Bioact\textsuperscript{IF} OSTEOTRANS

Bioactive and Bioresorbable Interference Screws for ACL and PCL Reconstruction
Bioresorbable interference screws have been used for fixing tendons in the reconstruction of anterior and posterior cruciate ligaments for many years. The polymer polyactide has been used as the material of choice in the manufacture of these fixation implants on account of complete biodegradability and bioresorbability.

However, the enthusiasm surrounding the use of polyactide interference screws in a variety of different forms was increasingly beset by negative clinical experiences as time passed. The reports in the literature included case histories and studies about infectious tissue and bone reactions, as well as encapsulations of implants, and induced spontaneous fractures. These outcomes can lead to substantial problems, in particular after a revision operation (Fig. 1).

Degradation and resorption process

Bioactivity
Osteoconductivity & bone-binding

- Physiological environment achieved by buffering the acid pH value of the lactic acid produced with HA particles
- No rejection reaction
- Integration of the bone in the surface of the implant

Biodegradation & Biodegradation & Bioresorption
Hydrolysis (PLLA) & Osteoclasts

- Homogeneous degradation of the PLLA particles on account of the semi-crystalline structure
Bioactive and Bioresorbable Interference Screws for ACL and PCL Reconstruction

BioactivOsteoTrans is the name for the new generation of bioactive and bioresorbable interference screws from Richard WOLF.

The unique composite material made of Poly-L-Lactide (PLLA) and Hydroxyapatite (HA) demonstrates an osteoconductive effect in bones. Trabecular structures grow into the surface of the implant within a short space of time (Fig. 2).

The distribution of HA particles generated uniformly by a special manufacturing process also creates a permanent buffer of the lactic acid produced in the course of degradation of the PLLA components and hence prevents inflammatory reactions in bones and tissue, as well as encapsulation of the implant.

The mechanical characteristics generated in the course of the special manufacturing method for the material are comparable with the properties of the surrounding bone. This is a key prerequisite for activating the osteoblasts since the implant enables the load to be transferred. Complete bone reconstruction can hence be achieved for this area. The implant can be easily seen in X-ray visualization.

Fig. 2
**BioactIF OSTEOTRANS**

Bioactive and Bioresorbable Interference Screws for ACL and PCL Reconstruction

<table>
<thead>
<tr>
<th>Thread Ø</th>
<th>Length</th>
<th>Hole</th>
<th>Type</th>
<th>Thread cutter</th>
<th>Screwdriver</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 mm</td>
<td>25 mm</td>
<td>2.2 mm</td>
<td>OK0725A</td>
<td>891800700</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30 mm</td>
<td>2.2 mm</td>
<td>OK0730A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 mm</td>
<td>25 mm</td>
<td>2.2 mm</td>
<td>OK0825</td>
<td>891800800</td>
<td>891800030</td>
</tr>
<tr>
<td></td>
<td>30 mm</td>
<td>2.2 mm</td>
<td>OK0830</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 mm</td>
<td>25 mm</td>
<td>2.2 mm</td>
<td>OK0925</td>
<td>891800900</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30 mm</td>
<td>2.2 mm</td>
<td>OK0930</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Thread cutter**, for **BioactIF OSTEOTRANS**
  - Interference screws with thread of
    - 7 mm ...................... 891800700
    - 8 mm ...................... 891800800
    - 9 mm ...................... 891800900

- **Screwdriver**, for **BioactIF OSTEOTRANS**
  - Interference screws
  - All thread Ø ................ 891800030

- **Guide wire**, pack of 3, flexible, Ø 1.5 mm, TL 350 mm .... 891202015

*Manufactured by TAKIRON CO., LTD., Japan*