**DOCUMENTED CLINICAL SUCCESS**

Implants with *MP-1* HA enjoy outstanding clinical outcomes\(^4-11\) that further demonstrate the quality and performance of the coating.

**CUMULATIVE IMPLANT SURVIVAL RATE**

<table>
<thead>
<tr>
<th>Study</th>
<th>Implants</th>
<th>1 Year</th>
<th>5 Years</th>
<th>9 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study 4</td>
<td>97 implants</td>
<td>100%</td>
<td>97.9%</td>
<td>99.6%</td>
</tr>
<tr>
<td>Study 5</td>
<td>19 implants</td>
<td>100%</td>
<td>96.2%</td>
<td>96.6%</td>
</tr>
<tr>
<td>Study 6</td>
<td>52 implants</td>
<td>100%</td>
<td>93.2%</td>
<td>96.6%</td>
</tr>
<tr>
<td>Study 7</td>
<td>245 implants</td>
<td>97.9%</td>
<td>93.2%</td>
<td>96.6%</td>
</tr>
<tr>
<td>Study 8</td>
<td>429 implants</td>
<td>96.2%</td>
<td>96.6%</td>
<td>96.6%</td>
</tr>
<tr>
<td>Study 9</td>
<td>60 implants</td>
<td>93.2%</td>
<td>96.6%</td>
<td>96.6%</td>
</tr>
<tr>
<td>Study 10</td>
<td>3811 implants</td>
<td>96.6%</td>
<td>96.6%</td>
<td>96.6%</td>
</tr>
<tr>
<td>Study 11</td>
<td>537 implants</td>
<td>96.6%</td>
<td>96.6%</td>
<td>96.6%</td>
</tr>
</tbody>
</table>

Documented clinical survival rates for **5,099** Zimmer *MP-1* HA coated Implants:\(^4-11\)

- Implant survival rate mean **98.9%** (range from 93.2% to 100%)
- Follow-up times range from **12 to 108** months (mean = 56.6 months)
ZIMMER DENTAL
HA TECHNOLOGY CHAMPION

Zimmer Dental has led the industry in hydroxyapatite (HA) technology for over 30 years. Dental literature has widely documented the ability of HA coatings to achieve high bone-to-implant contact.1-2 The innovative MP-1 HA coating is a technological advancement over conventional HA in both stability and performance. The proprietary MP-1 HA coating is unique to Zimmer Dental with features superior to select competitive HA coatings.3

ZIMMER MP-1 HA BENEFITS

• BETTER OSTEOCONDUCTIVE POTENTIAL2-3
Highly crystalline HA coatings exhibit more bone apposition than those with lower crystallinity. Zimmer’s MP-1 HA with up to 97% crystalline HA content is significantly higher than the 45-73% crystalline content of the competitive HA coatings tested.3

• LESS RESORPTION
To minimize resorption, Zimmer’s HA coating is subjected to a proprietary MP-1 heat treatment that decreases the amorphous content to as low as 3%, significantly lower than the 29-62% amorphous content of other commercial HA coatings.3

• MORE STABILITY
A coating of high crystallinity and low dissolution rate lends stability to the implant bed.2 Calcium dissolution for Zimmer MP-1 HA is lower than other commercially available HA coatings.3
A study was performed in sheep to compare the stability and bone tissue response of Zimmer’s MP-1 HA implants and implants withStraumann’s SLActive surface. After 3 and 6 weeks of early healing, results demonstrated that Zimmer’s MP-1 HA implants achieved significantly better stability and osseointegration than Straumann’s SLActive implants. This study showed the following benefits:

**BIOMECHANICAL EVALUATIONS**

**SIGNIFICANT BONE FIXATION**

- Zimmer’s MP-1 HA implants achieved significantly higher reverse torque values after 3 and 6 weeks (p<0.01) than Straumann’s SLActive Surface in this study.
- Reverse torque values demonstrate the degree of bone fixation to implant surfaces.

**HIGH BONE TO IMPLANT CONTACT**

- Zimmer’s MP-1 HA implants achieved significantly higher BIC and bone volume fraction (BV/TV) (p<0.05) after 3 and 6 weeks than Straumann’s SLActive Surface in this study.
- Bone-to-implant contact (BIC) and bone volume fraction indicate evidence of an implant physically anchored in bone.
Bone response to the implant surfaces was conducted by histological evaluations in sheep. *MP-1* HA coated surfaces exhibited no adverse tissue responses both at 3 and 6 weeks in this study. New bone with osteoclastic and osteoblastic activity indicated active bone remodeling. Interstitial tissues in the HA implant interface region was predominantly mature while the SLActive surface exhibited a less mature marrow closer to implant surface in this study.¹²

**BONE DENSITY AND REMODELING¹²**

*MP-1* HA AT 6 WEEKS
Newly formed trabecular bone was thick and showed an increase in bone density compared to SLActive in this study.

**SLACTIVE AT 6 WEEKS**
Observed bone density was variable at threaded implant surfaces and within cross sections compared to MP-1 HA in this study.
These Zimmer Dental implants are available with the proprietary

**MP-1 HA coating:**

- **Tapered Screw-Vent®** Implants with **MP-1 HA Dual Transition Selective Surface**
  - NEW! TSVT and TSVM Implants with **MP-1 HA Dual Transition Selective Surface**
- **Screw-Vent®** Implants with **MP-1 HA Selective Surface**
- **Spline® Twist™** Implants with **MP-1 HA Surface**

References: