Six Month Smiles - straight teeth in less time

Nick Simon explains how GDPs can offer patients a great smile in just six months

We have all experienced the increasing demand from members of the public for an improved smile. More and more people are aware that having a great smile is no longer restricted to celebrities. However, they are also increasingly aware that the preparation of teeth to be fitted with crowns and veneers can have a high biological and actual cost. They also have objections to orthodontic treatment, the visibility of braces and lengthy treatment times being the main ones.

In the last decade, GDPs, who often complete their undergraduate studies with little fixed wire orthodontic knowledge, have been offered a teeth straightening system for their patients in the form of Invisible®. However, there are limitations with clear aligners – the treatment times can be lengthy and difficult to predict, lab bills can be high and it is difficult to correct rotations (eg canines) and intrusional/extrusional movements.

Within the dental community and among orthodontists, braces are widely recognised as the most effective and efficient method of straightening teeth, giving the most predictable result. The short-term orthodontic system is a system that allows GDPs to meet the needs of patients who have crooked or spaced teeth in an average of just six months, using clear braces and tooth coloured wires. The system, like aligners, is cosmetically focused – it is not a replacement for traditional orthodontics. The goals of treatment are not as comprehensive but it provides a much needed alternative for adults that aren’t interested in conventional orthodontic treatment.

The short treatment times associated with the Six Month Smiles System are possible for two primary reasons:

- Cosmetically focused treatment goals
- Unique and specific brackets and wires

The short-term orthodontic brackets are pre-positioned at the Six Month Smiles case processing facility and placed in clear bonding trays. This makes bracket placement extremely easy and precise. Additionally, the orthodontic wires have shape memory and work in conjunction with the pre-positioned brackets to gently guide the teeth into their new position. As the arch-wires return to their original shape via their shape memory, the overall symmetry of the smile is dramatically improved as the teeth are straightened. The Six Month Smiles System utilises tooth coloured arch wires and clear brackets, both of which are very patient-friendly because they are barely visible. These inconspicuous appliances, together with the short treatment times, overcome the usual objections patients have when considering traditional orthodontic therapy.

The Six Month Smiles Patient Tray Kits™ contain all the brackets, wires and accessories a dentist requires to complete a particular patient’s treatment. This systemised aspect of the process makes it remarkably easy for GDPs to implement, regardless of their orthodontic experience. Transferring the placed brackets to the teeth is as easy as seating a whitening tray. Before seating, the bases of the brackets in the bonding trays are coated with a small amount of flowable composite and then seated onto the etched and primed teeth. After light curing, the trays are peeled off to leave the brackets optimally positioned. This process helps ensure that the initial bonding appointment is fast, predict-
Nick Simon is a general dental practitioner working in Ealing, West London. In 2008, he was one of the first group of UK dentists to become accredited with Six Month Smiles in the USA and is currently a mentor with the Six Month Smiles online forum.

Many treatments are possible using the Six Month Smiles System. It can be used to:

- Alleviate crowding, over-lapped, rotated teeth and high canines
- Correct anterior crossbites
- Close spaces
- Treat open bites of dental-vestoar cause
- Level the gingival zeniths
- Treat deep bites
- Over-erupted teeth destined to be replaced with implants to increase the bone available for placement
- Provide rounded arches, free of crowding, for future veneer preparation

However, Six Month Smiles is not generally used to treat the following conditions:

- Correction of molar relationships and posterior bite discrepancies
- Large open bites and those of skeletal origin
- Bilateral cross bites
- Centriline discrepancies

Offering Six Month Smiles treatment has many advantages for dental practices. Most importantly, it is a treatment that patients are keen to have and many of your current patients would most likely benefit from it. It also helps to promote further cosmetic dentistry - veneers require significantly less preparation when placed on aligned teeth compared to crowded teeth. It is typically more economical for the patient than conventional orthodontics and, for dentists, it is an enjoyable and satisfying treatment to perform.

Six Month Smiles offers regular clinical training, through two-day hands-on seminars. Even GDPs with no previous orthodontic experience can leave a seminar with the confidence and knowledge needed to select the proper cases and treat them appropriately. Advanced level training and clinical support are also on offer together with a complete package of marketing materials, tools and accessories.

You can learn more about Six Month Smiles at www.SixMonthSmiles.com.
Lase to amaze
Dr Kirpa Johar presents a case

Today’s patients expect restorations that are both functional and aesthetic. Unlike yesteryear’s, today’s patients have better knowledge of the advanced materials available and state-of-art equipment. Consequently, they have high expectations when designing their smile and other procedures to achieve optimum results. The specialist’s main aim is to achieve complete oral rehabilitation in the most conservative manner.

When choosing a treatment option, dentists and technicians must satisfy both the clinical criteria and the patient’s expectations. To design the optimal outcome for a patient during aesthetic enhancement, the dentist must seek to create a symmetrical and harmonious relationship between the lips, gingival architecture and the positions of the natural dentition.

Case report
A 27-year-old patient visited our practice with the chief complaint of attrition in the lower front teeth and generalised discoloration of all the teeth. He also complained of reduced visibility of the lower anterior teeth along with blackish discoloration of the gingiva.

Examination and treatment plan
Clinical examination revealed attrition of the lower anterior teeth up to the level of the middle third of the coronal tooth structure in relation to teeth 11, 12, 31 and 32. All the teeth were discoloured and extrinsic stains due to the patient’s seven-year history of tobacco chewing (as reported by the patient) were present.

Overall gingival asymmetry was observed. Generalised pigmentation of the gingiva was also observed (Figs 1, 2). It was decided to treat the patient in four phases.

Phase 1: Preliminary phase
Impressions were taken and study models were prepared. An OPG was taken. Oral prophylaxis was done. The patient was recalled after two days for further treatment.

Phase 2: Surgical phase
The second phase entailed a laser-assisted gingivectomy and laser-assisted endodontic sterilisation.
ate the gingival margin contours required to perform the aesthetic crown lengthening procedure. The surgical site was anaesthetised and the biological width was determined.

A 980nm diode laser with a 400μ cable was used for the surgical procedure. The amount of gingival tissue to be incised was outlined. Initial incision for the laser-assisted gingivectomy was similar to that of using a blade with an external bevel approach. The distance of the incision from the coronal marginal gingiva is based on the pocket depth and the amount of attached gingiva. The gingival chamfer is achieved and the initial cut is made slightly apical to the pocket depth measurement. A slow, unidirectional hand motion is used, moving the tip at an external bevel towards the tooth structure. Caution is necessary, especially near the root structure, because of a possible laser - hard tissue interaction, which could harm the tissue. During the course of surgery, care was taken to maintain the biological width and to preserve the attached gingiva (Figs 3, 4, 5). The access cavity was prepared according to the traditional method. The rotary instruments were used along with the ProTaper files for cleaning and shaping the root canals.

Sterilisation
A 980nm diode laser with a 200μ cable was used for sterilisation of the canals along with regular chemical disinfectants. The advantage of laser sterilisation to a conventional irrigant regime to provide sterilisation is that while irrigating solutions have a limited depth of penetration, the laser beam transmitted through the tip of a fibre is emitted in a lateral direction and has an effective penetration depth of more than 1,000μm. This was followed by obturation and coronal access restoration with composites. The patient was recalled after one week for further treatment.

Phase 3: Aesthetic phase
The third phase entailed laser-assisted depigmentation and laser-assisted bleaching.
The diode laser was used at 2W, continuous wave in a defocused mode. This causes a reduced depth of penetration, ablation only the superficial epithelium, which primarily contains the melanin pigments, leaving behind a carbonised layer. Only a surface anaesthetic spray was used for this procedure.

Bleaching

Laser light has the unique property of being absorbed by the chromophores. These emulsions can be added to the bleaching gel, which are capable of absorbing laser energy and thus inducing and promoting a fast, safe and effective reaction. Check and tongue retractors were positioned and a dry operatory was maintained.

The gingival protection material was applied along the margin of the gingival covering approximately 1mm from the tooth surface in the cervical region. The bleaching gel was applied to teeth #41, 21, 12 and 22. Each tooth was then irradiated for 30 seconds in the same sequence, constantly moving the tip of the laser, so that the laser energy was not directed at one place (at 1W). Fluoride gel was applied to each tooth and irradiated with the laser for 15 seconds to provide resistance to acid attacks on enamel and dentine. The patient was recalled after two weeks.

Phase 4: Prosthetic phase

Crown preparation of teeth #42, 41, 52 and 51 was done. Elastomeric impressions were taken. Bite registration records were taken and the appropriate shade was sent to the laboratory for the fabrication of the crowns. Temporary restorations were fabricated using temporisation material. The patient was recalled after six days for the cementation of the crowns. Excess cement was removed, the occlusion was adjusted and contours were checked.

Inference

The final result showed that the definitive restorations and the soft-tissue procedures had restored the normal form, function and harmony of the oral cavity, while keeping the patient’s functional and aesthetic concerns in mind.

About the author

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A female student of 20 years of age was referred for a consultation regarding replacement of her failing resin bonded bridge (Fig 1). She gave a history of having congenital absence of the maxillary right lateral incisor tooth. Fixed appliance orthodontic treatment had been used to create adequate mesio distal space for a bridge pontic. The space measured 7.5mm.

There was a deficiency of the labial plate in the 12 site and the patient complained of a dark appearance at the gingival zenith of the bridge pontic. The bridge had repeatedly decemented and had a poor fit where excess cement was present and possible proclination of the bridge retaining tooth 11 had occurred (Fig 2).

Treatment options were discussed, including a further resin bonded bridge, a removable partial denture or an implant retained crown. Poor long-term success rates for resin-bonded bridges with failure rates of up to 75 per cent after six years can be expected.1

The patient and her parents decided to proceed with the implant option. Initially study casts were fabricated and an in-house cone beam CT scan undertaken (Gendex i Cat) to achieve a 3D image of the proposed implant recipient site. The scanned zone was minimised to reduce the radiographic exposure to the patient.

The scan result confirmed a narrow ridge, but adequate width for placement of a narrow platform 3.5mm diameter NobelReplace Tapered Groovy implant with simultaneous guided bone regeneration using a xenograft (Bio-Oss and Biogide Membrane) (Fig 3).

We planned to use the new NobelReplace Tapered Groovy implant with a conical connection. This is a combination of the successful Replace implant with a different platform connection based on the NobelActive implant, which is designed to provide a tight coronal seal and a platform shift which gives good aesthetic results by reducing the microgap.

With a platform shift concept, designers aim to move the implant abutment interface away from the periphery of the implant thus attempting to maintain good bone levels. When possible, it is intended to place the conical connection implant slightly sub-crestal to allow bone deposition coronal to the implant platform.

A surgical guide was fabricated to allow angulation of the implant for a screw retained crown. Whenever possible, I use screw retained crowns to prevent the necessity of cement with the potential risk of cement extrusion on cementation and also to facilitate retrievability.

A crestal incision with buccal flap elevation with no relieving incisions was used to minimise the risk of compromising the blood supply to the mucoperiosteum. Confirmation of a narrow ridge was made and osteotomy preparation undertaken up to 3.5mm diameter and 10mm length (Fig 6).

A Nobel Replace Tapered Conical Connection implant was inserted at 35Ncm torque achieving good primary stability. The coronal 2.0mm of
the head of the implant was exposed on the labial aspect and this surface covered with Bio-Oss and BioGide resorbable membrane. No gingival or periosteal relieving incisions were required to achieve complete tension free primary closure.

The resin bonded bridge was re-cemented using a resin reinforced glass ionomer cement to achieve ease of de-cementation at the subsequent prosthetic appointments.

After an integration period of four months, second stage surgery using a simple crestal incision allowed placement of the healing abutment ensuring minimal pressure on the peri-implant tissues.

A closed tray impression technique followed (Fig 7) with delivery of a Zirconia screw-retained crown three weeks later. The Nobel-Procera CAD-CAM technique was employed whereby our laboratory, Fusion Dental in Newbury designed the framework, scanned the resin template and forwarded this to the Nobel Biocare facility in Stockholm. The feldspathic ceramic was built up expertly by Eva Forst directly onto the Zirconia. This material gives good biocompatible results and excellent aesthetics (Fig 8). The screw access hole can be almost invisible with matching composite resins. The use of ceramo-metal restorations can be an aesthetic issue with mandibular restorations when it can be difficult to mask the metal of the screw access hole.

A balanced aesthetic result was achieved with a gingival zenith matching that of the contra lateral tooth. Colour and texture of the perimplant gingival tissues was considered good although further maturation of the labial tissue is expected to occur. There was a slight loss of mesial papilla pre implant placement but due to good interdental crestal bone levels (Fig 9) on the adjacent teeth, I expect full papillary infilling to be restored within the next six months as per Dennis Tarnow’s study.3

The patient and her parents were pleased with both the functional and aesthetic result.

I feel we have achieved a good result very simply, using the latest offering from Nobel Biocare, based on sound biomechanical principles and bio-compatible materials.  

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**About the author**

Philip Pettemerides BDS DPDS Dip Imp Dent graduated from the University of Sheffield in 1976 and is the principal dentist at Edgar Buildings Dental Care in Bath. His many memberships include Executive Committee Member of the British Academy of Aesthetic Dentistry. Philip achieved the Certificate, Advanced Certificate and Diploma in Implant dentistry with distinction from the UCL Eastman Dental Institute, and trained in the All-on-4® system under the guidance of the concept’s founder, Pascal Malo, in Lisbon. He has published several articles in scientific journals and frequently lectured for Nobel Biocare, where he is currently the lead presenter for The Nobel Biocare Procera Roadshow.

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**References**


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There was a time not so very long ago when dentists looking for advanced education, especially in the field of cosmetics, really had no choice but to travel to the USA. Times have changed!

At the recent eighth Annual Conference of the British Academy of Cosmetic Dentistry (BACD), more than 30 excellent lecturers, nearly all from the UK and Europe, delivered a meeting that was described by the delegates as “the best one ever”.

What is the secret of the success of a major seminar? Balance - balance between subjects and ideas and between approach and execution. Variety - most delegates were general practitioners; therefore, a conference concentrating on a single theme would not have been appropriate to everyone present.

The theme of the meeting was “Minimal intervention”. How can we produce the best possible results while doing the least amount of damage? The days of aggressive crown and veneer preparation are over. This seminar highlighted the use of composite resin and minimal or no-preparation full or additional veneers.

And there was more! The meeting offered lectures and workshops on numerous subjects to help build better practices, as well as seminars on photography, practice management, marketing and team-building for clinicians and all dental team members.

Who was speaking? There were too many to list I therefore apologise to those not mentioned! Amongst the well-known clinicians who shared their experience and learning was Dr Mauro Fradeani, who lectured on the opening day of the three-day conference. This outstanding clinician explained in detail the choice and protocols demanded for the production of metal-free ceramic restorations.

Dr Sanjay Sethi, who is passionate about minimal intervention but requires the very best aesthetics for his patients, stressed that all dentistry must follow strict ethical guidelines.

Prof Trevor Burke expanded on the theme of “Do no harm” and encouraged practitioners to make the best possible use of remaining tooth structure as a framework for building reliable restorations.

For Dr Federico Ferraris adhesion is the key! Whether using direct or indirect procedures the avoidance of micro leakage is paramount in producing excellent longevity.

Dr Joerd van der Meer spoke about digital impression, a technology that is improving rapidly and opening exciting possibilities.

In his lecture, Dr Jason Smithson explained that warm
composite undergoes better monomer conversion, leading to stronger posterior composite fillings, and described his technique in detail.

Our dental trade partners supported the conference with an exhibition that featured more than 40 companies supplying a variety of products from further educational material to high-technology equipment.

Let’s get back to balance - this time I am referring to the balance between work and play! Delegates enjoyed many treats during the meeting, including entertainment during the Opening Ceremony, a drinks reception featuring traditional Turkish dancing and a Gala Charity Dinner, during which a substantial sum was raised to support Bridge2Aid, a charity working amongst the underprivileged in Africa.

Balance is important. This year, there were few American accents. Next year, there will be more. It is valuable to consider trends and treatments from both sides of the Atlantic to be able to form a balanced view of the international future of dentistry and make decisions about where we want to place ourselves in this.

If you missed this meeting, you missed what delegates described as “The best BACD meeting ever!”

Make sure you come to the next one!

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*If you missed this meeting, you missed what delegates described as “The best BACD meeting ever!”*
As patients get older, anterior teeth commonly show wear, chipping and discolouration. These changes are the result of a number of factors associated with ageing. There is increased awareness of these unattractive teeth and the desire to have a more youthful appearance. Because of the recent media attention on changing one’s appearance with veneers, there is a much greater demand for cosmetic dentistry procedures.

Over the years in the practice of dentistry, I have developed products and techniques that have improved my practice significantly. However, it was not until I took on an associate, who had been in practice for 18 years that I became aware that these were new and innovative ideas to him, as well as to other dentists he knew.

I have been placing veneers for more than 25 years and developed a technique that can make a single veneer blend so naturally that it’s undetectable. Various nuances in technique make preparing and bonding veneers quick and easy. I have a CEREC machine that works especially well for a single veneer. Six or eight veneers can be done on the CEREC, but this is then rather time consuming. Two or three cases of the same number of teeth could have been prepared, impressions taken and sent to a laboratory in the same period. It is more cost effective to use a laboratory but you have to have the best laboratory available to you if you expect perfect results.

Feldspathic porcelain is the only material that will look natural. Pressed ceramics will look more opaque, somewhere between a porcelain-fused to metal restoration and a natural tooth. For patients requesting brilliant white, feldspathic porcelain can work well too and one can adjust the colour by the bonding composite used under the veneer. Very little shade adjustment can be done under pressed ceramic porcelain. Flowable composites work the best and come in many shades, which makes shade adjustments easy. The flowable composite by Kerr has the right consistency for veneers and with OptiBond Solo the company offers the strongest bonding agent.

The preparation requires only a little more than 0.5mm of reduction so that it does not go through the enamel, if possible. The bond is the best on enamel. There should be the same reduction over the total facial surface for the laboratory to make a perfect veneer. Cut three or four depth grooves of 0.5mm then remove the enamel to the grooves.

If instant orthodontics is the treatment plan, some teeth may need to be reduced more and others less. Run the preparation interproximally from gingival to incisal to hide the margin visually, but do not break the contact point. The gingival margin should be at the gingival crest or a little below. It should have a chamfer for ease of finishing, precluding any chipping at the margin. Some dentine will show through at the gingival margin because the enamel is less thick there. If there is room, insert a thin piece of gingival braid, which can be left there during the impression. Reduce the incisal by approximately 1mm so the finish line is on the lingual, and round the incisal-facial junction so that there are no potential fracture lines in the veneer.

When the veneers come back from an excellent laboratory there should be little or no adjustments necessary before bonding them to the teeth. Etch them with hydrofluoric acid gel for at least three minutes. Rinse them thoroughly, neutralise them with a baking-soda slurry and then rinse them thoroughly again. Dry them with a dry air source until a chalky appearance is visible on the interior of the veneer. Ceramic primer is then applied for one
minute. Dry until it is chalky again and apply another coat of ceramic primer. Leave the primer on while the teeth are etched with phosphoric acid gel for 50 seconds. Rinse thoroughly and dry the teeth and veneers until a chalky appearance shows on both.

Turn the operatory light off and then apply bonding to the teeth and the veneers. Place the flowable composite onto the veneers one at a time for placement. Place all of the veneers and ensure they are correctly situated. With two hands, hold the distal two veneers (teeth #5 and #6) in place leaving a space only large enough for a curing light to shine in between. Shield the rest of the veneers with your hand so that the light will not set any of the other composite except the interproximal space between veneers #5 and #6. Cure for only two seconds. Repeat the same process for the rest of the veneers, moving from #7 to #8 and so on, until all of the interproximal spaces have been cured for two seconds each, including the distal of the last veneer on the other side.

Now cure the centre of each veneer for two seconds and then the lingual incisal of each for two seconds too. If cured for longer than this, it is very difficult to remove the excess composite and much time is consumed in the process.

The first step in removing the excess composite is the use of a Bard-Parker #12 scalpel. With a palm grasp and

If cured for longer than this, it is very difficult to remove the excess composite and much time is consumed in the process

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your thumb resting on the incisal edge of a tooth, engage the flat side of the blade close to the incisal edge and push gingivally to loosen the interproximal composite.

Continue until most of the composite has been loosened and removed. Use a Wedel-stadt chisel in the same fashion to loosen the gingival composite. To break the contact, a serrated interproximal strip is used in a cross-cut sawing fashion.

The Bard-Parker #12 scalpel is used again to remove more interproximal composite. Blue tipped diamond strips are then used to remove any remaining composite and a yellow-tipped diamond strip is used to smooth. Adjust the bite, polish and you are done. Figures 1a to 5b demonstrate the good results of the technique described in this article.


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About the author

Dr L Emery Karst, a graduate of Loma Linda University’s School of Dentistry, has been practicing the art of cosmetic dentistry for more than 20 years. Although he enjoys cosmetic dentistry the most, he also regularly undertakes work in endodontics, implants, crown and bridge and other techniques. Dr Karst’s articles on endodontics and cosmetic techniques have been published in Dentistry Today. He also lectured on endodontics at the Oregon State Dental Convention in 2010.