Dental Implants: factors that can lead to implant failure, indication and contraindication of dental implants related to local and systemic diseases in adult patients.

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"Education is the passport to the future, for tomorrow belongs to those who prepare for it today" Malcolm X.

Dental Implants.

I am writing this research paper to further help people understand what contributes to dental implant failure. Educating patients about any risk factors that can compromise the success of their dental implant is important before the start of treatment. I want to inform patients and other professionals about the link between Periodontal disease, Peri implantitis, and other factors that can lead to Dental Implant Failure. Patients may be unaware of the proper oral hygiene techniques that it takes to keep the implants and mouth clean. Studies have shown that Peri Implantitis can be related to poor oral hygiene. Dental plaque accumulation and the bacterial growth that leads to gingival inflammation it will eventually cause this disease. Therefore, it is imperative to identify options of treatments for the current problems, and create a preventative care plan for a better maintenance. In addition to healthy oral hygiene, it is important to be completely honest with your wellness team. Patients should be open with their doctor about all medications they take and any health conditions. Any miscommunication between professional and patient, can result in disadvantages to the success of the treatment and maintenance of the dental implant.

I always enjoy providing oral health education to my patients, and I think this is the best way to approach to them and establish a trusting relationship between patients and dental professional. Most of the patients that I worked with have questions and are interested in learning more about different options of dental treatments. I have observed an increasing number of adults patients having a lot of questions about dental implants--they are intrigued to learn about the process of dental implant treatment, and also asking if they are a right candidate to have a dental implant. Dental implants are a remarkable advancement and became one of the best option in case a patient need to replace missing teeth to establish a precise function and esthetic as a natural tooth.

While this new advancement has many perks and benefits, including a heightened self-esteem, there are some complications that may arise. For this reason, it is imperative to have a dental implant specialist conduct the patient's initial evaluation. This evaluation will consist of, an examination of the patient's mouth and teeth and a complete review of the patient's medical and dental history. In addition to these information, a full mouth radiograph is necessary, and also may be required to have

a computed tomography (CT) scan. All of this will provide vital information that will allow the patient's dental treatment team to provide a personalized plan for the patient's dental implants.

Furthermore, replacing missing teeth with endosseous implants, the rehabilitation of edentulous or partially edentulous patients has become a standard of care in the past two decades. *A*lso, in order to achieve and maintain osseointegration, indications and contraindications must be carefully balanced, and proper patient selection is a key issue in treatment planning *(*Beikler T. et al.,2003). Systemic diseases may impair the host's barrier function and immune defense against periodontal pathogens creating the opportunity for destructive periodontal disease and likely peri-implantitis *(*Smolik I. et al., 2009).

Systemic diseases and medications or other therapies used in their treatment may also interfere healing by influencing the host tissues and physiology, thus increasing the risk of early and late failures of implants(Mombelli A et al. 2006).

Proposed to subdivide risky diseases for dental implant therapy success into two groups with high risk for patients with serious systemic diseases (rheumatoid arthritis, osteomalacia, osteogenesis imperfecta, immunocompromising diseases) or alcoholism, and significant risk for patients with irradiated bone, severe diabetes mellitus, bleeding disorders or heavy smoking habits. (Buser et al., 2000)

"when we are motivated by goals that have deep meaning, by dreams that need completion, by pure love that need expressing, then we truly live."
Greg Anderson

With increasing knowledge of wound biology and material sciences, the provision of dental implants as a treatment modality has become increasingly predictable and more commonly used to replace missing teeth. However, without appropriate follow up, peri implant diseases could develop and affect the long-term success of implants. Currently, there is not enough focus on the prevention of peri implant diseases, as compared to the definition of the disease, its prevalence, and treatment. Factors influencing the successful maintenance of dental implants can be divided into categories: implant, dentist, dental hygienist, and patient. As compared to gingivitis, peri implant mucositis responds at a different pace to the bacterial challenge, dental practitioners should be aware of how treatment protocols affect long-term success, and be vigilant in detecting peri implant diseases at an early stage (Edwin G. et al.,2016).

Compared to periodontal maintenance, less longitudinal studies on implant maintenance are available, and therefore, there is a tendency to rely heavily on information extrapolated from the periodontal literature. More studies on the significance of implant maintenance care are needed.
There is two forms of peri implant inflammation that have been identified in the lecture; peri implant mucositis and peri implantitis (Journal of periodontology, 2013).

Peri-implant mucositis include bleeding on probing (bop) and/or suppuration, which are usually associated with probing depths with <4mm and no evidence of radiographic loss of bone beyond bone remodeling, and peri implantitis is a progressive, irreversible disease of the bone and soft tissues around osseointegrated dental implants under masticatory function that is accompanied by bone resorption, reduced osseointegration, deep pocket formation and suppuration(Smeets R. et al., 2014).

Prior to placing dental implants, any current diseases such as periodontitis should be managed in order to prevent failure of the implants. However, if the diseases occurs after the implants are placed; such peri mucositis or peri implantitis, the disease need to be controlled as quickly as possible to prevent bone loss around the implant, and implant failure. An early diagnosis is important for success in outcomes and self-performed hygiene techniques are useful in improving clinical parameters and maintaining a low incidence of developing peri implants diseases(Brida A. et al., 2015).

Implant therapy is a rapidly growing part of dental care with an increasing numbers of implants being placed. The dental team will have an important role in helping attain and preserve the oral health of these patients, patient education regarding the scope of implant procedures, recommendation for daily home care regimens, periodic maintenance visits, and regular evaluations are all part of the role of the dental hygienist. The hygienist probably will spend the most time with the patient and can help contribute substantially to the success of dental implant treatment. The dental hygienist has a significant role not only in implant maintenance but also in patient motivation and education(Mea A. et al.,2014).

"Education is the most powerful weapon which you can use to change the world."
Nelson Mandela

Patients' preferences and values help establish decisions to create a dental implant treatment plan. For decision-making, it is important to have a discussion involving the patient and the patient's wellness team, followed by clinical expertise, diagnostics, methods, protocol, therapeutics, and in addition the cost in consideration. Assessing the patient's level of knowledge and understanding dental

implants is important. Looking for the correlation between patients and dental clinician's communication, I would like to conduct interviews with patients, to assess their knowledge, opinions, beliefs as an individual, expectations and concerns of dental implants.

The patient's health. If a patient has a preexisting condition that would interfere with the success of post-surgical healing, he or she would not be a suitable candidate for dental implants. A patient's medications may also contraindicate the placement of dental implants, if medication would interfere with healing or the implant procedure. For example, immunomodulators, chemotherapies, or medications used to prevent blood clotting would be of concern.

Patient's interview. I have followed some patients at the NYU dental clinic and private dental office. I was able to talk to some patients. I will keep the patients' names anonymous and will introduce them with different names for privacy reasons. I will explore the histories of patients that have done dental implants treatment. Their experiences, concerns, and satisfactions about the overall process of the treatment.

Juana Batista was very excited when she had dental implants fitted at the age of 52. Since childhood, she had problems with dental caries, crooked teeth, gum disease and abscesses, one of which result to have a tooth extraction. So, when a local clinic in Brazil charged her $8,000 to replace four diseased teeth with two implants and four units bridge, with shining white porcelain crowns, strong fixed and stable, she was more than happy to pay. That procedure was completed in 2002, and for 12 years she had no problems. But two months ago, she felt a lump on her lower right jaw near one implant. "There was no pain, but I got it checked out by my local dentist in New York City," says Mrs. Batista, now 64.

The lump was caused by inflammation that cleared up in few days after antibiotic therapy. But an X-ray showed the bone supporting the implant was receding, and bone resorption was occurring. Unbeknownst to Mrs. Batista, her dentist had diagnosed her with an uncommon disease that is now emerging as a serious complications of the dental implants. This peculiar disease is known as peri implantitis, and it has been described as a "time bomb" by a leading dental surgeon.

Peri implantitis is an inflammatory disease noticeable by a bacterial infection and the gradual loss of the jaw bone supporting the dental implant. It's not yet clear whether the infection causes the bone to recede, or the bone loss exposes the area to bacteria. Dentists are uncertain how to treat it. "I was shocked. I'd never heard

of the disease." says Mrs. Batista. Ten years ago, professionals said the condition didn't exist. But now it is on the rise, as increasing numbers of people have replacement of missing teeth, by dental implants with titanium roots. Half-a-million adults have at least one dental implant, according to the latest Adult Dental Health Survey. In fact, studies have suggested that one third of patients will be infected. "We're sitting on a time bomb," says Dr. Stephen Jacobs, a past president of the Association of Dental Implantology and well-respected implant surgeon. "We are going to be seeing more and more cases."

Peri-implantitis is always preceded by a much milder disease, called peri-implant mucositis, which is common and treatable, like gingivitis. The clinical signs of peri-implant mucositis are red, swollen gums and bleeding upon probed. If undetected and untreated, it might become peri-implantitis and it can result in dental implant failure. Notwithstanding, bone resorption is painless and people don't realize they have the condition. So meticulous oral hygiene and regular follow-up appointments after an implant are essential, says Dr. Sarowitz, who is Periodontist and Implants specialist. "One of the problems with seeking treatment abroad as many do in search of cheaper treatment is the lack of lifelong maintenance and follow-up, which is a key part of the care process."

Mrs. Batista stopped going for check-ups three years ago, after she moved from Brazil to New York City. She was at elevated risk of peri-implantitis because of a family history of gum disease (periodontitis), Diabetes type two, and Smokers, too, are at elevated risk. Paradoxically, the rise in cases is mostly due to advances in implant design. In the mid-Nineties, clinicians found that implants with a rough instead of a smooth surface integrated better with the bone. Although, the textured surface is more likely to anchorage bacteria if the bone shrinks away from it.

After her recent diagnosis, Mrs. Batista returned to the Dentist in Brazil, Implantology, who originally treated her. "He removed the bridge and screws and deep-cleaned the whole area and all the components," she says. "He told me to brush with TePe brushes (small interdental brushes) dipped in Peridex (antiseptic mouthwash), morning and night, and to come back for check-ups every six months. Hopefully that will keep the infection away. I hope so, because I've made such an investment in my teeth."

"Intellectual growth should commence at birth and cease only at death"
Albert Einstein

What is Peri Implantitis and Why Some Dental Implants Fail? Dental Implants Failure related to Periodontal disease.

I interviewed a patient that came to Dr. Weisfeld office, located in Elmhurst Queens. Patient was present for a dental consultation, and looking to get a second opinion on her dental treatment.
The patient's name is Sherry, 49 years old, divorced 4 years ago, mother of two teenagers girls, one 15 and the other 17 years old. Sherry is currently taken medication for hypertension. She has been taking the current medication for a total of 8 years. After a series of questions, Sherry disclosed to me that she has never checked her glucose level, but she states that there is a history of diabetes type 2 from her maternal side. She has also admitted to being depressed because of an unsuccessful dental implant treatment.

Sherry states, "I am feeling very frustrated, and sometimes I just want to cry."
She lives in Long island and had drove for 45 minutes to get at Dr. Weisfeld office that is located in Elmhurst Queens. "I am very disappointed. I think dental implant still not being the best option in order to replace a missing tooth, and I will explain you why. I suffered through the loss of two molar teeth on my lower left jaw (teeth number 18 and 19), due to bone loss. I went through a very painful teeth extraction and had bone graft to replace the missing bone, and then 3 months later I got implant surgery. The implant surgery was done 4 months ago, and I had a sudden onset tenderness at the side of the posts, that have started bothering me from the past 2 weeks. I returned to the oral surgeon immediately. After the dental assistant took a radiograph and the doctor came to examined my mouth, he informed that my two implants was loose and had to be removed. So then, I essentially had oral surgery for the third time to remove the implants. I am discouraged by this failure most certainly and will never encourage anyone to consider oral implant surgery. I had spent about six thousand dollars on this treatment, and will have to deal with the pain of recovery for a couple of weeks. Oh sure, I signed and initialed all of the documents indicating I was aware of the risk of failure but the voice over you get from the dental professionals is contrary. I will never do it again. Keep your money in your pocket. There are too much risk associated to implants." Said Sherry
"Hi Sherry, I am sorry to hear about your bad experience. You are correct, implants are not perfect and some do fail. I would say to anyone that it's best to keep your own teeth assuming they are in fair to good condition. However, if your teeth are already gone or just not worth fixing, implants are still a much better choice over dentures.
Here are some questions to ask your dentist before the dental implant surgery:
What are the risk for dental implants failure?

How many implants have them done?
How many have failed?
What happens if an implant does fail?

Although I cannot speak for anyone else but myself, I have been placing implants for over 15 years and during all these years I continue to "guarantee" that the implant will be successful.

As long as the patient follows my instructions and does not have something unusual such as a traumatic accident, the implants are successful. What that means in practical terms is if an implant fails to heal or integrate, I will remove it, graft the site if necessary and replace it with another one at no cost.

Implants can be an expensive option and I try to take away any worries or risks a patient may have in choosing implants. Although this means that I lose money in some cases, it instills confidence and trust in the services we provide." Said Dr. Weisfeld

"Happiness is the consequence of personal effort. You fight for it, strive for it, insist upon it, and sometimes even travel around the world looking for it. You have to participate relentlessly in the manifestations of your own blessings. And once you have achieved a state of happiness, you must never become lax about maintaining it. You must make a mighty effort to keep swimming upward into that happiness forever, to stay afloat on top of it." Elizabeth Gilbert

Smile with confidence. "I used to hate to smile or have my photo taken, now thanks to the wonderful work done by the dentists, replacing my horrible front teeth with two implants, I feel confident again and I am no longer embarrassed to smile or to have my photo taken. I would like to thank the dentists and all of the dental team, if it wasn't for their friendly demeanors and the efficient way they took care me, I would have been a nervous wreck. Moving forward, I would encourage anyone thinking about getting implants to go ahead, it is certainly the best choice I ever made." Gloria, Brazil 2018

I am aware that procedures like this one can cause individuals to have some uncertainties, but with understanding and trust I believe that the patients will find that dental implants are not as alarming as they may have thought them to be. Before embarking on this new journey, I believe that patients should feel comfortable enough to speak with their dental wellness team about any concerns they have.

Moreover, as I have previously mentioned dental implants are an excellent choice for replace missing teeth. However, just like all procedures and medical treatments, these implants are prone to an array of complications.

Dental implants are changing the way people live. When we lose teeth, it effects more than our ability to eat food or speak articulately. It affects our self-esteem and confidence. Considered both a restorative and cosmetic dentistry service, dental implants can look incredibly lifelike while also being low maintenance and long lasting. Dental implants are designed to provide a foundation for replacement teeth that will look, feel, and function like natural teeth.

Dental implants in Brazil. Success, survival, and failure rates of dental implants in Brazil. Dental implants are currently the aesthetic and functional alternative for tooth replacement. Despite the high success rate shown by longitudinal studies, failures do occur, even in patients who present appropriate clinical conditions.

The purpose of the present study is to evaluate the success, survival, and failure rates of dental implants. This study included 19 patients who received implants and prostheses on implants in the Implantology Clinic at the School of Dentistry of Ribeirão Preto of the University of São Paulo, Ribeirão Preto, Brazil, between 2007 and 2013. The patients were recalled for clinical and radiographic examinations from three to six years after implant placement. The following criteria were evaluated by interview and dental record analysis: age, sex, presence of systemic disease, history of smoking, area in which the implant was placed, implant diameter and height, and type of prosthesis seated. The prevalence of patients with hypertension, diabetes mellitus and tobacco use was; Hypertension 3 (15.8%) Diabetes mellitus 2 (10.5%) Smoking habit 5 (26.3%) None 9 (47.4%) Total 19 (100.0%). The following parameters were clinically analyzed; pain, mobility, probing depth, bleeding on probing, and presence or absence of exudate. The amount of bone loss was assessed radiographically. The study included 35 implants placed in 19 patients.

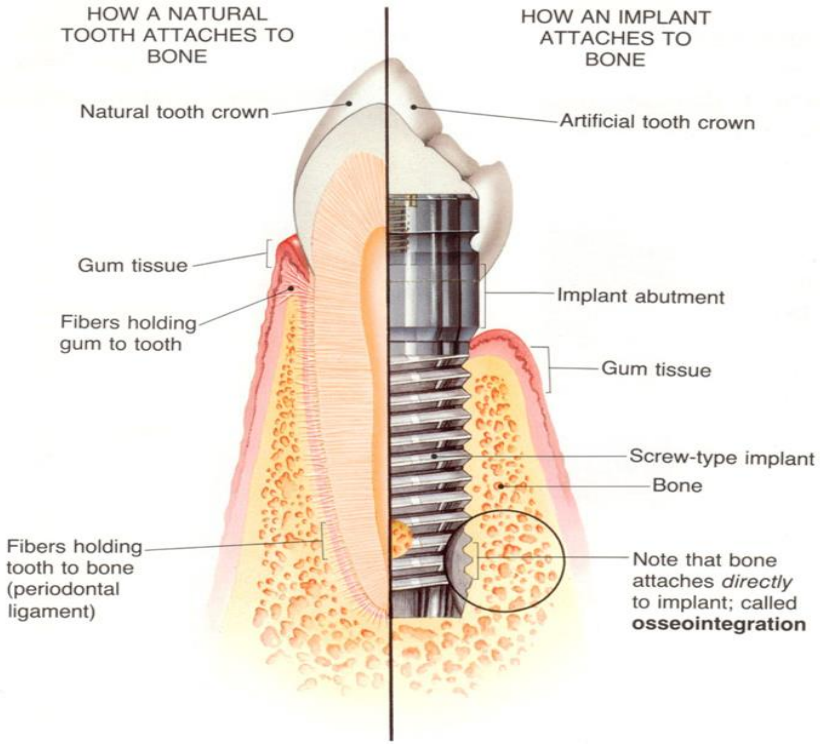
As result of this study there was a success rate of 74% after definitive prosthetic rehabilitation, while six implants showed bone loss of between 2 and 4 mm, being classified as satisfactory survival. There was no relationship between the success and/or survival rate and any of the parameters evaluated. Four implants presented with peri implant mucositis, while peri implantitis was observed in two implants. Regarding the definitive restorations, 17 prostheses were classified as successful, while there were complications in eight prostheses.

This study aimed to evaluate the success, survival and failure rates of implants based on the implant quality of health scale developed at the Pisa Consensus Conference. The success category describes optimal conditions; the survival category describes functional implants, but not in an ideal condition, and is divided into satisfactory

and impaired survival; and the failure category includes implants that should or could be removed.

As conclusion of this study, the success and survival rates of 74% and 100%, respectively, were observed. Within the limitations of this cross-sectional study, the data suggest that the implant success rate does not seem to be related to factors like age, sex, habits, systemic disease, macroscopic characteristics or area in which the implant was placed. This study can be considered preliminary and provides the basis for the design of further studies.

Dental implants versus natural teeth. There are obvious differences between implants and teeth in structure and components. Implants are not prone to caries, endodontics (root canal) problems, or root sensitivity, as are teeth. However, implants depending on proper restoration and occlusion, good oral hygiene, and regular maintenance, just as teeth do. Having a healthy soft tissue barrier is very important. Superstructures should be designed to help facilitate this. It has been shown that plaque accumulation and excessive occlusal forces are primary cases of implant failures (Meffert et al., 1992).



Current knowledge, although limited, suggests that peri implant disease is a condition that, while having several traits in common with periodontal disease, is probably much more complex and with unique and distinctive features that need to be thoroughly investigated. A history of periodontitis, lack of maintenance, and cement remnants are certainly factors that play a significant role in the development of the disease and should be addressed from the beginning.

What is the criteria for Dental Implant success? The periodontal criteria for success are similar for dental implant and natural teeth. The basis of success is frequent inspection and debridement. As with natural teeth, shallow and stable probing depths are desirable at each visit. In addition, there should be no bleeding on probing at any evaluation site. An adequate zone of keratinized gingiva may be advantageous to protect the soft tissue interface (Branemark et al., 1985). The main difference in success criteria involves mobility. Although unchanging mobility within physiologic limits is acceptable with natural teeth, any implant mobility is unacceptable.
Restoratively, the prosthesis must fit accurately and securely. There should be no trauma from occlusion (excessive occlusal force on the implant), especially in lateral excursions. Moreover, there should be no mobility of the superstructure and specially of the implant itself . Radiographically, no radiolucency should be present around the implant, and less than 0.2 mm of bone loss per year should be present. Perhaps the most important fact in success is to effect a change in the patient's dental behavior pattern. If this occurs, and the preceding technical aspects are achieved, then a biocompatible interface between the implant and the host tissues can be maintained for a long time(Smith et al., 1989).

"Encouraging wellness and prevention helps improve quality of life and can lower costs, too. I saw too many patients who had poor health because of their decisions, but too often, all they need was a doctor to help point them in the right direction." Charles Boustany

Dental implant Risk Factors. There are several factors that increase the likelihood of dental implant failure. Some of these factors are within the patients control while others, are not. Failure is a scary word for patients and dentists alike, and it means the dental implant did not do what it was supposed to do.

Poor plaque control. Oral hygiene plays a key role in the implant survival rate. The hygiene of implants and the implant supported prosthesis must be maintained with daily. It is important for the patient to continue with to proper home care

techniques as well as adhering to a supportive maintenance program. Implant prosthesis design can prevent the patient's ability to mechanically clean the site with brushes or interdental brush and floss. This is often related to implant positioning and meeting patient expectation for esthetics, phonetics, and function. These concerns should be factored in the prosthetic decisions evaluations. It is incumbent for dental providers to teach their patients about the importance of proper plaque control and to encourage them to conduct regular periodontal maintenance(Sarah H. et al., 2018).

Diabetes. For the nearly 30 million Americans who have diabetes, many may be surprised to learn about an unexpected complication associated with this condition. Research shows that there is an increased prevalence of gum disease among those with diabetes, adding serious gum disease to the list of other complications associated with diabetes, such as heart disease, stroke and kidney disease(Diabetes.org). Emerging research also suggest that there is a strong relationship between gum disease and diabetes. Not only are people with diabetes more susceptible to serious gum disease, but serious gum disease may have the potential to affect blood glucose levels and contribute to the progression of diabetes. Research suggests that people with diabetes are at higher risk for oral health problems. For instance, gingivitis (an early stage of gum disease) and periodontitis (serious gum disease). People with diabetes are more susceptible to bacterial infections and because of their inability to fight the bacteria invading the gums, they are at an increased risk for serious gum disease.
The Surgeon General's Report on Oral Health states that good oral health is integral to general health. If the patient blood glucose levels are poorly controlled, they are more likely to develop serious gum disease and lose more teeth. Like all infections, serious gum disease may be a factor in causing blood sugar to rise and may make diabetes harder to control. Other oral problems associated to diabetes include: thrush, an infection caused by fungus that grows in the mouth, and dry mouth which can cause soreness, ulcers, infections and cavities.

Smoking habits. According to the article "Want Some Life Saving Advice", recent studies have shown that tobacco use in the form of cigarette, cigar, or pipe smoking, as well as smokeless tobacco contribute significantly to the development and progression of periodontal diseases. A smoking habit is commonly considered to be detrimental for implant survival(Koldsland et al., 2011). Concerning the microbiological aspect, it has been shown that currently smokers harbor more periodontal pathogens in peri implant sulcus, thus implying a potential risk for the onset of peri implant disease(Eick S. et al., 2016).

Residual cement. A growing area of concern has been the incomplete removal of cement left in the subgingival space around dental implant (Nicola V. et al., 2016). The cementation of crowns on implants is a common practice. It is quite plausible for cement to be left behind because of implant positioning and the subsequent supra structure design. This alone can hinder non-surgical therapy efforts to access the subgingival space. Moreover, many of commonly used cements are undetectable by radiograph survey. How dental cement cause inflammation and disease may be related to its roughness and may cause inflammation. Furthermore, its surface topography may provide a positive environment for bacterial attachment (Chandur P. et al., 2015).

Occlusal overload. One of the difficulties in conducting clinical studies on this topic rests on the definition of occlusal overload. Different in the magnitude, duration, direction, and frequency of the applied occlusal load and the tolerance threshold of the host are the underlying reason of the observed conflicting reports. Possible mechanism of why occlusal overload can lead to peri implantitis are conceivable. Implants are considered less tolerant to non-axial occlusal load compared to teeth because of lack of periodontal ligament. Bone remodels in response to the strain. Excessive amounts can cause micro fracture within bone and eventual bone loss. In addition to this, a recent systematic review suggested that occlusal overload was positively associated with peri implant marginal bone loss.(Robert L. et al., 2014)

Osteoporosis. A new study published in the Journal of Oral Implantology has found that osteoporosis medication can cause significant problems with a patient's implants. Researchers studied the effects of bisphosphonate (BP) use on mandibular bone quality. Implants are usually very predictable, but changes to bone structure can seriously affect the success of an implant. BPs are given to treat osteoporosis or other diseases that cause bone-density loss, and help to prevent bone fractures and other complications(Naoko Y. et al, 2017).

The problem, researchers found, was that BPs also affect the landscape of the mandible. They examined 25 patients with osteoporosis who were at least 60 years old. The patients had all gone through implant surgery prior to the study. Of the 25 patients, 11 had been taking BPs for over one year, and the remaining 14 were not, instead taking a hormone therapy. The two groups were then monitored for changes to bone mineral density and cortical bone thickness.

In the BP group, 11 patients with a total of 25 implants had three (11.1 percent) of those implants fail in three (25 percent) different patients within one year. The 14-member non-BP group had 28 total implants, and every implant survived.

In the BP group, 11 patients with a total of 25 implants had three (11.1 percent) of those implants fail in three (25 percent) different patients within one year. The 14-member non-BP group had 28 total implants, and every implant survived.
So what caused these problems? Researchers found that the BP group patients had increased cortical bone thickness and a higher bone mineral density. Though the sample size was small, the researchers could still conclude that "These results indicate that BPs affect the quality and quantity of the cortical bone in the partially edentulous posterior mandible of patients with osteoporosis, which should be considered prior to treatment with dental implants in patients taking BPs.

"Education is the most powerful weapon which you can use to change the world."
Nelson Mandela

Periodontitis vs Peri Implantitis. Is it the same disease? Is it the same treatment? The soft and hard tissues surrounding an osseointegrated (bone-to-implant contact) implant show some similarities with the periodontium in the natural dentition. A big difference lies in collagen fibers being non-attached and parallel to the implant surface instead of being perpendicular and in a functional arrangement from bone to cementum. A periodontitis-like process — peri implantitis can affect dental implants and if untreated, periodontitis may ultimately lead to the loss of natural teeth. Therefore, peri implantitis can result in the loss of dental implants. At this time, substantial evidence supports bacterial plaque as the primary etiologic factor in the loss of both teeth and implants. As in periodontitis around natural teeth, clinical findings around failing implants include marked gingival inflammation, deep pocket formation, and progressive bone loss(Lindquist et al. 1988).

Peri implantitis and periodontitis are two inflammatory diseases of the oral cavity with bacterial backgrounds, and are also known to share various clinical characteristics. As a result of their similarities, studies addressing manifestation and progression as well as therapeutic approaches are oftentimes merged. This view is supported by the shared risk factor between periodontitis and peri implantitis(Heitz-Mayfield LJ. 2008).

Moreover, if a patient has any pre-existing symptoms of periodontitis, this risk indicator for peri implantitis(Kotsovilis et al. 2006). Various studies alluding to the similarities of these two phenotypes is attributed to similar disease mechanism, in partially edentulous patients, bacterial colonization occur within 30 minutes after implant placement. The bacteria around infected implant is similar to those found in periodontitis, which include red complex species: Porphyromonas gingivalis, Treponema denticola, and Tannerella forsythia(Furst M et al. 2007).

Also, a study comparing the accumulation of biofilm and the host response of the soft tissues in humans revealed no differences between gingivitis and peri implant mucositis(Pontoriero R. et al. 1994). In contrast to that, the uniqueness of peri implant diseases is oftentimes neglected(Berglundh T. et al. 2011). A Longitudinal, cohort study at the University of Berne School of Dental Medicine, Department of Periodontology and Fixed Prosthodontics, were recruited for a clinical and radiographic evaluation 10 years after implant installation.

The patients had been treated for periodontal disease according to a comprehensive treatment strategy prior to the installation of implants and incorporation of superstructures(Lang P. et al. 1988). The same clinical and radiographic evaluations were performed at the 1-year baseline as well as at the 10-year examinations and included the following clinical parameters:

- Modified plaque index (mPII) (Mombelli et al. 1987) for all implants.
- Modified bleeding index (mBII) (Mom- belli et al. 1987) for all implants;
- Distance between the implant shoulder and the mucosal margin (DIM) in millimeters (recession scored as negative value);
- Pocket probing depth (PPD) in millimeters;
- Probing attachment level (PAL) in millimeters calculated by subtracting PPD from DIM;
- Bleeding on probing (BoP).

A total of 53 patients with 112 hollow screw (HS) ITIs Dental Implants were evaluated. Sixty-seven of those implants were placed in women (59.8%), while 45 were placed in men (40.2%). Twenty-one implants were installed in eight patients with a history of chronic periodontitis, representing group A. The remaining 91 implants were installed in 45 patients without a history of chronic periodontitis replacing teeth lost due to other reasons such as caries, fractures, anodontia or trauma, representing group B. The present study has demonstrated that osseointegrated implants replacing teeth lost due to chronic periodontitis

demonstrated lower survival rates than oral implants replacing teeth lost due to caries, trauma or agenesis.

In this respect the study supports the hypothesis that an increased susceptibility for periodontitis may, indeed, also translate to an increased susceptibility for peri implantitis and implant loss. The present study also demonstrated that patients previously suffering from periodontitis and successfully treated for, experienced a significantly higher incidence of peri implantitis and significantly lower success rates of their implants after 10 years of service than patients without a history for periodontitis. Although several case series have expressed the notion for higher susceptibility for peri implantitis in patients with a history of periodontitis, when compared to patients without such a history(Malmstrom et al. 1990).

Allow me to bring the attention back to the previous discussion. In the case of the young woman, Sherry. I did follow up with her one month later when she came back to Dr. Weisfeld office. Last time Sherry got a referred letter from Dr. Weisfeld and went to see her physician doctor for a checkup. As soon Sherry walked into the room, she starts telling Dr. Weisfeld about the exams result that was done by her medical doctor. Sherry explains, "The doctor told me I was in good condition, except for one thing. I had Type II diabetes. I was totally unprepared for that. I was so upset when I found out. My BMI was above 26, I enjoyed my share of pizza, beer, and rich desserts, my job involved sitting in front of a computer for hours on end, and besides some hiking in the summer, I wasn't really engaged in regular exercise. I was also exhausted, especially after lunch, often irritable, and frequently felt like I was walking on pins and needles, especially upon waking. My Blood Sugar was 395, and I was in shock after the Dr. told me that it should only be between 80-120. Well, they put me on Metformin and told me take the tablet twice a day with a meal. I was shown how to test my blood glucose and told to watch my diet, get more exercise, and lose weight. I will follow their advice. I'm a pretty determined person, so I decided to turn a negative into a positive."

Dr. Weisfeld's response to her disclosure was, " Sherry, sorry for this has happened with you. Fighting diabetes is not always easy, but if you look at it as a much-needed lifestyle change, adhere to a proper diet and exercise regularly, you will be able to view it as a life-changing gift. Believe it or not, a positive attitude is one of the keys to successful diabetes management. Of course, it's important to eat right and exercise to keep your blood sugar as close to normal as possible. But diabetes control is also about not letting diabetes control you.

Unfortunately, the most common problem affecting gums and teeth for people with diabetes is Periodontal diseases. The rate of dental implant failure is quite high in people with diabetes.
This happens because people suffering from Type 1 or Type 2 diabetes might take longer to heal the wound of the surgical implant. Also, diabetic patients are at a higher risk of infection. And because infections like those in the gums are prevalent in people with diabetes, the risk of dental implant failure increases tenfold and might lead to other complications as well. Dental implants demonstrate good long-term success rates. However, diabetes is considered to be a risk factor compromising osseointegration."

After Dr. Weisfeld completed the clinical examination and periodontal assessment, he told Sherry that she has moderated periodontitis, and this is a terrible situation for a patient that is planning to have dental implants. Before thinking about it, she should first focus on her Periodontal and diabetes treatment. Dr. Weisfeld recommends a treatment plan that will start with taking an impression to fabricate a partial denture to replace the missing teeth, and then proceed with a periodontal therapy treatment. The initial stage of the periodontal treatment will begin with a cleaning including (SRP) scaling root planing, removing etiologic agents such dental biofilm (plaque), supra and subgingival tartar, which can cause gingival inflammation and develop periodontal diseases. Also, periodontal maintenance therapy is recommended, to follow up and to monitor the patient compliance with the treatment, every three months.

In closing, patients missing teeth caused by too chronic periodontitis -- demonstrated lower survival rates and more biological complications than patients with implants due to reasons other than periodontitis during a 10-year maintenance period. Furthermore, setting of thresholds for success criteria is crucial to the reporting of success rates.

Dental implant maintenance. Factors influencing the successful maintenance of dental implants can be divided into categories: implant, dentist, dental hygienist, and patient. The dental hygienist has a significant role not only in implant maintenance but also in patient motivation and education. The recommended recall for a dental examination assessing oral health is three to six months for patients that have implant, however, factories that increase a patient risk for disease such as home care habits, smoking, diabetes, periodontal disease background, and complications should dramatically increase recall frequency(Rutar A et al.,2001).

Periodontal maintenance procedures provided by the dental hygienist for implant patients include assessment of entire oral cavity as well as the implant site. A thorough assessment of plaque and calculus accumulation, as well as evaluation of soft and hard tissues, should be a part of the protocol for each maintenance visit. The goal of the maintenance therapy is to continually monitor the stable condition created by active treatment. Recall appointments should take place at three month intervals, and the frequency should be increased if that interval is not adequate to maintain oral health. Because the same periodontal microbiota colonizes teeth and implant; implants placed in patients with periodontally compromised teeth, it is essential that optimum oral hygiene and plaque control be maintained prior to and following implant placement. A basic assessment begins with the color, contours, and consistency of the surrounding soft tissue. The presence of erythema, edema, and suppuration, which are the traditional signs of inflammation, should be noted. Thorough documentation of the changes in the soft tissue is important because change may signify current disease activity. The nature of the surface of implant components must be considered when deciding which instruments to use during office procedure. Most implant components are titanium, a very tough but easily scratchable. Curets made of nonmetallic materials, such as plastic, graphite, teflon, or nylon, are recommended. Cleaning around the abutments also can be performed with gauze or tufted floss. Air powder abrasive units are effective, but they should not be used directly on implant components for any length of time. The use of ultrasonic and sonic powered scalers with metal tips also contraindicated with implants, specifics plastic or nylon sleeves placed over the tip are available that allow cleaning of implants without scratching. A multitude of home care devices exist to assist in mechanical oral hygiene regimes. These devices include various manual or powered toothbrushes and specific interdental aids. Although rinsing with antimicrobial has proven to be beneficial, some rinses have unwanted side effects, such staining, altered taste, and increased calculus formation. Because of the potential side effects, patients may prefer alternative delivery by applying the solution in a site specific fashion to avoid undesirable effects(Mea A. et al., 2014).

"Just as importantly, I hope that the changes in my lifestyle will be contagious to my family and friends who are watching me day in and day out during this process. Even if the people surrounding me are not able to make quite the same commitment that I am doing, I hope to inspire a few healthier decision every day."
Sherry, NY 2018

Patients interviews and lifestyle. I was able to conduct an extraordinary interview with a patient that lives in Brazil via FaceTime. Her name is Gloria and she was excited to contribute to my thesis. Generously describing her entire experience on the process of getting a dental implant. Her occupation is with customer service at the international airport of Sao Paulo, Guarulhos where she works for a Brazilian airline company. Since 2002 she has been dealing with people a face to face basis and because of this Gloria said, "It's definitely worth investing in dental implants, especially because of the type of job I have,"

In 2015, Gloria was in a head on collision in which she suffered trauma to her upper left front tooth. Gloria endured a root canal procedure, clearing the nerve and pulp of the damaged tooth to prevent any further infections and was later given a crown. Gloria was told that she had been left with a short root on the damaged tooth. Over the years it was monitored closely by her dentist.

Gloria takes good care of her health and she makes sure to eat as healthy as possible. She likes to keep her body in a good shape by maintaining good habits. She enjoys going to the gym four times a week before work and she visits her primary care physician twice a year for her biannual checks. Gloria mentioned that she recently started practicing yoga, taken a class or two over the weekend and she believes that it is the best thing she had done. Not only has the yoga added to her overall physical health but, it has also helped to minimize her stress levels.

After a recurrent infection of the root, her general dental practitioner advised her that the tooth should be removed. The infections required regular antibiotics. If she kept the tooth, she will have the risk of more infections, pain and possible facial swelling. Gloria decided to have the tooth extracted and replaced with a partial denture, a plate with one tooth to fill the gap at the front of her mouth. Gloria didn't like the plate, wearing it affected her speech, confidence, and self-esteem.

She explains, "I thought the denture was ugly, uncomfortable and difficult to eat with. I didn't like to remove it for cleaning or taking it out at night. I hated having a gap and my husband seeing me without a tooth. It affected my entire life."

Gloria found that she didn't smile properly with the denture, " I remember going to an event and not smiling as much as I normally would." It also moved when she ate. Once she ate or drank something, it felt like an "alien" in her mouth. She adds, " I

couldn't eat an apple and when I bit into a sandwich, I was always worried the plate would hold onto the sandwich and come out."
Gloria was given the option to keep the partial denture or have a tooth implant. After finding out more about dental implants, she decided that she would like to proceed with treatment. Gloria was referred to Dr. Carvalho, at Neodent Dental Center, in Sao Paulo, Brazil. Dr. Carvalho placed an implant and fitted single crown.
Dr. Carvalho explains, " Implants have several advantages over traditional techniques for replacing missing teeth, restoring gaps and anchoring dentures. Dental implants look like your natural teeth and behave in the same way. They stimulate the bone in which they're anchored, maintaining form and shape to ensure an attractive, aesthetic result that supports your face."
Gloria explains, "At the day of the procedure Dr. Carvalho was very understanding and guided me through the process. I was lightly sedated, so I was aware of what was going on and comfortable. It's definitely worth investing in the dental implants. You take your natural teeth for granted when they are in your mouth, dental implant gives your life back."
She recommends that prospective patients should do their research and go to a reputable dentist,
"I highly recommend Dr. Carvalho. He looked at my overall health, mind, body, and mouth, and not just the missing tooth."
Gloria is delighted with her dental implant. She comments, "I can now eat what I want. I can eat apples and have one every day, just because I can! Implants have given me the freedom to choose. When I was wearing the plate, I had a constant fear that it would fall out. An implant gives you confidence, so you can be who you really are and not hiding behind a hand, or not smiling properly." She concludes, "I can't stop smiling, I want to smile at the world."

There are many ways of helping patients that are concerned into changes for a better lifestyle.

Frequently patients are diagnosed with chronic diseases that are directly related to their lifestyle habits and choices, which in return forces them to believe that they are unable to improve their conditions. However, the physician and health care providers know what patients should do to become healthier. For instance, losing weight, quit smoking, and increase physical activity daily. Furthermore, it isn’t always evident where these patients are on their journey toward change. In fact, some may even be apprehensive to the idea of wellness because the journey seems to far-fetched. For the patients conflicted with of feeling ambivalence or frustration, this may be the best opportunity to offer them help with a motivational support.

Developing motivational strategies can be a challenge to the dental professional and patient. Interviewing patients should always start with a collaborative and friendly relationship between the healthcare provider and patient. This requires that the healthcare professional have empathy toward the patient and recognize that a patient's resistance to change is typically evoked by environmental conditions rather than a character flaw. In other words, we as health care providers should not take it personally when a patient struggles to change. Allow the patient to be responsible for his or her own progress, and let the patient identify and articulate his or her intrinsic values and goals. For example, if an obese patient sets a physical activity goal of simply "walking up 6 floors stairs instead of taking the elevator in the morning and afternoon each day," the health care provider should show support for that goal, even if it may seem small. If there is something you want to achieve, it's a great idea to set goals for yourself. Just make sure they are attainable goals. You will stay much more motivated and focused on the big picture if you reward yourself for making small accomplishments along the way.

Come up with a motivational mantra. Instead of focusing on the negative aspects of your life. Try to stay focused on all of the positive things you want to accomplish. To stay on track, repeat a mantra to yourself, such as, "I am working to improve my life" whenever you start to feel overwhelmed by negativity.

The patient Sherry is back to continue with her dental treatment, one more session of periodontal therapy and the partial lower denture fitted. Since Sherry has started the treatment at Dr. Weisfeld office, it is evident that there is comfortable dynamic between the patient, doctor, and dental hygienist. So far the team has constructed a trusting and rather healthy relationship. Sherry has been feeling much more comfortable to share her struggles, new stories, and plans about her healthy lifestyle changes. In a private conversation with her I discussed what is so beneficial about a lifestyle change.
We spoke about the importance of improving her health by adapting to a lifestyle change. This encouraged her to aim for a more healthier and hopeful future. Don't let yourself believe that you don't have time to live a healthy lifestyle. You can always find time for something this important. Don't try to change everything about your life at once. Introducing small changes one at a time will be much more doable.

In a conversation with Sherry, I had the opportunity to reinforce the importance of a healthy lifestyle combined with a balanced diet and how easily these minute factors contribute to her overall health and quality of life. What you eat is closely linked to your health. Balanced nutrition has many benefits. By making healthier food choices, you can prevent or treat some conditions. These include heart disease,

stroke, and diabetes. A healthy diet can help you lose weight and lower your cholesterol, as well. Being healthy involves more than eating an occasional salad or going for a short walk once every few weeks, you will need to put in some effort because your health is well worth it. To live a healthy lifestyle, choose healthy foods, fit more exercise and physical activity into your daily routine, and practice good hygiene. Keep in mind that while you are on your way towards wellness you want to avoid unhealthy habits, like fad dieting and neglecting sleep. Making lifestyle improvements may require some gradual adjustment, but improved health is readily accessible once you commit to it.

Diet and lifestyle.

Good nutrition is one of the keys to a healthy life. You can improve your health by keeping a balanced diet. You should eat foods that contain vitamins and minerals. This includes fruits, vegetables, whole grains, dairy, and a source of protein. It may be hard to change your eating habits, especially after being accustomed to unhealthy eating for a majority of your life. However, It will help if you focused more on the small changes to limit any unwanted anxiety. To start, make small but sufficient changes to your diet. This small step is beneficial for keeping diseases and irregularities at bay. Balanced nutrition and regular exercise are good for your health. These habits can help you lose or maintain weight. Always try to set realistic goals. They could be making some of the small diet changes listed above or walking daily.

Improving your physical well being

Eat healthily.

Try incorporating a variety of fruits, vegetables, whole grains, low-fat dairy products, lean proteins; including fish, chicken, legumes, and nuts. Also, include healthy fats such as, olive oil, salmon, and avocados into your diet. Avoid processed

foods, salty foods, added sugar, and fatty foods as much as possible. Your diet can also have an effect on your mental health. Fruits and vegetables are thought to increase feelings of positivity, while fats and sugars are linked to feelings of depression.

Reduce stress.

Stress is incredibly bad for your mental health, so commit yourself to reduce stress however you can. The first step to reducing stress is to pay attention to the things that trigger it. Once you understand what your stressors are you can decide how to react to it. In some cases, you may be able to avoid your triggers by staying away from certain people or not overcommitting yourself.

You can also be managing your stress by incorporating yoga, massage, meditation, or deep breathing exercises into your daily routine.

Get enough sleep.

Lack of sleep can make you feel tired and unproductive throughout the day. This may prevent you from feeling good and from accomplishing your goals. If you have trouble falling asleep, set alarms so that you wake up and go to sleep at the same time every day, even on weekends. This will force your body into a healthier sleep pattern. Moreover, try to avoid caffeinated beverages and television before bed, eliminating these two factors can help you sleep.

Reduce alcohol intake.

Alcohol is fine in moderation, but too much can cause serious health problems like high blood pressure, high cholesterol, stroke, and heart failure. Stick to no more than one serving per day if you are a woman or two if you are a man.

Get checked for nutrient deficiencies.

If you're constantly feeling tired and foggy despite changes to your lifestyle, your body may not have enough of an essential nutrient, like vitamin D. Getting tested involves a simple blood test. If you are found to have a vitamin D deficiency, you can improve your symptoms by increasing your sun exposure or taking supplements. Other common deficiencies that can lead to fatigue include B vitamins, magnesium, and antioxidants.

What is a good atmosphere for a healthy lifestyle?

A good atmosphere for a healthy lifestyle includes being around other people that have the same drive to be healthy, not around those that encourage unhealthy behaviors. Also, maintaining a clean house, especially kitchen, will help you feel like you're more in control of your life. Last but not least, remember that health is not a destination but a journey, so you must always be working towards a healthier body and life. Try to smile and laugh more, choose some funny things to talk about with your friends, watch some videos that make you laugh, try to see the funny side of every situation. You'll feel more alive and healthy.

"Becoming an expert not only establishes you as a leader in your field, it will make you a trusted resource that people can rely on for new and innovative ideas."
Susan Young

As a dental health care, I want people to have a better understanding about dental implants. Patient education plays such an important role in our appointed time with the patients. As dental hygienist, we always talk to our patients about patient education and oral hygiene. It is our goal to deliver the education to them and reinforce the responsibility that the patients have to maintain their oral health. I like to motivate my patients to developing positive habits in their life, for a better lifestyle that will keep them healthy, not only in my dental chair but in their overall well being. Predicting dental implant failure starts long before the patient even enters the operating room. It begins at the initial consultation when the dentist will review patient medical history, radiographs, and meticulous intra oral examination. As I have mentioned before, there are several known risk factors that can negatively affect the success, contributing to dental implant failure.

Establishing a comprehensive patient screening process can effectively improves results. Having open communication and discussions with the patient regarding pre

existing medical conditions, dental history, and accurate psychological profile of the patient will have profound impact on the treatment.
Taking advantage of the technology advancements and ever growing wave of smartphones, iPads, and tablets, are all excellent sources that provide unprecedented access to information. For example, on YouTube patients can find an plethora of videos from manufacturers about proper brushing technique, gingivitis, periodontal disease, and so forth.
Furthermore, in the midst of my brainstorming about how I can contribute to the improvement and success of dental implants, I came up with this idea of developing a website page which will be directed to people that are interested in learning more about dental implants. The website will summarize all information that a patient should know before they decide on dental implant treatment. Following all steps of the treatment, risk factors, and methods for an acquired dental implants care. In the website patients will be able to find all educational information regarding to dental implants with a convenient vocabulary which will make easy for any person to clearly understanding. Patients will have the opportunity to answer a questionnaire that will electronically calculate the percentage of success and possible risks, providing the patient qualification status.

Treatment for dental implant failure can be frustrating but the need for the treatment can be avoided by keeping up with proper oral care at home. The correct way to avoid dental implant failure is make sure the patients practice good dental hygiene. This includes, but is not limited to, performing the correct brushing technique, flossing, and rinsing with an antibacterial mouthwash.
Dental implants are very successful and they can last a lifetime with proper care. Furthermore, they look and function like real teeth.

Implant home care. Constant home care around tissue integrated implant prostheses is imperative for long term success. Plaque control procedures should start immediately after uncovering the implant. It is important that the dental hygienist customizes a home care regime base on the patient's awareness, ability, and the type of prosthesis present (Orton, 1989).

A multitude of home care devices exist to assist in mechanical oral hygiene regimes. These devices include various manual or powered toothbrushes and specific interdental aid (Balshi,1986).
A periodontal maintenance care plan is necessary for a continuing preventive care by the dental hygienist. The principal goal for this maintenance is to continue with monitoring the stable condition created by active treatment. Patients should follow up with their dental office every three month. This frequency can be increased if that interval is not adequate to maintain oral health.

In conclusion of this present research suggest that several local and systemic factors have been identified as the causes of increased implant failure. These factors include, smoking, diabetes, previous history of periodontal diseases, poor plaque control, and occlusal overload. It is important to keep in mind that implant therapy is not for everyone. For this reason, is crucial that the dental hygienist be informed about implant types, the sequence of therapy, and the social and systemic factors that influence implant success. If a you are interested in dental implants, it is a good idea to discuss it carefully with your dentist first. If you are in good general health this treatment may be an option for you. You should be medically evaluated by a physician before any implant surgery is scheduled.

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ADA- American Dental Association.

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