RICHARD WOLF

Arthroscopy

Redefine biodegradation!

BioactIF OSTEOTRANS

Bioactive and Bioresorbable Interference Screws
for ACL and PCL Reconstruction

BioactIF OSTEOTRANS

Bioactive and Bioresorbable Interference Screws for ACL c

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).

Analysis of the complexity of the process that occurs in human bone when the materials are broken down and resorbed and the realization of defined mechanical properties therefore demand new innovative solutions for resorbable biomaterials.

Fig. 1

Degradation and resorption process

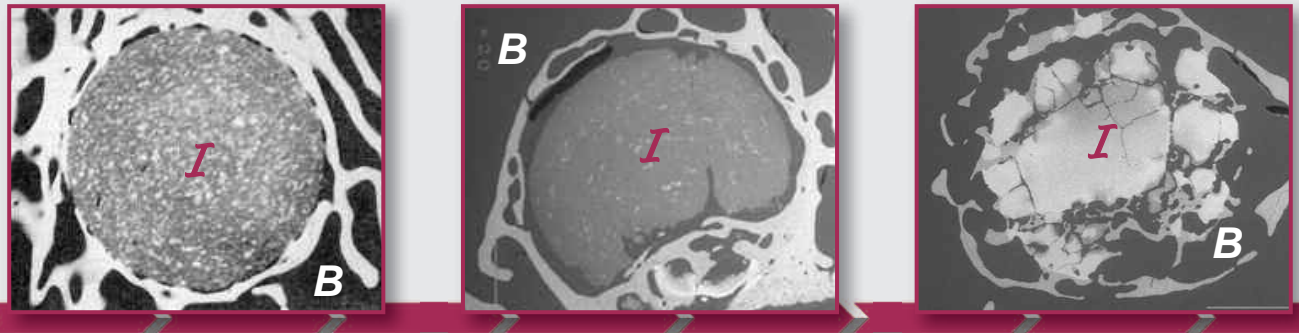
Bioactivity

Osteoconductivity & bone-binding

Biodegradation & I

Hydrolysis (PLLA) & Osteo

- 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
- Homogeneous degradation of the PLLA particles on account of the semi-crystalline structure



B = Bone I = Implant

and PCL Reconstruction

BioactIF **OSTEOTRANS** 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.

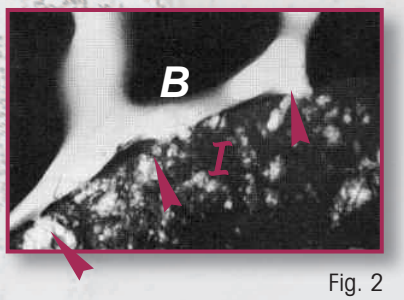
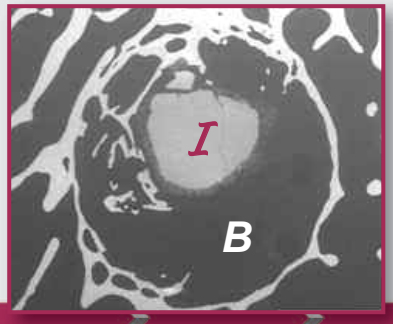


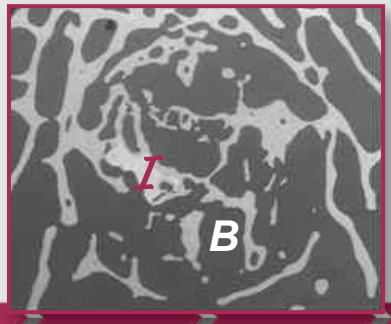
Fig. 2

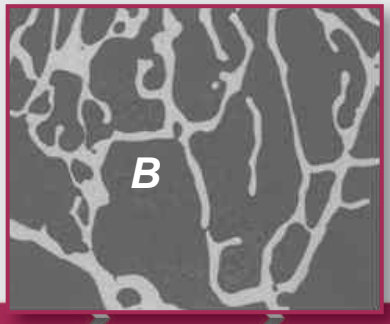
Bioresorption
oclasts

Bone formation
Bone formation

- Osteoclastic degradation of u-HA particles
- Mechanical characteristics of the implant similar to the surrounding bone
  - ► Transfer of forces
  - ► Loading
  - ► Bone growth







Bioact IF OSTEOTRANS

Bioactive and Bioresorbable Interference Screws for ACL and PCL Reconstruction

RICHARD WOLF
spirit of excellence

Bioact IF OSTEOTRANS		Interference screws*		suitable for these screws	
Thread ø	**Length**	**Hole**	**Type**	**Thread cutter**	**Screwdriver**
7 mm	25 mm	2.2 mm	**OK0725A**	**891800700**	**891800030**
	30 mm	2.2 mm	**OK0730A**		
8 mm	25 mm	2.2 mm	**OK0825**	**891800800**	
	30 mm	2.2 mm	**OK0830**		
9 mm	25 mm	2.2 mm	**OK0925**	**891800900**	
	30 mm	2.2 mm	**OK0930**		

*Manufactured by TAKIRON CO., LTD., Japan

Thread cutter,
for
***Bioact IF* OSTEOTRANS**
Interference screws
with thread of
7 mm 891800700
8 mm 891800800
9 mm 891800900

Screwdriver,
for
***Bioact IF* OSTEOTRANS**
Interference screws
all thread ø 891800030

Guide wire,
pack of 3, flexible,
ø 1,5 mm, TL 350 mm 891202015

Printed on paper based on cellulose which has been bleached without the use of chlorine.

Specifications subject to change without notice.

RICHARD WOLF GmbH · 75434 Knittlingen · PF 1164 · Phone +49 7043 - 35-0 · Fax +49 7043 - 3 53 00 · GERMANY · info@richard-wolf.com · www.richard-wolf.com

B 762.II.10.GB.2