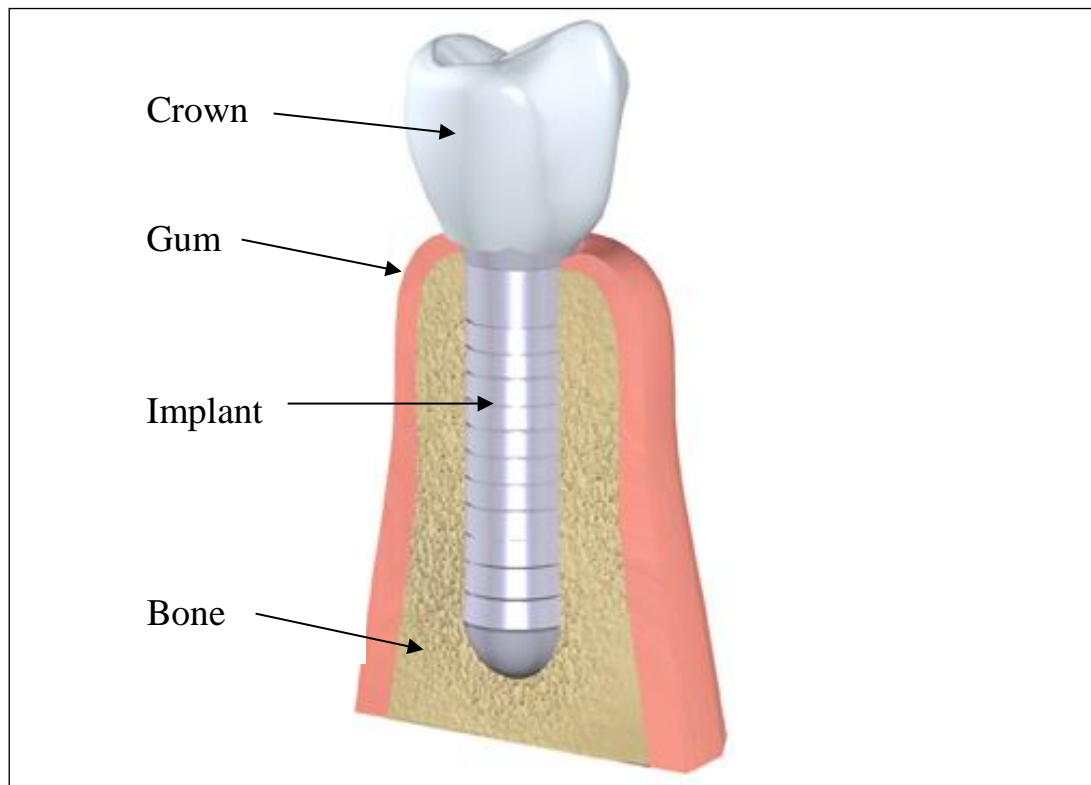




DENTAL IMPLANT INFORMATION BOOKLET



Following your recent enquiry into dental implants we have pleasure in providing this information booklet for you to read and consider at your convenience.

This booklet is designed to give you all the information you will need to make an informed decision on whether or not dental implants are something you wish to consider now or in the future.

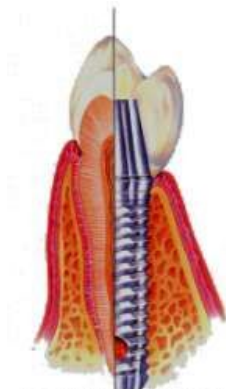
Informing you about dentistry and specific procedures is important to us, but more important, is that you completely understand and are comfortable with the choices that you make. We will inform you of the different treatment options and the recommended treatment plan and advise you of an estimate for the cost of this. We encourage you to ask any questions that may arise at any stage and will be happy to discuss any concerns you may have.

At Budleigh Salterton Dental Practice we emphasise that prevention is better than cure. A healthy, stable and well-restored mouth is our goal, giving you the confidence to smile about it.

WHAT ARE IMPLANTS?

Missing teeth can often be replaced by implants. Implants act like roots of teeth. After they have been placed and have healed, dentures or crowns may be attached to them. When dentures are held in place by implants they do not slip around. If crowns are fitted on implants they act like normal teeth.

There are various types of implants, however the most commonly placed throughout the world are often described as root-form or endosseous implants. These generally have a cylindrical form and may be threaded on the outer surface to assist placement. They encourage bone to form an integral connection with the surface of the implant, known as osseointegration. Other designs such as blades or subperiosteals, whilst in use by some practitioners, are not the focus of this information. The success and rapid growth in popularity of the root-form implant is largely due to its predictable behaviour when trying to achieve a rigid fixation with the surrounding bone and the maintenance of this state throughout many years function.



Dr. William Unger -- Staten Island, NY

Implants can only be placed if there is sufficient bone present in the jaw. When teeth are lost the bone in the surrounding area gradually disappears. If too much bone has been lost it is sometimes possible to grow bone in its place. This is known as bone augmentation or grafting.

WHAT ARE THE ALTERNATIVES?

For people who have NO remaining teeth, the alternatives are:

- Complete dentures
- Implants which secure their dentures in place
- Implants that support crowns and bridges

For people who have SOME of their own teeth, the alternatives are:

- Partial dentures supported by teeth
- Bridges supported by teeth
- Partial dentures secured by implants
- Crowns and bridges supported by implants

THE INITIAL EVALUATION

Once you have decided that you wish to proceed with the implant/s placement, the next stage will be to conduct a thorough examination, in order to accurately determine the health of your mouth, this will include the following:-

EXAMINATION

A full extra and intra oral examination complete with full clinical charting.

RADIOGRAPHS

We recommend you have full mouth radiographs to check the health of the roots, surrounding bone, oral pathology, periodontal bone loss, infection and verification of normal anatomy of associated structures.

PERIODONTICS

The health of your gums is very important, the gum architecture, colour and tone, (including observation for bleeding and pus), can show signs of generalised gingivitis and periodontitis. Periodontal disease causes extensive inflammation, beyond the gums, leading to bone loss. Periodontal analysis will include documentation of the extent of the disease process together with radiographic review. Analysis will include documentation of the bone levels and gum attachment at SIX point markings about each tooth.

HAVING A HEALTHY MOUTH

Implants survive best in a healthy environment. Any tooth decay or gum problems, need to be corrected, before implants are placed, to give the best chance of success. This will reduce the risk of infection to the implant/s once placed.

Dental health is directly related to prevention. Brushing, flossing, professional cleaning and completing any necessary dental work will help avoid more serious complications.

To plan the most suitable treatment certain information is helpful, for example photographs, x-rays and models of your teeth and jaws. In some circumstances a more comprehensive three dimensional x-ray evaluation using a CT Scan may be requested to give greater detail of the shape of your jaws.

WHAT IS A CT SCAN?

The conventional x-ray views most familiar to patients are only two dimensional and subject to varying degrees of distortion and inaccuracy. Where important anatomical structures must be avoided, the information they provide may therefore be inadequate. The CT Scan in contrast can provide life sized three-dimensional information of all regions of the upper and lower jaw from which precise measurements can be taken for pre-operative treatment planning. In some cases the CT Scan may also be used to evaluate the results of bone grafting procedures prior to placing implants.

Sometimes further treatment is needed before you are ready for implants. This may involve:-

REMOVAL OF UNSAVABLE TEETH

Despite advances in modern dentistry some teeth may have reached a stage when no treatment can save them. It is best to remove them at an early stage, particularly if you are thinking of having implants, so as to prevent further bone loss.

TREATMENT OF EXISTING OR POTENTIAL ORAL INFECTIONS

The success of implant therapy can be seriously affected by infections resulting from failed gum or root canal treatments or untreated gum disease or nerve problems in sites adjacent to implants. Long standing infections of the soft tissue beneath dentures can also adversely affect healing at the various surgical stages. Your treatment may be delayed whilst these areas are resolved.

TREAT OR REMOVE ALL PRE-EXISTING ORAL INFECTION WHEREVER POSSIBLE

Although gum infections arising in opposite jaws have no clearly proven link with problems around implants, there is at least the theoretical risk of bacterial transmission, therefore for the meantime it would be considered prudent to assume that there is a risk. Your mouth should be treated as a whole and not simply as unrelated regions.

HOW MANY IMPLANTS?

As a general principle as many implants as possible should be used. This allows the stresses of biting to be spread over the maximum number of implants, thus diminishing the load on each particular one.

UPGRADING

It is sometimes possible to have two or three implants placed, use them for a while and some time later add more implants to improve the treatment plan. This is not an approach that is feasible in all situations and is probably most suited to treatment of the lower jaw where no teeth are present.

An example of this might be the patient with no teeth in the lower jaw who has two or more implants placed in the first instance. By stabilising their denture using the implants it can be held more firmly in place. Later on, if they have sufficient bone, more implants can be added and eventually fixed teeth placed on the implants which eliminates the denture altogether. A number of the implant systems available today could support this approach; however, the feasibility of upgrading should be confirmed by all parties rather than assumed.

Some people find it more convenient to proceed in stages.

WHAT IS IT LIKE HAVING IMPLANTS PLACED?

Generally speaking, having implants placed is not at all painful. We normally recommend that sedation is given, especially if you're a little apprehensive about the procedure. This can make the procedure quite comfortable.

WHAT IS IT LIKE AFTER HAVING IMPLANTS PLACED?

The after effects of having implants placed are usually mild and may include slight bruising, a dull ache and some swelling, the amount of which will vary dependent upon the number of implants placed and the difficulty of the surgical procedures.

When choosing a date for implant placement, avoid significant social engagements and work commitments for at least a week. This is just to be on the safe side. Taking time off work is not usually necessary.

ADDITIONAL PROCEDURES BEFORE IMPLANT PLACEMENT

It is a natural phenomenon that after teeth have been removed the bone that once supported them slowly resorbs away, this occurs faster when prolonged gum problems have been present. The result is that there is sometimes not enough bone to support implants.

When there is not enough bone present it may be necessary to create new bone to fill in the missing areas allowing implants to be placed. A variety of techniques are available to do this and these are referred to as 'Bone Grafting'. The bone used in these situations may be specially treated donor material from a 'Bone Bank', a synthetic substitute or taken from areas in the mouth where there is some spare. In special cases where larger amounts of bone are needed it is possible to harvest bone from another area such as the hip or chin. The area from which the bone is taken will re-grow.

Where the clinical conditions indicate that bone grafting is required to increase the amount of bone into which implants are placed it will generally increase the time taken to complete the treatment. Under routine circumstances, where no bone grafting is required, the implants are commonly ready to begin function between 3 and 6 months after placement.

If the bone grafting can be undertaken at the same time that implants are placed then treatment is more likely to take 6 to 12 months. Where implant placement must be delayed until after maturation of the bone graft, then the overall treatment may take 12 to 18 months.

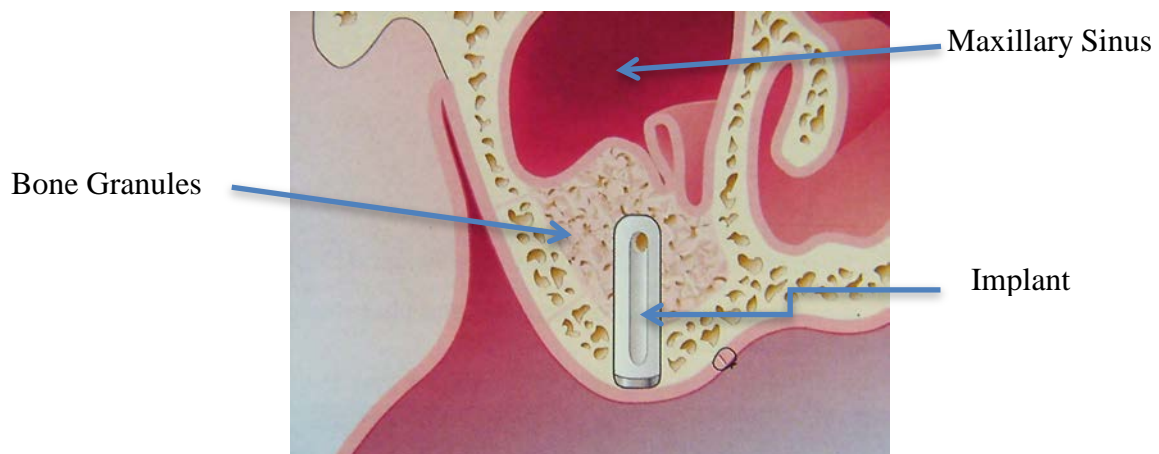
A technique called 'guided tissue regeneration' has also shown considerable success where the amount of bone at the intended implant site is less than ideal.

When a tooth is removed a hole in the gum and bone remains for the first few weeks. Anyone who has lost a tooth or had an extraction knows that this wound generally heals uneventfully and eventually you cannot tell where the tooth was.

The basic principle behind 'guided tissue regeneration' is that placing a special membrane over the extraction socket creates a layer above which the fast growing soft tissue cells are prevented from entering the bone socket. This allows bone cells present beneath the membrane the extra time they need to fill the socket without competition from soft tissues to occupy the same space.

SINUS AUGMENTATIONS

It is very common to find that the softer bone in the area above the upper back teeth (molars and sometimes premolars) is very shallow and not suitable for normal implant procedures. To solve this problem a procedure known as a 'sinus augmentation' or 'sinus lift' was developed.



Bone may be successfully grown in the sinus spaces above your upper back teeth allowing implants to be placed. Specially treated donor bone from a 'bone bank', synthetic bone substitutes or bone from other areas of the mouth or body is placed into these empty areas. Over a period of time this is replaced by new bone thus providing a bed into which implants can be fixed.

SINUS TENTING

This is a procedure for raising the floor of the sinus simultaneously as placing the implant in one surgical procedure. There must be a minimum thickness of bone, usually 4mm-5mm, to enable this procedure to be offered.

However all bone grafting is unique to each individual and your surgeon will discuss the implications of the different procedures with you.

ADDITIONAL PROCEDURES AT THE TIME OF IMPLANT PLACEMENT

Despite the thoroughness of the planning extra procedures are sometimes required during treatment to produce the best results. It is important that in this event you accept the appropriate alternative treatment performed at the time of placement although it may be different to that already planned.

▪ **a-PRF & i-PRF Procedure (PRF – Platelet Rich Fibrin)**

This procedure is now routinely performed, by Dr Olivelle, following oral surgery, as it has been found to dramatically improve the healing process. In simple terms, this procedure requires a sample of the patient's blood, which is then centrifuged to collect a concentration of healing proteins, which are then placed at the surgical site. A sample of the patient's blood is usually taken from the arm either prior to, or during the surgical procedure. For more information please refer to appendix 1 at the back of this booklet.

HOW MUCH DO IMPLANTS COST?

The average cost of a single tooth implant including the crown is approximately £2,250.00. The cost for a full set of implants and a full arch of bridgework will start from £20,000.00. There are several options in between and therefore the only way to accurately establish the cost for an individual is to have a full consultation and written estimate of costs.

During treatment, fees may vary due to:

- Alternative procedures being required due to changes in the treatment plan, such as bone augmentation and/or sinus lift.
- New techniques becoming available in the course of your treatment.

If for some reason it is not possible to proceed with the planned procedure at the treatment appointment, the time spent will be charged at the normal hourly rate. An alternative treatment may be performed if considered appropriate.

AFTER IMPLANT PLACEMENT

Sometimes bone may be lost around an implant. There are techniques available to treat these problems if the cause can be identified. In some situations however progressive bone loss might result in the loss of the implant.

NEW ADVANCES

Implantology is a rapidly advancing science. We may take advantage of some of the new procedures or materials as they become available, if they promise to significantly improve the outcome. Alterations to your original treatment plan may therefore be made during your treatment. We would always inform you of any changes.

HOW LONG DOES THE TREATMENT TAKE TO COMPLETE?

This depends on the complexity of the treatment. Initially there is a treatment planning stage that may last a month or so. Then there may be some time spent on such preparatory procedures as improving gum health, removing any un-saveable teeth and growing bone. This may take anything from a few weeks to many months.

After the implants are placed they are left to integrate with the bone from 3 to 6 months. The final fitting of crowns or bridges or the attaching of dentures to the implants takes 1 to 2 months. The time depends on your individual situation.

As stated previously, any bone augmentation procedure will extend this time scale. Special medication will be prescribed for you to help healing and produce minimal discomfort. To gain the most benefits please follow the instructions given.

DO NOT RUSH YOUR TREATMENT

It is important that neither the patient nor the surgeon attempt to rush the treatment to try to advance the various stages faster than the time required for complete healing and maturation of bone and soft tissue.

Even treatment that is well planned and executed can fail as a result of moving too quickly from stage to stage. If you do not have the time available then it may be more sensible to consider conventional forms of dentistry that can be completed more rapidly.

Your surgeon may suggest that procedures to grow bone are undertaken separately from placing the implants, even though under certain conditions it is possible to combine these stages.

PRECAUTIONS FOR DENTURE WEARERS

Denture wearers may require their dentures to be modified or be asked to leave them out for a period of time to prevent them resting on newly placed implants. During settling in stages metal framework dentures may need to be replaced with a plastic set as they are more easily adjustable. The fitting surface can then be altered when the implants are placed.

REPORTING PROBLEMS AND QUERIES

If anything arises that you are concerned about contact the practice immediately. Usually there is nothing to worry about but no matter how apparently trivial it is always better to check.

AFTERCARE

Unlike teeth, implants cannot get tooth decay. However, like teeth they can suffer from gum problems. Teeth with untreated gum problems can become loose and therefore lost; this is also true of implants.

Thorough daily cleaning is an important with implants as it is with teeth!!

LONG TERM CARE OF YOUR IMPLANT

In order to keep your implant in a healthy state, it is important that you keep the implant clean and free of plaque (a white, sticky film that contains bacteria and food debris). Plaque forms within a 24-hour period and must be cleaned off on a daily basis. Implants can be affected by periodontal (gum) disease, so your part in daily cleaning is extremely important to the long-term health of both implant and teeth.

You should make an appointment with our hygienist at your two-week post-operative appointment. At that visit, instructions for long-term care will be discussed and a recall program set up to meet your needs.

The following summary of instructions is usually given:

- Brush your implant twice a day. Be sure to work the bristles of the brush underneath the gum tissue at the implant entry site(s).
- It is important that all surfaces of the implant crown are cleaned thoroughly. **An electric toothbrush is advisable.**
- Use dental floss as instructed at least once a day. Curve the floss around the implant crown and work it down maintaining the crevice between the implant crown and gum tissue. Gently work floss up and down maintaining the curve to remove plaque.
- If you have a removable denture, sleep with it out of your mouth at night. If you feel you routinely clench your teeth while you sleep, report this to your dentist.
- Remember that tobacco, diet and alcohol have an effect on the longevity of the implant.
- If you are not scheduled to see the hygienist, please request this appointment because it is important that you understand your role in the daily care of your implant.

PLEASE NOTE THAT EACH IMPLANT SHOULD BE CHECKED EVERY SIX MONTHS

FOLLOW UP APPOINTMENTS AND REGULAR CHECK-UPS

To ensure that any problems are detected early regular maintenance check-ups are advisable. Problems are more easily treated if detected early. Check-ups may be recommended three, four or six monthly.

In most cases review appointments will be more frequent during the first year that the implants are in function. Regular check-ups are every bit as important as they are with natural teeth, if not more so!

SOME EXAMPLES OF PROBLEMS THAT CAN ARISE

Porcelain crowns attached to implants can break as they can when attached to natural teeth. However removal of crowns from implants for repair is usually easier than from natural teeth. Implant supported bridges that become loose should be re-tightened immediately to reduce the likelihood of further unnecessary damage.

Should it be discovered, during a routine maintenance visit, that an implant has failed or is failing, appropriate remedial action will be planned accordingly. Implants that become loose will not re-tighten and should be removed at the earliest opportunity. Should you notice any areas of soreness, discharge or pain on chewing near any implant or tooth you must immediately report this to the dentist responsible for your maintenance.

SUCCESSFUL TREATMENT

Success depends on your body's reaction to implants and your personal care of them. Implants can fail due to gum disease just as teeth do. Success is constantly improving due to improved techniques. Natural teeth last longer today as awareness of the need to look after them becomes more accepted. However, there would not be a need for implants if teeth were totally successful.

Success rates for implants compare very favourably with all other forms of dentistry.

GENERAL HEALTH CONSIDERATIONS BEFORE IMPLANT PLACEMENT

INTRODUCTION

Dental implants are fixed into the bone of the jaw through an opening in the gum. In order for the implants to be useable they must be locked into the jawbone and surrounded by healthy gum tissue. The complex healing requirements of bone and skin required for this to come about can be critically influenced by your own behaviour.

HEALING

Healing can be enhanced by arriving at the dental practice in the best possible state of health prior to the operation and by following the regime suggested by you surgeon during after each stage.

TIMING OF THE TREATMENT

Ensure that the appointment made for implant placement does not interfere with your social or professional life. You may be asked to leave out your denture or adhere to a particular dietary regime for a period of time. Also there may be some minor discomfort or swelling after the operation which can last for an average of 2-3 days. Sometimes these symptoms may persist for slightly longer depending upon the complexity of the surgical procedures and individual patient variations.

SEDATION

If you are having sedation please make sure a responsible person is available to escort you home.

ASPIRIN

If you are taking aspirin you should check with your physician that it is suitable to stop the recommended dose, 2 weeks before the implant appointment.

ANTIBIOTICS

We shall give you antibiotics at the time of the procedure.

SMOKING AND ALCOHOL CONSUMPTION

Both smoking and heavy alcohol consumption reduces the survival of implants (and teeth). If you think that either of these two habits could be a problem for you and your implants it may be advisable to avoid this form of dental treatment or accept the higher risk of implant failure. Research has shown that regular smokers lack Vitamin C. This deficiency interferes with all healing processes. Smokers are strongly advised to take 1,500mg of Vitamin C a day for one month prior to the operation and continue for as long as possible afterwards for its general health benefits.

VITAMINS

All patients can help the process of healing by taking 1,200 international units (U) of Vitamin E and 60mg of Beta Carotin each day starting three weeks prior to the operation.

CALCIUM

Ensure that your diet contains at least 1,200 mg of calcium a day. Dietary supplements should continue for at least 3 months after surgery.

MENU PLANNING SUGGESTIONS FOR IMPLANT PATIENTS

A nutritious diet throughout your healing stage is most important both to your comfort, temperament and healing. Hungry people become irritable and less able to deal with discomfort which can follow surgery. Since you will be taking medication it is important that you are aware that eating can prevent nausea sometimes brought on by certain medications.

Avoid high acid citrus foods that could burn tissue, also food with seeds, or popcorn. Also in order for you to consume the nutrients necessary for a balanced diet, you may need to take medical nutrients which can be purchased at the pharmacy. An example of one of these is 'Ensure'. Some of them also come high in fibre.

Since your diet will be somewhat restricted, it may be necessary to use a blender to semi-purée food following your implant surgery.

We would like to suggest some food items that will fit into your post-operative dietary regime. These are as follows:

FRUITS: Apple-sauce, pureed banana, peaches, apricots, pears, plums and prunes.

VEGETABLES: Tender, well-cooked or canned, beetroots, carrots, green beans, peas, squash, creamed corn, canned sweet potato, white potatoes.

CARBOHYDRATES: Refined rice with gravy or butter, egg noodles, macaroni cheese, spaghetti, pasta and soft bread.

CEREAL PRODUCTS: Cream of wheat, cream of rice, oatmeal and malt.

PROTEIN PRODUCTS: Finely ground beef, chicken, turkey, veal, flaked fish (tuna, salmon, grouper, flounder), beans, creamy peanut butter.

SOUP: Cream of chicken, potato, broccoli, vegetable with beef stock, chicken with rice.

DAIRY PRODUCTS: Milk, ice cream, cottage cheese, custard, yoghurt, milk/cream puddings, milkshakes and malt drinks.

BEVERAGES: Tea, eggnog, fruit juices such as apple, prune, orange and pineapple, milkshakes and malt/milk drinks.

EGGS: Scrambled, poached, or soft-boiled, quiche or omelette.

VITAMINS: Increase Vitamin C intake to 1-2000mg per day to aid healing. Begin taking five days before your surgery and continue until treatment is complete. Ensure you have a balanced diet high in calcium.

Appendix 1

a-PRF & i-PRF

Development of the bioactive surgical additives is one of the great challenges of clinical research, which has been used to regulate inflammation and increase the speed of the healing process. A wide range of intra and extra-articular events and various signaling proteins mediate and regulate the healing process of both hard and soft tissues, respectively. Understanding this entire process is still incomplete; however, it is known that platelets play a crucial role, not only in haemostasis but also in the wound healing process. In 1974, platelets regenerative potentiality was introduced, and Ross *et al.* were first to describe a growth factor from platelets. After activation of the platelets, which are trapped within the fibrin matrix, growth factors released and stimulate the mitogenic (cell division) response in the bone periosteum during normal wound healing for repair of the bone. Better understanding of the physiologic properties of platelets in wound healing since the last two decades have led to an increase in its therapeutic applications in the various forms. Numerous scientific publications describing the action of the white blood cells on vascularisation and wound healing have been published in recent years, with the overwhelming conclusion, that platelet concentrates enriched leukocytes (white blood cells) are more effective on tissue and bone healing.

The concept of PRF (Platelet Rich Fibrin) is based on the centrifugation of whole blood without anticoagulants. (J. Choukroun et al. 2001). At the end of the spin, a fibrin clot containing the majority of the platelets and white blood cells is obtained. This fibrin clot called Platelet Riche Fibrin, or PRF, will gradually release the growth factors or cytokines in the site (VEGF, PDGF, TGF Beta, Thrombospondin). The expected objective of these growth factors is to accelerate the soft tissue and bone healing. Numerous international publications are available which demonstrate the effectiveness of PRF in many indications including oral surgery (implants, bone grafting, periodontal surgery, extractions, etc.), orthopaedics and cosmetic procedures.

Dr Olivelle now performs this technique as part of the procedure in implant dentistry, in order to maintain our excellent success rates.

Research Papers

J Oral Implantol. 2014 Dec;40(6):679-89.

J Conserv Dent. 2013 Jul-Aug; 16(4): 284–293.

J Periodontol_ 2010 Apr;81(4):546-55.

J Periodontol. 2007 Jun;78(6):983-90.