

SCAR THERAPY – SPECIAL EDITION

Reconstructive surgery and hand surgery



OUR ASPIRATION: YOUR WELLBEING

We want to help you feel good. In this brochure, you will learn everything you need to know about scar therapy after reconstructive surgery and hand surgery. The treatment of scars after surgery is a complex issue that often raises many questions for those affected, but also for their family members. How is skin structured? How and why do scars form? Why is early scar therapy important and what options are there? What are the positive effects of scar therapy and what help is there for you? We will answer your questions so that you can receive the best support and experience Freedom in Motion!



INNOVATION WITH EXPERIENCE

We at Juzo are passionately developing medical aids which help patients through all the stages of their therapy. Our high-end, trend setting compression products are already being exported to over 60 countries. But we have remained a family business which is now being run by the fourth generation of our family. Our compression garments, supports and orthoses are made with the latest technology to provide patients with the best solutions for them and meet every demand.

Our products aim to improve your quality of life and ease your discomfort sustainably – for a long time.

Find out more information about Juzo at
www.juzo.com
www.juzo.co.uk

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ALL ABOUT SKIN

SKIN: THE MIRROR OF LIFE

At a size of 1.5 to 2 square metres, the skin is the human body's largest organ. It has the greatest number of nerves and accounts for up to 20% of your body weight. It performs various complicated bodily functions such as regulating heat, protecting the body against infections and environmental influences, and preventing it from drying out. It is therefore extremely important that it can function properly, yet your skin is much more than "just" an organ: skin is our contact with the outside world and is an indispensable communication tool in social relationships. All types of touches are sensed by the skin's surface and it is a means of perceiving and expressing sensations and feelings.

We don't refer to skin as the "mirror of life" for nothing. Many changes in your body, your personal lifestyle and mood as well as hormone fluctuations become visible in your skin.

GOOD TO KNOW

A baby's skin is around 20 to 30% thinner than in adults. Although it comprises the same number of skin layers, the individual layers are considerably thinner, making it especially delicate and sensitive.

Female skin has a different composition than male skin, with a man's epidermis (see page 6) being a lot thicker compared its counterpart in women. Its connective tissue is also networked more intricately and contains considerably smaller fat deposits.



THE SKIN'S STRUCTURE

The structure of skin is complicated. It is the same at every point, comprising three layers (epidermis, dermis and subcutis) that all have different functions. The thickness of the skin differs depending on the area of the body. Skin on your face or the back of your hand is much thinner than that on your thigh, for example.

Epidermis: protection and immune organ

Despite being very thin, the top layer of the skin (epidermis in Latin) acts as the body's protective shield. The epidermis is the layer that people perceive as skin. It is responsible for protecting the body from various external influences such as UV rays or pollutants. An intact epidermis stops microorganisms like bacteria from getting into your body and prevents your body from drying out. The epidermal cells constantly renew themselves and have a life cycle of approximately one month, when they die and detach themselves from the skin's surface layer.

Dermis: network and transport system

Attached to the epidermis, the dermis is situated directly beneath. It is thicker than the outer layer of skin and is very strong, elastic and tearproof owing to its collagen and elastin fibres. Unlike the epidermis, this layer comprises nerve cells, blood and lymph vessels. Among other things, the dermis is responsible for sensing touches such as stroking, pressure, pain, temperature or even itching. The blood vessels in the dermis also regulate the skin's heat.

Subcutis: the skin's fat storage

The subcutis primarily consists of fatty tissue, which stores energy, protects the body against the cold and acts as padding. This skin layer varies in thickness depending on where it is in the body. The body's hair roots, sebaceous and sweat glands can also be found in the subcutis.

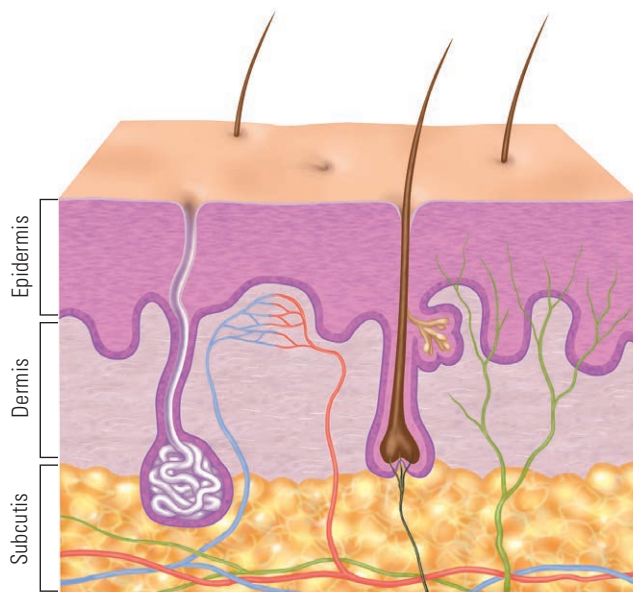


Fig. 1
The skin's structure

SCARS

Every injury leaves behind marks in the form of scars. If an injury is only superficial or minor, these scars are often barely noticeable. If a large section of the skin is affected or the injury extends to the deep layers of the skin, this can lead to very distinct scars and major hindrances in day-to-day life. Each patient deals with their scars differently, with the story behind the scars playing a great role. The aim of scar therapy is not just to recover movement, but also to restore aesthetics. Be they large or small, scars can have a major effect on a person's quality of life. Every scar can therefore be treated to have the greatest possible influence on the quality of the scar.

FORMATION OF SCARS

If our skin is damaged as a result of accidents, surgeries or illnesses, our organism tries to repair it, but often does not achieve the same level of functionality as before the injury. This is only possible if there are no other accompanying illnesses that could impede the skin's repair.

In the case of superficial injuries that only affect the epidermis, wounds can heal completely without leaving any marks (epithelial wound healing). These types of injuries to the epidermis include sun burn or also superficial abrasions.

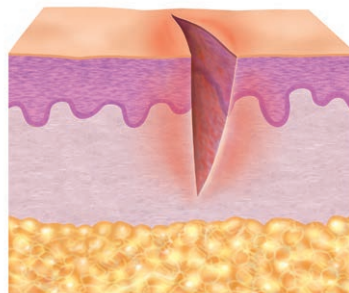
If deeper layers of skin are affected, such as in the case of surgeries etc., scars are formed after the various stages of wound healing. The wound healing process depends on the type, size and depth of a wound.

WOUND HEALING

In order to understand how scars are formed in the final stage of wound healing, it can help to take a closer look at the wound healing process.

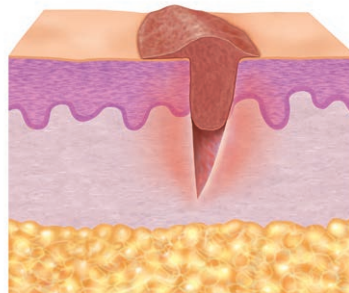
1. Cleaning stage

The blood clotting process begins immediately after the skin is injured. The body tries to stop the bleeding and at the same time remove germs and bacteria from the wound or prevent them from entering. This stage can last up to three days.



2. Granulation stage

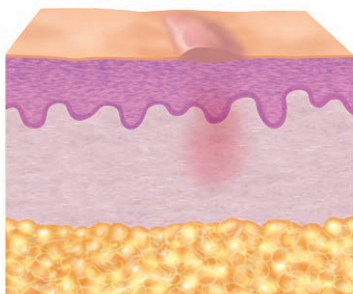
A few days after the injury, the body starts to rebuild vessels and tissue (granulation tissue) with the aim of closing the wound as quickly as possible.



3. Repair stage

The last stage – closing the wound at the epidermis – starts between five and ten days after the wound was sustained. Scars start to form during the last stage of wound healing. The repair stage can span out over several weeks or months.

Sometimes, the scars formed in the repair stage do not just give rise to an aesthetic problem. Due to thickening, shrinkage and hardening of the skin, it has less elasticity at the scarred sites.



GOOD TO KNOW

Scar tissue can change for up to two years after its formation. During this time, scar therapy can have a positive effect on the formation of a scar. The therapy can somewhat reduce itching and pain, especially in the early stages of scar formation, i.e. when the scar is still immature.

FACTORS AFFECTING SCAR QUALITY

No two scars are the same. If you were to monitor the healing of two identical wounds on different people, the resulting scars would not be exactly the same. A scar, and its appearance and development, depends on all manner of factors – some of which can be influenced.

FACTORS WE CAN INFLUENCE

► Mobilisation

Depending on the type and severity of the injury leading to the scarring, passive movement by a therapist may be necessary. Mobilising the scar and the surrounding areas increases circulation and makes the connective tissue looser, softer and more supple, improving the quality of the scar.

► Avoiding the sun

Fresh scars should never be directly exposed to the sun, otherwise they may darken. You should always be sure to cover yourself with sun-protective clothing or compression garments and/or sun cream.

► Compression therapy

Wearing compression garments every day has a positive effect on the quality of a scar, and can support healing and prevent an overgrowth of scarring tissue.

You can find everything you need to know about compression therapy from page 22 of this brochure onwards.

► Silicone pads and ointments

Using silicone pads and special ointments has a positive effect on scar tissue. They keep it moist, supple and can support healing.

You can find more information about this on page 26.

FACTORS WE CANNOT INFLUENCE

» Location

Scars on parts of the body that are often moving are constantly under strain. The continuous tension can lead to the development of undesirable scar formations.

» Age

Wound healing is often impaired in elderly people, owing to a change in skin structure. It is less elastic, there are fewer layers of fat and blood supply decreases. Children and young people tend to have thicker, raised scars as there is often an overproduction of new connective tissue.

» Skin thickness

Thicker skin forms more visible and distinct scars. Skin thickness starts to increase in childhood and then decreases again from the age of 65.

» Skin type and origin

People of African or Asian descent are prone to scarring and an overgrowth of scar tissue resulting from an excessive production of new connective tissue.

» Other illnesses

Accompanying illnesses or pre-existing conditions (impaired circulation, diabetes, etc.) negatively affect scarring.



TYPES OF SCARS

Depending on the injury and subsequent wound healing, different types of scars may form that vary in their appearance and shape.

Hypertrophic scars

Raised, reddened or even bulging scars are referred to as hypertrophic scars. They arise when there is an excessive production of new connective tissue, which results in prominent and thick scars. They grow quickly within the original wound area, in other words they don't develop uncontrollably. Hypertrophic scars can spontaneously regress over a longer period of time, which tailored scar therapy can support.

The most common cause of hypertrophic scars are tensile forces at play when the wound is healing. This is especially the case for joints.

Keloid scars (keloids)

Like hypertrophic scars, keloids also develop due to an overgrowth of scar tissue. With keloids, however, the scar grows beyond the borders of the wound area and sometimes even continues to grow after the wound has healed. The growth can also start months later, which is a result of uncontrolled and intense growth of connective tissue. Although the excessive growth stops after some time, the keloid that was formed never recedes. The area is reddened or darker than the rest of the skin and can feel itchy or painful.

A keloid can even reappear after being surgically removed. Scar therapy, which sometimes combines various different treatment methods to achieve long-term positive results, is therefore important.

Atrophic scars

Unlike the two types of scars mentioned before, atrophic scars consist of sunken recesses and the scar is lower than the surrounding skin. Not enough new connective tissue is produced to completely fill out the wound again.

Atrophic scars are formed when wounds, such as acne, heal badly and they can often be found in the facial area.

IMPORTANT

Scars improve with time and patience. An existing scar cannot be removed completely. Don't be discouraged if a scar doesn't look the way you want it to at first or if you can't see any noticeable changes straight away during scar therapy. One way of seeing smaller progress is through documenting your therapy with photos, meaning you can compare the changes during the course of the therapy.

SCAR THERAPY

AREAS OF PLASTIC SURGERY

After every surgery, whether after an accident or as a planned procedure, visible traces remain on the skin. Therefore, targeted and comprehensive scar therapy is always important in order to prevent limitations in function and movement and to improve the appearance and structure of scars as much as possible. The end result of any scar therapy, however, depends on the size, type and many individual scar factors (see previous chapter).

Plastic surgery, and specifically reconstructive surgery and hand surgery, focus on the recovery and improvement of mobility and function and/or an aesthetic result. Body shapes or functions are positively influenced by surgery that is medically required.

Reconstructive surgery

Reconstructive surgery, a part of plastic surgery, is used after accidents (trauma surgery) and after operations, e.g. when tumours are removed in cases of cancer. Reconstructive surgery also treats congenital malformations.

In some cases, for example, when patients suffer from cancer or other conditions, the procedure involves transplanting healthy tissue from an area of the patient's own body to close wound surfaces or replace missing tissue. Scars therefore appear in various areas of the body. These scars are not only irritating but can also limit movement in those affected. After the wounds have healed successfully, active scarred areas should therefore be treated with appropriate scar therapy. Scar therapy supports an even healing of scar tissue and, particularly in larger areas, prevents the development of bulging scars or scar shrinkage, which can then cause problems or pain.

The aesthetic factor is key, in particular, when it comes to surgery in visible areas of the body. It is completely understandable that looking at scar tissue after surgery is not easy, especially at the beginning, and that it can be hard to accept this new situation. The critical time of your individual scar therapy can be supported with compression garments and additional products such as silicone pads and donning aids.

Hand surgery

Hand surgery is a special area of plastic surgery. It includes and treats all injuries, illnesses and malformations on the hand and the entire arm.

Thanks to its highly complex set-up, the hand is perfectly designed for its numerous tasks and movements. It is characterised by the perfect interaction of its different components such as bones, tendons, muscles, nerves and blood vessels. Based on the special anatomy and limited space of this body part, these components lie very close together. For any procedure on the hand, very exact knowledge of these special anatomical structures is therefore necessary. In hand surgery, a precise incision is just as important as targeted scar therapy afterwards, as emerging scars can lead to major functional limitations when it comes to movement, especially on the hand's sensitive tissue. Fine motor skills, in particular, are affected by scarring.

The chances of successful treatment and therefore improvement of the scar quality are highest for active scars. Do not lose valuable time but start your scar therapy right after the wound has healed. Our hands are hugely important for almost every single action in everyday life. There is hardly any activity where we could do without the support of our hands. It is obvious how important this “tool” of our own body is. Even though the hands may only be a small part of the body, they are needed for almost everything. When the function of the hands and fingers is affected, we realise how much we rely on them. Even proportionately small scars on the hands can mean significant impairments. Scar therapy can reduce this risk of delayed effects.

Effective scar therapy focuses on the function and mobility of the hand. It consists of several elements and methods. Compression and silicone therapy as well as physical therapy are particularly important in this process and should not be neglected during the comprehensive treatment of scars.

GOOD TO KNOW

More than a third of all accidents at work result in hand injuries. The following applies to reconstructive surgery as well as to hand surgery: scar therapy can be started as soon as the wound has healed. The sooner suitable treatment is administered, the better the end results. We will present possible therapy methods on the next few pages.



THERAPY METHODS

Unfortunately, scars cannot be made invisible. However, good therapy options exist that can considerably improve their appearance and function.

Every scar is different and thus the requirements for scar therapy are manifold. Starting treatment soon after a procedure is necessary to achieve the best possible scar result. This way, maximum use can be made of the time in which the scar is active. For all types of scars, non-invasive (non-surgical) therapy options should therefore be started as soon as the wound has healed.

Scar revision may be necessary for scars causing significant function and movement restrictions. Depending on the characteristics of the scar, this revision can be done surgically or by using laser therapy, etc.

Your treating medical specialist will select the most suitable therapy or a combination of various therapy methods for you.

IMPORTANT

Compression and silicone can also have very good results for “old” yet still active scars that were not treated at an early stage.



COMPRESSION THERAPY

What are compression garments?

One possible treatment method in scar therapy is the application of pressure (compression) on the scarred area. This can be done using flat-knitted compression garments that are tailor made for the respective part of the body. Compression has been used successfully in scar therapy for many years now. Compression therapy can even benefit older scars.

Adjusting the compression garment

If the compression garment fits exactly, it exerts medically effective and constant pressure, considerably helping to improve the scar area. It shouldn't be constrictive, but it shouldn't slip either. Specially trained medical retailers will take your body measurements to manufacture a compression garment with a precise anatomical fit (such as the Juzo Expert) for you. The measuring process also determines whether additional extra options like pressure pads (pressure cushions) need to be incorporated in order to achieve ideal and even pressure in the scarred area. Your doctor will prescribe you with specific compression class (pressure intensity).

The ideal fit

Your compression garment sits very close to your body like a second skin, allowing the desired pressure to be achieved. Particularly at the start of therapy, wearing and putting on the compression garment can therefore need some getting used to and can also sometimes be unpleasant in the event of freshly healed wounds. Please don't let this put you off as a satisfying result can only be achieved if you wear the compression garment continuously throughout the day and at night.

With a bit of practise and handy aids, donning the garment gets easier with time and wearing it will increasingly become part of everyday life. Your local medical retailer would be happy to recommend a suitable donning and doffing aid and show you how to use it. You can also find more useful tips and information about all of the Juzo donning and doffing aids in our brochure "Compression therapy: Start right!" or on our website at www.juzo.com/donning.

IMPORTANT

Your compression garment's fit must be checked regularly in order to make sure it is still working properly. It is therefore necessary to see your specialist supplier for regular check-ups!

Effectiveness of compression therapy

You can start with compression therapy as soon as a wound has closed.

The uniform surface pressure applied by the compression garments can have various positive effects on the scarred area:

- ▶ accelerated healing in the scar area
- ▶ prevention of uncontrolled growth of the scar
- ▶ fading of the scar
- ▶ softer scar tissue
- ▶ reduced thickness of the scar
- ▶ protection of the sensitive skin or skin graft
- ▶ reduced itching in the scar area
- ▶ pain relief
- ▶ increased mobility of scars in joint areas
- ▶ minimised risk of scar shrinkage and resulting joint stiffness

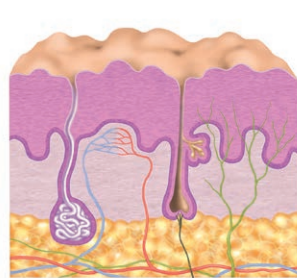


Fig. 1
Hypertrophic, bulging scar
without compression

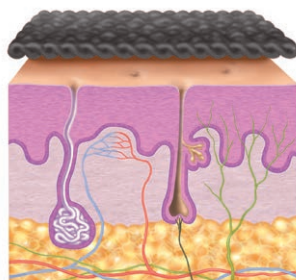


Fig. 2
Flattened scar below the
compression fabric

Therapy duration

The precise duration of your compression therapy cannot be predicted. It depends on various different factors and can therefore range from six months to two years. Your own commitment to the therapy and patience as well as support and encouragement from family and friends can significantly contribute to the success of your therapy.

Wearing the compression garment consistently for at least 23 hours a day is the only way to ensure that the scar heals well without any restrictions with regard to function. Other factors that influence the duration of treatment include:

- ▶ the severity of the scars
- ▶ the site of the scar and the surface affected
- ▶ healing responses that may differ from person to person

GOOD TO KNOW

In many cases, compression therapy can eliminate the need for surgical scar revision. However, this must be determined on a case-by-case basis.

SILICONE THERAPY

Treating scars using silicone is another effective option in scar therapy. The uses of silicone are manifold, varying from silicone pads right through to complete face masks.

Silicone pads retain the skin's natural moisture under the silicone, preventing the scar area from drying out. Silicone pads (e.g. the Juzo ScarPad) are made entirely from medical silicone. They are soft, highly elastic and very adaptable, which means people find the wearing experience to be pleasant rather than disruptive.

Depending on the scar, silicone pads can also be worn in combination with a compression garment. Using the pads early alongside compression therapy can be an ideal supplement and can boost therapeutic effectiveness:

- ▶ the scar tissue becomes softer
- ▶ uncontrolled growth of the scar is reduced
- ▶ the fresh scar tissue or skin graft receives additional protection
- ▶ direct rubbing on the skin is avoided
- ▶ the silicone stops the scar area from drying out

Silicone inserts can also be worn under compression garments at points of the body where compression alone is not enough to build up the required pressure on the scar tissue. This can be the case, e.g., on the ankle or cleavage.



TIPS

We have put together a few helpful tips that can promote the success of your scar therapy. It is often the small things that are not too much effort that can support the progress of therapy and make treatment easier for you.



Wearing period

Wear your compression garment for at least 23 hours a day and exactly as prescribed by your doctor. This is the only way to guarantee an optimum treatment outcome.



Cleaning the compression garment

Your compression garment can be washed in the washing machine on a gentle or delicate wash cycle (40 °C or less).

Wash your compression garment every day – this is the only way the elastic properties are retained over the long term. Residue of skin scaling, ointments, dirt and dust particles have an abrasive effect on the yarns and fibres. Washing the garment every day is the only way to completely remove these residues, increasing the durability of the compression garment.

We recommend using Juzo special detergent every time you wash your garment. Please do not use any fabric softener as the plasticisers it contains damage the compression fabrics!



Cleaning the silicone pads

Clean your silicone pads every day – this is the only way to ensure the hygiene required in the scar area and that it stays in place. The silicone pads are to be washed using a special soap (Juzo ScarPad Cleaning Soap).

Put a couple of drops of soap onto the silicone pad and wash it thoroughly under warm running water. After cleaning the pad, place it on a dry towel with the sticky side facing upwards. It is ready to be used again when it has completely dried.



Fit

Compression garments must fit perfectly and should not be constrictive or slip. Body measurements may change due to weight gain or loss, or due to growth in children. If this is the case, please consult your medical retailer. They will check the fit of the garment and, if required, take additional measurements to have a new garment made.



Caring for your scars

The scarred skin can be kept supple by massaging it and applying a cream every day. Hygiene is very important here: keep the scar area clean to prevent inflammations. Follow the skin care recommendations provided by your treating doctor.



Sunlight

Do not expose your scars to direct sunlight and protect yourself sufficiently with sun cream. Direct sunlight promotes the formation of hypertrophic scars. The scar tissue can also darken. Juzo compression garments (Juzo Expert) guarantee a UV protection factor of 80 for its compression classes 1 and 2 (the compression class determines the intensity of the pressure and is selected by your doctor). The Juzo silicone pads (Juzo ScarPad) offer additional protection as they have a UV protection factor of 50.



Physical therapy / occupational therapy

Targeted movement through physical and occupational therapy plays an important role in the effectiveness of scar therapy. This mobilises the scar tissue and improves circulation, making the connective tissue softer. Furthermore, it allows joint deformities or limb stiffening to be treated in the best possible way, achieving the optimum results. Always follow the treatment recommendations provided by your doctor.



Open wounds

Silicone pads must never be worn on open wounds!

Be sure to consult your doctor before wearing compression garments over existing wounds. In the case of smaller wounds, your doctor may approve the use of a compression garment over a bandage or dressing. Residual defects can heal particularly quickly and without complications with the help of compression.

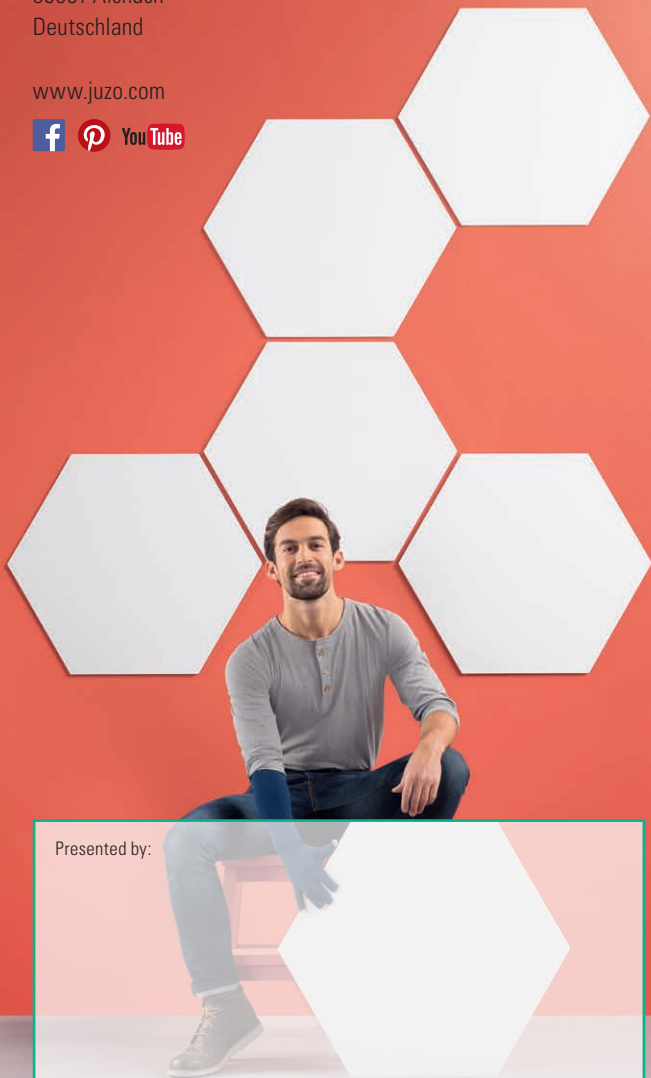




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