

Removal of rods used to correct spinal curvatures – scoliosis and kyphosis

An information brochure

This information sheet is for patients who have had surgical correction of spinal curvature, to give them details about the commonly employed rods and hooks which are used, and of their later removal. Together, the rods and hooks are sometimes called spinal instrumentation. They are made from high-grade surgical stainless steel and are essentially inert, and therefore no known deleterious effects occur when they are left attached to the spine even throughout life. In certain circumstances, rods made from titanium (which enables later special investigative scan techniques) may be used. Titanium is biologically inert.

Until the mid-to-late 1980s, nearly all spinal curvatures were corrected with the Harrington instrumentation, or by modifications of this technique. Since then, the instrumentation designed by two French surgeons, Yves Cotrel and Jean Dubousset, has been widely used in Australia and has largely superseded the Harrington instrumentation. It is commonly known as CD instrumentation. There are now many differently named systems but they entail the same mechanical principles as the CD technique.

There is another rod system often used to correct curvature in young children when this is necessary, as it sometimes is. It is called the Luque instrumentation and here the rods are attached to the spine in the corrected position by wires not hooks and/or screws as they are in the CD and similar methods. The Luque method is also often used for the correction of curvature due to nerve and muscle disorders such as muscular dystrophy.

It should be kept in mind that spinal instrumentation used to correct curvature plays only a temporary role, and it is the healing of the spinal fusion which is the central issue. If a fusion does not heal, then eventually the rods will break because of micro-movement involved in day-to-day activities. This was much more common with Harrington instrumentation than with the Cotrel-Dubousset method.

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The following are the most common questions asked by patients in relation to removal of the rods.

- **Is there an absolute indication to remove the rods?**

The answer to this is clearly “No”. However, in the past, some surgeons did advise routine rod removal. This was usually carried out at, or about, eighteen months to two years post-surgery.

- **What is the indication to remove the instrumentation?**

When there is local pain either over the site of a broken rod or from a prominent hook. Often, however, it is necessary to remove only part of a rod, or one or more prominent hooks, in order to obtain relief of symptoms. This is especially true of the Cotrel-Dubousset instrumentation. Experience has shown that when this technique is employed, the fusions are nearly always extremely solid and often the new bone formation encases the rods and the hooks. It may be impracticable, and not in the patient’s best interests, to partially take down the fusion in order to remove the entire rod. Occasionally, and for this reason, when complete removal of instrumentation such as Harrington rod and hooks is planned, one or more hooks may be left behind and no detrimental effects will follow.

▪ **Is a broken rod an indication to remove the rod?**

The answer to this is "No" unless the patient has troublesome local pain. Even when a solid fusion is present, approximately 10% to 15% of Harrington rods subsequently fracture, again due to micro movement in day-to-day activities. If local discomfort is present at, or about, the site of the rod breakage, it is an indication for its removal. This will relieve the symptoms. Many patients with broken rods and solid fusions continue throughout life with little in the way of disability or discomfort. It is very much an individual matter based on assessment of the patient's complaints. On the other hand, if rod breakage occurs within two years of the initial operation, it usually indicates the need to surgically explore the fusion and repair a failure of fusion (this is called a pseudarthrosis) which is almost invariably present.

Very occasionally, even after a successful outcome and a solid fusion, patients request the rods be removed because they do not wish to have the implants in their bodies. Surgeons accept this attitude.

▪ **Will my rods set off a security alarm system in an airport?**

This rarely occurs, and depends upon the sensitivity of the detection system used. Your surgeon should provide you with a certificate indicating that you have the rods in your spine.

▪ **Is removal of the rods a big operation?**

No, it is a simple procedure which requires a hospital stay of about two days. Post-operative pain is minimal when compared to that which occurs after the initial operation. The rods are removed through the original incision, and in an older patient the opportunity to improve the cosmetic aspects of the scar can be taken. It is a relatively minor procedure except when a failure of fusion has to be repaired by further bone grafting and perhaps modification of the instrumentation to gain healing.

In days past, interrupted sutures, which left stitch marks, were often used to close surgical wounds. These days, a continuous stitch is placed beneath the skin. The suture material is gradually absorbed and there are no stitches to remove. Hence, no stitch marks remain.

▪ **Will I require a catheter in my bladder following removal of the rod?**

Generally not, for this minor procedure.

▪ **Will I have to wear a brace or plaster cast after the rods have been removed?**

No. If the spinal fusion is solidly healed external support is not required.

▪ **How soon after the rod's removal will I be able to return to all my activities?**

Usually the wound is soundly healed in two to three weeks. After this time the patient can return to all previous activities. This comment applies only to those cases where further bone grafting has not been required.

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The patient's concerns should be openly discussed with the treating surgeon, who is in the best position to advise patients accordingly.

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