Brånemark System™

Restorative Dentistry at the Turning Point

Nobelpharma
Nobel Industries Sweden

Progress and Witchcraft — The Ascent of Man

Ever since the dawn of man, invention has fueled progress. The ingenuity of our species has often led to incremental design improvements in the implements we use. Occasionally, it has even led to revolutionary innovation.

Although illness and pain have always been the unwelcome companions of man, scientifically-won medical progress has all too often been obscured by witchcraft, wizardry and ignorance.

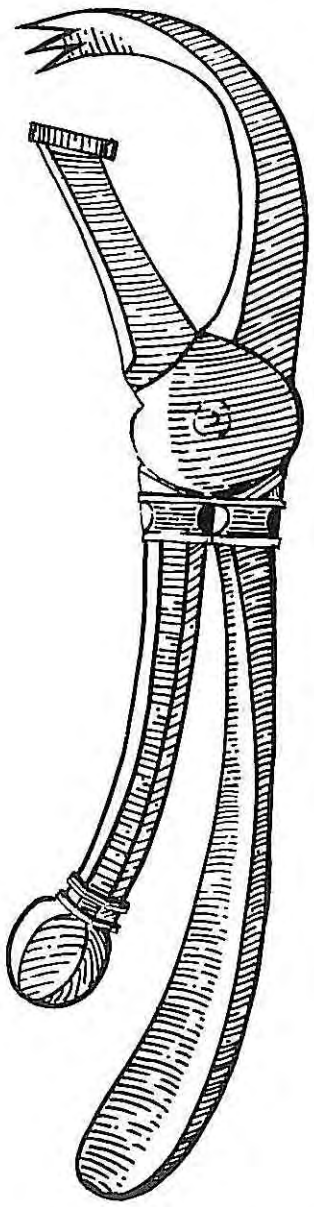
Pain and edentulism were once considered to be the inevitable results of diseased teeth and have always been a scourge to man. Yet archeologists have unearthed artifacts in the Mediterranean basin — gold bridges and other prosthetic constructions — which were made thousands of years ago and demonstrate surprising design insight.

In the turmoil that followed the fall of ancient Mediterranean civilization,

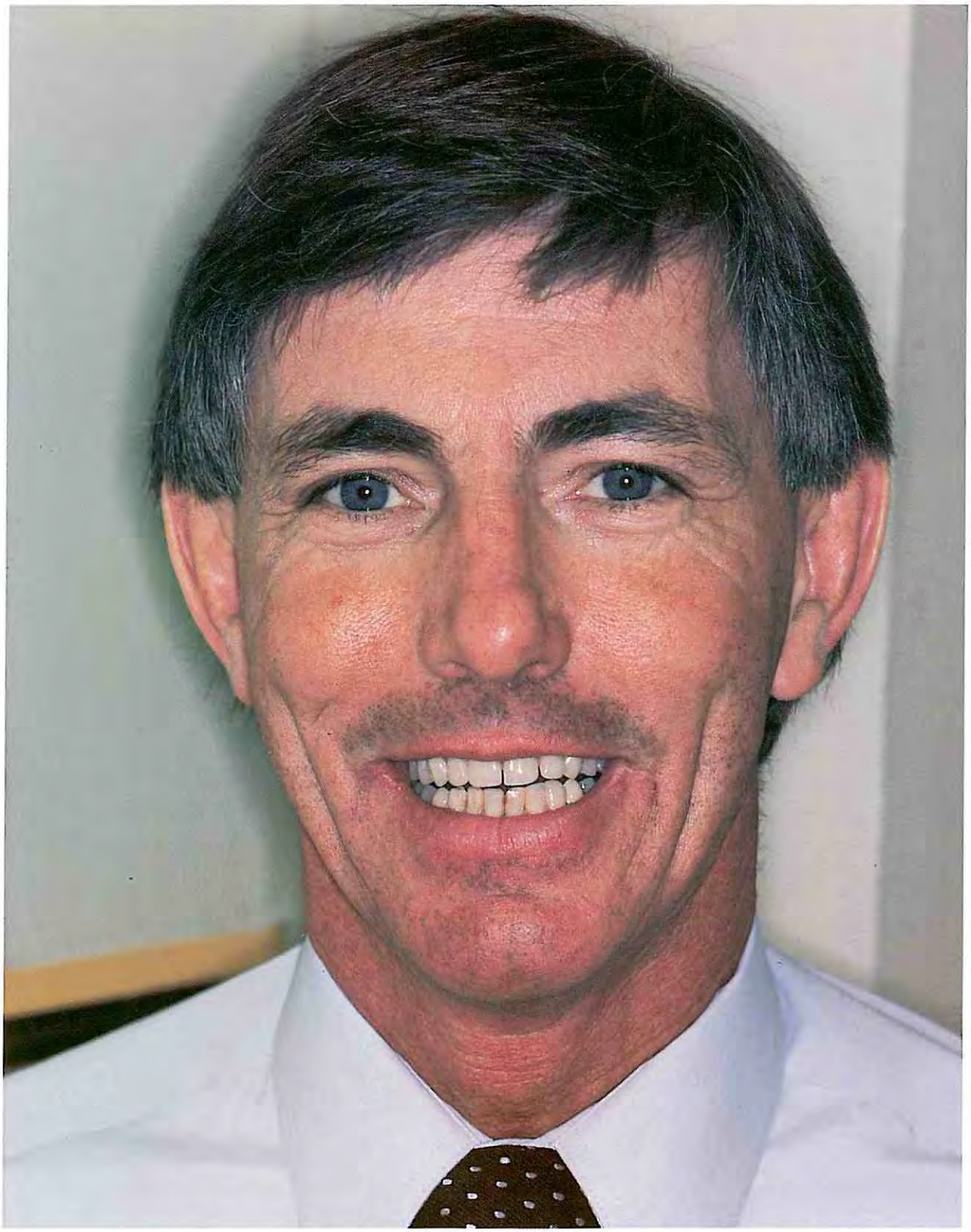
the historically advanced treatment of partial edentulism represented by these early dentures was forgotten. For most of the thousands of years to follow, extraction pliers were the primary tool used in the treatment of diseased teeth.

Ancient signs of progress — rock carvings from approximately 1500 B.C. in Bohuslän, Sweden.

Only during the last 400 years has man once again attempted to replace



lost teeth — an effort which has met with varying degrees of success. The totally edentulous jaw has certainly presented the greatest challenge to dental science. Loose dental prostheses have helped in some cases but, for many, complete dentures have been the cause of almost unbearable discomfort.



The patient's upper jaw was completely edentulous. A transfixed iliac bone graft was done simultaneously with the installation of four fixtures. After healing and the subsequent abutment operation, a permanent tissue integrated bridge was attached.

Surgeon:
Dr. Per-Ingvar Brånemark
Dr. Philip Worthington

Prosthodontist:
Dr. Thomas D. Taylor

Technician:
Mr. Dave Reimers

A Radical Discovery

In 1952, in a modestly appointed laboratory in the university town of Lund, Sweden, Professor Per-Ingvar Brånemark had a lucky accident – what most scientists call serendipity. Much to his irritation, Dr. Brånemark discovered that it was impossible to recover any of the bone-anchored titanium microscopes he was using in his research. The titanium had apparently bonded irreversibly to living bone tissue, an observation which contradicted contemporary scientific theory.

His curiosity aroused, Dr. Brånemark subsequently demonstrated that – under carefully controlled conditions – titanium could be structurally integrated into living bone with a very high degree of predictability and, without long-term soft tissue inflammation or ultimate fixture rejection. Brånemark named the phenomenon osseointegration.

The first practical application of osseointegration was the implantation of new titanium roots in an edentulous patient in 1965. More than twenty years later, the dentures attached to these roots are still functioning perfectly.

Decades of painstaking empirical research have led to the well-established surgical techniques and tools which make the Brånemark System routinely successful all over the world today.

Modern dentures attached to permanent * titanium roots provide results that are so esthetically pleasing and functionally advantageous that patients soon consider the new teeth their own.

Thanks to Nobelpharma and the Brånemark System, many dental patients all over the world can trace their roots back to Sweden today, roots for individual teeth or complete dentures.

Osteoblast growing on a pure titanium surface as viewed through an electron microscope.

Professor Per-Ingvar Brånemark:

Head of the Institute for Applied Biotechnology:
University of Gothenburg, Sweden

Dr. Brånemark's office is located at the University of Gothenburg's prestigious Institute for Applied Biotechnology, an institute for research and learning which he established with the best possible strategy:

"Surround yourself with some of the best minds in your field," Dr. Brånemark once confided modestly, "and you can't help but succeed."

For more than thirty-five years, he has been refining and adapting the techniques, components and procedures which make the Brånemark System work so well. The personal reflections which follow are the direct result of insight coming from these decades of hard work:

The important and central problem of edentulism is perhaps not immediately obvious to everyone. In many cases not only teeth and jawbone are lost, but self-confidence, as well.

We are dealing not only with mechanical and biological problems, after all. We are dealing with fellow human beings, patients who may have suffered 30-40 years of edentulism.

To me, the most impressive phenomenon has been to note how patients – even decades after they were provided with a couple of titanium fixtures anchoring new teeth – still remember what a dramatic change it made.

I am most grateful for these experiences. They have motivated me to adhere to the strict principle of high standards for predictable prognosis in the system for bone anchored prostheses which bear my name. Contacts with patients have also encouraged me to continue the development of the surgical and prosthetic procedures in order to optimize the system.

The basic principles have changed very little over the years: very gentle handling of the tissue, careful preparation and undisturbed healing.

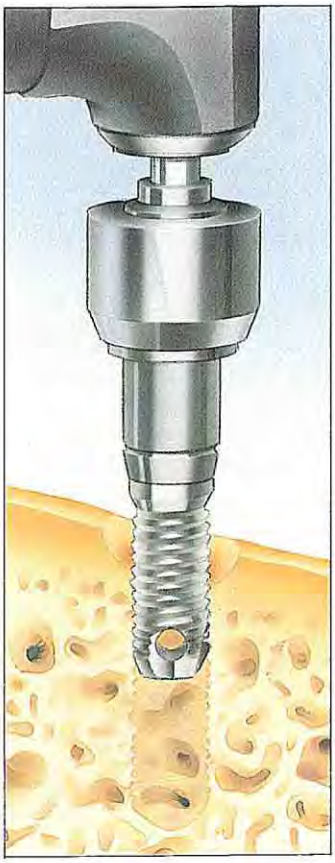
To minimize the potential for damage during site preparation, we use specially designed, very sharp instruments exclusively. We only install very carefully controlled and configured components. The pure uncontaminated titanium surface of these components, with its unique microarchitecture, is a prerequisite for preventing untoward tissue reaction in both the short and the long-term perspectives.

It is not a question of drilling a hole in the bone and putting something into it. The basic issue is to create a harmonious coexistence between biological and synthetic components so both will remain intact for the lifetime of the patient.

When we operated on the first patients in the 1960s, stability was the basic aim of the procedure. We subsequently recognized the importance of providing for good articulation and phonetics. For as complete a rehabilitation as possible, however, the patient must also be able to expect good esthetic results.

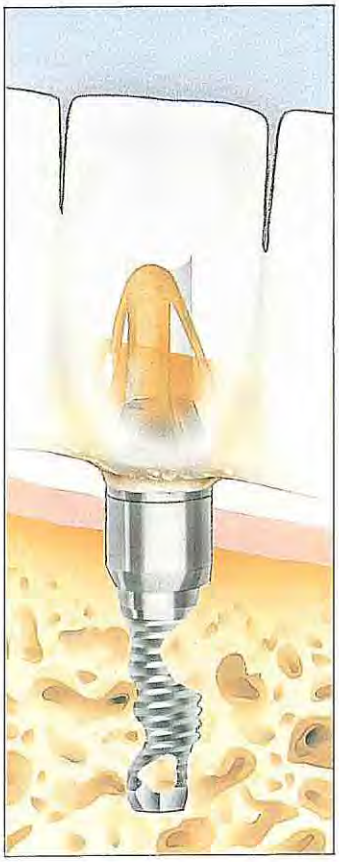
By keeping all these things in mind during the entire treatment process, we can offer predictable oral rehabilitation. Rehabilitation in the form of a third dentition, normal oral function, restoring normal self-confidence and a quality of life many edentulous patients have lacked since they lost their teeth.

New Teeth in Three Steps



1. The titanium fixtures are installed in the living bone.

2. Abutments are connected to the osseointegrated fixtures.



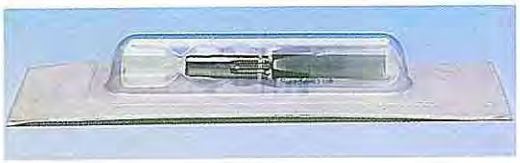
3. The prosthesis is attached, the final step completed.

The fixed attachment of a dental prosthesis to osseointegrated fixtures using the Brånemark System involves three separate steps. The first two are relatively minor surgical procedures, both of which can ordinarily be performed under local anesthesia and cause the patient only a minimum of discomfort.

Fixture Installation

In the first stage, a number of holes are drilled in the jaw bone. This is done using special instruments and well-defined procedures which minimize trauma to the living bone tissue.

Titanium fixtures are then carefully screwed into the prepared holes. The fixtures themselves have to be manufactured to exacting standards, carefully checked and re-checked, packed in titanium holders and sealed in glass ampules. The Brånemark System's manufacturing process and handling procedures provide that only sterile, biologically flawless titanium surfaces come in contact with the living bone tissue – a prerequisite for predictable fixture integration success.



Connecting the Abutments

Following the three to six month period required for healing and initial osseointegration, the second operation takes place. Small holes are punched in the gum tissue covering the fixtures. The abutments, which pass through the soft gum tissue, are then attached to the osseointegrated fixtures.

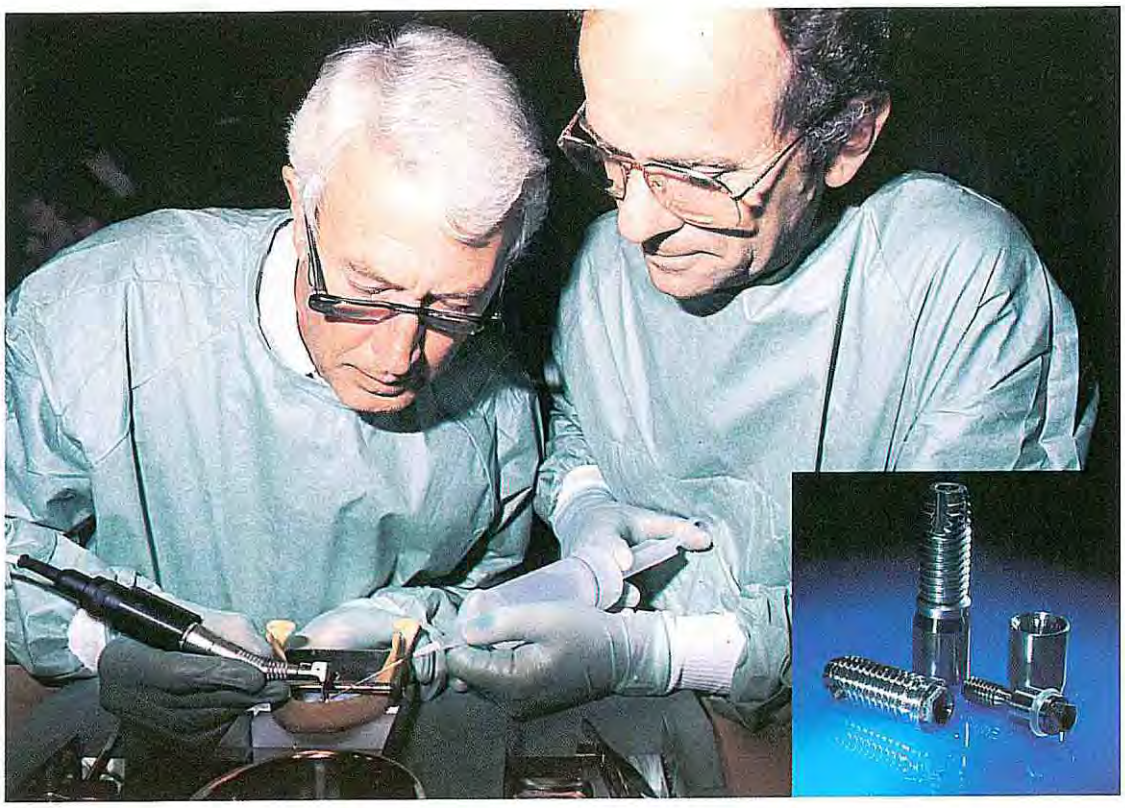
Prosthodontic Procedure

A few weeks later, a restorative dentist can complete the treatment by attaching a fixed dental prosthesis to the abutments and the patient can begin a lifetime with new teeth that can be used like natural ones.

An Additional Note

For the limited number of patients who cannot or should not be fitted with non-removable anchored prostheses, osseointegrated fixtures can nonetheless provide a functionally superior alternative to loose dentures. A metal bar fastened to two or three abutments provide secure anchorage for removable dentures.

Quality in Depth...



The Brånemark System encompasses a field of knowledge that has been continually growing ever since the observation of titanium-bone osseointegration in the early fifties, and its first application in restorative dentistry in the mid-sixties.

Over twenty years of documentation of the surgical and prosthetic procedures, the components, and the equipment used – as well as periodical patient follow-up – make the Brånemark System unique.

Brånemark System hardware consists of precision-made instruments and components of the highest possible quality.

The software of the system is a complete program of training, documentation and ongoing development.

In order to achieve results as good as those that were first noted by Dr. Brånemark and his co-workers in dental clinics around the world, thorough knowledge of the theory and practice of system implementation is necessary.

Every month, Nobelpharma holds a variety of courses in surgical procedures and prosthodontic techniques as well as special courses for dental technicians and nurses all over the world.

The Nobelpharma staff can train entire implant delivery teams composed of general practice dentists, oral surgeons, periodontists, prosthodontists and other professionals, and then assist the teams in establishing integrated inter-practice coordination.

Whenever questions arise, knowledgeable advisors at our subsidiaries all over the world are ready to provide you with immediate assistance.

...for the Patient's Sake

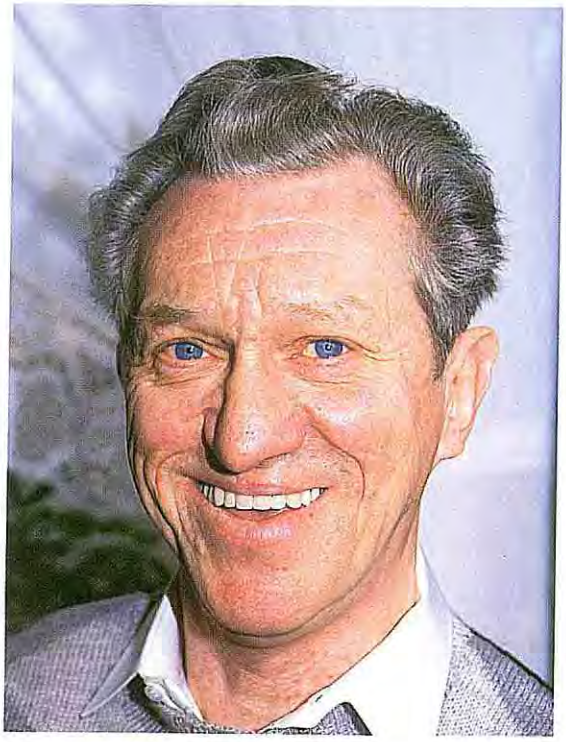
Flexibility is built into the Brånemark System. Full arch prostheses, overdentures, single tooth replacements or fixed partial prostheses can all be attached to the titanium abutments which, in turn, are connected to the osseointegrated fixtures.

Should the patient's needs change with the passing of time, the set screw system means that all the prosthetic components can be retrieved and replaced.

Trained Brånemark System clinicians are encouraged to participate in a worldwide treatment follow-up program. Not only do clinicians thereby contribute to ongoing research and development, they also gain access — for comparative purposes — to results from thousands of other clinicians all over the world.

The Nobelpharma computerized data documentation system is representative of Nobelpharma's commitment to continuing research and development of every aspect of the system.

Made up of a full range of hardware and software, the system is the product of an uncompromising search for progress and perfection worthy of the name: The Brånemark System.



The first patient, operated on in 1965, was provided with a mandibular full bridge. Ever since then, the patient's progress has been monitored by Dr. Brånemark and his associates. He has had no problems with the fixtures and the tissue integrated prosthesis continues to work well.

A few years ago, fixtures were also successfully implanted in the upper jaw for the retention of an upper prosthetic reconstruction.

A Few Words from the Experienced Professional

Dr. Oded Bahat, D.D.S., M.S.D.
Beverly Hills, California

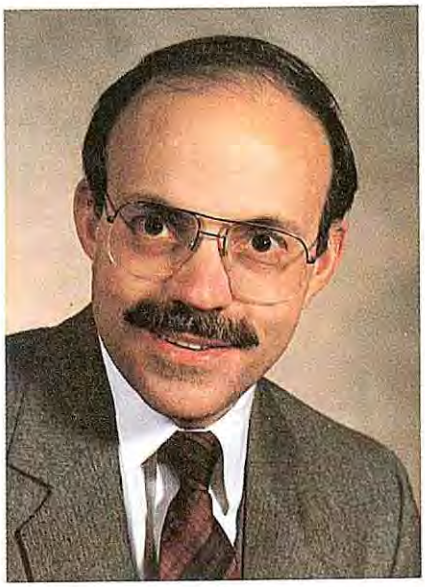
The Brånemark System allows us to offer another mode of treatment to partially edentulous patients, who otherwise would have had distal extension partial dentures or tooth bar partial dentures.

Partial edentulism is a terrible state, and this implant system provides such a beautiful solution.

The overall prognosis is exceptionally good. After wearing the prosthesis for a time, the patients don't feel any difference between the osseointegrated prostheses and their natural teeth.

Some of my patients are close family members. One of them was actually skeptical about implants, since he had seen so many implant systems in use over the years. He forced us to retain teeth with advanced periodontal disease and provide him only with some fixtures in the molar regions. After using his fixed denture he wanted to get rid of the periodontally involved teeth and had a second operation which added more fixtures. This resulted in a successful restoration and an esthetically pleasing result.

Our experiences with the Brånemark System are exceptionally good and well above our expectations.



Dr. Thomas Balshi, D.D.S., F.A.C.P.
Institute of Facial Esthetics
Fort Washington, Pennsylvania

The Brånemark System really gives us a very safe method of providing patients with a set of permanent teeth that may last a lifetime. Although we hesitate in calling anything permanent in dentistry, this, for the first time, is something we can refer to as permanent.

The major differences between this implant system and the implants we have had in the past are in the biomechanics, the biocompatibility and in the great predictability of success.

Never before in dentistry, or in medicine, have we had anything that was as predictably successful.

The high success rate is dependent on not only the implant material, but also on the technology that has been developed in the manipulation of the material: the surgical and prosthodontic treatment.

It is the product of teamwork. The team consists not only of surgeons and prosthodontists, but also of well-trained nurses, assistants and technicians. Additionally, it consists of the Nobelpharma support team that continually provides us with implants that have faultless surface texture and component parts of extremely high quality.

I think that with proper training and some ingenuity, we can make this system do absolute wonders.

Dr. Crystal Baxter, D.M.D., M.S.D.
Associate Professor Clinical Dentistry
University of Illinois

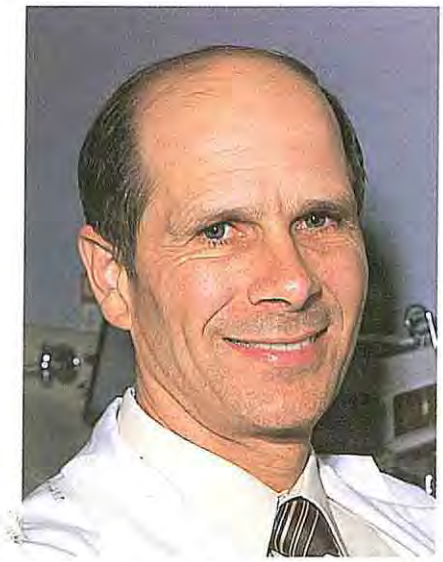
Personally, I have used the Brånemark System for treating patients ranging in age from 23, with congenitally missing teeth, to my little old osteoporotic ladies who are 83.

In treatment with conventional dentures, 98 percent of the cases always manage to end up with bone resorption. With implanted fixtures there is far less bone resorption. We believe that this is due to bone stimulation. The fixtures do not allow the same kind of atrophy to occur as with conventional dentures.

Bone is a continuously evolving, resorbing and remodelling living organ. The tissue must be treated with great respect if it's to survive and have a good healthy life.

This is the first and only system which truly treats the living organ, bone, with the respect that it deserves.

I don't do human experimentation in my practice and the Brånemark System is the only implant that has been proven. If necessary I would use it on myself, my own mother or anyone else.



Dr. John Beumer, III; D.D.S., M.S.
Professor, UCLA
Los Angeles, California

People often ask me about the advantages that the Brånemark System offers over conventional means of restoration, advantages which have excited us so much in dentistry. There really is not any comparison between the functional results that can be achieved with osseointegrated implant supported prostheses, compared with results achieved with conventional, removable partial or complete dentures. The patient is capable of generating 15 to 30 times the chewing force that he can generate with conventional removable dentures.

The Brånemark System allows me to fabricate just about any kind of prosthesis, to meet any of my patients' needs. It is easily adaptable to the overdenture patient and I consider this to be an excellent service for many of our patients.

The fixed bridge is a rather easy prosthesis to fabricate once one becomes familiar with the basic components.

I have not yet found a situation in either patients who are edentulous or partially edentulous, where I have not been able to fabricate a prosthesis supported by a Nobelpharma fixture.

Dr. Dent. Marcel De Clercq
Professor, Catholic University
Leuven, Belgium

In the School of Dentistry of the Catholic University in Leuven we have been working for five years with the Brånemark System. We have treated 170 patients with prosthetic appliances supported by osseointegrated implants. 60 additional patients have fixtures and are waiting for the prosthetic suprastructure.

The treatment of 50 patients is planned for the coming months. The waiting list is growing rapidly. We have been asked to expand not only by acquiring more dentists, but also by expanding the laboratory facilities and increasing the number of treatment chairs.

Treatment with osseointegrated implants increases the comfort of the patient, the esthetics and oral functional security. It increases the ability to chew and we see a reduction in psychological problems.

Concerning the fixtures: in a control period of five years, we reached a 96 percent success rate in the lower jaw, about 90 percent in the upper jaw and, in grafted cases, about 80 percent.

Dr. Patrick J. Henry, B.D.Sc., M.S.D., F.R.A.C.D.S.
Faculty of Dentistry
University of Western Australia
Perth, Australia

We first heard of the Brånemark System in 1980 when Dr. George Zarb came down to Australia on a lecture tour. He described it as a revolutionary breakthrough in the treatment of edentulous patients. This sounded fantastic, but we were not really sure.

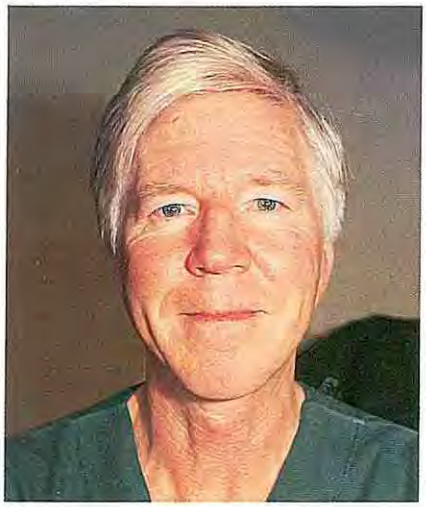
We took the first opportunity to travel to Sweden to see some of the patients and find out if what we had heard was, in fact, true. We were most impressed with what we saw and made the commitment to try to bring this treatment back to our country to treat our patients with it.

This system goes closer to returning patients to a normal situation than any other form of treatment can possibly do. The patient is really and truly rehabilitated in terms of being able to eat whatever he likes and in terms of having the psychological security of replacing missing teeth with ones that do not move.

This method of treatment also subjects the bone to tensional forces so that it does not resorb. At the present time, it appears that this system can be applied to most of the problems relating to missing teeth.

Dr. Lars Kristerson, D.D.S., Ph.D.
Associate Professor
Dept. of Oral and Maxillofacial Surgery
Malmö General Hospital, Sweden

I have been doing oral surgery for more than 30 years. 20 years ago I started transplanting teeth and since 1981 I have treated more than 300 patients with fixtures ad modum Brånemark. The success rate is very high. We have had success in the lower jaw in fully edentulous



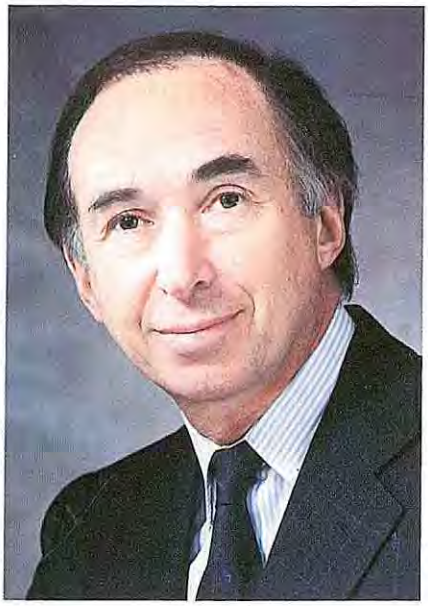
cases with about 98 — 98.5 percent of the fixtures and in the upper jaw, about 90 percent.

If the patient loses one or two fixtures, it may still be possible to attach a fixed bridge to the remainder and almost always provide the patient with an overdenture. We can, if necessary, put in new fixtures later on, if we have lost any.

For me, this is the only method I accept as a good treatment for edentulous or partially edentulous patients. It is necessary to satisfy the patient and the treatment should not cause any damage. The Brånemark System is a perfect way to meet these demands, in my opinion. The method is very well-documented and a lot of scientific research work has been done.

We started with the treatment of totally edentulous jaws, but now there is a very big demand for treating partial edentulism. For these cases, implants are perfect. If the patient loses additional teeth, we can go on installing more fixtures and then easily make a full bridge.

In the future, we will treat many young patients with single tooth replacements. It is much better to perform implant surgery instead of common bridge work with its associated damage to neighboring healthy teeth.



Dr. Burton Langer, D.M.D.
New York City, New York

I have been involved with implants on an interest basis for the last 20 years. Until the development of the Brånemark System, the implants I have seen were disappointments not only to me, but more importantly to the patient. The introduction of the Brånemark System is one of the major developments in the field of dentistry. It gives people the opportunity to replace their lost teeth, the implants becoming a part of their body.

I was overwhelmed when Dr. Brånemark presented his material. Our experience after treating 550 patients is that the success rate is exactly the same as the one Dr. Brånemark and his coworkers have reported.

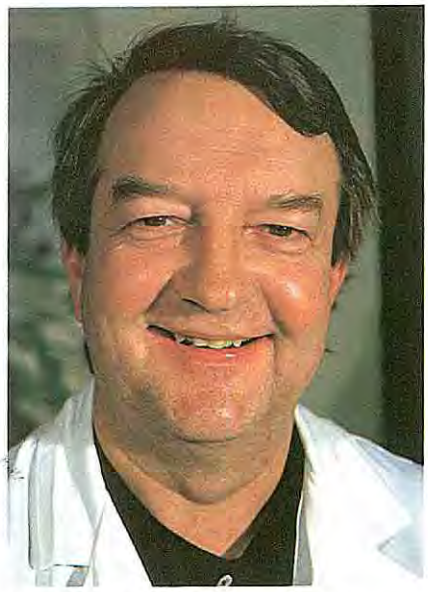
The response from the patients has also been overwhelmingly favourable. They are pleased in their new perception of themselves, their ability to chew and even the cosmetic aspects to a degree that probably has not been seen previously in dentistry in cases where people have lost teeth. This is the only system that has had 20 years of analytical research. For the first time we feel we have a biological replacement which satisfies all of our criteria of health and longevity.

Dr. Laureen Langer, D.D.S.
New York City, New York

One of the major advantages of the Brånemark System is that the treatment is relatively painless. The surgery is done under sterile conditions in our office clinic. It takes only a few hours and then the patient is allowed to go home. Usually a mild analgesic such as long-term aspirin completely eliminates the pain for them. By the next day, when we call the patients back to see how they are doing, they usually cannot believe how easy it was.

Of course it is easier for us to prescribe this procedure for the patient, knowing that the postoperative course of treatment is mild.

We are very happy with the long-term results and with the fact that we are now able to make the bridges very esthetic. Most of the patients report that it is like chewing with their own teeth again and that they can eat anything they want. They are not afraid of going out in public. They are not afraid to laugh. The denture is not going to fall out. It is just as though they were given another chance to have their own teeth again.



Dr. Ulf Lindén, D.D.S., Consultant
Dept. of Oral Prosthodontics
Malmö General Hospital, Sweden

Having been a prosthodontist for many years, I have had a lot of experience with patients who cannot wear even very well-made conventional prostheses. They wish, above all, for something that could function as their own teeth did.

With the Brånemark System we can give the patient a jaw anchored bridge or good retention for an overdenture.

We treated our first patient in 1980 and our oral surgeons have put in more than 1000 fixtures to date.

By 'success', I mean that the patient can have and use a jaw anchored bridge. In our clinic we have had 100 percent success in the mandible and nearly 100 percent in the maxilla.

The system has the great advantage of flexibility, since it is possible to install more fixtures later on if needed. The bridge can be easily unscrewed from the implants and readjusted. You can put more teeth on the implants and more implants under the bridge.

Dr. Myron Nevins, D.D.S.
Institute of Advanced Dental Studies
Swampscott, Massachusetts

The predictability of the Brånemark System has overwhelmingly led to my using implantology to a greater degree than limiting it's use to the edentulous, problem patient who has no other alternative. It has enabled me to help many other people with difficult partial dentures.

This opinion of implants was greatly enhanced by having the opportunity to

view a large number of patients during a visit to Gothenburg for a session with Dr. Brånemark.

Following that trip, I immediately integrated the system into our therapy and treatment program.

Our experience today, after approximately two years, is very positive, and we have had an overwhelming percentage of successful results. The patients we have treated are managing very nicely.

In each case we try to improve upon factors that we became aware of in the previous case. I think this evolution will continue with the system for a long time to come.

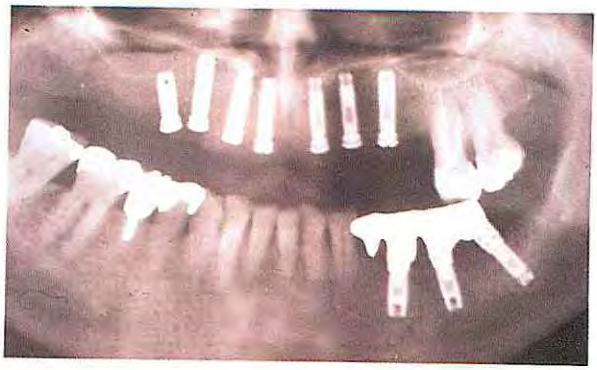
Dr. Jack Preston, D.D.S.
Director, Advanced Education in Prosthodontics
School of Dentistry, USC
Los Angeles, California

I think I can safely say that the Brånemark System has had more impact on the way dentistry is practiced in the USA today than any single factor during this decade. It is finally possible to reverse many aging changes and give the patient a new feeling of self-confidence and a new self-image.

People in the USA are very demanding esthetically and self-image is one of the major motivating factors for patients to seek dental care. It is probably in the esthetic aspect of the Brånemark System that most of the changes have been made in this country. It is also where I believe that most of the future changes are going to be made.

If everything is right and everything is done well, the results can be outstanding.

Partial Edentulism, Upper and Lower Jaw



The patient, a female restaurant-keeper, presented partial edentulism with loss of left mandibular bicuspids and molars. Due to advanced periodontal breakdown, only the first and second upper left molars could be saved. Seven fixtures were implanted in the maxilla and three in the mandibula. After healing and abutment connection, two tissue integrated prostheses were attached.

Surgeon:
Dr. Jean-François Tulasne

Prosthodontist:
Dr. Guy Huré

Technician:
Mr. Daniel Cordier

Partial Edentulism, Upper Jaw

The patient presented advanced periodontal breakdown in the upper jaw and moderate periodontal breakdown in the lower jaw.

After periodontal treatment, only the two central incisors of the upper jaw could be saved.

The lower jaw was treated (except for the two second molars) and the restorations were completed in porcelain (except for the first lower premolar).

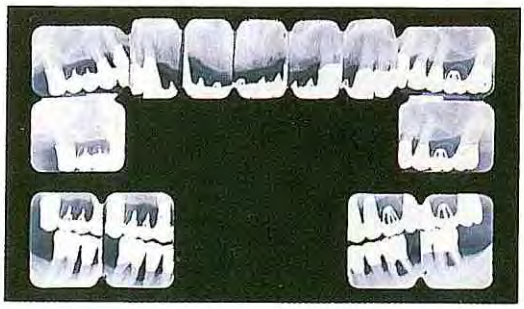
In the upper jaw, three 10 mm fixtures were installed bilaterally upon which two 5-unit bridges made of Isosit® bonded to metal were anchored. The two central incisors were restored with porcelain fused to metal crowns separate from the two quadrant bridges.

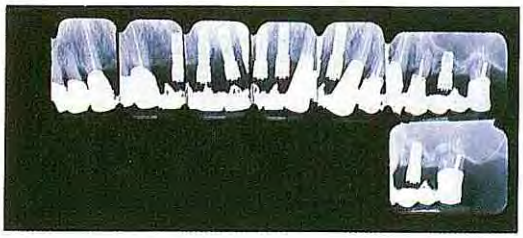
Surgeon:
Dr. M. Demanet

Prosthodontist:
Dr. I. Naert

Technician:
Mr. J. Croes

Partial Edentulism, Upper Jaw





The patient is a record producer who had received periodontal, endodontic and reconstructive therapy. The maxillary prosthesis and underlying teeth were failing due to advanced periodontitis and recurring apical pathology.

The patient refused to wear a removable prosthesis as an interim appliance, so we removed the anterior and right prostheses and placed three fixtures between the upper right cuspid, the left cuspid, and one fixture distal to the upper right bicuspid.

After osseointegration and uncovering, the upper right cuspid and first molar were extracted. A new prosthesis was fabricated leaving the left side intact and undisturbed. He has had two years of uneventful comfort and is very pleased.

Surgeons:
Dr. Burton Langer
Dr. Laureen Langer

Prosthodontist:
Dr. Larry Calagna

Technician:
Mr. Leonard Marotta

Partial Edentulism, Lower Jaw

The patient is a TV producer and actress, who finds it essential to have good looking teeth. In her childhood the teeth in the mandibular left sextant were extracted and replaced with a fixed bridge construction.

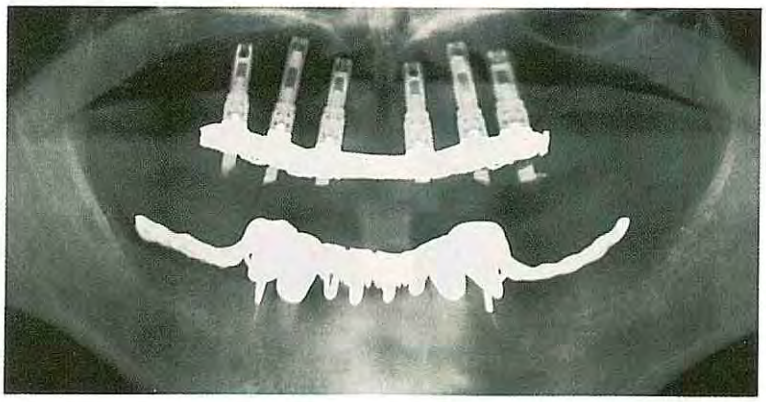
Some years ago the root of one of the supporting teeth was fractured and the bridge failed. The patient was told about treatment with the Brånemark System, but hesitated since she confused it with an inferior type of implant which she called "bear-traps".

Two ten millimeter fixtures were placed in the mandibular left sextant, upon which a porcelain restoration was anchored.

Afterwards, the patient considered her anxiety before the fixture operation as the worst part of the treatment.

Surgeons:
Dr. Oded Bahat, Dr. Melvin Wishan, Dr. Alvin Rosenblum.

Maxillary Full Bridge



The patient, a 65 year-old female, lost her three remaining teeth due to fractures in two of the roots. All three teeth where extracted and a full upper denture was made.

Six months later, six fixtures were installed and, after healing, a bridge was constructed. The bridge was specially made and was esthetically satisfactory to the patient.

Surgeon:
Dr. Morgan Olsson

Prosthodontist:
Dr. Johan Gunne

Technicians:
Ms. Karin Tideman, Mr. Donald Selman

Maxillary Full Bridge

The patient, a 64 year-old woman, lost her upper front teeth in an accident in 1958. Subsequently, she has lost additional teeth in the upper jaw. Food lodging in between her prosthesis and gums has been a source of discomfort and the patient reported difficulty in wearing dentures.

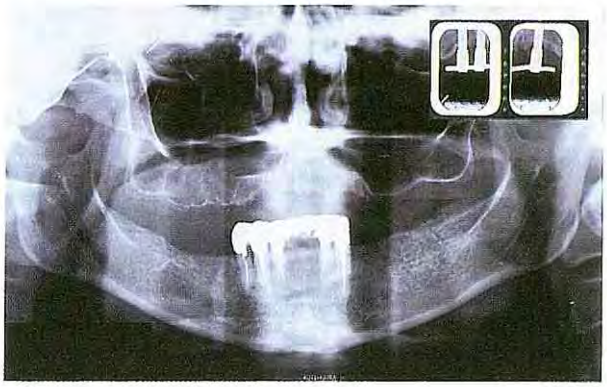
Five fixtures were installed. One of them had to be removed later on, since osseointegration did not take place. The remaining four have integrated well and the patient has received a functioning, fixed permanent prosthesis which is completely satisfactory from a cosmetic point of view, as well.

Surgeon:
Dr. Per Gunnar Nord

Prosthodontist:
Dr. Bo Engquist

Technicians:
Mr. Rickard Kapusta, Mr. Tore Nilsson

Overdenture, Upper Jaw



The patient is a 67 year-old woman whose full upper denture caused her to feel nauseous. This created problems for her, especially at work. She was repeatedly forced to go into the lavatory to remove her dentures, often leaving customers abruptly when doing so.

Socially, she became increasingly isolated since she was forced to eat alone for this reason only. Three fixtures could be installed in the upper jaw and an alveolar bar was attached to them. The retention system made it possible to reduce the denture base. The patient reports that she finds her new overdenture both functionally and esthetically satisfactory.

Surgeon:
Dr. Per Gunnar Nord

Prosthodontist:
Dr. Bo Engquist

Technicians:
Mr. Rickard Kapusta, Mr. Tore Nilsson

Partial Edentulism, Lower Jaw

The patient presented full collapsed occlusion, advanced breakdown and partial edentulism in the mandibular right sextant.

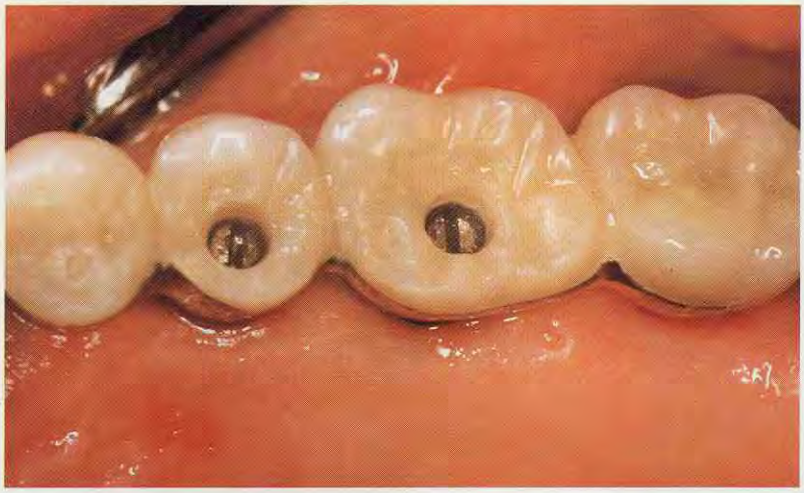
After serial extractions and endodontic treatment, three fixtures of 13, 7, and 10 mm were placed in the mandibular right sextant. Full occlusal rehabilitation was performed using porcelain fused to metal restorations on the natural teeth and a separate Isosit ® bonded to metal bridge on the fixtures.

Surgeons:
Prof. Dr. D. van Steenberghe
Dr. M. Quirynen

Prosthodontist:
Prof. Dr. Dent. M. De Clercq

Technician:
Mr. I. Denil

Versatility



This partially edentulous case shows the versatility of the Brånemark System. Two fixtures were placed in the upper right quadrant of the maxilla. A three unit bridge was attached.

Later on, the patient lost the second right molar. The bridge was unscrewed and the composite material was burned out. A pontic was added and soldered to the existing frame. New composite material was then baked onto a four unit bridge.

Dr. Guy Huré

Partial Edentulism, Upper Jaw

The patient is a 41 year-old active talent scout who lost teeth 13-21 due to periodontic problems. In May 1986, three 15 mm fixtures were installed. The second stage of surgery was performed five months later. A tissue integrated bridge was attached two months later. For the patient, this has led to a functionally as well as an esthetically superior situation.

Osseointegration Unit
University of Toronto

Frontal Maxillary Trauma

The patient is a 30 year-old female who lost teeth no. 12-23 in an accident in 1971. A partial prosthesis was made. It was remodelled several times since it became unstable. After having read in a newspaper about tissue integrated prostheses, the patient discussed this treatment with her local dentist. She was referred to us and, in January 1987, three fixtures were implanted.

Six months later the abutments were connected. A gold-acrylic prosthesis was delivered and the patient is fully satisfied about the function as well as the esthetics of the work.

Surgeon:
Dr. Lars Kristerson

Prosthodontist:
Dr. Ulf Lindén

Technician:
Mr. Antonio de Oliveira

Frontal Maxillary Trauma

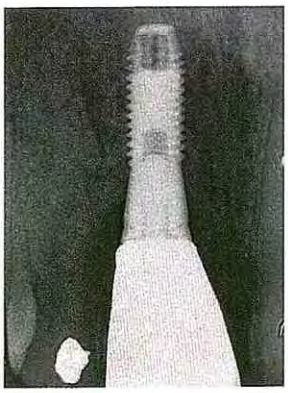
The patient is a 23 year-old female who lost her maxillary central and lateral incisors in a water skiing accident ten years ago. These teeth were reimplantated on the same day. The patient had continued sensitivity over the following seven years and, in July 1985, the four incisors were extracted.

The patient came to our office realizing her need for prosthodontic treatment and, in January 1986, two fixtures were installed. The second stage of surgery was performed seven months later. That same day, the patient received a conversion prosthesis. About one month later, a final double casting tissue integrated prosthesis was delivered. Because of the severe defect in the premaxilla, a gingival replacement unit was fabricated. The unit masked the titanium abutment and restored the contour of the soft tissue which had been lost.

Prosthodontics Intermedica
Institute for Facial Esthetics

Prosthodontist:
Dr. Thomas J. Balshi

Single Tooth Replacement



The patient is a 37 year-old dentist specializing in orthodontics. She lost her right central incisor several years ago. It was initially replaced with a bar from the second bicuspid and the first molar.

Caries developed under the bar where it was connected with a crown and the bar had to be removed. A self tapping fixture was installed. After six months healing, a porcelain fused to metal crown was installed.

Surgeon:
Dr. Morgan Olsson

Prosthodontist:
Dr. Hans Nilson

Technician:
Ms. Ulla-Lena Nilsson

Single Tooth Replacement

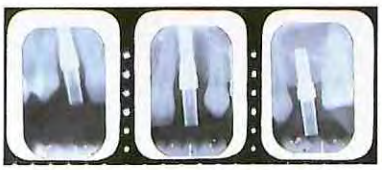
The patient is a 19 year-old female who lacked the germ for the permanent tooth 13. After extraction of a persistent baby tooth no. 53 and following sufficient healing time, one 10 mm fixture was implanted in position no. 13. A 5.5 mm abutment was connected after 7 months healing. The abutment was finally replaced by an acrylic tooth built on a single tooth abutment.

Surgeon:
Dr. L - E Carlsson

Prosthodontist:
Dr. Ulf Lindén

Technician:
Mr. Antonio de Oliveira

Single Tooth Replacements



The patient is a 23 year-old woman suffering from multiple dental agenesia. Earlier treatment with composite retained onlay bridges had been problematic. The bridges repeatedly came loose.

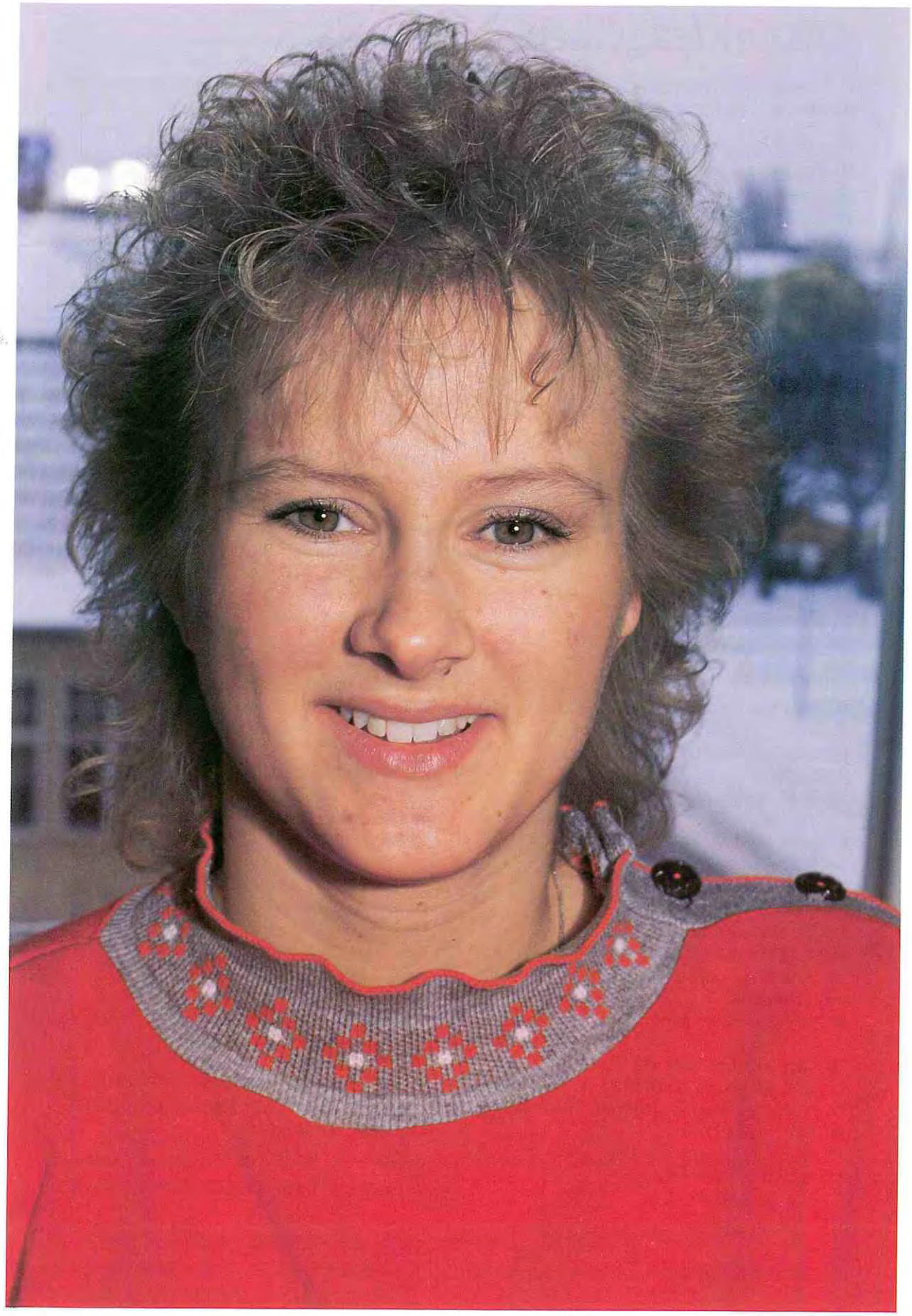
Two 15 mm self tapping fixtures were installed in positions 12 and 22. A 10 mm standard fixture was installed in position 24.

After healing, standard abutments were replaced by single teeth built on single tooth abutments.

Surgeon:
Dr. Per Gunnar Nord

Prosthodontist:
Dr. Bo Engquist

Technicians:
Mr. Rickard Kapusta, Mr. Tore Nilsson



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