

# ASKLEPIOS NEWSLETTER

Issue 1/2018



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## Dear Readers,

An upright gait distinguishes humans from almost all other animals. But this posture also has a price to pay: Back pain is one of the most common health problems. At the same time, treatment, especially when surgery is necessary, is not easy. Because muscles, tendons, ligaments and fine nerve structures come together in a confined space at the spinal column.

Therefore, pathological changes may occur at all phases of life, with therapy varying according to each age. This is true even for the same condition, as can be seen in the example of scoliosis.

To give you an idea, here are three of our Centres of Excellence in spinal treatment that are well-known throughout Germany and beyond for their expertise.

Wishing you the best of health,

Regards,

Dr Thomas Wolfram,

Chair Group Management Asklepios Klinik GmbH & Co. KGaA

## Clinic operator Asklepios

Asklepios is one of the largest operators of private clinics and healthcare facilities in Germany. Founded more than 30 years ago, the chain of clinics follows a responsible and sustainable strategy geared towards a high level of safety and quality. The group currently has more than 150 healthcare facilities spread across Germany between the Island of Sylt on the North Sea and Lindau by Lake Constance and employs more than 46,000 staff. In the 2016 fiscal year, Asklepios treated around 2.3 million patients.

Medical quality management at the highest level is an area in which Asklepios particularly excels. The clinic operators benefit from the group's structure to promote knowledge transfer between the facilities and to provide particularly excellent treatment. The results are also published regularly. For instance, the Medical Findings Report is published annually at [www.qualitätskliniken.de](http://www.qualitätskliniken.de) of which Asklepios is a charter member. Moreover, 25 criteria on patient safety are published regularly on the internet.



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## SPINAL MEDICINE

### Spinal deformities in old age

There are many reasons why the spine may get out of shape in old age: Infections, vertebral fractures due to osteoporosis, joint wear, as well as tumours or metastases can lead to curvature. "Often, however, congenital deformities, such as low-grade cuneiform vertebrae are only diagnosed in older age as a result of increasing discomfort". Hüseyin Übeyli, Head of the Interdisciplinary Spinal Cord Centre at the Asklepios Klinik St. Georg in Hamburg: "In such cases, patients' back muscles have compensated for the deviations over a long period of time. Only once strength diminishes in old age and wear and deformity increase, does scoliosis gradually develop, i.e. lateral deviation with rotation of the vertebral bodies and/or development of a hump." Whether a spinal deformity should be treated or not, cannot be based purely on fixed degrees, Übeyli states: "You need to look at the patient as a whole. If someone is leaning forward so that the perpendicular line does not fall over the pelvis, but before it, this requires a lot of strength." It not only increases the danger of falling, but also leads to overloading of the holding apparatus and subsequently to a worsening of the problem or discomfort. In addition to a detailed clinical history and physical examination, x-rays of the entire spine in a standing position are standard diagnostic methods.

It is important to check, not only the entire musculoskeletal system, but also the function of the nerves (with the extremities), Übeyli adds. In older patients, magnetic resonance imaging is usually required to detect hidden fractures or constriction of the spinal canal, as well as often a computed tomography, showing possible ossification of the vertebral bodies or the extent of the fractures. As soon as all findings are available, specialists are able to discuss with the patient whether an operation makes sense. But this is always a last resort, stresses Übeyli: "In old age, we also have to pay attention to bone quality. Almost every screw holds in younger



Photo: © yodiyim/Fotolia.com

patients, but is different in old age, and so we subsequently have to deal with and adapt our approach." The Hamburg spine experts also often see patients who were operated on many years ago, but now have problems again. "In the past, deformed vertebrae were often only stiffened, without lateral balance being restored," Übeyli explains. "For a long time, the body compensates for adjacent joints and muscles – but in old age, this does not work so well, so symptoms worsen again." In this case, new, advanced surgery can help. The goal is always that from the outside the deformity can no longer be seen: "The shoulders and pelvis must be straight."

In the spinal centre of the Asklepios Klinik St. Georg, Übeyli and his team have access to the entire portfolio of modern spinal surgery, to enable them to restore patients' balance. These include, for example, screw fittings, osteotomies, cage implantation, vertebral body replacement and the transplantation of internal and external bones. To ensure the highest possible levels of safety, state-of-the-art technical aids are used: The procedure is also simulated on the computer in advance. During the operation, spinal cord function is constantly monitored using neuromonitoring. For most interventions, Übeyli and his team also use a navigation system, which especially

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in complicated cases, provides a decisive contribution to patient safety. And during the operation, surgeons control the optimum fit of the screw connections using a three-dimensional x-ray scan. This saves the patient needing a post-procedure CT scan and prevents post-surgical problems. The Interdisciplinary Spinal Cord Centre in Hamburg, founded in 2006 at the Asklepios Klinik St. Georg, is one of eight centres of the highest level of care (Level 1) of the German Spinal Society (DWG) and treats patients from all over Germany, Europe and many other countries.

Each year, eight surgeons, including orthopaedic, neurosurgical and traumatological spinal surgeons, carry out 800 to 1,000 spinal operations, many of which involve complex procedures. This makes the clinic one of the largest and most efficient spinal cord centres in Germany.

## Contact:

### Dr. Hüseyin Übeyli

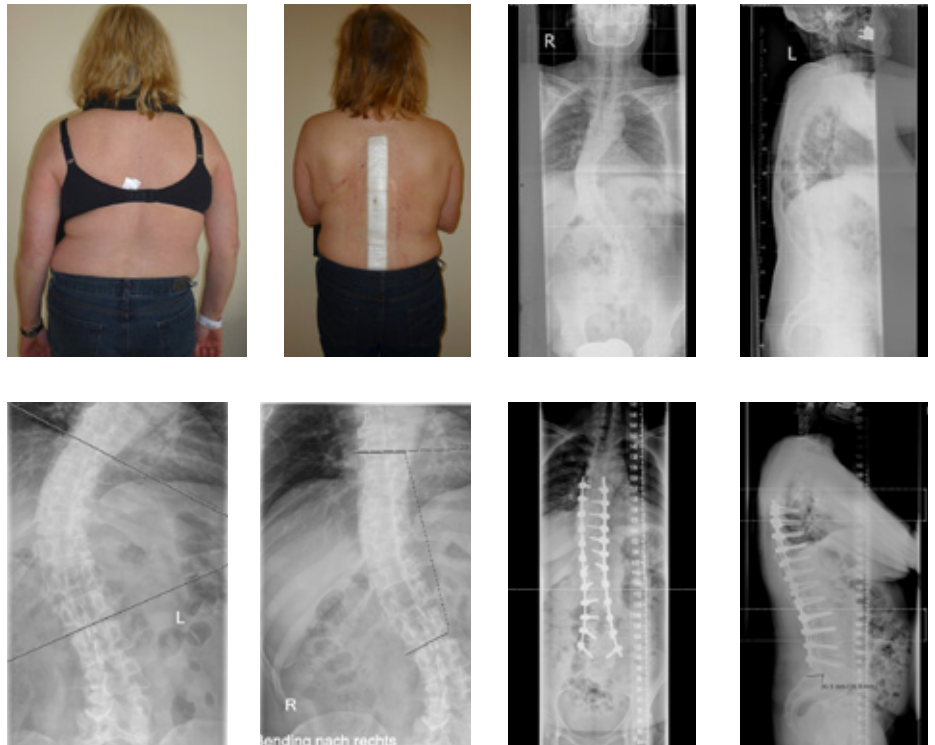
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## Case study

Female, 57 years old  
 double-arched thoracolumbar scoliosis of 50° thoracic and 35° lumbar with trunk decompensation in known multiple sclerosis

### Therapy

Dorsal correction spondylodesis Th6 - L5 on 19.03.2014.



3/2014

### X-ray of entire spinal column of 18.03.2014

Known right-convex thoracic scoliosis. Bending to the left results in a Cobb angle of 51 degrees measured between the L1 end plate and T6 top plate. Bending to the right results in a Cobb angle of 28 degrees measured between the L1 end plate and T6 top plate.

### X-ray of entire spinal column of 25.03.2014

Dorsal spondylodesis T6 to L5 with intact material layer. The T6 to L1 Cobb angle is currently 20 degrees, and in the preliminary examination 50 degrees. The sagittal perpendicular line of C7 falls about 1 cm to the left of the middle of the sacrum and about 3.7 cm posterior to the posterior margin of the sacrum.



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### Scoliosis: Straight through life

Scoliosis refers to three-dimensional twisting of the spine. It usually occurs during growth, often before or during puberty between the tenth and the twelfth year of life, and can have serious consequences, as usually if left untreated, progresses chronically and increasingly restricts mobility. Cobb's angle of curvature, determined using special x-ray images, serves as a measure of spinal curvature and helps classify scoliosis by severity. Mild scoliosis is said to occur at a Cobb angle between 10° and 40°. In its initial phase, mild scoliosis can often be treated with physiotherapy alone. Later, therapy with a specially adapted corset during childhood and adolescent growth phase can additionally stop progression of the disease. From a Cobb angle of 40° there is medium level scoliosis, and from a curvature of 60° we refer to severe scoliosis.

The decision as to whether operative correction is necessary depends on several factors. In scoliosis with a Cobb angle of 40-60° in the thoracic spine and from 40° in the lumbar spine, depending on growth potential, clinical symptoms, degree of false rotation (Rippenberg measure, lumbar) and the previous course of the disease, operative correction and stabilisation is required, explains Prof. Dr. med. Thomas Niemeyer, Chief Physician at the Spinal Cord and Scoliosis Centre at Asklepios Paulinen Klinik in Wiesbaden. Only by surgically stiffening the affected sections of the spine can a further worsening of the scoliosis be prevented. At the same time, correction or straightening of the spine is also possible. The aim is to finely balance the trunk and thus prevent premature wear of the spine, pain, and potential constriction of internal organs, and to guarantee an aesthetic appearance without rib hump, states Niemeyer: "Ultimately, it is about securing stability in the medium and long term, and improving quality of life."

Scoliosis specialist Niemeyer has more than 20 years of experience in the research, diagnosis and treatment of this disease, most recently in the Interdisciplinary Spinal Cord Centre of the Asklepios Klinik St. Georg in Hamburg. After moving to the Asklepios Paulinen Klinik in Wiesbaden, he has begun expanding this focus area in the local spinal cord centre. To ensure a holistic diagnosis and treatment for patients with scoliosis, regardless of age, Niemeyer and his Wiesbaden team work closely with the nearby Asklepios clinics in Bad Sobernheim and Bad Salzungen.

Niemeyer attaches great importance to holistic diagnoses and therapy of scoliosis, in which state-of-the-art technology combines with comprehensive knowledge, surgical expertise and years of experience in treating scoliosis. "With the so-called EOS® system, the scoliosis centre has innovative, radiation-reduced x-ray technology for 3D imaging of the entire spine," reports Niemeyer: "This allows us to attain an overall picture of scoliosis and align our treatment strategy accordingly." Finally, scoliosis not only affects the spine, but also affects the posture of the pelvis and the axes of the legs. An additional benefit of the EOS® system is its ability to be taken while standing and without patient movement for the second-level. This results in high-quality images without blurring at a reduced radiation dose.

Based on these recordings, the Wiesbaden experts are able to calculate a 3D model of the spine and the skeleton, with which they analyse the effects of scoliosis according to overall statics, simulate possible correction and plan the operation in detail. In the operating theatre, Niemeyer also has state-of-the-art navigation technology, 3D imaging and monitoring technologies at his disposal: "Safety is always top priority. Therefore, we also use continuous neuromonitoring, which always provides us with a precise overview of the situation of the nerves on the back during the operation."

What can be achieved in individual cases by surgery, is always dependent on the age

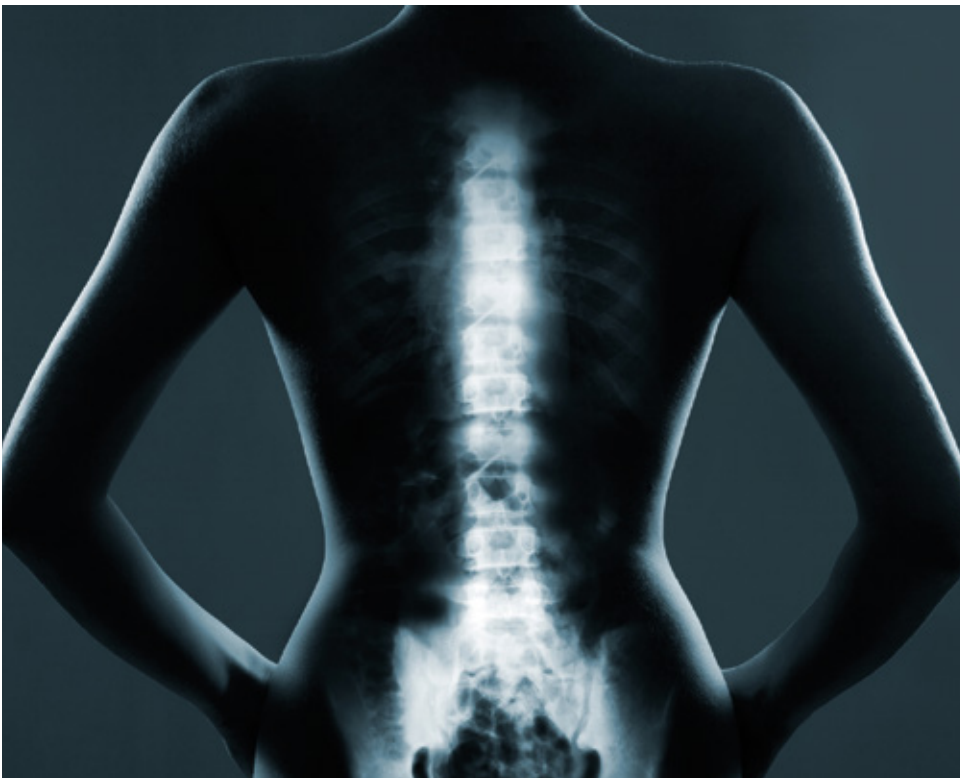


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# SPINAL MEDICINE

and general health of the patient and the form of the deformity, Niemeyer emphasizes: "Our aim is always to achieve the best possible three-dimensional correction with the shortest possible stiffening distance, so that mobility of the lumbar spine in particular is maintained, and so that patients can be discharged into their daily life without significant restrictions in respect of education, work and leisure."

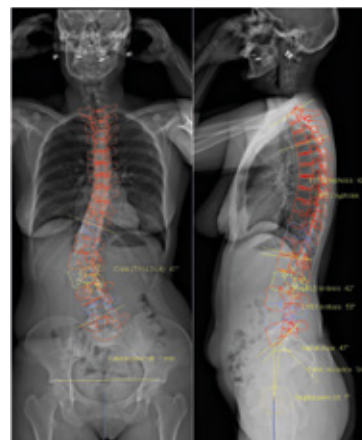
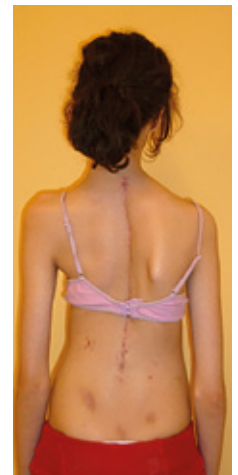
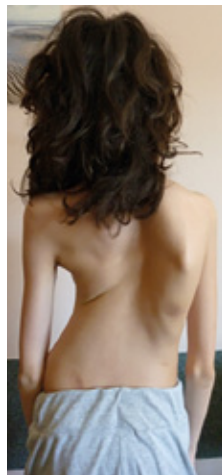
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## Case study of severe scoliosis

Left status prior to treatment, right the result.



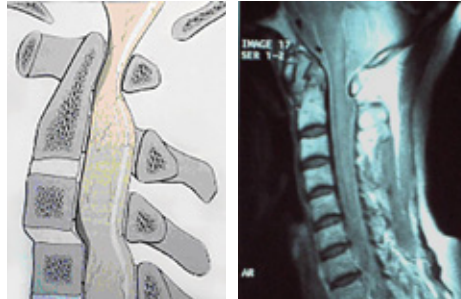
## SPINAL MEDICINE

### What to do if rheumatism destroys the cervical spine?

If a patient suffers from severe pain in the back of their head, gait or swallowing disorders and so-called drop-attack phenomena with shortness of breath and anxiety during head tilting, upper cervical instability may be the cause.

Potential causes include, for example, unhealed rupture of the spiny bony appendage of the second cervical vertebra following an accident or tumour. But the most common cause is inflammatory articular rheumatism, which has destroyed the upper cervical support structures. The result is an instability of the joints between the first two cervical vertebrae, which are important for the rotation and tilt of the head.

Often, the disease is silent for a long time, until at some point typical symptoms occur. Therefore, for patients with articular rheumatism, cervical spine preventative screening should be carried out annually, recommends Jens Seifert, Chief Physician of the Interdisciplinary Spinal Cord Centre in the Asklepios Klinik Hohwald. In addition to the usual treatment procedures for herniated discs, spinal canal stenoses and vertebral fractures, surgical stabilisation of the cervical spine is one of Seifert's main focus areas. If the x-ray image shows more than seven millimetres between the second cervical arch and the first cervical arch when the cervical spine is prone, Seifert advises a stabilising operation to be considered. To decide whether such an intervention is possible and useful, he and his colleagues require special x-ray images (cervical spine on two planes, Sandberg recording, functional recordings in ante- and retroflexion) and magnetic resonance tomography of the cervical spine with contrast agent representation of the cervical vessels or a computed tomography of the occipitocervical junction with vascular presentation. This is important in some patients to detect a potential anomaly of an artery, which may make the operation difficult or even impossible. If it turns out that an operation is possible and the patient



*After minimally invasive surgery, the cervical spine is stable again.*

opts for the procedure, they will be admitted to hospital for a short stay of three to five days. For the stabilising operation, it is sufficient for Seifert to make three small incisions: The longest runs from the first to the second cervical vertebra, two tiny cuts on both sides of the upper thoracic spine are required to insert the screws. The surgeons first bring the cervical vertebrae into the correct position in which they are to be connected. Then, using target systems, and under x-ray control, Seifert drills a wire from the lower articular process of the second cervical vertebra diagonally upwards into the first cervical vertebra. The wires serve as a guide for precise anchoring of the titanium screws, which connect both vertebrae firmly together. For additional stabilisation of the joint, a hook is hung over the arch of the first cervical vertebra, fixed with a clamp to the two screws and a counter hook pressed under the vertebral arch. Before closing the wound, the surgeons take a piece of bone from the iliac crest and place it over the implant. This will heal within a year and subsequently protect the construction.

After surgery, the patient is able to stand up fairly soon. They will be given a soft foam

orthosis, which they should wear for a month to protect the neighbouring vertebrae. A cure or follow-up treatment is not usually required. Outpatient physiotherapy with special exercises is sufficient for strengthening the neck muscles.

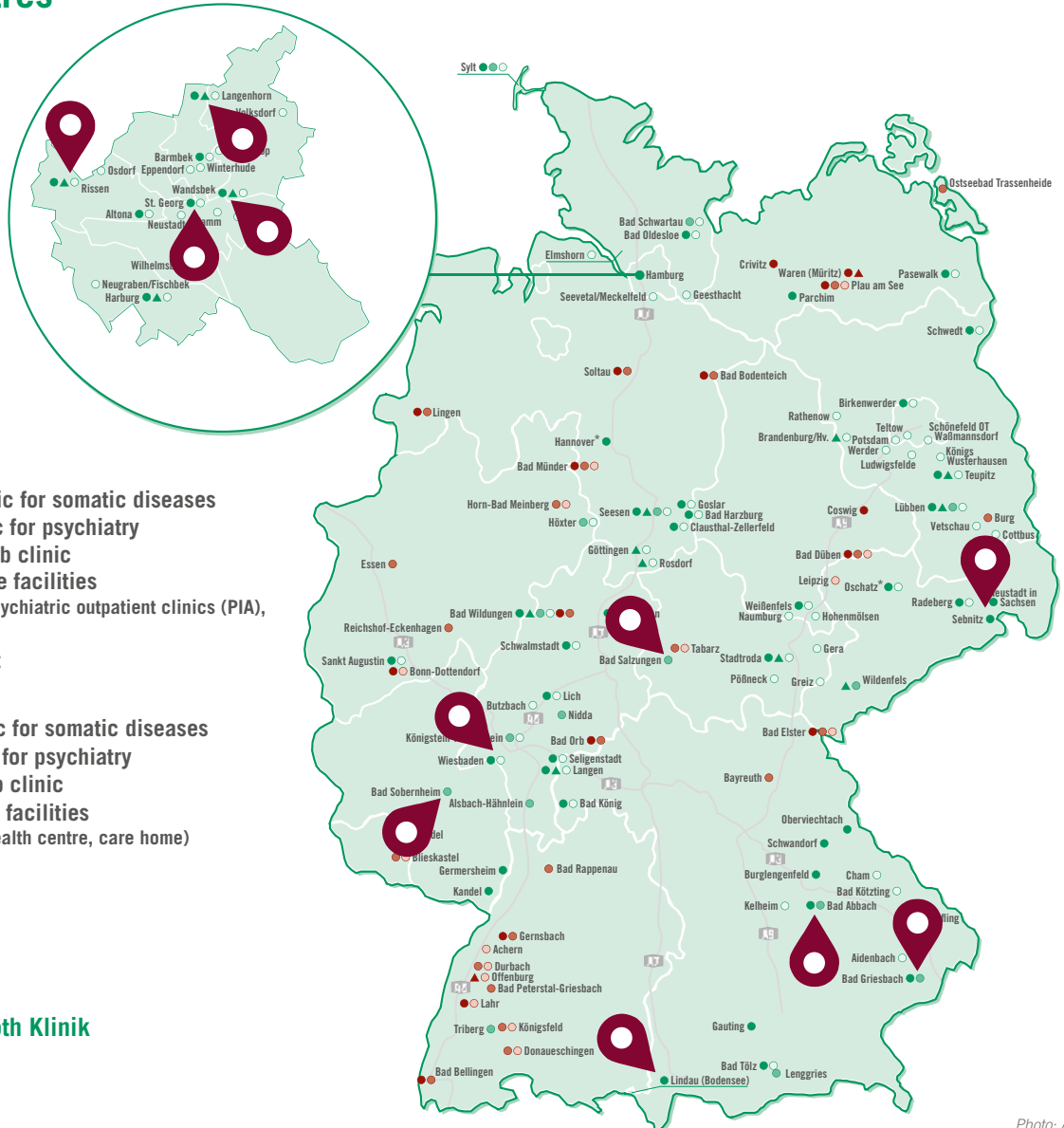
The stability gained by the operation is associated with less mobility: The fact that patients are no longer able to tilt or turn their head as far forward or to the side, for example, leads to restrictions when driving a car, because looking over the shoulder is no longer possible. But for most sufferers, that is by far the lesser evil compared to the nagging symptoms of an unstable cervical spine.

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## All Asklepios Spinal Cord Centres at a glance



- Asklepios: acute-care clinic for somatic diseases
- ▲ Asklepios: specialist clinic for psychiatry
- Asklepios: post-acute/rehab clinic
- Asklepios: other healthcare facilities (including day-care hospital, psychiatric outpatient clinics (PIA), health centre, care facility)
- \* Facility under management

- MediClin: acute-care clinic for somatic diseases
- ▲ MediClin: specialist clinic for psychiatry
- MediClin: post-acute/rehab clinic
- MediClin: other healthcare facilities (including day-care hospital, health centre, care home)

### See also:

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Photo: Asklepios