Immediate occlusal loading of 47 SEVEN MIS implants. A Preliminary report after 6 months of function with final restorations.
Immediate occlusal loading of 47 SEVEN MIS implants. A Preliminary report after 6 months of function with final restorations.

Troiano Miguel Angel1, Closas Jose2, Benincasa Georgina4, Sanchez Patricia2, Haumuller Irene1, Benincasa Georgia4.

Introduction
The widespread therapeutic use of dental implants has led to the minimization of several concepts (Bränemark et al. 1985; Testori et al. 2001) during the last 15 years. Early load protocols have been evaluated and published. Such results are still under investigation (Gronholm et al., 1984; Bränemark et al., 1994). It has been reported that immediate functional load may lead to a reduction in implant success rates.

A few factors were found to be associated with higher implant failure rates when compared to conventional protocols. Immediate loading may reduce overall treatment time and simplify prosthetic procedures. Immediate loading has a threshold required to ensure implant success. In addition, the study demonstrates that the delivery of immediate provisional restoration can be readily achieved within a day of surgery, under immediate clinical conditions.

Discussion
Immediate placement and loading protocols reduce overall treatment time and simplify prosthetic procedures (Gronholm et al., 1984; Testori et al. 2001). Testori et al. (2001) and other investigators have demonstrated success rates of immediate loading procedures using MIS SEVEN implants under immediate loading mode (Szmukler-Moncler et al. 2000). Immediate occlusal loading procedures can be successful only when the amount of micro-motion is lower than the critical threshold required to ensure implant success.

In the present prospective clinical study, the implant survival rate of 47 SEVEN implants of which 25 (53%) were used since 10 years was assessed using the critical threshold concept introduced in clinical cases. Immediate loading is a valid treatment option.

Materials and methods
MIS Seven implants were used in all cases. The length and diameter of each implant were determined by bone density and bone geometry. Testori et al. (2001) and following manufacturers’ instructions. All patients were on a strict recall program (surgical and prosthetic).

Prosthetic procedures
The design of the prosthesis was determined by collaboration between the treating doctors, the patient, and the prosthodontist to develop a treatment plan that best fits the individual clinical condition. The design of the prosthesis was determined by collaboration between the treating doctors, the patient, and the prosthodontist to develop a treatment plan that best fits the individual clinical condition. The design of the prosthesis was determined by collaboration between the treating doctors, the patient, and the prosthodontist to develop a treatment plan that best fits the individual clinical condition. The design of the prosthesis was determined by collaboration between the treating doctors, the patient, and the prosthodontist to develop a treatment plan that best fits the individual clinical condition.

Surgical procedures
Immediate occlusal loading is a routine treatment protocol for the partially edentulous maxillary and mandible, is a valid treatment protocol. The protocol was to reduce the number of surgical and prosthetic procedures; treatment (Schnitman et al. 1990; Balshi & Wolfinger 1997; Schnitman et al. 1997; Tarnow 1999; Wöhrle 1998) SEVEN implants in maxilla can maintain a clinical stability and met the success criteria. The overall success rate was 100%.

Results
A preliminary evaluation of data collected in the study suggested that the 47 SEVEN implants in this investigation and eight to ten implants in the mandible can tolerate occlusal loading at each surgical site. Thesurgical protocol resulted in lower overall treatment time and simplify prosthetic procedures. Immediate loading procedures can be successful only when the amount of micro-motion is lower than the critical threshold required to ensure implant success.
Immediate occlusal loading of 47 SEVEN MIS implants. A Preliminary report after 6 months of function with final restorations.

Troxano Miguel Angel 1, Clossas Jose 2, Benincasa Mauricio 3, Sanzchez Patricia 4, Haumuller Irene 5, Benincasa Georgina 6

Introduction
The widespread therapeutic use of dental implants over the last two decades has led to a real improvement in the success rate of various concepts (Brånemark et al. 1977; 1985). The success rate was considered to be even higher than 93% (Schnitman et al. 1990; Balshi & Wolfinger 1997; Brånemark et al. 1999; Tornberg et al. 1999). Several authors have reported higher implant survival rates compared with other prosthetic materials (Schnitman et al. 1990; Balshi & Wolfinger 1997; Schnitman et al. 1997; Brånemark et al. 1999; Wöhrle 1998).

In the present prospective clinical study, the first 47 implants were analyzed (53%) of which 47 were used and split into the two first implant sites: maxilla (36.7%) and mandible (45.9%). Although this placement was found to be statistically significant, no difference in success rate was observed between the two sites (Chi-square test, p = 0.05).

Patients were included in the study according to the following criteria: (1) Partially dentulous with two to three teeth missing in each arch; (2) No history of chemotherapy, radiation, or corticosteroid treatment; (3) Good oral hygiene; (4) No history of systemic disease; (5) No history of drug abuse; (6) No history of smoking; and (7) A minimum 3-month bone healing phase after atraumatic tooth extraction. The study was approved by the Ethical Committee of the University of Buenos Aires.

Mandible: 37, maxilla: 10. Follow-up at 6 months: 90%.

Surgical procedures
MIS Seven implants were used in all cases. The length and the diameter of these implants is summarized in Table 1. Patients were treated with a standardized protocol (surgical and prosthetic), and patients, were submitted to one central implantation procedure in the maxilla and in the mandible, using bone grafts and patients, received one or two surgical procedures at the same time.

Discussion
Immediate implant loading is considered to be a valuable treatment option for patients who do not want to wear temporary solutions while waiting for their permanent restoration (Testori et al. 2002).

In the present prospective clinical study, the authors report a success rate of 100% for immediate loading protocols compared to delayed-loaded procedures (Schnitman et al. 1990; Balshi & Wolfinger 1997; Schnitman et al. 1997; Brånemark et al. 1999; Wöhrle 1998) and following aseptic implant placement (Babbush et al. 1986; Schnitman et al. 1990; Balshi & Wolfinger 1997; Schnitman et al. 1997; Brånemark et al. 1999). This study demonstrates that the delivery of immediate implant loading is a viable treatment option.

In conclusion, the study demonstrates that the delivery of immediate implant loading is a viable treatment option.

Success criteria
The success criteria were applied in evaluating the implant. No clinically detectable mobility was elicited by means of the mirror, probing, radiographs, and percussion. Radiographs were taken and compared with the initial post-operative radiographs. The histocompatibility of the implant was evaluated using histological specimens from the implant site. The results were compared with those of the controls.

Results
Unrest and implant mobility were measured at 1 and 3 months after implant insertion. The results were recorded and compared with those of the controls.

Table 1: Clinical cases

<table>
<thead>
<tr>
<th>Localization</th>
<th>Cases</th>
<th>No. of implants</th>
<th>Length, mm</th>
<th>Diameter, mm</th>
<th>Placement of implant</th>
<th>Follow up</th>
<th>Prosthetic procedure</th>
<th>Final restoration</th>
<th>Execution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandible</td>
<td>3</td>
<td>9</td>
<td>3.75 4.20 5</td>
<td>2.1 2.5</td>
<td>MIS</td>
<td>3 months</td>
<td>Provisional</td>
<td>Screw</td>
<td>Immediate</td>
</tr>
<tr>
<td>Mandible</td>
<td>3</td>
<td>9</td>
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<td>MIS</td>
<td>6 months</td>
<td>Provisional</td>
<td>Screw</td>
<td>Immediate</td>
</tr>
</tbody>
</table>

Table 2: Characteristics of the 47 immediately loaded implants

<table>
<thead>
<tr>
<th>Variable</th>
<th>Length, mm</th>
<th>Diameter, mm</th>
<th>Implant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.75</td>
<td>4.20</td>
<td>MIS</td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>13</td>
<td>22</td>
</tr>
</tbody>
</table>

Table 3: Follow up procedures

<table>
<thead>
<tr>
<th>Follow up procedure</th>
<th>Specific criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Specific criteria</td>
</tr>
<tr>
<td></td>
<td>Specific criteria</td>
</tr>
<tr>
<td></td>
<td>Specific criteria</td>
</tr>
</tbody>
</table>

Table 4: Diagnostic checking the cumulative implant success rate (%) at 6 months

<table>
<thead>
<tr>
<th>Interval (months)</th>
<th>Success rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

Table 5: Rehabilitation of the partially edentulous maxilla and mandible with immediately placed MIS SEVEN implants

<table>
<thead>
<tr>
<th>Rehabilitation (maxilla and mandible)</th>
<th>Immediate loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successful outcome</td>
<td>100%</td>
</tr>
<tr>
<td>Implant failure</td>
<td>0%</td>
</tr>
</tbody>
</table>

References
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Troiano Miguel Angel 1, Clossas Jose 2, Benincasa Mauricio 3, Sanchez Patricia 4, Haumuller Irene 5, Benincasa Georgina 6.

Introduction
The widespread therapeutic use of dental implants was made possible by two main events: the discovery of bone regeneration using materials such as the Bio-Oss (Geistlich, Wolhusen, Switzerland) and Palacos (Geistlich, Wolhusen, Switzerland) (Albrektsson et al. 1986). In the late 1980’s, Brånenmark et al. (1982) introduced the first osseointegrated implant to be placed in the jaw, which established the principles of bone integration with an implant system.

Objectives
The purpose of this report is to describe a retrospective study of 47 SEVEN MIS implants, showing the success rate and the clinical and radiographic outcome of immediate implant placement and loading procedures, which was also performed at the University of Buenos Aires, Argentina.

Surgical procedures
SEVEN implant system was used in all cases. The length and the diameter of these implants is summarized in Table 1. Enrolment and assessment of potential candidates were performed between August 2011 and March 2012. The treatment objectives involved the delivery of the definitive restoration immediately after implant placement, soperimplant marginal bone loss not exceeding 1.5 mm by the end of the first year of functional loading, and diameter of these implants is summarized in Table 1.

Material and methods
The study was performed in a clinical center by six investigators who followed the same surgical protocol (surgical and prosthetic).

Inclusion and exclusion criteria
Patients were included in the study according to the following criteria: (1) A total of 47 patients who had received immediately loaded SEVEN implants were included; (2) Patients with gingival inflammation, severe bruxism, and patients with a history of diabetes and smoking had no implants placed. The design of the prosthesis was determined by the number of implants and the esthetic criteria. All implants were at least 3.75 mm in length.

Success criteria
The clinical success criteria were applied for evaluating success rate. No clinical complications (e.g., bacterial or chemical infections) plus no radiographic normal bone formation (Trisi&Rao 1999). No evidence of peri-implant mobility (Chaushu et al. 2001). These studies conclude that even in a case of an implant failure, the prosthesis will be salvaged.

Results
Table 1: Characteristics of the 47 immediately loaded implants

<table>
<thead>
<tr>
<th>Location</th>
<th>Case</th>
<th>Diameter, mm</th>
<th>Length, mm</th>
<th>Number of Implants</th>
<th>Total</th>
<th>Immediate loading</th>
<th>Immediate</th>
<th>Final restoration</th>
<th>Immediate</th>
<th>Final restoration</th>
<th>Immediate</th>
<th>Final restoration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maxilla</td>
<td>1</td>
<td>3.75</td>
<td>10</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>12</td>
<td>1</td>
<td>12</td>
<td>1</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Maxilla</td>
<td>2</td>
<td>4.20</td>
<td>10</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>12</td>
<td>1</td>
<td>12</td>
<td>1</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Mandible</td>
<td>2</td>
<td>3.75</td>
<td>10</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>12</td>
<td>1</td>
<td>12</td>
<td>1</td>
<td>12</td>
<td>1</td>
</tr>
</tbody>
</table>

The overall success rate was 100%. None of the patients dropped out from the study. The length of the follow-up period was 6 months. The failure rate of more than three implants was based on the assumption, that even in case of implant failure, the prosthesis will be salvaged. The treatment duration (Testori et al. 2002a).

Discussion
Immediate implant and loading protocols reduce overall treatment time and simplify treatment (Günzler et al. 1993; Donachie & Ellinger 1999). Immediate loading was used since the early 1990’s. Several studies have reported higher implant survival with immediate loading protocols compared to delayed-loaded ones (Schnitman et al. 1997; Tarnow et al. 1997; Wöhrle 1998; Bränemark et al. 1999; Ericsson et al. 2000a; Jaffin et al. 2000; Caiazzo et al. 2002; Szmukler-Moncler et al. 1998, 1999; Szmukler-Moncler et al. 2000; Caiazzo et al. 2002).

The widespread therapeutic use of dental implants was made possible by two main events: the discovery of bone regeneration using materials such as the Bio-Oss (Geistlich, Wolhusen, Switzerland) and Palacos (Geistlich, Wolhusen, Switzerland) (Albrektsson et al. 1986). In the late 1980’s, Brånenmark et al. (1982) introduced the first osseointegrated implant to be placed in the jaw, which established the principles of bone integration with an implant system.

A preliminary evaluation of data collected in this study suggested that for 10-12 implants in the maxilla and mandible, the immediate loading protocol is an acceptable alternative to the delayed-loading protocol. A limited number of studies have evaluated the immediate loading protocol and concluded that it might be a safe and effective treatment option. It is an effective alternative to the delayed-loading protocol, which is the gold standard in implantology.


table 1

<table>
<thead>
<tr>
<th>Implant Duration</th>
<th>No. Patients</th>
<th>No. Implants</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 6 months</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>7 - 12 months</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>13 - 18 months</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>19 - 24 months</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>25 - 30 months</td>
<td>10</td>
<td>0</td>
</tr>
</tbody>
</table>

Case 1 Immediate loading

Success rate
None of the patients dropped out from the study. None of the implants were lost due to clinical complications and met the success criteria.

Table 2: Characteristics of the 47 immediately loaded implants

<table>
<thead>
<tr>
<th>Location</th>
<th>Case</th>
<th>Diameter, mm</th>
<th>Length, mm</th>
<th>Number of Implants</th>
<th>Total</th>
<th>Immediate loading</th>
<th>Immediate</th>
<th>Final restoration</th>
<th>Immediate</th>
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<td>1</td>
<td>12</td>
<td>1</td>
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<td>Maxilla</td>
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<td>4.20</td>
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<td>2</td>
<td>4</td>
<td>1</td>
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<td>1</td>
<td>12</td>
<td>1</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Mandible</td>
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<td>3.75</td>
<td>10</td>
<td>2</td>
<td>4</td>
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The overall success rate was 100%. None of the patients dropped out from the study. The length of the follow-up period was 6 months. The failure rate of more than three implants was based on the assumption, that even in case of implant failure, the prosthesis will be salvaged.

Comparison of the partial occlusal impulses and the longitudinal movements in all groups and between the same and opposite sides of the bone was performed. The results showed that the immediate loading protocol was significantly superior to the delayed-loading protocol.
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10. Case 1


MAKE IT SIMPLE


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