

# share *for* care

## HEALTHY LIFESTYLE

Stretching routines that make a real difference

## A PATIENT'S STORY

A young man's journey offers hope

## RECIPE

Succulent pork rolls on risotto

TRAVEL STORY

## BEAUTIFUL TIMIȘOARA

A Romanian jewel on the Bega River



# share for care

Dear readers,

We're all going through special times at the moment – and staying healthy is more important during the pandemic than almost ever before. The coronavirus has forced people all over the world to adjust to living with health risks. Doing without lots of things we like has now become part of everyday life – going to concerts, having big celebrations with the family, or even just warm hugs, to mention just a few. It's certainly not easy for lots of us, but there's no alternative.

Patients with chronic kidney weakness are quite familiar with the challenges of living with increased health risks. Many have already been coping with them admirably for several years, while still managing to make plans and enjoy life – like Jiří Petrů from the Czech Republic in this issue's patient story. After being dialysis-dependent for a long time, he's now able to have an almost normal life again thanks to an organ donation.

This new issue of *share for care* also aims to help you make everyday life with the disease as comfortable as possible. If you're among the patients who find preparation for dialysis unpleasant, you may be interested in this issue's special topic, all about puncture pain and ways of managing it. A few tips in this issue about the ideal clothing for winter may also help make life easier for you in the colder months. In the Healthy Lifestyle section, the issue also describes some enjoyable stretching exercises. And last but not least, you may also like to start making some travel plans, either for now or for later on – for example, to the enchanting city of Timișoara in Romania, which is currently sprucing itself up to become the European Capital of Culture in 2021.

As always, we look forward to receiving news and comments from you. Send us an e-mail at [dialysis@bbraun.com](mailto:dialysis@bbraun.com) about whatever you're interested in, stay optimistic, and take good care of yourself in these special times.

Your editorial team,



Christopher Boeffel



Martin Kuhl

04

## NEWS

A new era?  
Testing underway  
on the implantable  
artificial kidney.

06

## SPECIAL TOPIC

Accessing the bloodstream  
through the fistula is more  
than just a puncture. Learn  
about this vital first step in  
dialysis treatment.

10

## A PATIENT'S STORY

Diagnosed at the age  
of fifteen, a young man  
from the Czech Republic  
recounts his journey to  
successful transplantation.

14

## TIPS

For kidney patients,  
deciding what to wear is  
more than just a question of  
fashion. Learn how to protect  
yourself from the elements  
as the colder seasons arrive.

16

## TRAVEL STORY

Take a step back in time as you  
explore one of the natural and  
cultural highlights of Romania:  
Timișoara – the city on the  
Bega River.

20

## RECIPE

Delicious and satisfying:  
Pork tenderloin rolls  
on Brie risotto.

22

## HEALTHY LIFESTYLE

The art of the stretch:  
A simple routine that  
activates and relaxes your  
body all at the same time.  
The result will make  
you feel great.

## START OF DIALYSIS IS STRESSFUL FOR RELATIVES



A research study in Britain has investigated changes in the quality of life for patients and their partners caused by the start of dialysis. Although the patients reported definite improvements in their general and physical quality of life right from the start, their partners felt that the adjustments were a strain. However, their quality of life improved again after 12 weeks. The researchers suggest that providing additional educational and counseling services could in future help patients and their relatives to cope better with the stress caused by the new treatment situation.

## IMPLANTABLE ARTIFICIAL KIDNEY ENTERS TEST PHASE

Research on an implantable artificial kidney has now advanced far enough for it to be implanted in the first human patients. Trials of the bio-hybrid devices, which consist of microchip filters and living renal cells, are taking place at the University of California in San Francisco (UCSF) and at Vanderbilt University in the United States. The researchers are hoping to make the artificial kidney implant commercially available when the trials have been completed and the FDA has given its approval.

## RENAL INSUFFICIENCY AND HEARING LOSS

Patients with reduced kidney function are at greater risk of experiencing hearing loss. According to a recent study in China, the risk increases as the kidney's filtering function deteriorates. The scientists therefore recommend that hearing tests should be included in patients' treatment plans from an early stage, so that developing hearing loss can be prevented in a timely way.

## A MEMORIAL IN GRATITUDE TO ORGAN DONORS

Many recipients of donor organs feel they want to express their gratitude to the donors and their families. An organ donation monument, which is to be erected on the grounds of the Charité hospital in Berlin, will make this publicly possible in the future. In the form of a spiral-shaped sculpture, the monument is intended to symbolize the positive effects of organ donation for recipients and their families. The project's initia-

tors have dubbed the monument *DANK-Mal* (a play on German *Denkmal*, monument, and *Dank*, thanks). German politician Julia Klöckner, who is patroness of the Kidney Campaign Patient Foundation (Patientenstiftung Aktion Niere), says the sculpture will be "a central place for personal reflection, and also for gathering together and expressing shared public gratitude." Once the winners of the artistic competition

for the design of the sculpture have been decided, everyone who wants to support this remarkable initiative and express their own personal gratitude will be able to actively participate in creating the *DANK-Mal* by making a donation. This will promote both public recognition of their organ donor heroes and public awareness of the importance of organ donation. More information is available at:

<https://www.aktion-niere.de/dank-mal>

# Ultraviolet rays

## TO TREAT HIGH BLOOD PRESSURE

Science has so far mainly focused on the cancer-causing effects of UV rays; very little research has been carried out on healing effects that sunlight can have. A recent study including more than 300,000 dialysis patients has shown that targeted application of UVA and UVB rays also has positive effects.

The researchers found that patients' blood pressure can be successfully reduced during dialysis using phototherapy, particularly with UVB rays – regardless of the outside temperature.



# OVERCOMING PAIN

For some patients it's just a little pinch, but for others it's a difficult moment during everyday treatment:

the fistula puncture, when two treatment needles are inserted into the arm. This happens around 300 times a year in the lives of dialysis patients. So it's all the more important to keep the psychological and physical burden involved as low as possible. What options are available for this in modern treatment?

Puncturing the fistula only takes a moment, but for some patients the procedure involves pain and anxiety. However, there are effective strategies and techniques available to overcome both of these.

Top of the list is quality. In a professional dialysis center, it can be taken for granted that everyone involved will respond in a caring way to patients' sensitivities and will apply the best possible methods of pain management. This starts right from the detailed preparation, designed to create a relaxed environment for everyone involved – including bright natural light, a tidy and spotlessly clean treatment area with all the materials needed for fistula puncture from needles to swabs, and absolutely no sense of rush. Because when the person carrying out the treatment is calm, that calmness is naturally passed on to the patient as well.

## WHAT YOU NEED TO KNOW ABOUT ACCESS AND PUNCTURE TECHNIQUES

In order to clean toxic substances out of the blood during hemodialysis, a point of access to the bloodstream is needed that will remain constantly reusable. Ideally, this will be an arteriovenous fistula (AV fistula) – a special high-performance blood vessel that is created surgically by connecting an artery with a vein. The fistula is often placed near the wrist on the forearm, but it may also be positioned further up on the arm – on the inside elbow, for example. In patients who have thin blood vessels with damage due to previous illness, an artificial blood vessel (made of synthetic material) can be used as an alternative to the AV fistula and can be punctured in exactly the same way, after the wound has completely healed. This is called a prosthesis fistula or graft.

There are three different techniques available for puncturing the vascular access: buttonhole puncture, area puncture, and rope-ladder puncture. In the buttonhole puncture, the same needle channel is always used. The area puncture uses two short sections of the overall length of the fistula. In the rope-ladder puncture, the puncture site is moved a few millimeters further on at each treatment appointment, so that the entire length of the fistula is used.





### PUNCTURE INVOLVES TRUST

What exactly happens during a puncture procedure? The first steps include careful fistula preparation. Important aspects of this are correct patient positioning and correct positioning of the arm, as well as optimal placement of the tray holding the materials and of the person carrying out the treatment – who will ideally explain everything and alert the patient to each step during preparation of the puncture site. Clear communication creates a sense of trust. In the context of patient-centered treatment, this also includes having an open discussion about which person should preferably puncture the fistula – since both patients and fistulas differ from case to case. It's also necessary to assess the quality of the fistula and then clarify who is experienced enough in the center to carry out this specific puncture procedure successfully and with as little pain as possible. In recently created or "difficult" fistulas, for example, a physician who already has extensive experience may start the treatment and then provide instructions for assistant staff members.

For dialysis patients, the experience, talent, and commitment of those carrying out the puncture represent important aspects of treatment. Since developing a sense of trust is a decisive part of successful treatment, patients shouldn't hesitate to ask whatever they need to know and get explanations about the methods of reducing pain that are available. This can involve lots of details – right down to the direction in which the needle is beveled: if the puncture is carried out with the bevel pointing downwards, there is less injury to the skin and patients report less pain than when the needle bevel is pointing upwards. You can also ask about other possible ways of reducing pain. For example, some treatment centers have recently started using mobile ultrasound technology to introduce the dialysis needles in a targeted way for difficult vascular access sites. This takes a little longer, but it may help avoid failed attempts and thus usually leads to greater confidence for patients and for the staff members treating them.

### FIND OUT WHAT THE BEST PUNCTURE TECHNIQUE IS FOR YOU

While the first step in reducing pain involves minimizing anxieties and creating trust, in the next step the physician and the patient need to agree on what the best puncture technique is individually. One difficulty here is that the rope-ladder technique – the puncture method that is preferable medically – is more demanding and is often associated with more needle insertion pain than the area puncture method. As it uses the entire length of the fistula, the rope-ladder technique is the best method for reducing risks such as stenosis (narrowing of the vessels) and formation of aneurysms. Despite this, however, many patients prefer area puncture, because concentrating on a small area desensitizes the nerves and leads to the replacement of normal, pain-sensitive connective tissue with scar tissue that is not sensitive to pain. The result is that less pain is felt with this puncture method. Ideally, however, the pain should always be negligible and it should not be the factor determining the choice of puncture technique. The following aids can be successfully used to ensure this.

### THE PAIN STRATEGY THAT SUITS YOU

Locally active anesthetic ointments or plasters, which are applied one or two hours before the puncture for maximum effect, are a useful way of managing pain. Cryotherapy – applying cold to the puncture site – can also successfully reduce pain. Immediately before the puncture, an ice pack is wrapped in a cloth and then applied to the fistula for a few minutes. The application of cold reduces blood perfusion, skin temperature, and nerve conduction speed, preventing inflammation and reducing pain sensitivity.

Painkiller pills are less suitable, but if they are already part of ongoing pain therapy – e.g., for tumor or back pain – their timing and the drug used can be adjusted so that they are also effective during the puncture procedure. Mental relaxation exercises can provide supportive help for pain anxiety and tension – such as exercises used in autogenous training or in progressive muscle relaxation. Listening to music has also been shown to have relaxing and pain-relieving effects. If you need more extensive help to overcome puncture anxiety emotionally, psychological counseling may also be advisable, as it can successfully identify gentle and stress-free ways of coping with pain and pain anxiety.

Self-puncture is a particularly active way of countering anxieties about needle-insertion pain. Patients who are physically able to do it and have received appropriate training from the treatment team are able to regain an important degree of control. Ask your treatment team whether self-puncture might be an option for you. Patients who have successfully taken this step usually say they are very relaxed about pain. Because they know their own bodies best, it's then often really

“just a little pinch.”



The story of Jiří Petrů, who last September successfully underwent a kidney transplant, seems to be fairly ordinary, but

only at first glance. Jiří is a person who basically takes life lightly, always looking at the bigger picture. Perhaps it is this approach that has enabled him to come to terms more easily with the medical problems that have plagued him since youth, typically with the necessary dose of humor.

# I SAIL THROUGH *life!*

## PUBERTY AND CHRONIC GLOMERULONEPHRITIS

Jiří was confronted with a hard reality at the tender age of fifteen. During a routine examination carried out back then in schools, protein was discovered in his urine. This was followed by a hospital stay at Ivančice. After a series of examinations and samples taken, the doctors pronounced their verdict – chronic inflammation of the kidneys. If Jiří had been given such a diagnosis as an adult, his entire world would have surely collapsed.

But he was an adolescent, and even though he spent his entire summer vacation in a hospital, he viewed the whole affair as an exciting adventure that one doesn't experience every day. An eight-bed room, new friends, playing guitar in the hospital courtyard. Everything was basically fine. Jiří's acute condition back then was handled with a strong dose of antibiotics, but his diagnosis was permanent. Chronic inflammation was not possible to cure.

At first, he didn't have any more serious trouble with the illness and he acted as if there were nothing wrong with him. He pretty much lived like any other teenager, but had to take precautions to help his kidneys. He had to limit his movement, stop playing sports, stick to a diet, abstain from alcohol and, if possible, avoid catching colds. All of these restrictions led him to decide that commuting to Brno to the industrial school where he had been accepted was simply not a good idea with his type of illness. His parents did everything they could to arrange for a transfer to a school in Ivančice, which under the Communists was not an easy task. Finally they succeeded, and Jiří began studying at the gymnasium in Ivančice. This forced change of schools ended up having some positive consequences, since it made it easier for him to get into the Brno University of Technology to study IT, a field in which he continues to work today.

**He feels great, relaxing by the water with fishing pole in hand, satisfied with how nicely he is sailing through life.**

**FROM ANGIOGRAM TO DIALYSIS**

Jiří lived a normal life. He avoided things that worsened his chronic kidney condition, but otherwise didn't suffer in any way. His condition began to worsen after an angiograph examination, which uses a contrast agent that is hard on the kidneys. 2015 arrived, and because of worsening test results Jiří had to begin dialysis in Ivančice. Along with dialysis, he also began to regularly visit a cardiologist. He was also able to adapt to these circumstances. Three times a week he underwent a five-hour dialysis procedure in the afternoons and planned his work and personal life around it. He intentionally chose classic dialysis, because it fit best with his work. In the morning he could take care of his most important errands, and on his days off from dialysis he would visit clients. A year later he was placed on a list of people waiting for transplants, except his heart failed at this time and Jiří spent nearly two months in the trauma and ICU units in Brno. After his heart recovered and stabilized, he was once again put on the list of people waiting for transplants.

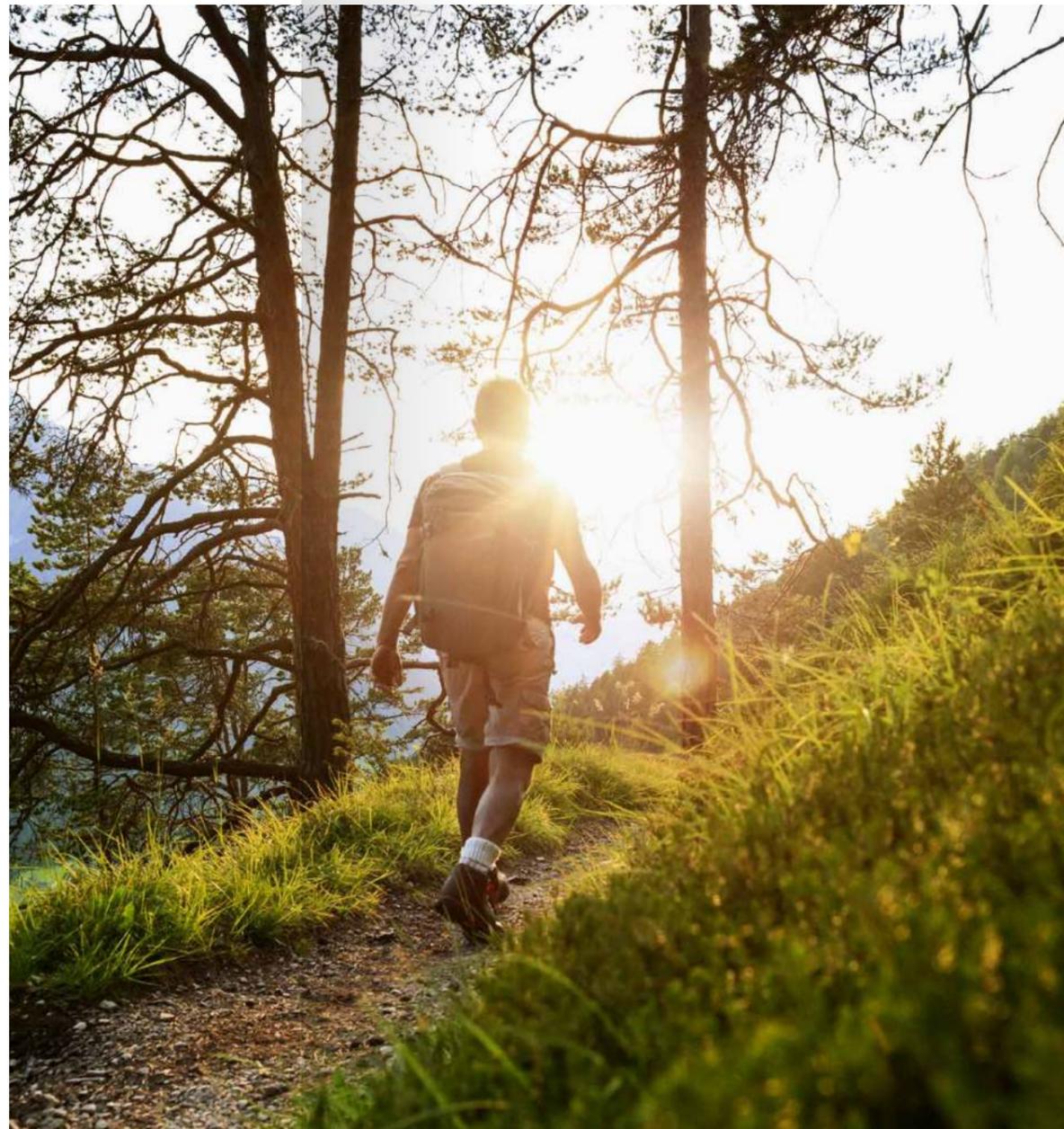
**HIS DAUGHTER WANTED TO DONATE A KIDNEY**

Last year in February, the phone rang at home on a Saturday night with the news that they had a donor. Unfortunately, at the time Jiří had a cold, so the transplant wasn't possible. He wasn't disappointed, though. On the contrary, the phone call raised his hopes that he wouldn't

have to wait long for a second chance. And sure enough, on September 30th of the same year, they called again and at three in the morning Jiří had successfully received the transplant. He never seriously considered the offer from his daughter to donate a kidney. He was afraid that something might go wrong and then she would be left without a kidney, even though he admits that his daughter immediately offered her kidney without hesitation.

**TRANSPLANT AND BACK TO THE RIVERBANK**

The transplant has made an enormous difference to Jiří's life. After spending years on dialysis and medications, he can again make full use of his time, travel, go fishing, and even play a little sports. When he was young, he was a competitive volleyball and tennis player. Today, he is rediscovering hiking and swimming. He has to be active, because dietary restrictions and a lack of movement end up causing most patients with the illness to put on weight. Before he was on dialysis, many things were off limits. Today, he can enjoy the experience of again being able to eat watermelons, peaches, or liver. Jiří has never had any lifelong dream or goal. He wanted to live a normal life, have a family, work hard, and achieve smaller goals. He wanted to stand alongside his children and help them, do his work, and travel. Thanks to the transplant, this is all a reality now, and he is also glad to be rid of some of the symptoms that accompany kidney disease, such as joint pain.



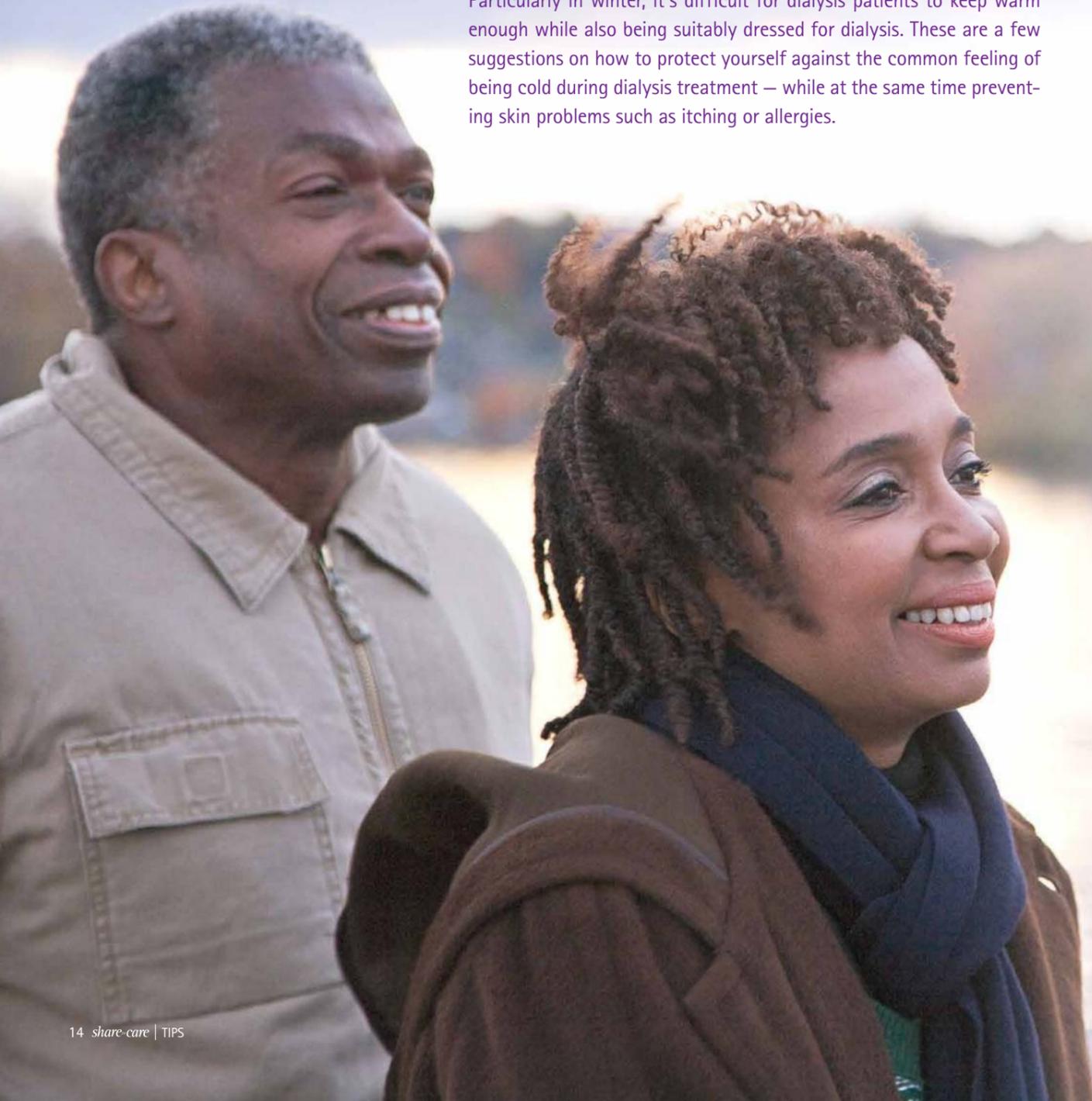
**TERMINAL RENAL FAILURE**

Terminal renal failure is understood to be a condition where the kidneys are permanently no longer able to perform the majority of their functions, the most important of which is to filter the blood. A renal biopsy is performed in the patient, where a small tissue sample is collected from the renal cortex. Microscopic examination then determines that the majority of renal glomeruli, which serve to create primary urine, are irreversibly scarred. "This condition cannot be treated by regenerating kidney tissue, only by substituting kidney function either through dialysis or transplant," says head physician at the Ivančice dialysis center Dr. Jakub Ševčík.

Jiří Petrů was diagnosed with terminal renal failure based on a biopsy showing chronic glomerulonephritis. He started coming in regularly for dialysis in August 2015. "A year later he was offered the opportunity for a kidney transplant. He immediately underwent all necessary examinations to be placed on the waiting list. Everything worked out well, and by the end of September three years later, a donor was found and Jiří successfully underwent the transplant operation. The kidney graft is working very well for him to this day," adds his attending physician Jakub Ševčík.

# JUST THE **right** clothes

Particularly in winter, it's difficult for dialysis patients to keep warm enough while also being suitably dressed for dialysis. These are a few suggestions on how to protect yourself against the common feeling of being cold during dialysis treatment — while at the same time preventing skin problems such as itching or allergies.



## FAQs

### CAN DIALYSIS LEAD TO HAIR LOSS?

It's not unusual for kidney disease to have effects on the skin and hair. Hair consists of proteins — so inadequate protein intake, as well as zinc deficiency and thyroid problems, can lead to dry and brittle hair or hair loss. Talk to your doctor about the problem and make sure to treat your hair gently by avoiding perms, hair dye, and tight rubber bands. Hair loss is only temporary for dialysis patients in most cases. Ask your hairdresser about hairstyle ideas to make your hair look better while it recovers.

### HEALTHY FAT — A CONTRADICTION IN TERMS?

No. Although fat is the most energy-rich nutrient, it can have health effects that may be either harmful or beneficial, depending on its composition. The crucial aspect of fat intake is not only the right amount, but also the components — the fatty acids. Saturated fatty acids, which are mainly found in animal foodstuffs such as meat, sausage, and cheese and in sweet bakery products, should only be eaten in small quantities. On the other hand, monounsaturated and polyunsaturated fatty acids have favorable effects on cholesterol levels and reduce the risk of cardiovascular disease. They are contained in olive oil, nuts, and high-fat saltwater fish such as herring, mackerel, and salmon — which should be included in the diet regularly.

### WHEN'S THE BEST TIME TO SEE THE DENTIST?

You should move all sorts of examinations and medical procedures in which there's any risk of bleeding — e.g., the dentist, dermatologist, or gastroenterologist — to your dialysis-free weeks. During dialysis, the blood is thinned with anticoagulants such as heparin, so there's an increased risk of bleeding for a few hours after the treatment. You should always tell any specialists who are treating you that you are on dialysis, so that the procedure can be planned.

### WHO IS ELIGIBLE FOR HEMODIALYSIS AT HOME?

In addition to suitable housing conditions, important requirements for home hemodialysis include a stable health status and a great deal of personal motivation and initiative. People who carry out dialysis at home gain more freedom and independence in their daily routines. Shorter dialysis intervals and more frequent treatment sessions are possible and can ensure improved treatment quality and better health. However, people who dialyze at home also have much more responsibility. It's essential that you be willing to take an active part in treatment and to learn a great deal of new information. The best idea is to ask your doctor for advice on which dialysis method is the right one for you personally.

## 1

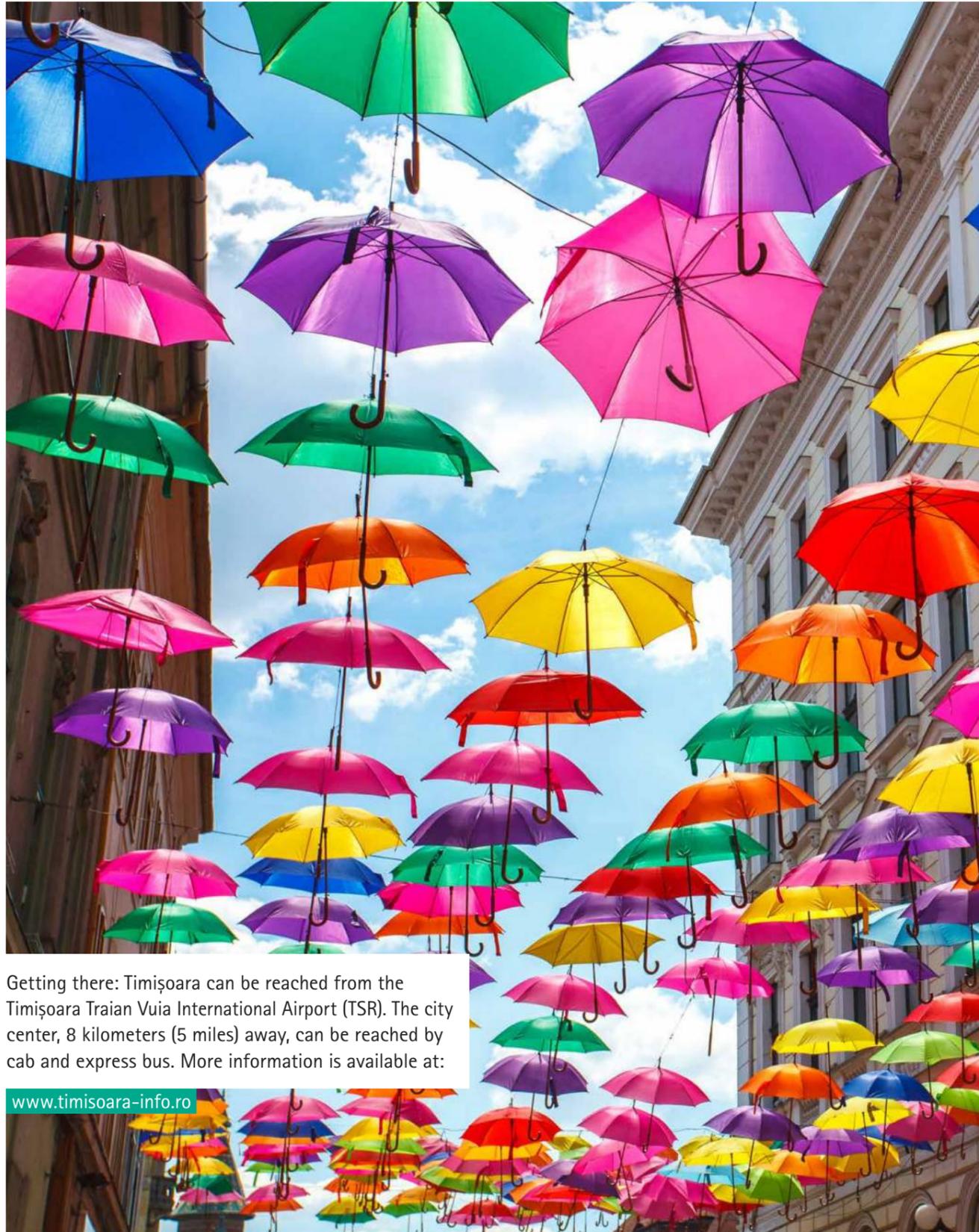
Treat yourself to some quality and comfort: your clothes should be warm and suitable for sensitive skin. Skin-friendly cotton fabric can be recommended, and in winter, fleece outer garments that are free of any harmful materials are the obvious choice.

## 2

Make sure that the fistula is protected and not constricted in any way. Loose clothing with Velcro fastenings, zippers, or magnetic catches is comfortable to wear.

Find out what sorts of clothes are best for you personally during treatment. The clothes should be comfortable, and the fistula should be easily accessible. This will reduce the treatment time and infection risk, prevent you from feeling cold during the treatment, and also give you more privacy — you won't have to take off any items with sleeves that are too tight, for example. Clothes with sleeve openings that are easily closed again are practical — e.g., with a zipper to allow easy access to the fistula.

## 3



Getting there: Timișoara can be reached from the Timișoara Traian Vuia International Airport (TSR). The city center, 8 kilometers (5 miles) away, can be reached by cab and express bus. More information is available at:

[www.timisoara-info.ro](http://www.timisoara-info.ro)

# TIME TRAVEL TO THE *Bega River*

The city of Timișoara in Romania offers a multilingual atmosphere, a forward-looking spirit, and nearby countryside full of unspoiled nature.

Timișoara is located in the very west of Romania, close to the borders with Hungary and Serbia. With a population of more than 300,000, it is the country's third largest city and has enjoyed a tremendous economic and cultural boom since the year 2000. At the moment, it is gearing up for its special year as European Capital of Culture in 2021.

The Timișoara Renal Care Center is located south of the Bega River, which flows around the inner city in a semicircle. The Podul Decebal bridge is thought to be the most beautiful of the fourteen bridges that cross the river. Most of the old town has now been renovated — nearly 15,000 historic buildings painted in Schönbrunn yellow and other pastel colors are a reminder that Timișoara was once part of the Austro-Hungarian Empire.

Traces of history can be found on every street corner, in what is today a university town and business metropolis. The first documented mention of Timișoara dates back to the twelfth century. Numerous different peoples settled in the Banat region over the centuries and left their cultural traces. Destroyed by the Tartars in 1241, Timișoara was rebuilt and belonged at various times to the Kingdom of Hungary, the Ottoman Empire, and then to Habsburg Austria, and it was assigned to Romania after the First World War. Even today you can still hear a colorful mixture of Romanian, German, Hungarian, Serbian, English, and Italian in the city's streets.

The city flourishes during the summer months in particular: festivals, street concerts, and the mild evening temperatures keep life in the streets pulsating late into the evening. The central fortress area around the city's oldest square, the Piața Unirii (Cathedral Square), has many religious buildings and palaces that are worth seeing — including Timișoara Cathedral and the Baroque Serbian Orthodox Episcopal Palace. Cafés, shops, and residential palaces dating from the early twentieth century line the broad Piața Victoriei, the city's main boulevard. During the Romanian Revolution of 1989, which culminated in the fall of the dictator Nicolae Ceaușescu, Piața Victoriei was a central scene for mass demonstrations. Today, the sculpture *Crucificarea*, created by the artist Paul Neagu, commemorates the victims of the revolution there.

Pleasant hours in the city's green areas can be enjoyed in the Botanic Garden, the Rose Park on the northern bank of the Bega, and the Parcul Central, where there are numerous busts that have formed the "Avenue of Personalities" since 2009.

But excursions to the wild and romantic countryside surrounding the city should also not be missed — the Banat Mountains and the Nera Gorge–Beușnița National Park with its waterfalls and emerald-green mountain lakes. You're already in the legendary Carpathian Mountains here — the 1,500-kilometer (900-mile) long mountain range in Central and Eastern Europe, where time seems to have stood still and you can still spot brown bears, wolves, and lynxes.

### Renal Care Center Timișoara

28 Gheorghe Ranetti Strada | 300417 Timișoara (Romania)

## INFORMATION

For your personal travel and appointment planning, please get in touch with your contact person at the renal center, Mrs. Claudia Spatariu, by phone or e-mail.

Tel.: +40 356 460 778 | e-mail: [claudia.spatariu@bbraun.com](mailto:claudia.spatariu@bbraun.com) | Internet: <https://www.bbraun.com/en/patients/renal-care-for-patients/renal-care-centers/europe/romania/timisoara.html>

## EUROPEAN CAPITAL OF CULTURE IN 2021



# Pork tenderloin Rolls

## ON BRIE RISOTTO



The pork tenderloin and brie are excellent sources of protein. Rice is a low potassium side.

### SERVES 4

- 4 pork tenderloin portions, 125 g each
- Freshly ground white pepper
- 1 pinch of sugar
- 100 g cream cheese
- 4 sprigs of flat leaf parsley
- 1 small white peeled and cubed onion
- 4 TBSP of olive oil
- 200 g risotto rice (e.g. arborio)
- ½ l sodium free vegetable or meat stock
- 1 small wheel of brie (about 100 g)
- Rosemary and thyme
- 4 TBSP of white balsamic vinegar
- 2 TBSP of whipped cream
- 1-2 sundried tomatoes cut into thin strips
- 1 each sprig of rosemary and thyme for garnishing

### THE PORK TENDERLOIN

Cut the pork tenderloin into 1.5 cm thick strips lengthwise and flatten it out using a meat cleaver/tenderizer. Season with sugar and pepper. Next, spread the cream cheese on the filet. Chop the parsley and spread it over the cheese. Roll up the filet like a cinnamon roll, use a toothpick or kitchen twine to tie it together. Heat oil in a pan and sear the meat briefly in the very hot oil on all 4 sides. Continue to bake in the oven at 160 degrees C (bottom and top burner on) for 10 minutes. Allow to rest for 5 minutes before serving.

### TO MAKE BRIE RISOTTO

Sweat the onions in olive oil, add the rice and toast briefly. While the burner is on high heat, add the stock in portions of 25 ml slowly while stirring constantly. Simmer until the rice is al dente and the liquid has reduced into a very thick sauce. At that point, add the brie and herbs. Finish with balsamic vinegar and cream to taste.

To serve, plate with the bias cut pork tenderloin rolls, sundried tomatoes, and sprigs for garnish. If you have any rendered au jus from the meat, use it to drizzle over the plate.

Nutrition value (All nutritional information per serving. This corresponds to ¼ of the total recipe.)

Energy	Carbohydrates	BE	Protein	Fat	Potassium	Phosphate	Sodium	Water
600 kcal	42 g	3.5	41 g	30 g	674 mg	422 mg	372 mg	213 ml

These nutritional values represent average figures, which may differ in certain cases. They should be used only as a guide and cannot replace a consultation with your doctor or nutritionist.

# Stretch with us!

Doing some gentle stretching exercises can have a marked effect on your physical mobility with little effort, helping to improve your well-being.

Sprawling and stretching pleasurably is good for you — as you already notice when you get up in the morning. Stretching exercises are a bit more intensive. In sports, they are classically used to loosen and warm up the muscles before and after training and to improve mobility. No matter what your fitness level, stretching after exercise activity also helps the body to “wind down” again and relax.

But gentle stretching exercises can also be included in your everyday routine to prevent damage to the muscles and nervous system, improve performance, and have a positive effect on your well-being. Even just a few minutes of stretching exercise can lead to noticeably better mobility and can maintain flexibility, even when everyday movements and short walks have already become a little difficult.

## ACTIVATING AND RELAXING AT THE SAME TIME

There's a distinction between static stretching — i.e., holding a state of tension — and dynamic stretching, where the muscle is alternately stretched and loosened again with an alternating movement.

When they're done correctly, stretching exercises have a positive effect on the muscles and tendons as well as on the connective tissue surrounding the muscles, called fascia, which hold together and shape the different parts of the body and protect it from overstraining.

Stretching makes these fibers more slippery, elastic, and stable, and adhesions are loosened. The result is better mobility and less pain during movement. In addition, stretching exercise increases the blood circulation in the muscle and thus also has an activating, strengthening, and ultimately injury-preventing effect, while also avoiding annoying muscle cramps.

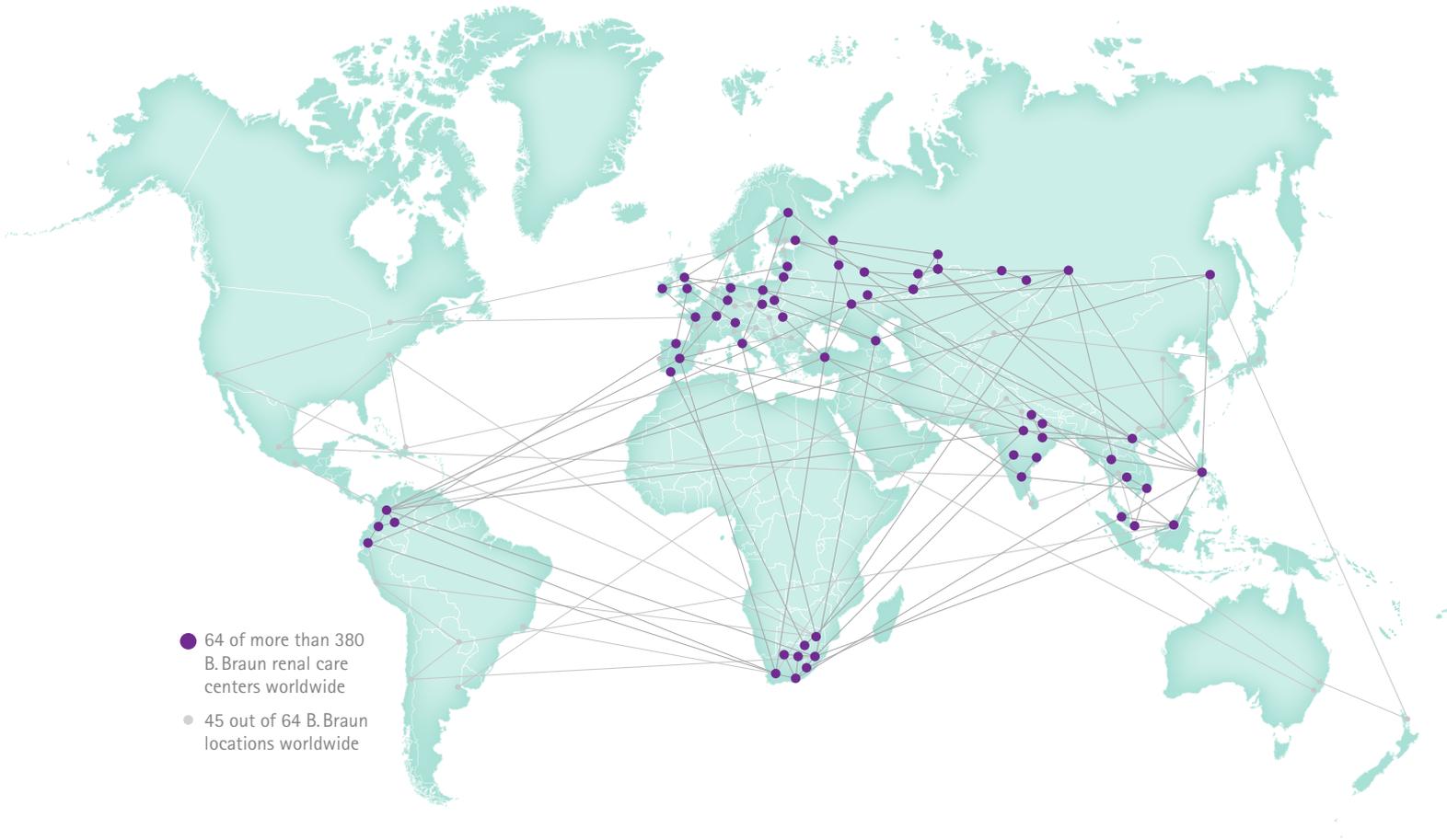
Stretching exercises should never be performed jerkily or quickly — they should feel comfortable, and any pain arising is basically a clear signal to stop. Preparing the body for stretching with some easy warm-up training is recommended — for example, walking on the spot for a few minutes. It is best to seek advice from a sports physician on how to do your body good using specific exercises.

You'll find that soothing stretching can be done anytime, in between other things — while sitting, lying down, and even during dialysis treatment.

You can find useful information for your health & fitness at our website, [www.bbraun-dialysis.com](http://www.bbraun-dialysis.com).

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sxces Communication AG | Wigandstraße 17 | 34131 Kassel | Germany | [info@sxces.com](mailto:info@sxces.com) | [www.sxces.com](http://www.sxces.com)  
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