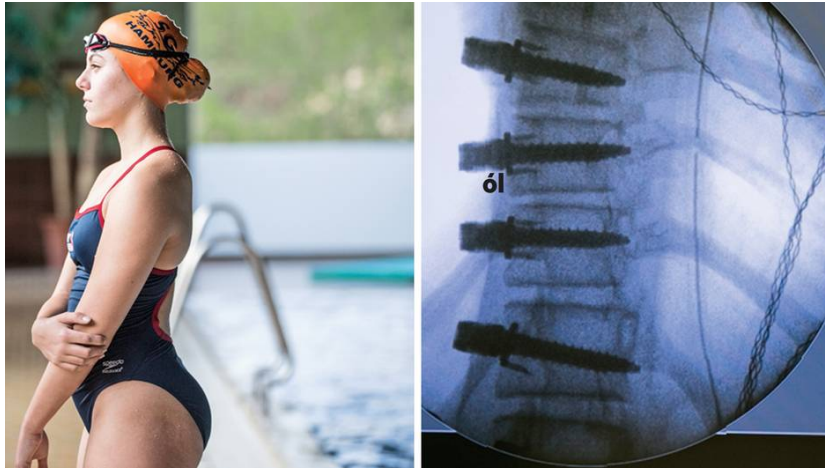


Spinal curvature

August 12, 2018 8:25 pm

Two girls, one fate: the new surgical method that straightens the spine

A new surgical method corrects scolioses in children and adolescents. Without stiffening your back.



Caroline Herzberg, 13, from Hamburg loves her parade discipline butterfly. After seven of her thoracic vertebrae have been flexibly connected with a rope, she floats back on medal course. Spinal curvatures are corrected in an operating room with screws and rope.

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Nicole hot man
Science editor

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On the first day of school after the holidays, she will finally wear the tank top. For months, the sky blue top hangs in the closet. No more loose-fitting T-shirts, she'll probably also put up the long hair that would otherwise flow down and graciously cover everything: the raised shoulder, the rib hump, the crooked ribcage.

When Maylin Koch was twelve years old, her thoracic spine began to flee from the vertical, bending to the right and twisting. From a bend of ten degrees sideways, doctors speak of scoliosis. Sometimes even babies are born crooked, but most of the time, the bow forms only in teenagers, typically in the growth spurt at the beginning of puberty. One to two percent of adolescents are affected, most of them girls.

Correction of spinal curvature with flexible plastic rope

At some point, Maylin realized that something was wrong: "With every movement it cracked and crunched in the head and neck," says the 14-year-old. "I suddenly had a backache when I was traveling longer with the satchel." A naturopath addressed the mother. When bending forward, it was clearly visible: Maylin's upper spine meandered to the right in a large arc.

Why some children get scoliosis and others do not is unclear. The genes certainly play a role. But it is clear: A shifted back must be treated early, because the curvature continues to increase in adulthood. Without therapy threatened vertebral wear and

lungs are pressed creeping. Already during growth, the scoliosis fires itself: device the back out of balance, put the individual vertebral bones on the compressed side barely on, on the overstretched but all the more.

Light scolioses are treated with physiotherapy, from a curvature of about 20 degrees Doctors prescribe a corset, the children have to wear almost 24 hours under the clothing. Not all of them can handle it. Strong scolioses over 45 degrees are usually straightened surgically - especially to bring them to a standstill. When Maylin turns 14, her thoracic spine already curves 64 degrees to the right - despite physiotherapy and corset therapy.



Spinal Surgeon Perlin explains Maylin and her mother Kirsten Koch the procedure
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A few weeks after her birthday she is being rolled under general anesthetic into an operating room of the Eifelklinik St. Brigida in Simmerath. The hospital is one of four in Germany, where scolioses are corrected with a new technique very gently. Per Trobisch, Chief Surgeon of Spinal Surgery, is at the table to do the surgery. He is considered a pioneer of "Vertebral Body Tethering", in English: "Tying the vertebrae". The young technology was developed a few years ago at the Shriners Children's Hospital in Philadelphia. Its inventor is the experienced pediatric spinal surgeon Randal Betz.

"The novelty of this scoliosis correction is a flexible plastic cord, which we attach to the spine at the side of the spine using screws," says Trobisch. "Then we put the band under heavy tension so that it raises the spine like an inner corset."

Eight metal pins

However, until Maylin gets there, three hours of robust preparation is needed: while the patient lies on her side, Trobisch and his assistant physician Mohamed Abdelaal place three small cuts on the right side of the chest, under the arm. Between the ribs, they work their way to the thoracic vertebrae. The right lung has to be pumped empty and folded during the operation. Another small cut introduces the thoracoscope. The tiny camera with light source magnifies the image from the chest to a monitor.

A lumbar and seven thoracic vertebrae releases Trobisch and bangs each into a small hole using an awl. The surgeon drills on the

so-called tether. It consists of polyethylene terephthalate, the plastic from which beverage bottles are made. The lace-like band is pulled with a lot of force and a big pair of pliers on tension and then fixed to the next screw. After about three hours, Maylins Röntgenbild shows an almost straight back, in which eight metal pins sit.



In an operating room, eight screws are used
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"When Maylin grows now, the taut rope does not give way and pulls her spine ever further into the vertical," says Trobisch. "The advantage of the band method is that we can correct the curvature, but the back remains flexible."

Both together is a novelty. So far, the stiffening of the spine with screws and rigid metal rods in the back applies as a method of choice for strong scolioses. An estimated 1,000 adolescents receive spinal fusion every year. Although the crooked back section is successfully erected, but shut down for the rest of life. The elastic discs ossify, the individual vertebrae grow together in a block.

The new rope-and-screw method is a minimally invasive procedure, the insertion of the rods is much brute. Until the children can do sports again, it often takes a whole year including rehabilitation. At the ends of the rigid block, leverage forces the discs and vertebrae to wear prematurely. And at least part of the back remains immobile forever. Sports such as gymnastics, gymnastics or dancing are then usually no longer possible. Or a turnaround while swimming.

First competition after the surgery

At her first turn after the operation Caroline Herzberg literally sits in the back of fear. She can not feel the thin ribbon on her spine. Will it break when it curls up in the water and repels with force from the edge of the pool? In January, she also received a tether, implanted at the hospital Tabea in Hamburg. The 13-year-old is the ninth patient to treat Rolf Christophers with the new method. Some of the operations were performed by the spine surgeon together with his colleague Trobisch.

At the beginning of April, the competitive athlete jumps back into the water. At the Nord
~~Test a North German regional competition, she~~



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butterfly. "It was my first competition after surgery," recalls Caroline. "I felt heavy and slow and had no feeling for the water at all." She gets an outer track. Directly above her the girls stand out of the club and roar forward. As she strikes, the watch shows one minute and 36 seconds. Your old best time. Silver medal. Her

father leaves the swimming pool for a moment. He is crying with happiness. The operation was just eight weeks ago.

"Wir können mit der neuen Methode die Beweglichkeit erhalten, was bei einer Versteifung so nicht möglich wäre", sagt Wirbelsäulenchirurg Rolf Christophers. "Allerdings fehlen uns bisher Langzeitdaten zu dem Eingriff. Aus den USA wissen wir, dass in den zwei Jahren nach dem Eingriff wenige Prozent der Seile reißen oder sich lockern. Ein weiteres Problem ist eine gelegentliche Überkorrektur in die andere Richtung, wenn das Seil während des Eingriffs zu straff gespannt wird. Dann muss nachoperiert werden."

Inzwischen sind weltweit etwa 1000 Jugendliche mit der neuen Methode operiert worden, die meisten davon in den USA, etwa 50 in Deutschland. Eine eigene Abrechnungsziffer als Kassenleistung hat das Seil-Verfahren noch nicht. Der Eingriff soll aber demnächst als "Neue Untersuchungs- und Behandlungsmethode" (NUB) eingestuft werden. Dafür verhandeln die Kliniken zurzeit mit den Kassen und dem Institut für das Entgeltsystem im Krankenhaus, wie viel dafür künftig erstattet wird.



SKOLIOSE-ERKRANKUNG

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Auf Einzelantrag der Patienten übernehmen schon jetzt manche Kassen im Nachhinein die Kosten für die neue OP von 35.000 Euro und mehr. Andere zahlen wenigstens den Anteil, den eine Standard-Versteifung gekostet hätte – mindestens 18.000 Euro. Die Eltern von Maylin zum Beispiel haben für den Eingriff zunächst einmal tief in die eigene Tasche gegriffen. Erst nachträglich kam von ihrer Versicherung zunächst eine mündliche Zusage,

dass die Kosten erstattet werden. In einigen Jahren könnte das neue Tethering aber in den regulären Leistungskatalog der Kassen aufgenommen werden – sofern die Ergebnisse in Deutschland weiterhin positiv sind und bei den betroffenen Patienten wenig Komplikationen auftreten.

Erstmals ohne Schmerzen

Maylin geht zwei Wochen nach dem Eingriff in Simmerath bereits wieder mit ihrem Pflegehund Stella aus dem Haus – nur einmal kurz die Straße rauf und runter, aber immerhin. Bis ihr größerer Traum in Erfüllung geht, wird es noch ein wenig dauern.

Irgendwann nach den Sommerferien wird sie wieder auf ihr Pony steigen, eine temperamentvolle braune Stute. Auf dem Reitplatz will sie üben, endlich gerade auf dem Pferd zu sitzen, um dann gezielt das Gewicht auf einen Beckenknochen zu verlagern, damit das Pferd leichtfüßig in den Galopp federt. Über Hindernisse will sie springen, ausreiten durch Wiesen und Wälder, mit dem Fahrrad

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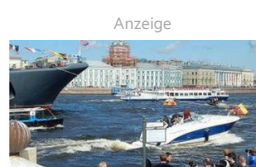
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ICH BIN SEIT FAST 5 MONATEN ERK...

Hallo zusammen. Ich bin seit Mitte September erkältet. Mal mehr, mal kaum (nur leichter Schnupfen). Ich war

AB WANN GILT EIN PULS DENN ALS ...

Ich messe öfter meinen Puls und finde, dass er recht hoch ist für mein Alter. Ich habe etwas Angst, dass das auf Dauer

WIE TESTET MAN, OB ROHE EIER NO...

Gibt es einen einfachen Trick, mit dem ich testen kann, ob Eier noch gut sind oder schon verdorben?

WIR WOLLEN MIT UNSEREN KINDER ...

Wir sind zwei reiseerfahrende Eltern, die mit ihren drei Kindern (5, 3 und ein Jahr) im nächsten Jahr zwei Monate weg

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