

WHICH **UREA** CONCENTRATION SHOULD I USE?

Due to its water retention properties, urea increases hydration in the deep horny layer, which makes it a invaluable ingredient of professional feet products. But are urea products good for all skin types? How to choose the right urea concentration for our patients' needs? Answers to these and many more questions will be presented by Mirosława Lazar, the owner of Podology Practice ZDROWE STOPY, and co-founder of the training group PodoEdukacja, which offers training courses for podologists from Poland and neighboring countries. Mirosława is also a trainer in the fastest developing podology company in Poland and Europe – PODOPHARM – Polish producer of professional podology products based in Kielce.

The topic of appropriate urea concentration in cosmetic products usually gives rise to a heated debate, so today I would like to briefly discuss these products. There are many, often extreme, opinions and theories about urea concentration that is safe for the skin. Today, I will refer only to one compilation which, in my opinion, most closely corresponds to the podology practice in Poland. My opinion will be based on the recommendations of the Polish Federation of Education in Diabetology (Polska Federacja Edukacji w Diabetologii, PFED) of 2018.

The profession of a **PODOLOGIST** has been established to improve care over patients with diabetes. We are on the front line, facing the consequences of diabetes complications and that is why we should be up-to-date with the recommendations published by associations in this field.



UREA – GOOD FOR EVERYONE ?

I do not want to elaborate whether healthy skin can be treated with high urea concentrations or not. We all know and see in our everyday practice how many factors a healthy skin and its adnexa can stand in the name of “beauty”. I mean, for example, hybrid varnishes containing toxic substances which dissolve nail keratin to make the color last longer. Acids or acidic and alkaline mixtures used to make the sole look like a baby’s bottom after one treatment... A healthy body often remains unharmed by many inhumane medical and beautifying treatments – thanks to the immune system and its regenerative properties ;)

I would like to focus solely on problematic skin which most often is a result of autoimmune diseases. Skin is an organ which is compatible with other body organs. So if there is a chronic inflammation in the body (as with e.g. diabetes), our skin will also show signs of it. It becomes atrophic, over-sensitive to external stimuli; often it changes its characteristics, e.g. from dry to excessively sweaty or the other way round. In this way, a need arises to adjust appropriate skin-supporting ingredients at the moment.

UREA – GOOD FOR EVERYONE?

Urea is a natural metabolite of proteins and nitrogen compounds in the body and a constituent of the natural moisturizing factor (NMF). Therefore, its synthetic form used in cosmetics is well tolerated by skin and with adequate dosing causes no allergic reactions.



HOW MUCH UREA SHOULD A COSMETIC PRODUCT HAVE ?

The correlation between urea concentration and its effect on feet skin is as follows:

- 2–10% – moistens, softens the skin, increasing the amount of water in the epidermis horny layer.
- 10–30% – breaks keratin hydrogen bonds, softens the skin, increases its permeability for other active ingredients
- 30–40% – has a keratolytic effect – can cause temporary abnormalities in feet epidermis production
- 40–50% – has a strong keratolytic effect – can have a temporary or permanent effect on the production of healthy cells by feet skin and adnexa

Based on the newest recommendations of PFED of 2018, the maximum concentration of urea in feet skin care of diabetic patients is 25%, but only for topical application on hyperkeratosis lesions. Starting on page 23, the set of diabetologic procedures reads as follows:

“When selecting urea-based products, individual patient’s indications should be considered and the following rule adopted: feet care product with 10% urea should be applied on normal and thin skin, while a product with 25% urea on dry and calloused skin as well as on feet calluses.”

TOO HIGH UREA CONCENTRATION

If the most recent PFED recommendations do not provide for concentrations higher than 25%, where does the fad for concentrations over 30% in feet care come from? I could hardly find any dermatological materials/compilations that would prove long-term effectiveness of using such high urea concentrations in feet therapy.

The only explanation is – yet again in the history of podology – the ignorance of basic feet skin physiology among cosmetic producers. Podologist practices have become a new target for the beauty industry which not necessarily understands the needs of podologic patients (the fact proved for example by marketing a portfolio of acidic and alkaline products).

They all make the same basic mistake – they treat feet skin in the same manner as other types of skin, ignoring the differences resulting from the structure and function of feet skin.

In my 8 years of practice, I have only seen keratosis disorders after high concentration therapies. Patients reported that when they used 30–35% preparations, their skin was truly soft and supple. Problems started after stopping the use of these products. Their skin was quickly becoming scratchy and cracks or calluses started appearing. Patients using 40% urea preparations in the course of foot psoriasis or eczema often experienced the symptoms of burning and excessive warming in the application sites – patients' experiences were negative. Treatments involving weaning the skin off high urea concentrations – 25%, 15% and then 10% – produced satisfactory results.

FOAM, CREAM OR SERUM?

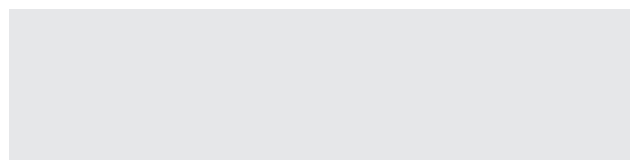
One has to bear in mind that urea activity in preparations is not decided only by the percentage declared by the manufacturer. Its true “power” depends on the product consistency and other active ingredients. For example: 15% urea foam will have a similar effect to 10% ointment or cream. In turn, the serum formulation of the product will enhance urea properties. Additionally, excessive use of serum can result in faster water loss and, consequently, skin dehydration.

That is why, if you need to recommend a 30% urea preparation, you should choose foam instead of cream or serum.

It may be a good idea to have a whole range of urea preparations from 5% to 25% in your resale assortment.

I also recommend to test each product on yourself first so as to know its consistency and rate of absorption. Test different brands, read their composition – it's really interesting :)

Below, I have described active ingredients in PODOPHARM 10% and 25% urea ointments that are the most interesting in my opinion, as I have been using them for several years now and have a broad picture of their effects on patients' skin.



PODOFLEX OINTMENT WITH 10% UREA



This product is a great choice for **atrophic skin in elderly people** – I recommend it especially for patients taking cardiovascular medicines which are often associated with such adverse reactions as itching and swelling of calves, which, when accompanied by diabetes, may result in ulcerations. An ointment should also be used in the next stage of treatment of cracked heels to prevent relapse.

Lanolin – protects and smooths the skin.

Butyrospermum parkii butter (shea butter) – used as base in ointment production. It prevents skin dehydration and binds water. It has a soothing and anti-inflammatory action. When used directly on cracks and damaged skin, it does not cause burning – it is recommended for pregnant women to prevent stretch marks.

Aloe Barbadensis Leaf Juice (aloe juice/gel) – the most common plant used for moisturization, soothing and relieving skin irritation, such as burns and abrasion.

Melilotus Officinalis Extract – my favorite ingredient in this product. In times when no one has heard yet about expensive ointments and active dressings used in treatment of ulcerations and angioedema, compresses with this herb were used, among others, to prevent further complications.

Inositol (vitamin B8) – rarely used in cosmetics, even though it has potent conditioning effect on the skin.

Niacinamide (vitamin B3) – known for its properties of brightening skin discolorations and anti-inflammatory effect. It is another necessary ingredient in the care of feet and calves of diabetic people.



PODOFLEX OINTMENT FOR CRACKED AND CALLOUSED SKIN ON THE FEET (25% urea)

This product is intended for special purposes – as treatment for undoing the results of many years of wrong treatments of plantar foot area.

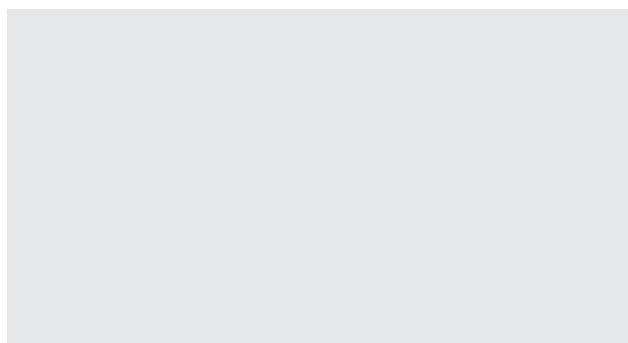
It regenerates cracks, softens calluses and prepares the epidermis for safe treatment at the office.

Our patients often have such hard and dry skin that the first procedure with the use of a scalpel may cause the condition of their feet to deteriorate.

In such cases, I gently smooth the skin with a hood and recommend the use of this ointment for the next two weeks.

At the next visit, the skin is more flexible and ready for treatment. You should bear in mind that this ointment is intended only for topical application for appropriate period of time between 6 and 8 weeks. There are exceptions, such as the skin of people with thyroid disorders.

For these patients, when the problem is solved, 10% ointment applied every day and 25% ointment applied once a week work well.



Beeswax (standardized beeswax) – does not cause allergies, preserves the homogeneity and silkiness of an emulsion.

Salvia Officinalis Extract – the name itself speaks of its properties: „Salvia” from the Latin word “salvare” = heal, cure. Salvia has almost infinite applications. When applied to the skin, it has first and foremost soothing, anti-inflammatory and antipruritic effects.

Rosmarinus Officinalis Extract (rosemary) – has protective, anti-inflammatory and antifungal action. It also supports circulation and is recommended for tired legs.

Panthenol (pro-vitamin B5) – necessary ingredient that keeps the skin in good condition. It soothes irritation, itching and burning. It promotes healing and has anti-inflammatory and antibacterial action.

I am very glad of the fact that all materials contained in these cosmetics are pharmaceutical raw materials or raw food materials, which ensures the highest purity and safety.

Petrolatum and Paraffinum liquidum are pharmaceutical grade vaseline and paraffin, dehydroacetic acid is an ecological preservative and carbomer is a food thickener. I don't see any ingredient that I would not use myself. I encourage you to do the same – recommend products you studied and tested;)



Best regards,
Mirka Lazar