Same Day Dental Implants® & Teeth
A Surgical & Prosthesis Protocol

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The original Branemark protocol advocated the use of a two stage surgical approach where the turned (smooth) implants were buried for several months under the mucosa. With the advent of surface enhanced and tapered implants the protocol later evolved into a one stage approach.

Several clinicians then proceed to immediately load these one stage implants with good success provided good primary stability (more than 45Ncm) was achieved at time of implant placement and provided micro-movements could be limited to 100μm. Ample reports have been published on immediate loading of dental implants showing an initial unloaded period of 5 - 6 months is not necessary. From a patient’s point of view the reduction of treatment time between implant placement & installation of a functional prosthesis leads to increased patient satisfaction & treatment acceptance and gain in time the patient incurs an economical benefit especially for professionally and/or socially active patients.

High treatment acceptance and patient satisfaction are the most important advantages of immediate loading and immediate function.

Surgical Protocol
The surgical protocol of immediate loading of dental implants with same day teeth is based on high Primary Stability (greater than 45Ncm) which can be achieved by using a surface enhanced tapered implant design to enhance lateral compression of bone. By underprepping, high insertion torque and primary stability can be achieved even in cases of decreased bone density such as is often the case in maxillary alveolar bone and as well as in osteoporotic patients. Primary stability can easily be measured during implant placement with a torque wrench (Fig 4).

If 45Ncm insertion torque is not achieved, the implant should be removed and without further bone preparation a 1mm wider implant is placed.

This usually results in adequate primary stability of 45Ncm for immediate loading. If 45Ncm insertion torque is still not achieved then again the implant can be removed and replaced with an even wider diameter implant if the available bone width permits. This may result in adequately high insertion torque and primary stability which is greater than 45Ncm. If despite this, adequate primary stability is not achieved then immediately loading is not recommended.

With increased costs and patient morbidity due to bone grafting, an increased patient resistance to implant treatment has been noted. An alternative method of treating implant patients who have suboptimal bone volume without bone grafting is made possible by using:

1) Angled implants in a tilted manner placed into available bone anterior and posterior to the maxillary sinus (Fig 2).

2) Wider and appropriately shaped implants placed into immediate extraction molar sockets thereby avoiding socket or sinus grafting (Fig 5).

High Primary Stability
An important factor for immediate loading success is high primary implant stability (greater than 45Ncm) which can be achieved by using a surface enhanced tapered implant design to enhance lateral compression of bone. By underprepping, high insertion torque and primary stability can be achieved even in cases of decreased bone density such as is often the case in maxillary alveolar bone and as well as in osteoporotic patients. Primary stability can easily be measured during implant placement with a torque wrench (Fig 4).

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Prosthesis Driven Implant Placement
By using a silicone key of the facial surfaces of the existing teeth (Fig 5) or a silicone key of a diagnostic wax up (Fig 6), it is possible to place the implant in the correct position and angle so that the screw access hole can exit in the correct plane to allow for screw retention.

In order not to loose significant orientation, extractions are not performed all at once prior to implant placement but are rather performed one at a time followed by implant placement so that the silicone key can direct the implant surgeon (Fig 7).

It is very often necessary to use an implant with a built in angle of 12°, 24° or even 50° so that the case can be screw retained.

Screw retention is an absolute requirement for biological reasons (to avoid risk of inflammation due to excess cement) as well as the ease of handling of immediate loading in a surgical environment.

Bite registration is started prior to extraction of all the teeth in the mouth with a wax base so as not to loose the centric relation and vertical dimension (Fig 8).

Once the registration waxes are then performed, further implants are placed and the bite registration is completed with addition of bite registration material onto the remaining healing caps.

One Abutment One Time
After bone milling to remove any interfering bone, any multi-unit abutments are placed in the implants and torqued to 45Ncm at the time of surgery. These abutments are placed and screwed onto the “clean” implant platform with no interfering bone or soft tissue and are never removed.

Scientific research shows less bone loss, better bone levels and peri-implant soft tissues when the transmucosal abutments are placed at time of surgery and never removed (Fig 9).

Healing caps are then placed on the multi-unit abutments (Fig 10). After abutment placement, at the same surgical appointment, the impression is taken at abutment level and provisional acrylic screw retained fixed teeth are placed in the same day as the implant surgery.

In single implant cases the healing abutment is placed directly at implant level. An implant impression is taken and six hours later a full ceramic/zirconia screw retained crown is then connected and torqued to 45Ncm directly on to the implant without an intermediate/transmucosal abutment (Fig 11).

No multi-unit abutment is inserted or placed in the single implant case as the multiunit abutment has no anti-rotation feature.

Flapless/Minimal Flap Surgery
In extraction cases no mucoperiosteal flap is reflected. The integrity of the extraction socket walls is inspected and assessed with a 15mm or 20mm peri-osteal probe placed into the extraction socket. The integrity of the extraction socket walls is confirmed with the probe (Fig 12) and this is complemented by good vision with magnifying loops and light illumination.

In healed sites where possible the “punch” technique is used (Fig 15).

Alternatively minimal flaps are raised where indicated.

This flapless/punch technique/minimal flap approach results in minimal or no soft tissue changes thereby allowing the restorative dentist/prosthodontist to proceed with the provisional acrylic screw retained teeth in the same day and permanent ceramic screw retained teeth in 1 week in the case of multiple implants.

In the case of the single implant the permanent full zirconia screw retained tooth can be delivered in 6 hours on the same day.

Number of Implants
In edentulous cases 4 to 6 implants are placed per arch depending on:

1) Bone volume & quality (A-P spread)

2) Implant length & diameter

3) Implant distribution (A-P spread)

4) Patient’s age

5) Patient’s finances (cost to benefit ratio)

Prosthodontic Protocol
The Prosthodontic protocol of Same Day Dental Implants & Teeth is focused and designed around the patient’s needs. It’s fast, efficient and doesn’t compromise quality. The patients are never left without teeth for more than six hours. As a result treatment acceptance is high.

All implants with good primary stability (>45Ncm) are immediately loaded with screw-retained teeth. For single implant cases, the final all ceramic screw retained tooth is fabricated and delivered to the patient within six hours. For multiple implants cases, temporary screw retained acrylic teeth are fabricated with immediate loading. The final screw retained all ceramic or metal ceramic teeth are delivered one week later.

Timing of Immediate Loading Dental implants either should be loaded the earliest possible (never exceed ten days after stability) or alternately two months after placement. This is because the so-called initial instability (mechanical stability) that an implant has, starts to drop gradually and the implant becomes more stable to failure if forces are applied. Fortunately, simultaneously a “secondary stability” (Osseointegration) starts to build up. The sum of the two “stabilities” which is demonstrated on the stability graph (Fig 16), gives us the “total stability”. As a golden rule implants ideally should never be disturbed during the “stability dip” period.

Preoperative Preparation
In order to achieve this protocol, preoperative screening and detailed surgical and prostho-

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Fig 1. Dr. Costa and Dr. Petros in line with Prof. Branemark’s philosophy of "Lesser Surgery to Treat More Patients".

Fig 2. Angled implants placed into available bone anterior and posterior to the maxillary sinus.

Fig 3. Immediate molar replacement implants.

Fig 4. 45Ncm Primary Stability measured during implant placement.

Fig 5. Pick a patient’s finances (cost to benefit ratio). The patients are never left without teeth for more than six hours. As a result treatment acceptance is high.

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prosthesis onto the mature soft
gery.

While the patient is waiting in
between the adjacent teeth.

According to the prosthetic plat-
ceramic zirconia teeth are fabri-
dental lab (Fig. 18). The dental
sion cured silicon impression
with the use of very hard addi-
it's imperative to make sure that
impression copings are seat-
ed all the way onto the implants
(perpical x-rays can be used for
verification).

For multiple implants the op-
tray technique is recommended with the use of very hard addi-
tions such as silicon impression
material.

At the end of each surgery, pre-
operative impressions, impres-
sion of the implants and bite
registration are provided to the
dental lab (Fig. 16). The dental
technician mounts the implant
models and starts the fabrication
of the implant prosthesis.

Single Implant Reconstruction
For single implant cases the
permanent, screw retained, all
ceramic zirconia teeth are fabri-
cated immediately with the use of
prefabricated zirconia cores (Fig. 19). They are available in different sizes and shapes, ac-
cording to the prosthetic plat-
g of the implant in use and the
available prosthetic space, be-
 tween the adjacent teeth.

While the patient is waiting in
the recovery room the dental
technician grinds and shapes
the zirconia core and eventually
bakes the porcelain on to it.
Four to six hours later the per-
manent tooth is placed into the
mouth of the patient and the
prosthetic screw is torqued
down to 45Ncm. A periapical x-ray
helps to verify the perfect
 fit (Fig. 20) on to the implant (Fig.
20). Occlusion is checked and verified with the help of 8μ thick
“schimshott” articulating paper.
The prosthetic access hole is ob-
tigated with a carver filling
(teflon tape + opaque composite
creats a design for the perfect
restoration (Fig. 21). A series of
temporary teeth are placed in
the mouth of the patient on the
same day (Fig 27).

Providing the temporary teeth
or the removable over denture to
record all necessary information
for the fabrication of the permanent
teeth. If needed modifications
are easily made to the acrylic
teeth either directly in the mouth
or in the dental lab.
The patient should be eval-
uated for esthetics, phonetics and
occlusion. Midline, plane of oc-
clusion and buccal corridors are
established. The “S” and “I”
sounds are checked. The Oc-
schuss scheme is adjusted. For
extensive cases the “mutually
protected occlusion” (Fig. 23) is
established which means that in
centric occlusion, all teeth are
in contact but the posterior teeth
have slightly heavier contacts
compared to the anterior and on
lateral and protrusive excursive
movements the anterior teeth
are touching/guiding and there
are no posterior “working” or
“non-working” interferences
(anterior guidance). X-rays are
taken in order to verify the pas-
sive fit of the prosthesis.

Once all necessary modific-
ations are made and the patient is
satisfied, we need to convey all
newly established parameters of
the fit procedure to the prosthesis.
This is achieved by:
I) taking photos and videos to
record the esthetic result, in the
mouth and
II) using the so-called “Clinical
Remounting Procedure”, in the
lab.

Alginite impressions and bite
registration are taken from the
temporary teeth, which are re-
moved from the mouth and re-
mounted again on the articula-
tor. From the newly remounted
temporary teeth the dental tech-
tician will fabricate:
I) a series of silicon keys which
will guide him to fabricate the
permanent teeth and
II) an “An-

terior Custom Made Guiding Table” (Fig 22) which will allow him to reproduce the occlusal scheme of the temporary teeth to the
temporary teeth.

Two months later the tem-
porary teeth are placed again in
the mouth of the patient and the
implants are cleaned, dried and
bakes the porcelain on to it.

The temporaries are removed,
the prosthesis of the implants is cleaned, dried and immediately the permanent teeth are screwed onto the
implants.

There is a big benefit having to
work only with “one piece screw
retained” (Fig. 24) prosthesis.

There are no multiple custom
abutments to be positioned first, the retrieval of the “one
piece prosthesis” makes adjust-
ments much easier, there is no
excess cement to deal with dur-
ing cementation that can cause
significant complications if left
accidentally under the imma-
ture tissues.

Fitting of the prosthesis is as-
sumed to be done “working” with the help of:
I) the interchangeable implant
and temporary models,
II) the silicon keys,
III) the anterior cus-

to.

The permanent teeth need to be
ready in one-week’s time and
should have perfect fit onto the
implants. This is one of the most
important prerequisites for opti-
mal implant longevity.

The material of choice, used by
our dental lab, for the past 20
years, is porcelain fused to met-
al. The fabrication of the metal
ceramic prosthesis involves a
series of technique sensitive
procedures, inevitably in each
step, small “5 dimensional inac-
curacies” are introduced into the
restoration. The sum of these in-
accuracies is never zero. As a re-

result, at the end of the fabrication
procedure, the final prosthesis
will never have a perfect fit onto
the implants.

The use of the “Passive Abut-
ment” (Fig. 25), which is a tita-
nium machine-cut interfacial
component/cylinder, offsets all
the 5D inaccuracies, provided that
the implant model is accu-
rate. The passive abutment is
cemented by the dental techni-
cian onto the fitting surface of
the prosthesis, in the lab. The
mussier implant model is used as
a blueprint for the cementation.

Based on our experience over
the past 15 years of using pas-
sive abutments, the metal try-in
procedure is not needed, thus
speeding up the fabrication of the
final prosthesis.

5) Placement of the Permanent Teeth
One week after the implant sur-
gery the patient returns for the
placement of the permanent teeth.

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