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Instrumented fusion of the lumbar spine

In principle, the fusion operation involves definitively connecting one or more moving segments with each other via a bone bridge, as in the case of a bone fracture, in order to eliminate pain. In earlier times, when metal implants were not yet available, the fusion was then also performed only with the patient's own bone.

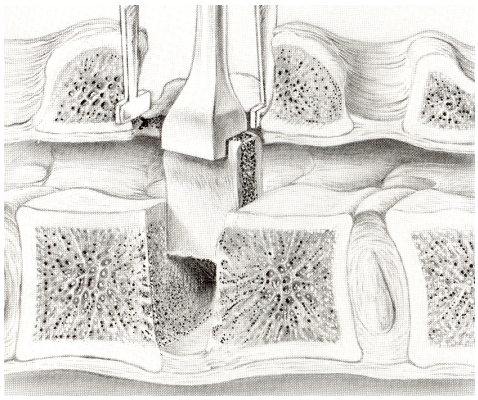

Figure 1

Even after very long bed rest of up to 3 months, the bone did not heal properly and the result of the operation was of course often poor!
At the beginning of the 80s, more and more implants were used for the spine as well as for the treatment of fractures of the extremities.

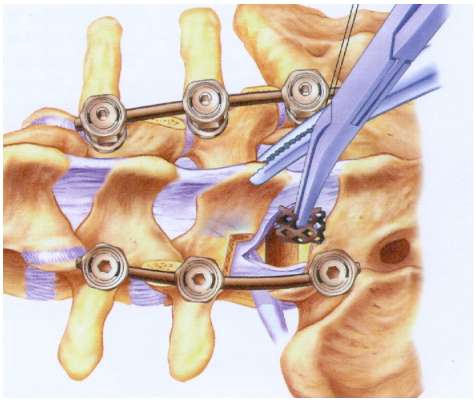

Figure 2

Depending on the type of disease, various implants are used. In principle, the principle of the operation is to achieve the definitive fusion of the spinal segment ultimately through a bridging bony fixation.

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Figure 3 shows a stable bone bridge directly in front of the cage.

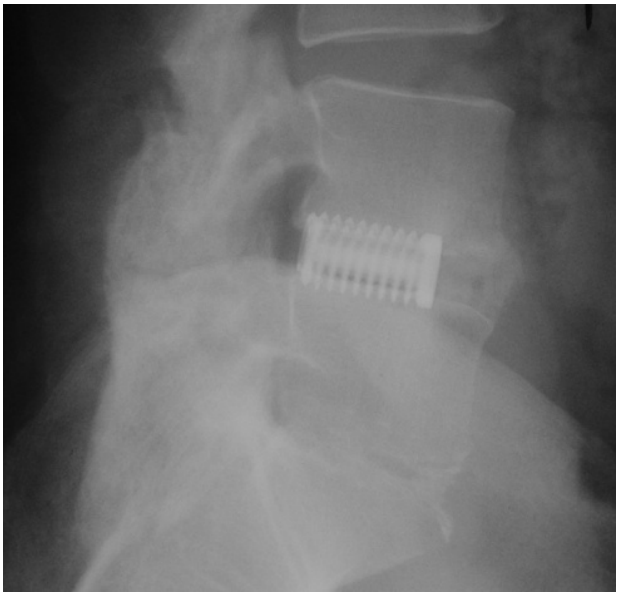
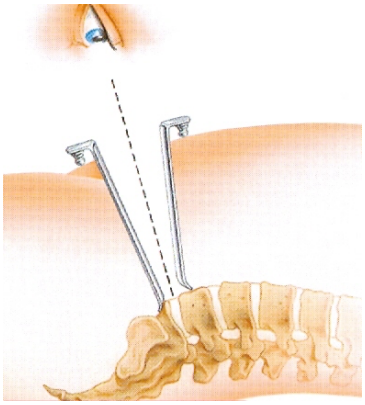


Figure 3

The implant, which is now made of titanium, serves only as a temporary placeholder or fixation instrument. The bony bridging is achieved by a bone graft. Achieving bony fixation is therefore eminently important, as metal implants either loosen or break over time. The techniques for fixation of a motion segment have developed enormously in recent years and are now minimally invasive and very gentle on soft tissue.



Stiffening of the lumbar spine is performed either only from the front or from the back, or sometimes even combined from the front and back. However, this depends on the individual case.

Figure 4

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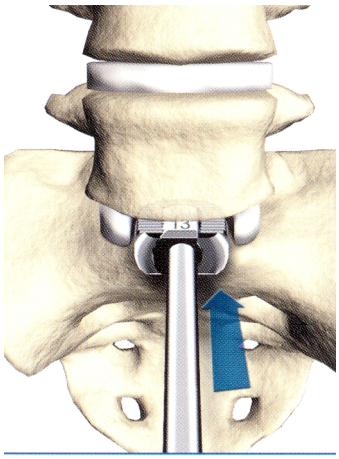

In the anterior technique, placeholders called titanium cages are inserted between the vertebral bodies through a small incision of about 5 cm.

Figure 5

These are filled with bone graft and are intended to achieve definitive bony fixation together with the additionally attached bone. With anterior access, the abdominal cavity with the intestines is not opened, but the protective skin surrounding the intestines is only pushed off. A significant advantage of the all-anterior approach is the protection of the sensitive back muscles and thus an enormously rapid rehabilitation.

Figure 6

Techniques are also available today for fixation or stiffening from behind, with which the soft tissues can be very spared. With the help of special instruments, the implants are inserted practically through the skin with minimal incisions (Figure 6

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shows how the screws are inserted under X-ray control with the smallest incisions of 0.5 cm).

After a fusion operation using today's techniques, patients can get up as early as 6 hours after the operation and can usually leave the clinic after 2 to 4 days. Likewise, due to the high primary stability achievable today, a sitting ban is no longer necessary.