1. Osseointegration

An experimental study comparing uncoated, hydroxyapatite-coated and titanium-coated Orthofix screws was conducted. Osseointegration with direct contact between the bone and the screw thread was seen only with the hydroxyapatite-coated Orthofix screws.

Stainless steel surface metal screwed into the bone, but no actual bond between them. In preparation of cases this physical fit breaks down sufficiently to cause macroscopic loosening.

Hydroxyapatite surface: bone grows into and onto the hydroxyapatite so that the border between the two materials becomes indistinct.

This biological bond is a strong anchor which will ensure long-term stability of the bone-screw construct, allowing it to withstand repetitive loading cycles without loosening of the screw.

External fixation is a race between the growing stability provided by callus maturation and the destabilizing effect of screw loosening. Preservation of the bone-screw interface is the key to a successful outcome.

2. Enhanced Fixation and Reduced Pin Loosening

A clinical study compared insertion and extraction torques of uncoated and hydroxyapatite-coated Orthofix screws.

The same clinical study demonstrated a significant reduction in the amount of loosening when hydroxyapatite-coated Orthofix screws were used in metaphyseal bone.

Percentage of loose* metaphyseal screws

* defined as an extraction torque force ≤ 20 Ncm

Mean treatment time: 101 days

3. Reduced Incidence of Pin Track Infection

A further clinical study demonstrated a significantly lower incidence of pin track infection with hydroxyapatite-coated screws than with uncoated screws (p<0.05).

A significant correlation between pin track infection and implantation in a metaphyseal site was found with the uncoated screws (p<0.001), but not with the hydroxyapatite-coated screws (p>0.12).
OsteoTite Bone Screws

- Orthofix OsteoTite Bone Screws with Hydroxyapatite Coating may eliminate the need to replace the external fixation system with an alternative treatment for long term therapy.
- Conical thread design:

The hydroxyapatite coating is complemented by the well-established conical design of the Orthofix screws. Each thread cuts a new, slightly larger path in the bone on insertion, providing excellent bone purchase.

<table>
<thead>
<tr>
<th>Available sizes of OsteoTite Bone Screws*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cortical Bone Screws (shaft Ø 6 mm, thread Ø 5-5.5 mm)</td>
</tr>
<tr>
<td>Total length (mm)</td>
</tr>
<tr>
<td>90</td>
</tr>
<tr>
<td>100</td>
</tr>
<tr>
<td>110</td>
</tr>
<tr>
<td>120</td>
</tr>
<tr>
<td>130</td>
</tr>
<tr>
<td>140</td>
</tr>
<tr>
<td>150</td>
</tr>
<tr>
<td>160</td>
</tr>
<tr>
<td>170</td>
</tr>
<tr>
<td>180</td>
</tr>
<tr>
<td>190</td>
</tr>
<tr>
<td>200</td>
</tr>
</tbody>
</table>

- The Orthofix Quality System has been certified to be in compliance with the requirements of:

- The Orthofix Quality System has been certified to be in compliance with the requirements of:

- See Manual "Orthofix External Fixation Basic Considerations" for correct technique of screw insertion

- SINGLE USE ONLY

References


Bibliography


- Always Innovating

The enhanced fixation and improved stability at the pin-bone interface seen with Orthofix OsteoTite Bone Screws with Hydroxyapatite Coating significantly reduces the incidence of pin loosening and therefore reduces the risk of infection.