks before you see any improvement by the naked eye. That's why it's important to ask your doctor what to expect, and when and how to follow his/her instructions correctly. Moreover, next to a lot of patience, schedule a following appointment to evaluate the treatment's efficacy and progress together with your doctor. Reconsider together whether another treatment is needed. Of course, leave sufficient time for the treatment to give results.

Give it a try

If you get a new treatment, but you're not sure how to use it or you encounter a practical issue (clumsy application or sickness), consult your doctor or pharmacist before giving up! It's better to give it a try and ask for advice, than giving up and getting nowhere.

Topical treatments: tips	Conventional systemic treatments: tips
<p>Smearing may require a lot of time and organization in comparison to a pill, but is certainly not dispensable! A few of the following tips may facilitate smearing: incorporate smearing into your daily routines and make it a habit. Moreover, smearing is treating, but also avoiding worse by hydrating your skin. If you find yourself having trouble to combine both hydration and treatment; try to apply first the hydrating cream, let it dry for a bit and then apply the medical treatment on the lesions. Consequently, only the lesions will be treated with the medication.</p>	<p><i>Cyclosporin</i>: Swallow the capsules as a whole with a glass of water. Other drinks are allowed, except for grapefruit juice, which affects the concentration of cyclosporin. Leave the capsules in the blister pack until time of ingestion. The capsules have a characteristic odour, which is completely normal.</p> <p><i>Methotrexate (MTX)</i>: Take the tablets with a meal. Avoid dairy products as they reduce you body's ability to ingest MTX. Best to avoid dairy products within 2 hours of ingestion before and after MTX. If MTX is injected, you don't need to take these rules into account.</p> <p><i>Apremilast</i>: You may experience diarrhea the first four weeks, so you need to stay well hydrated by drinking sufficiently. It is best to take apremilast with a meal and to eat in small portions regularly. Try to avoid caffeine, dairy products and sweeteners as much as possible.</p>

Never stop a treatment on your own!

Did you find a treatment that works for you, that's great! But being 'psoriasis-free' needs maintenance. Never stop a treatment yourself, without consulting your doctor first. If you want to reduce the dose, revise the treatment regimen together with your doctor when your psoriasis is stable or clear. Never experiment alone: psoriasis cannot be cured with the current treatments, which means that the symptoms will come back once you stop your treatment. This is even more important when you use biologicals: disrupting the treatment without medical supervision may lead to a significant flare and

even resistance to the biological! Again, always consult your doctor when you want to lower or stop a treatment.

Don't forget that during maintenance your skin will still require appropriate skin care!

What about side effects?

Should you expect side effects? Probably. But you should also expect side effects when you eat plums or rhubarb, depending on how sensitive your body is. This is also the case for treatments. However, it is very difficult to predict which side effect you'll experience. But it is understandable that the often long list of side effects might worry you and convince you you're better off without the medication. But this isn't true for many reasons. First of all, pharmaceutical companies are obligated to mention all possible side effects, even the ones with extremely low risks. In other words, the leaflet is a legal reflection for your own safety. Second, it is extremely unlikely that you'll develop all the side effects mentioned on the leaflets. Thirdly, if your doctor prescribes a treatment, he/she will already have considered the potential side effects and the potential beneficial effects, and decided that you're better off with the drug. And lastly, untreated psoriasis is guaranteed to give you problems later on since it represents chronic low-grade inflammation in your body, making you more susceptible to develop comorbidities and reduce your life expectancy if severe and left untreated. So read the leaflet and put it into perspective. Should you still have any doubts, talk to your doctor.

A good doctor

The quest for a good doctor is as important as the quest for a good treatment. In some countries, it is allowed to freely choose your doctor. But the downside is that many people will 'shop' for a doctor. As explained earlier, treatments require adapted expectations and patience; this is no different for doctors. Know that doctors are oftentimes bound by rules and should follow a treatment pathway (see Figure X) and that it takes time to evaluate if the treatment was a success. This is usually required for reimbursement. If you're not satisfied with a treatment, let your doctor know. He/She will only be able to prescribe you another treatment when he/she knows for sure it is necessary. If you don't let your doctor know anything, he/she will presume everything is fine and that you're happy with the treatment. Of course you're not looking forward to tell a doctor that you're disappointed, so it seems easier to shop for the next doctor hoping he/she will have the magical remedy for your psoriasis. However, this will result in a lot of frustrations, half-emptied tubes/blister packs, and especially hopelessness.

So what makes a good doctor good? A good doctor is somebody who makes you feel comfortable, who you can share your fears with and is willing to take you on the quest for a long-term solution. But there's also something like a good patient: somebody who clearly explains his/her expectations and who is willing to follow the prescription recommendations correctly. So you see, it's based on bidirectional communication. And lastly, a good consultation is a prepared consultation: write down your worries, your expectations, your experiences and other questions you may want to ask your doctor. Use the figure below as a guidance to prepare your visit. This way, you'll both efficiently use your time together and you'll feel empowered.

The ideal visit to the doctor



A good patient

As you can see, you also have to invest in the relationship with your doctor. Don't avoid confrontations since this concerns your health. Make your doctor understand what you need. Be honest in your experience: are you satisfied, are you disappointed, etc. Should you feel that your doctor is not trying to understand you while you did your best, then it's time to change. But do not change too hastily, make a list of your previous and current treatments, which one worked or didn't work, and be upfront on why you're looking for a new doctor. Use the figure above to guide you for your next visit.

The power of you

The power of your psyche shouldn't be underestimated either; regardless of whether you're using medical or non-medical treatments. This effect is also known as the placebo-effect and is used in scientific research as a control to adequately measure the effect of a medical intervention. Hence, it is possible to distinguish between the actual effect of your psyche and the effect of a (medical and non-medical) treatment. Although it is not fully understood yet, it is acknowledged as a real effect, which you can use to combat psoriasis. As we described earlier, accepting psoriasis is all about a positive attitude. So if you start each treatment with a positive attitude, this may contribute significantly to the success.

Physical and mental exercises

You can also relate to the effects of the psyche when doing physical and mental exercises such as yoga, Pilates and mindfulness. In fact, these exercises are excellent for those who prefer calmer sports and rather focus on agility, breathing and awareness. These exercises will also help control stress, a well-

known trigger for flares. Moreover, some people manage itch through physical and mental exercises! The best part is you don't need to be an expert in any of these disciplines or to be in a good shape: just some loose clothing and a (yoga) mat will get you started. Anybody can do it!

In conclusion, you can certainly view non-medical treatments as a supportive means that you should apply with sufficient caution. Make sure to discuss this with your doctor, so you can both evaluate which effects are from which treatments.



<p>To avoid itch, avoid</p> <ul style="list-style-type: none"> - a dry skin (rather moisturize every so often, especially after a bath/shower) - irritating fabrics such as wool - waterproof clothing such as nylon - tight clothes - perfumed fabric softeners - regular soap (rather use a replacement such as mild unperfumed bath/shower oil with a neutral pH) - daily baths/showers - too hot baths/showers (max. 30-32°C) - long fingernails (rather keep them smooth and short) - excessive use of alcohol - rub your skin dry afterwards (rather gently pat dry) 	<p>Itch: what to do?</p> <p>If you're itchy, you can</p> <ul style="list-style-type: none"> - apply a moisturizing or medical cream/ointment - throb or rub the itchy lesion - seek distraction (e.g. a walk around the neighbourhood)
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- set the hairdryer too high (don't dry your hair for too long or too hot)	
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The value of treatment adherence

One of the biggest challenges of combatting chronic diseases is treatment adherence. Treatment adherence may sound odd, but it's actually key to successful treatments. It's about being loyal to your doctor's prescription instructions. Although some therapies are more challenging to adhere to, it is important to be adherent every day. Why is this? Since psoriasis is associated with a low yet constant presence of inflammation, it is crucial to keep this inflammation as low as possible. In addition to a healthy lifestyle, adherence to your treatment is the best way to achieve this.

Yet, treatment adherence is challenging since it is interwoven with your expectations: if you don't see results soon enough, you'll feel like the treatment isn't working and you'll be more likely to give up. That's why it's so important to reschedule with your doctor at a realistic time point to evaluate whether the treatment is a success or a failure. In addition, some treatments may be more comfortable or better tolerated than others, which can add to the challenge of treatment adherence. Nonetheless, it's only possible to tell whether a treatment helps you if you've been adherent. If you failed to adhere, be honest with your doctor and explain them why it's such a challenge to follow his/her instructions. Perhaps you can work out a solution together and otherwise, you can reconsider another treatment that will not pose the same difficulty. Either way, never disregard the importance of adherence in the treatment of a chronic disease...

Adhering in the form of habits

Perhaps you want to adhere correctly, but you find it difficult to turn it into a habit? Find a way to integrate the treatment in your daily routine. Below, we will give some examples on how to turn treatments into habits. But it's up to you to make treatment a habit. Surely, you already have some daily or weekly routines, so you only have to couple your treatment to one of your routines. Adhering correctly to your doctor's instructions all the time will definitely pay off both short and long term in comparison to adhering 'just once in a while', when your psoriasis is really bad. Remember your psoriasis is a form of chronic low-grade inflammation, which you need to tackle each day and not just sometimes.

Topical

Not only your lesions require care, but your healthy skin does, too. We can't emphasize the importance of moisturizing enough. Combine the moments you apply the topical medical treatment together with the moment you moisturize your skin with another daily habit. For instance, do this just before you brush your teeth: begin with the moisturizing cream, brush your teeth (whilst you let the cream soak in), and then apply the medical cream/ointment. If you've just showered/bathed, don't put on clothes on just yet: dap dry your skin, moisturize your skin and apply the medical treatment. Whilst you let it soak in, you can brush your teeth, do some breathing exercises or prepare your lunchbox(es). If you're not a morning person, shift your skin care to the evening. Choose a moment that returns daily, for instance when you read the newspaper, remove your lenses, or brush your teeth. Make sure to have an outfit for these moments like a dressing gown that you don't mind getting a bit of cream/ointment on.

Light therapy

Most people fail phototherapies because it doesn't fit in their schedule. However, phototherapy is very effective for psoriasis and thus certainly worth it. The best way to make it fit your schedule is when you combine it with a fun or relaxing activity. This can be a friend or relative who happens to live in the neighborhood or on the way to the phototherapy, or going to the gym or a favourite

restaurant. That way, you'll gladly make time to go to the light therapy, because it'll be associated with something fun.

Tablets/Capsules

This class of drugs are easily forgotten if you don't associate them with a daily habit. So choose a very specific place and moment where you'll be sure to take the tablets/capsules. For instance, the nightstand where you keep your glasses, in the bathroom next to your toothbrush or in a cute box at the breakfast table. Should you already have other medications, ask your doctor if it's okay to take them simultaneously. In case you're forgetful, keep an emergency blister pack/strip in your car, at your office or in your purse.

Psoriasis and comorbidities

Comorbidities: what to do?

Initially, psoriasis was regarded as merely a skin disease. But recently, an ever increasing body of evidence links other diseases to psoriasis suggesting it's a systemic disease. In other words, the entire body is affected. Presumably, this is caused by the low yet constant presence of inflammation throughout the body. These linked diseases, also called comorbidities, usually aren't diagnosed or treated by a dermatologist, but require the care of another specialist. Ask your general practitioner or dermatologist to check up on your overall health regularly and to refer you to other specialists if needed. If required, ask to be referred to a specialist who your doctor is familiar with; this will facilitate collaboration and communication between your doctors and will benefit you as a patient.

Various comorbidities have been linked to psoriasis, but here we will only discuss the most common ones.

Valuable lifestyle tips to counter the development of comorbidities:

- Keep moving: try to get 30 minutes of exercise every day
- Aim for a healthy balance between work, efforts and relaxation to handle your stress
- Aim for a healthy lifestyle, keeping your cholesterol and body weight in check. Involve a dietitian if necessary
- Don't smoke, this will not only improve your overall health but also your psoriasis
- Perform yearly checkups on cholesterol, diabetes and cardiovascular diseases

Psoriatic arthritis (Arthritis psoriatica, abbreviation PsA)

Around 25-30% of people with psoriasis will also develop inflamed joints. This is called psoriatic arthritis (PsA), which is a special form of rheuma. Usually, one will initially develop skin symptoms, the typical psoriasis plaques, and afterwards develop inflamed joints, although the reverse occasionally happens as well: joint complaints followed by psoriatic skin lesions. Joint complaints include pain, swelling and stiffness (usually in the morning). In the past, deformities occurred as well, but with current available treatments, this only happens in very severe cases.

The main difference with the classical rheumatoid arthritis, is that the psoriatic form cannot be confirmed by blood tests. Usually, your description of clinical symptoms will form the main basis for a diagnosis: that's why it is important to pay attention to your body. A thorough examination by a rheumatologist will be needed.

We distinguish various subtypes:

Poly-articular psoriatic arthritis (inflammation of many joints, usually more than 4 joints are affected)

This subtype strongly resembles the classical rheumatoid arthritis, where mainly the small joints of hand and feet, wrists and elbows are affected. Usually the pattern is symmetrical (both sides of the body). Bigger joints may be affected as well, such as the shoulders, knees and hips. The rheumatologist will distinguish between this subtype and rheumatoid arthritis by looking at your 'DIP' joints (between your second and third distal phalanges): in rheumatoid arthritis these are NEVER affected.

Oligo-articular psoriatic arthritis (inflammation of fewer joints, typically maximum 4)

Here the larger joints are attacked by your immune system (shoulders, knees and hips). It is possible for the smaller joints to be affected as well, resembling the poly-articular subtype. Generally, the oligo-

articular form is asymmetrical, as it doesn't affect both sides of the body (e.g. one knee, one shoulder and one elbow are affected).

Figure: A person with the various subtypes indicated by different colours on the possibly affected joints.

The following subtypes are typically characterized:

1. Dactylitis
The so-called sausage digit (finger/toe). In this case, your entire finger/toe may be swollen and painful (swelling of the joints and tendon structures). This painful inflammation can be difficult to control. Dactylitis in itself represents a diagnosis for psoriatic arthritis.
2. Enthesitis
Inflammation of the enthesis, the sites where tendons and ligaments insert into the bone, very typical for spondylo-arthritis. The primary entheses involved is at the heel, particularly the Achilles tendon, although all entheses can be involved.
3. Nail psoriasis
Includes affected finger- and toenails (page XX), generally characterized by discoloration and loosening of the nail(s). Usually associated with severe inflammations of the joints in people with psoriatic arthritis.
4. Uveitis
Inflammation of the eye which can threaten your eyesight. Symptoms include blurred vision, floaters, sensitivity to light (photophobia), pain, irritation or redness in the affected eye. It requires a specialized treatment by an ophthalmologist (in consultation with your rheumatologist).
5. Spondylitis
Inflammation of the vertebra and usually presents in people with Bechterew's disease (ankylosing spondylitis) and is related to psoriatic arthritis. It is possible to exhibit similar symptoms when affected by psoriatic arthritis.

If you're experiencing one of these symptoms, but you haven't been diagnosed with rheuma yet, talk to your doctor about it. He/she will refer you to a rheumatologist for confirmation and diagnosis. Make sure to inform your rheumatologist about all other symptoms as well, such as your skin lesions; this will impact his/her treatment decision for you. Moreover, if possible, ask your dermatologist if he/she is already in close collaboration with a rheumatologist (or vice versa), to ensure that you'll get the most optimal treatment(s) for both your rheuma and skin symptoms. Some treatments for psoriatic arthritis simultaneously tackle the psoriatic skin plaques. Make sure to discuss your treatment(s) with both specialists.

Figure: Pictures of dactylitis

<p>Talk to your dermatologist if you experience</p> <ul style="list-style-type: none"> - Chronic lower back pain - Chronic joint complaints - Swelling of joints or fingers/toes (take pictures to show your doctor if your appointment isn't scheduled at the time of the symptoms) - Disturbed night sleep due to pain - Inexplicable (morning) stiffness 	<p>Disabled card</p> <p>If you suffer from PsA and you experience daily impediment, ask your doctor if you're eligible for a disabled card.</p>
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Besides the joints, the low chronic inflammation may also affect other tissues in your body such as the vascular system. This may lead to other comorbidities explained hereafter.

Obesity (excessive fat)

People with psoriasis are at increased risk of being obese. For instance, the severity of psoriasis and obesity are correlated; the more severe your skin lesions, the higher the obesity; and vice versa. Generally, it was assumed that this was due to the low self-esteem of people with psoriasis, impacting their willingness to maintain a healthy body weight (e.g. shame to exercise due to visible skin lesions). However, it doesn't seem to be the only explanation as evidence suggest that obesity is associated with a pro-inflammatory state. In essence, fat can stimulate the production of 'attack' signals of our immune system. Indeed, fat tissue can increase TNF and interleukin-6 levels and other pro-inflammatory signals. Unfortunately, there isn't sufficient evidence that a diet or surgery to remove fat is directly correlated with treatment and psoriasis improvement. However, we do observe a trend that obese people require higher doses of anti-psoriasis medication and that being obese in itself is a risk factor to develop psoriasis.

Diabetes mellitus type II

Having psoriasis increases your risk to develop diabetes mellitus type II (also known as type 2 diabetes), but we can't explain why. It may be partially explained by the increased prevalence of obesity amongst people with psoriasis. However, further research is warranted to elucidate the precise mechanism between type 2 diabetes and psoriasis. Type 2 diabetes is caused by the diminished activity of insulin, a hormone produced by your body to regulate the sugar levels in your bloodstream. This form of diabetes is often a result of obesity and lack of exercise and can be partially prevented by maintaining a healthy lifestyle. The tricky part is that not all symptoms are easily recognized: it is possible to suffer from type 2 diabetes for years undiagnosed. Occasionally, genital issues (male and female) and urinary infections may indicate the presence of type 2 diabetes.

Cardiovascular diseases

Similarly to obesity and diabetes, people with psoriasis are at higher risk to develop arterial hypertension. This in itself increases the risk to suffer from myocardial and cerebral infarctions, and vascular diseases in general. It seems that the chronic inflammatory state associated with psoriasis plays a significant role herein. On the other hand are obesity, diabetes and arterial hypertension risk factors for 'metabolic syndrome', an encompassing collection of risk factors. It also includes a disturbed 'fat profile (cholesterol and triglycerides). If the latter are in imbalance, your risk for cardiovascular diseases increases significantly. Therefore, it is important to have regular check-ups at your doctor's to prevent and treat risk factors and comorbidities. A healthy lifestyle will help you to prevent many, but sometimes you may require timely treatment by medication.

Malignities (malignant tumours, cancer)

1. Non-melanoma skin cancer (all skin cancers except melanomas)
People with psoriasis who are treated with psoralen and PUVA have an increased risk to develop non-melanoma skin cancer. However, this is countered by strict monitoring by your dermatologist through keeping the number of sessions limited and performing regular body checks for potential lesions.
2. Lymphoma
Psoriasis also increases the risk to develop lymphomas, malignant tumours of lymph nodes. It is still unclear whether this is due to the low chronic inflammation in your body due to psoriasis or whether

some anti-psoriasis therapies are suppressing your body's ability to block the development of lymphomas. Despite the latter, the beneficial effects of anti-psoriasis therapies in the long run outweigh the potential risk of lymphoma.

Prevent comorbidities?

Although we don't yet understand precisely how and why these comorbidities develop, it is essential to acknowledge the risk. Especially for cardiovascular diseases.

Many aspects of your lifestyle may contribute to this risk, but can be reversed by changing your habits and live a healthy lifestyle. If needed, medication can help to prevent worse (e.g. statins).

Patient association

Insert text about patient association from country

So what's next?

Hopefully this leaflet has empowered you to tackle psoriasis in a way that's comfortable and fits you. Although psoriasis is a chronic disease, it shouldn't chronically stop you from living your life. In fact, it should only be a small facet of who you are as a human being: it doesn't define you. It partially defines your health, and if left untreated, may control your health as a whole, but this leaflet has shown you many ways to tackle it. Don't let it control you, your health or your life. Wear funny sunglasses, find new ways of exercising, connect with your doctor, talk about it to your neighbour who complains about going bald, check out the patient association in your area, have some 'me-time' when you're taking care of your skin, when taking care of you. Whatever you do, don't let it define you. Instead, define how you want to live with it.

Make every day worth living, with or without psoriasis.

Good luck!