Tailored Solutions Through Technology

The best techniques and technology at Imperial Dental Specialist Centre.

While many of us fear dentists and avoid the necessary annual dental consultation, oral check-ups remain one of the most important appointments to keep. Apart from diagnosing and treating common dental discrepancies along with offering advice on how to maintain healthy teeth and gums to avoid future problems, dentists have the further capabilities of providing smiles that stop people right in their tracks. In addition to treating tooth decay, filling cavities and straightening teeth, oral practitioners have come a long way with the help of modernity and improved technology. They have entered the realm of maxillofacial surgery and can now offer solutions that don't require invasive procedures, all while providing better results. The Imperial Dental Specialist Centre (IDSC) understands patient needs well, and as an advocate for tailored techniques based on discerning needs, this award-winning dental facility has every solution to help patients regain not only a functional oral cavity but also a stunning one. To uncover more about the unique problems and cases IDSC treats, we seek out four of its specialists as they reveal how problems come to be, and how easily they are fixed.

Reducing Bone Excess Sans Surgery

with Dato' Dr. How Kim Chuan

According to the photos, this patient has an overtly gummy smile on the lateral aspects of her face, including exposed bony regions. In addition, you may also find severe midline canting where her smile shifts to the right. Finally – and apart from a gummy smile that exposes a posterior over eruption of 12mm in vertical excess – the patient suffers too much teeth exposure and a large, square facial contour as well. To treat these discrepancies, what we have done is intrude the upper and lower jaw with Invisalign and mini screws, and extract three teeth in order to close the empty spaces.

Why Invisalign?

In my opinion, Invisalign coupled with mini screws are actually more potent and effective than braces. Here at the Imperial Dental Specialist Centre, we believe this to be true because Invisalign has the ability to straighten teeth and close spaces in a downward as opposed to a diagonal manner. As you see from the images, the patient has looked continually better over time and if you make a comparison of before and after she underwent treatment, we can see that she experienced significant positive changes not only in her smile but facial contours as well. To further articulate, prior to undergoing Invisalign and dental extractions, the patient sported an A-shaped face. After combination procedures of dental alignment, mini screws and extractions however, she now boasts a feminine V-shaped face. This is because we have managed to improve the facial form by reducing the bulk through an extraction of the premolars.

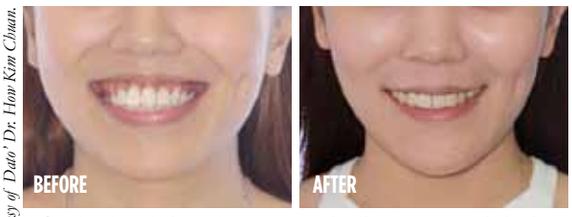
Orthodontics utilising Invisalign avoids invasive surgery and produces satisfactory results

Furthermore, by heavily intruding the upper jaw utilising Invisalign, we're able to reverse the patient's inverted smile and create stunning results brought upon by dental artistry.

This is done via Invisalign's digitalised ClinCheck. By programming what's needed into this state-of-the-art system, we can customise a patient's smile through computer software. Patients undergoing Invisalign treatment are provided a number of replaceable bi-weekly dental trays, which offer an intrusive force of 0.25mm per aligner. If for instance patients have gone through 16 aligners, they would've undergone 4mm of positive dental movement. Fixed appliances however, have zero abilities to intrude 4mm as braces are an extrusive treatment which don't have capabilities of moving teeth upwards or against gravity. Invisalign's trays on the other hand, cover the tooth's surface and once patients continually clamp down, biting will repeatedly push teeth and bone upwards. According to the images attached, this patient has a lateral gum excess of 12mm, which we would ideally like to reduce to 3. Although this patient was provided 49 aligners, only 36 trays provided an intrusive force as the other aligners were used to offer other straightening benefits. Nonetheless and according to medical literature, intrusive force via fixed appliances only have abilities of providing an intrusive force of 2mm. Anything more than that however, will require surgical intervention or maxillofacial surgery. With Invisalign, we were able to intrude 4mm and with the aid of TAD or orthodontic mini screws, intrusion magnitude was doubled to 8mm in a non-invasive and relatively pain-free manner. Should patients opt for invasive maxillofacial impaction surgery, surgeons would actually have to break the upper jaw, measure the amount of bone that requires removal, trim the excess and fuse bones together with plates and screws. In my professional opinion, this surgery will be almost impossible, as removing 8mm will compromise the roots. As such, surgeons will only be able to remove 4mm of bone and nothing more, with patients left with some degree of gummy smiles. Despite Invisalign being a non-surgical procedure, we're still able to fully correct discrepancies because we utilise something called a physiological process. The physiological process or physiological bone remodelling is the intrusion of teeth by moving teeth together with the bone instead of teeth sinking into the bones. In short, by modifying bones, not only will we deliver improved facial contours, but patients will still have enough hard tissue to support teeth and healthy gums.

Through Invisalign and added non-invasive or minimally invasive treatments, we're actually entering the realm of surgery without unnecessary pain and downtime. In my opinion, orthodontists have now enlarged our treatment scopes and with the help of digital technology, we can offer better solutions, better results and better comfort at a fraction of surgery's prices.

Pictures courtesy of Dato' Dr. How Kim Chuan.



Before treatment, this patient presented with excessive teeth display and a gummy smile. After Invisalign treatment, a harmonious aesthetic line with good teeth display was attained. Furthermore, severe gummy smiles were completely eliminated.

Before treatment, there was an asymmetrical archform coupled with a midline shift. After Invisalign treatment, the midline coincided with the facial midline and a symmetrical archform was achieved.

Before treatment, this patient sported a broad face, a gummy smile and vertical facial excess. After Invisalign treatment, an attractive smile was developed due to extraction of the premolars which reduced facial excess, creating a beautiful oval facial form.

Implants Minus Downtime

with Dato' Dr. How Kim Chuan

Traditional implant flap surgery

Before the advent of dental diagnostics and computerised technology, patients always steered clear of traditional implant surgery because it was invasive. In traditional implant surgery or flap procedures, surgical access is achieved by creating an incision through the gingival tissue down to the alveolar bone. After incision, hand instruments are used to elevate tissues away from bone, giving direct visual access to surgical sites. Typically, these flaps are performed with full-thickness procedures where the periosteum is elevated, revealing bone structures underneath. After bones are visible, osteotomies are performed using drills, and implants are placed. This method of implant placement has always been the traditional method of dental placement because it allowed direct visualisations of bone and thus, a predictable approach. While very effective, many patients have opted out of such a procedure as main disadvantages include amplified surgical morbidity caused by increased surgical time, access, trauma and tissue and bone loss.

The advantages of diagnostic imaging and minimally invasive implant techniques

Flapless implant procedures are normally performed through tissues without elevating or cutting gums, which cover the alveolar bone. Through this method, osteotomies are performed with drills that directly enter the tissues. Once osteotomies are carried out, the implant will be placed through the hole and no sutures are needed. According to some medical literature, flapless procedures have always provided more advantages including improved patient comfort, decreased surgical time and minimal incisions, bleeding and trauma. Despite its benefits, studies have also claimed that flapless procedures – although minimally invasive – tend to be more difficult due to the surgeon's inability to directly visualise anatomical depth and vital structures.

In my professional opinion, this is simply not true. With digital X-ray and CT scan technology dentists are able to immediately investigate how much drill depth is needed and additionally see where nerves are in order to avoid them. In my practice, after precise diagnostic technology has aided in offering all the necessary physiological information, we can directly drill implants into the bones and gums without the need for greater learning curves. Furthermore, because flapless implant procedures are that non-traumatic, patients are comfortable undergoing three implants in one sitting as pain is nominal with minimal needs for NSAIDs after treatment. Last and certainly not least, flapless implant surgeries are a lunchtime treatment which take only ten minutes, allowing patients to comfortably return to normal activity without hour long procedures that leave you feeling drained and in pain. No muss no fuss.

Pictures courtesy of 'Dato' Dr. How Kim Chuan.

A flapless implant surgery with implant fixtures that are inserted atraumatically.

Implant surgery inserted at bone level.

A healing abutment fixed on the implant at the gum level.

Laboratory stage for implant prosthesis where customised abutments are designed by computer-fitted in laboratory model.

Laboratory stage for the fabrication of the implant prosthesis.

Fully customised crowns that are fabricated in a laboratory.

After crowns are fitted inside the mouth.

Implants fully restored with customised abutments and crowns.

Designing Smiles

with Dr. Raymond Su Wei Siong

DDS (UKM), Msc Dental Implantology (UCLan, England), FICD

One of the commonest grievances we face here at the Imperial Dental Specialist Centre is a patient complaining of an unaesthetic smile. Because many desire to have prettier grins, it's important for dentists to devise something we like to call 'Smile Design'. Take for instance the patients presented in the images. No one wants to boast an oral cavity filled with decay, discolouration, exposed roots and missing teeth. Each patient is unique and should distinct clients desire individualised results befitting their characteristic facial features and shape and dermal tone, dentists can recommend combination techniques for the most efficiently functional results that keep aesthetics in mind.

At the Imperial Dental Specialist Centre, we've come across many international patients who fly to Malaysia for the sole purpose of dental procedures. The reason for this phenomenon is of course not puzzling as we've always been known to offer cutting-edge technology and medical know-how which not only employ a variety of techniques, but which are also efficacious and at a fraction of the price paid elsewhere.

Designing Smiles with Combination Treatments

So let's dive in and take a look at a few of our patients who have left our clinic happy and with raving reviews. Patient 1 complained of an unpleasant smile due to discolourations and visible fillings on the upper front teeth. To meet his desires, we provided the patients with four highly aesthetic Emax crowns on four of the upper front and teeth and voila, a show-stopping smile was achieved.

Patient 2 complained of an asymmetrical tooth length, dental discoloration and uneven gum height. In truth, she was so unhappy with her smile that she avoided smiling altogether. This was something we needed to fix. In order to provide the best solution, we recommended gingivoplasty utilising water lasers to reshape the gum line and create improved gingival lines, which compliment the smile's arc. In addition, we also leveled the occlusal plane and suggested full mouth rehabilitation with crowns to encourage better tooth contours and shades.

Finally, we have Patient 3. As you can clearly see, this patient suffered multiple missing upper front teeth. Along with poor self-esteem and confidence brought upon by an unaesthetic smile, she also suffered poor oral function, where eating and chewing foods were terribly difficult. As a medical practitioner who believes function is as important as quality of life, I recommended that this patient undergo a smile assessment, elective root canal treatment for compromised teeth, and full mouth rehabilitation.

Pictures courtesy of Dr. Raymond Su.

Patient 1

Patient 2

Patient 3

Dental Hypoplasia

with Dr. Stephanie Chong

Dental Hypoplasia is a developmental defect that can affect the primary and permanent teeth. It is sometimes identified as a physically missing tooth structure, and can be seen as pits, grooves or just missing parts in the crown of the tooth. A tooth with dental hypoplasia will likely have spots that are white, brown or yellow in color. Dental hypoplasia can closely resemble two dental conditions: decay and fluorosis. If your teeth have already erupted and the spot appears post-eruption, the discolored area can be a sign of decay. Fluorosis is another condition related to enamel hypoplasia, but is caused by exposure to excess amounts of fluoride during tooth development.

Causes of Dental Hypoplasia

There are many different risk factors that have been linked to enamel defects in primary and permanent teeth in children.

The most common risk factors include:

- Mother's health during pregnancy (illnesses, diet deficiency)
- Prematurity
- Birth difficulties
- Medications given to mother prior birth or to child during early childhood
- Early childhood diseases (high fever, pneumonia, middle ear infection, viral infections etc.)
- Chronic / frequent childhood illness during first four years of life
- Poor childhood nutrition
- Trauma to mouth or primary teeth can cause localised enamel defects

Treatment for Dental Hypoplasia

Daily brushing, flossing and regular trips to the dentist can protect our teeth and reduce the likelihood of enamel hypoplasia becoming decayed. Conservatively, fluoride treatment and/or tooth mousse remineralising creams can be applied onto the tooth's surface to protect the enamel from further wear or sensitivity discrepancies. In-office dental treatment may include a procedure known as Microabrasion, where the tooth's surface is abraded, followed by whitening to ensure the area blends in with the natural colour of your tooth. However, if the enamel hypoplasia is more prominent, dentists may recommend veneers, which cover the tooth's surface for better cosmetic outcomes.

Pictures courtesy of Dato' Dr. How Kim Chuan.

Treated with microabrasion.

Treated with dental veneering.

Treated with microabrasion.

Laser Teeth Whitening

with Dr. Alice Wong

In-office laser teeth whitening are dental bleaching processes that lighten the tooth's enamel. This procedure is widely regarded as one of the most popular dental treatments in the world today, and unlike home-use systems, in-office procedures take place under carefully monitored conditions which allow safe, controlled and sometimes, pain-free treatments which utilise concentrated bleaching gels, yielding immediate and visible results.

Causes of tooth discolourations

- Aging. Over time, the teeth will naturally darken and emit a yellow, brown, green or grey cast.
- Consumption of certain foods. Patients who may find increased dental staining are those who regularly consume coffee, red wine, soft drinks and dark-coloured fruits and vegetables.
- Tobacco use.

Who is applicable for Laser Teeth Whitening?

More and more patients are whitening their teeth as a bright, gleaming smile can make a great difference. Even though almost anyone is applicable for such procedures, whitening may not be as effective on patients who have:

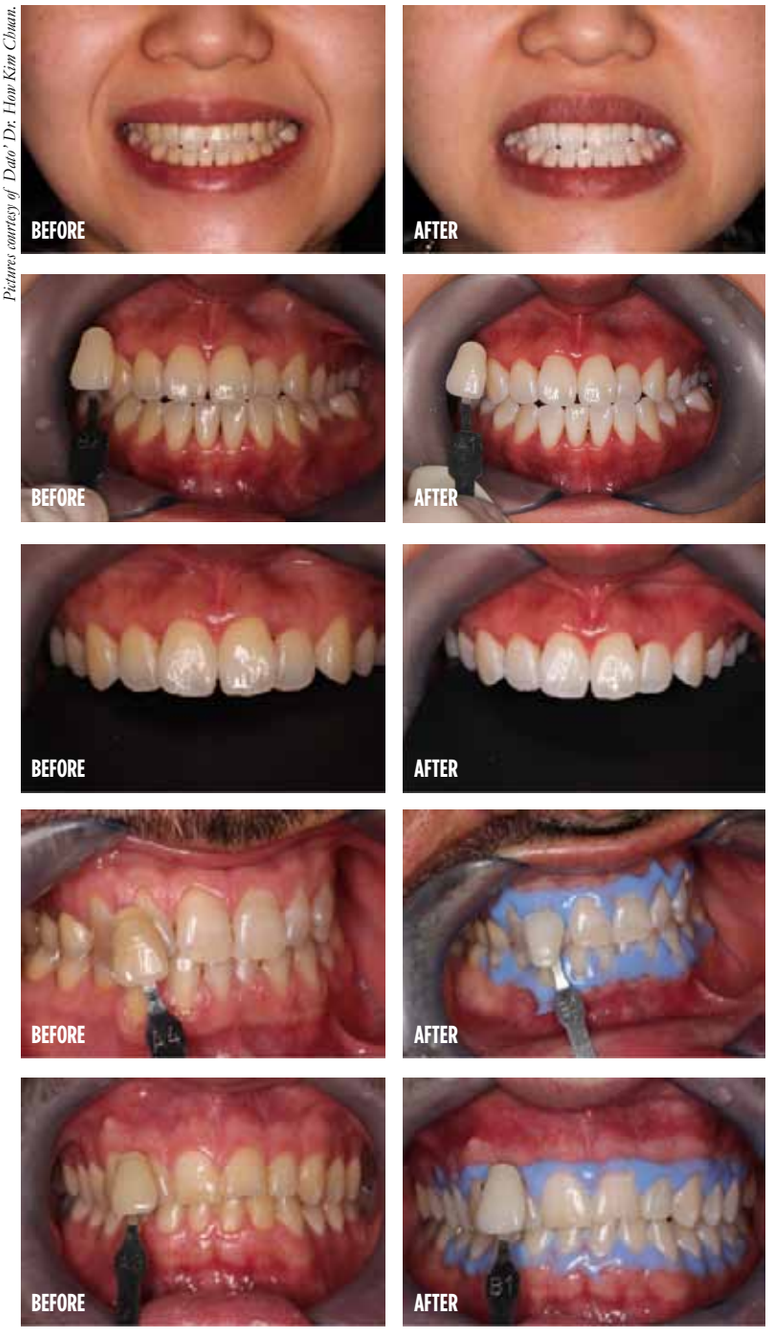
- Teeth with inorganic stains that don't respond well to in-office dental lightening treatments. In fact, they may even turn darker after the surrounding teeth have been whitened.
- Suffered trauma that causes darkened dentin.
- Ingested tetracycline antibiotics during tooth formation.
- Been overexposed to fluoride and have fluorosis.
- Teeth that have become transparent with age.

While these factors may remain stain resistant to in-office whitening procedures, patients may still be applicable since severity and supplementary procedures are available. Consult with your dentist for tailored solutions.

What can patients expect during the procedure?

1. Teeth are thoroughly cleaned to remove excess plaque and debris.
2. A dental dam or hardening resin is placed on the gingiva to protect it against any irritation caused by bleaching agents.
3. Hydrogen peroxide will be painted on the teeth and with the whitening's system's intense light bleaching gels will be activated to enhance bleaching processes.
4. Gel applications are repeated and dentists will remain with patients to see how well teeth are whitening and whether more bleach needs to be applied.
5. After the final gel application, cheek retractors including dental dams are removed. Patients can expect to be at least two to three shades lighter and if satisfactory results aren't achieved, dentists may recommend follow-up procedures at a later date.

Pictures courtesy of 'Dato' Dr. How Kim Chuan.



What can patients expect after in-office Laser Whitening?

Good treatment outcomes can last up to three years as long as patients refrain from eating and drinking coloured foods and smoking. It's also imperative that patients not partake in nicotine and coloured foods including hot and cold foods in the first 24 hours. Last but not least, patients may experience dental hypersensitivity to cool temperatures immediately after treatment, but this should subside after 48 hours or less.