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Vol: 06. Issue: 02. January - March 2020

THE DENTCARE

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Your Quarterly Health Care Magazine

***STYLE YOUR
SMILE***

***SUICIDE
PREVENTION***

***THE TOOTH
SERIES***

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Padma Shri Dr. Tejas Patel

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Dear Reader,

January could never have been so fascinating. The birth of a new decade instills in me a sense of excitement that is profoundly inspiring.

Though it calls for moments of reflection, I am one, who strongly advocates the thought that a journey is best enjoyed when your gaze is on the road ahead. The rear view mirror should never become the constant reason to distract your attention.

Life will assume manifold change as we move from the –teens to the –ties!!

Very few have been blessed to witness this transition in a lifetime. Experiencing it to the fullest would rather remain a matter of individual perception. Certainly the Apple that changed Adam forever has evolved into an Apple that defines the very nature of humankind.

“Every move you make, I will be watching you” is no longer a catch phrase, but a stark reality.

Are we ready to embrace this change?

We certainly are in no position to resist it. The pace at which it is capturing every thought process leaves us with no other options either.

We could firmly rely, though, on the grace of the Divine. That is blessed reassurance for the future.

Spare a thought for our Planet. Let us resolve together to leave it free from perpetual blemish. The Generations to come will always remember us in eternal gratitude.

Yours truly,

Prof. (Dr.) George P. John

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Printed and published by Mr. John Kuriakose on behalf of DentCare Dental Lab Pvt. Ltd. and printed at Fivestar offset Printers, Nettloor, Cochin - 40 and published at DentCare Dental Lab Pvt. Ltd., Nas Road, 130 Junction, Muvattupuzha, Ernakulam, Kerala, India – 686661. Edited by Prof. (Dr.) George P. John.

HOW MUCH DO WE REALLY VALUE OTHERS?



Plato, the ancient Greek philosopher once said: "A grateful mind is a great mind which eventually attracts to itself great things".

If you have a grateful mind, you begin to realize that no matter what is happening, there is always something to be thankful for. Appreciate those who have supported you and let Gratitude be a habit of your life. Also, treat everyone you meet with dignity. The more we focus on adding value for others, the more respect we will get.

Let me take you to the story of a young man who realized the importance of his mother and understood the fact that it is absolutely necessary to cultivate the habit of being grateful for every good thing that comes to us.

Robin was a young man who was academically sound. He once went to apply for a managerial position in a big company. He passed the initial tests and panel interview and then had to meet the Director for the final interview.

The Director discovered from the performance report of the previous levels of his interview that Robin had excelled in all aspects. So he asked, "Did you obtain any scholarships?", to which Robin answered, "No".

"Was it your father who paid for your school fees?", the Director enquired.

"My father passed away when I was a year old and it was my mother who paid for my education," Robin replied.

Curious, the Director asked, "Does your mother work?"

"She is a washerwoman," replied Robin.

The Director requested Robin to show his hands. He showed a pair of hands that were smooth and perfect.

"Have you ever helped your mother wash clothes before?", the Director asked.

Robin told him that his mother always wanted him to study and read more books. Besides, she could wash clothes much better than him.

The Director placed a request before him. "When you go home today, go and clean your mother's hands, and then come back and see me tomorrow morning."

Robin felt that his chance of landing the job was high. So when he went back, he happily requested his mother to

let him clean her hands. His mother felt strange at this request. She showed her hands to Robin. He cleaned her hands slowly. His eyes welled with tears as he did that.

It was the first time he had noticed that his mother's hands were so wrinkled and there were so many bruises on the palms of her hands. Some bruises were so painful that his mother winced when he touched them. Robin wept while he knelt beside her thinking that he had never recognized his mother's hardships in raising him. He thanked his mother by kissing her wounded hands.


After cleaning her hands, Robin quietly washed all the remaining clothes for his mother. That night, mother and son talked for a very long time. The next morning, the youth went to the Director's office.

The Director saw the tears that rushed to Robin's eyes when he asked: "Can you tell me what you learned yesterday when you went home?", to which Robin answered, "I have realized the importance of my mother and without her, I would not have been existing in this world. I cleaned my mother's hands and also finished washing all the remaining clothes. Now, I know how difficult and tough it is to get something done. Yes, we should appreciate the hard work of our loved ones."

The Director was expecting to hear the same reply from him. He wanted to recruit a person who could appreciate others and one who would not put money as his only goal in life.

Robin was hired for the job. The Director also expressed respect for Robin's mother and appreciated her wholeheartedly for the effort she took in raising her son, even in adversity. Later on, Robin went on to work very hard and received the respect of his subordinates.

This may be a simple story but the message we receive from it is incredibly powerful. We need to realize the pain suffered by our loved ones for giving us comfort. Let us have a mind to value others and find joy in enriching the lives of those around us.

May God Bless all of you. I wish you all a very happy and prosperous New Year! 

Mr. John Kuriakose

Managing Director

DentCare Dental Lab Pvt. Ltd.

January - March 2020

Contents

07

**PUBLIC HEALTH DENTISTRY:
BREAKING THE STEREOTYPES**

08

THE TOOTH SERIES PART - III



12

**CONGENITAL HEART DISEASE:
CARING FOR YOUR CHILD**

14

**DR. TEJAS PATEL: A PIONEER IN
TELEROBOTIC SURGERY**

18

GETTING RID OF CAVITIES

20

ALZHEIMER'S DISEASE

24

MISUSE OF TOPICAL MEDICATIONS

26

**DENTAL CONSIDERATIONS
IN PREGNANCY**

28

STYLE YOUR SMILE

30

SCENARIO OF DENTISTRY IN INDIA

32

**TRIGEMINAL NEURALGIA AND
OMEGA-3 FATTY ACID**

36

SUICIDE PREVENTION

38

**BREAST CANCER - A COMPREHENSIVE
OVERVIEW**

42

ZIKA VIRUS DISEASE

44

ASK THE EXPERT

46

**IMPORTANCE OF FORENSIC
FACIAL RECONSTRUCTION**

48

**CAN METFORMIN CAUSE VITAMIN
B12 DEFICIENCY?**

51

A TREAT FOR YOUR TASTEBUDS

52

DENTCARE ZIRCONIA: THE TRUSTED BRAND



56

**FORENSIC ODONTOLOGY
AS A HUMANITARIAN TOOL**



PUBLIC HEALTH DENTISTRY: BREAKING THE STEREOTYPES



Dr. Adhithya Kalluri
Public Health Dentist
Chennai, Tamil Nadu, India

Dentistry is one of the oldest medical professions dating back to 7000 BC. It has evolved through five stages viz. Undifferentiated occupation, Differential occupation, Initial professionalization, Intermediate professionalization and currently is in the stage of Advanced professionalization.

Currently all the advancements in materials and technologies in India are focussed towards treating oral diseases and sadly, Dentists are resorting to aesthetic makeovers and a lot of 'Dental Spas' are cropping up. The fundamental ideology of alleviation of pain/discomfort is compromised and little importance is given to Preventive Dentistry.

Public Health Dentistry is a core specialty of Dentistry that deals with the prevention of oral disease and promotion of oral health. A Public Health Dentist focuses his / her skills and expertise in population-based dentistry instead of treating an individual patient one at a time. This could be through a combination of treatment, education, and policy changes.

The Public Health Dentist is expected to have good analytical skills, reflect excellent communication, and exercise attention to detail. Public Health Dentists may serve as Dental Public Health providers, Public Health Scientists, Dental Public Health Policymakers and Administrators, and Professional Academicians. Since financial security is pivotal in this inflated and competitive market, the Public Health Dentist is taking the same beaten track of academics or private practice.

In India, 75 dental institutions including 7 Government colleges offer Master's in Public Health Dentistry which amounts to a total of 211 seats every year. Karnataka comprises the bulk of the seats with 74 seats in 25 institutions. No wonder, the inception of Public Health Dentistry was from Government Dental College and Research Institute, Bengaluru, Karnataka, India way back in 1969.

The future of Dentistry could be threatened by over-commercialization and symptom-based practice. It becomes very vital to promote risk assessment and Preventive Dentistry for the greater good of reducing the burden of oral diseases. There is a lot of untapped scope and potential for Public Health Dentistry. Being the youngest specialty of Dentistry, it has immense potential for growth and can serve as the flag-bearer of Dentistry. **DC**



THE TOOTH SERIES

PART - III

The Dentin

The Tooth is divided into three structural layers cross-sectionally. The outermost layer in the crown of the tooth is the Enamel and the Cementum forms the outermost layer of the root of the tooth. The middle layer in the tooth, in both the crown and the root of the tooth, is the Dentin. It is more cellular than the Enamel and Cementum.

The Dentin is more yellowish than the Enamel and determines the color of the tooth. It constitutes the bulk of the tooth. It is much softer than the Enamel and the Cementum but is harder than the Bones.

The Dentin forms a supportive framework for the Enamel and Cementum. Just as how the Ameloblasts and Cementoblasts form the Enamel and Cementum, respectively, a layer of Odontoblasts that line the pulp cavity of the tooth form the Dentin. Odontoblasts have a life cycle and are replaced over time.

These Odontoblasts have projections that traverse through the Dentin towards the dentino-enamel or the dentino-cemental junctions of the Dentin with either the Enamel or the Cementum. These projections are called Odontoblastic processes. They lie bathed in a fluid matrix called the Dentinal fluid within S-shaped canals or tubes called the Dentinal tubules.



Dr. Eric Mario Shailander A.

Consultant Periodontist
Bengaluru, Karnataka, India

The Dentinal tubules are denser towards the Pulp and their diameter tapers down from 2.5 µm to 0.9 µm as they course towards the Enamel or Cementum where they fan out into finer branches at their terminal ends. The Dentinal tubules are interconnected by smaller canaliculi. These tubules make the Dentin much more porous than the Enamel and the Cementum. This is why Dental caries progresses much slower as long as it is confined to the Enamel.

The rate of Dental caries progression is much faster in Dentin as it is less resistant to carious attack. The Odontoblastic processes are also innervated making the deeper zones of the Dentin sensitive to stimuli like pain, pressure, and temperature changes. This is a major differentiating factor of Dentin from Enamel, beside the fact that Dentin forms throughout life, unlike Enamel which ceases to form after the tooth has completely developed.

Dentin is also more elastic than Enamel and prevents the brittle Enamel from fracturing during function. The Dentin is formed mostly by inorganic materials (70%; predominantly Hydroxyapatite), about 20% of organic matter (predominantly Collagen Type I), and 10% water by weight.

Primary Dentin is the most prominent type of Dentin that occupies the zone between the Enamel and the Pulp. It has the **mantle** Dentin layer closer to the Enamel which is less mineralized and hardly 20 µm wide. Below this layer lies the **circumpulpal** layer of Dentin that constitutes most of the Primary Dentin. This is the more mineralized layer among the two and is completely formed by the Odontoblasts before the root formation is completed. Newly formed Dentin is initially unmineralized and is approximately 10 – 47 µm thick. They eventually mineralize and lose a considerably large portion of their cellular content.

Secondary Dentin also referred to as Adventitious Dentin, is formed after the root has completely developed and the tooth has erupted into the oral cavity. The formation of Secondary Dentin is much slower and occurs inwards along with the Pulp chamber. This is the reason there is a decrease in the size of the Pulp chamber with age and is referred to as a Pulp chamber recession. This has significant clinical implications while preparing cavities to restore dental caries affected teeth.

Tertiary Dentin is a reactive response to external stimuli and is more reactive or reparative in formation and function. When produced by a pre-existing Odontoblast, Tertiary Dentin is formed reactively. However, the reparative formation of Tertiary Dentin occurs when it is formed by newly differentiated Odontoblasts from the progenitor cells.

Following injury to the mature tooth, Pulp progenitor cells may be recruited during the repair processes and differentiate into second-generation Odontoblasts, Neo-Odontoblasts, or Odontoblast-like cells. The



The Dentin forms a supportive framework for the Enamel and Cementum

architecture and structure of the reparative Dentin being formed depends on the intensity and duration of the stimulus.


The Pulp

The Pulp is a part of the endodontium which is formed by the dentino-pulpal complex. Unlike the Enamel, Cementum, and Dentin, the Pulp is unmineralized and is made of living connective tissue and Odontoblasts. The Dentin forms around the dental papilla during odontogenesis (tooth development). The innermost tissue of the dental papilla is the Pulp.

The Pulp extends from the coronal part of the tooth into the roots and is rich in nerves and blood vessels. This layer perceives pain and initiates reparative and inflammatory functions in response. This network is lined by specialized odontogenic zones. The innermost zone is the **Pulpal Core** having multiple cells and is richly vascularized. The **Cell-rich Zone** encompasses the pulpal core with large numbers of fibroblasts and mesenchymal cells. The **Cell-free Zone** which lies around the cell-rich zone has a rich network of both capillaries and nerve fibers. The final and outermost layer of the Pulp is the **Odontoblastic layer** which lines the Dentin. It is from this layer that the Odontoblastic processes extend into the Dentin.

Functionally, the Pulp is key in the formation of Dentin which in-turn protects the Pulp. Besides this formative function, the rich vascular network nourishes the unmineralized tissues of the tooth, i.e., part of the Pulp and Dentin. The rich vasculature also aids in defensive and protective / reparative function by laying down Tertiary Dentin which is also called Reparative Dentin. This occurs when the Odontoblasts start laying down layers of fresh Dentin in response to an external stimulus. Being richly innervated, the Pulp can perceive various intensities of pain which can occur due to caries, extreme temperature / pressure variations, and injury.

Conclusion

Along with the Enamel and the Cementum, the Dentin and Pulp form one of the strongest, yet dynamic structures in the body which is extremely unique. The importance of teeth is extremely under-emphasized. It is always critical to maintain the structural and functional integrity of the teeth, both personally at home and professionally during frequent dental visits. Ignoring this aspect can cause damage, sometimes even irreparable damage to the teeth. 



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CONGENITAL HEART DISEASE: CARING FOR YOUR CHILD

Congenital Heart Disease, also known as Congenital Heart Defect (CHD), is a heart abnormality present at birth. CHD is a condition in which a baby is born with some defects in the Heart and / or its related structures.

A survey conducted by the All India Institute of Medical Sciences (AIIMS), New Delhi, India, in 2018 has shown that 9 out of 1000 children born in the country are afflicted with CHD. Looking at the high prevalence rate of Congenital Heart Disease, it is important to understand the lifestyle implications it can have on the child and his / her family.

Many a time, the parents may become overly woe-stricken when they come to know that their child has a Congenital Heart Defect. Therefore, we find it hard to convince the parents of such kids that with proper care and precautions, these babies can live a very healthy and normal life similar to the ones without any birth defects.



Dr. Shradha Naik
Consultant in Pediatric Dentistry
Mumbai, Maharashtra, India

What are the causes of Congenital Heart Defects?

Even after years of research, it is nearly impossible to diagnose the exact cause of this disorder.

Several studies have demonstrated that a number of genetic and environmental factors have been associated with the development of CHD in the Fetus.

Furthermore, some risk factors have been identified, such as Phenylketonuria (an inherited disorder that increases the levels of a substance called Phenylalanine in the blood), Rubella (an infection caused by the Rubella virus) and the use of certain medications during pregnancy.

More than 80% of children, who are diagnosed with heart defects at birth, survive into adulthood and even beyond. It depends on the severity of the condition and proper / timely treatment being provided to the baby.

The common signs and symptoms to look out for are

Blue Baby Syndrome, Shortness of breath, Heart Murmurs (which can be heard by a Doctor), and Malaise are some of the signs / conditions which every Obstetrician-Paediatrician duo looks out for in a baby immediately after birth. But with advanced imaging techniques, birth defects, including CHD, can be diagnosed in most cases during pregnancy itself.

Treatment for CHD

Depending on the severity and age of the patient, treatment for CHD may include

- ❖ Cardiac Catheterization to look out for and fix heart defects (for example, to repair a hole or place a new valve). In this procedure, a long, thin, flexible tube is inserted into an artery or vein in the groin, neck, or arm and is threaded through the blood vessels to the heart to confirm or rule out the presence of CHD
- ❖ An Artificial Cardiac Pacemaker is implanted into the heart to control heart rate or address life-threatening heart rhythms
- ❖ Open Heart Surgery to repair the heart defect or help improve blood flow by widening arteries or closing the blood vessels
- ❖ Heart Transplant in a few cases

The Care of Children with CHD

Become their advocate and Doctor's minion

Children with Congenital Heart Disease may grow or develop more slowly than other children. Doctors and nutritionists can help develop a plan to make sure that your child gets enough nutrition to meet his or her body's needs. Your child will need regular follow-up care. Talk with your child's healthcare provider and share your concerns.



All parents should provide a complete emotional, physical, and moral support to their kids with CHD

Provide Specialized Care

The parents of a child with CHD should learn specialized skills to help the kid lead a healthy life. For example, some kids may find it difficult to gain age-appropriate height and weight and as a result, parents may be required to provide them a specific diet and exercise routine. Also, in some cases, a Paediatrician may recommend certain strict physical restrictions. The parents of such a child should pay close attention to the physical health of their child.


It is probable that the parents of a medically compromised child may overly mollycoddle (pamper) the kid and may tend to put restrictions on his / her daily activities. But, keep in mind that an overprotective parenting style may not be helpful in boosting your child's immunity; instead, it may weaken the immune system even further! Therefore, take the necessary steps to allow your child to lead a relatively active life as far as possible to help strengthen the immune system of the child.

Support

All parents should provide complete emotional, physical, and moral support to their kids with CHD. Parents should not hesitate to ask for help in case of an emergency. Reach out to your relatives or friends to get help so as to enable you to face the challenges and stress in managing a child with CHD.

Nowadays, there are many support groups to help the parents of kids with CHD share their situations with one another. Parents should reach out to this community, which may assist them to learn new coping mechanisms and / or help those who are going through the same situation.

Conclusion

Life with a child diagnosed with CHD can be overly worrisome for the parents. However, remember that every cloud has a silver lining. Sometimes, the child can be resilient and may show increased understanding and maturity, along with a greater appreciation for life. No matter what life throws at you, it is imperative for parents to try staying positive for the sake of the child and always remain optimistic in life. 



DR. TEJAS PATEL

A PIONEER IN TELEROBOTIC SURGERY

Padma Shri Dr. Tejas Patel is an internationally renowned Cardiologist in Ahmedabad, Gujarat, India. He has over 35 years of experience as a Cardiologist. He is currently the Chairman and Chief Interventional Cardiologist at Apex Heart Institute, Ahmedabad.

Dr. Patel performed the world's first-in-human Telerobotic Coronary Intervention on a patient nearly 32 kilometres away from him. He was bestowed with **Dr. B. C. Roy Award**, the highest Indian medical award, in India in 2005 and **Padma Shri**, the fourth highest civilian award, in 2015.

In an exclusive chat with 'The DentCare', he speaks his mind.

1. You have successfully performed more than 100000 Cardiac Catheterization Laboratory Procedures so far, which is one of the highest number of procedures performed by any single operator in the world. How could you achieve this remarkable feat?

I have been performing Cardiac Catheterization since late 1991, soon after I became a Cardiologist. Simultaneously, I served as an Assistant Professor at the U. N. Mehta Institute of Cardiology, Civil Hospital Campus, Ahmedabad. Gujarat, India. By late 1992, I started performing Coronary Angioplasty and Valvuloplasty independently.

After leaving Government service in 1997, I started a private practice. Since then, I have worked in several private hospitals. In 2008, I also took up the assignment as a Professor of Cardiology at Smt. Nathiba Hargovandas Lakhmichand Municipal Medical College (NHLMMC), Ahmedabad.

In August 2012, I set up my own institution – Apex Heart Institute. In the span of three decades as an Interventional Cardiologist, I have performed more than 100000 Cardiac Catheterization Laboratory Procedures, including Coronary Angioplasty and Stent Implantation, Robotic-Assisted Percutaneous Coronary Intervention (PCI), Optical Coherence Tomography (OCT), Intravascular Ultrasound (IVUS), Fractional Flow Reserve (FFR) guided PCI, Peripheral Intervention, and Structural Heart Intervention.

2. What are your noteworthy legacies / contributions to the field of Medicine / Cardiology?

I have been instrumental in developing and innovating several new techniques and technologies in the field of Interventional Cardiology.

In the initial years of my career, i.e. from 1991 to 1997, I did several modifications in the technique of Balloon Mitral Valvuloplasty and represented India internationally. My innovations in this technique were published in many renowned American journals.

In the year 2000, I have performed the Transradial Technique i.e. Coronary Angiography and Stenting through the artery of the patient's wrist. I have done a

lot of innovative work with the field of the Transradial Technique and published more than 100 scientific papers on this technique in various American and European journals.

I have started a dedicated teaching course on Transradial Intervention Course (TRICO) in 2005. In collaboration with several international experts in this subject, I started teaching / propagating this technique to the young Cardiologists of India and surrounding countries. Eventually, this course became the largest and most reputed course in this subject globally.

As of now, we have completed 14 successful TRICOs and trained more than 5000 Cardiologists from India and 20 other countries. Statistics reveal that the Transradial Cardiac Intervention technique is better than the Transfemoral Technique (performing Coronary Angiography and Intervention by puncturing the artery in the groin). Transradial Technique has many benefits, including less bleeding complications and decreased mortality rate.

In December 2017, I started the Robotic-assisted PCI Program (Coronary Angioplasty and Stenting using a robotic arm). This was the first robotic PCI program outside the United States of America (i.e. the first program in Asia, Europe, Australia, New Zealand, and Africa). I aggressively developed this program and within a short span of one year, I could successfully perform about 300 Robotic-assisted PCI Programs.

On December 5, 2018, my colleagues and I could perform five Telerobotic Stenting Interventions successfully. I took my seat behind a console at Akshardham Temple, Gandhinagar at a distance of 32 kilometres away from the Apex Heart Institute and performed Angioplasty on a middle-aged woman who was at the Cardiac Catheterization Laboratory of Apex Heart Institute. I used the bandwidth of Jio internet connection to give the command to the robot at Apex Heart Institute and we successfully performed five cases of Coronary Angiography with Stent Implantation to open up the critical blockages of the patients.

I have a tremendous sense of satisfaction because we opened up a new avenue of treatment in our field for the first time in the world and that brought a lot of pride and prestige to my country. The study was accepted and published by Lancet (one of the most reputed journals in the field of Medicine) in September 2019.




3. Currently, you are the Chairman and Chief Interventional Cardiologist at Apex Heart Institute, Ahmedabad, and also Professor of Cardiology in Sardar Vallabhbhai Patel Institute of Medical Education and Research, affiliated to N.H.L. Municipal Medical College, Adjunct Professor of Medicine at Virginia Commonwealth University Medical Centre and Visiting Professor in Department of Cardiology at Mayo Clinic, Rochester, USA. How do you successfully manage your responsibilities?

I know that there are too many responsibilities and I am supposed to justify them all. I have to examine about 40 – 50 patients every day in the OPD, perform about 12 – 20 Cardiac Catheterization Laboratory Procedures every day, and also perform my administrative responsibilities. Periodically, I have to travel abroad for my teaching assignments. Somehow, I have been successful in managing everything because I have the capacity to work hard and I do my time management smartly.

4. You are a recipient of the Dr. B. C. Roy Award, the highest Indian medical award and Padma Shri, the fourth highest Indian civilian award for your outstanding service to the nation. How you feel about winning the prestigious award?

I personally think that my fraternity has recognized my work by offering the prestigious **Dr. B. C. Roy Award** to me. The Government of India and my society has recognized my work by bestowing upon me the prestigious **Padma Shri Award**. I feel humbled to receive both these awards.

5. You have completed scholastic and collegiate education with flying colours. How could you maintain the accomplishment all through your studies?

I have worked very hard. I have respected my teachers. I have got support from my colleagues. I have converted every single problem into an opportunity. 

For The **DentCare**
Interviewed by **Ms. Nisha Philip Xavier**

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GETTING RID OF CAVITIES



Dr. Sugandh Mittal
Consultant in Pediatric Dentistry
Bengaluru, Karnataka, India

Cavities, also known as Dental Caries or Tooth Decay, are the most common disease worldwide. It is five times more common than Asthma and twenty times more common than Diabetes.

The Global Burden of Disease Study (GBD) 2016, the most comprehensive worldwide observational epidemiological study conducted so far, has revealed that about half of the world's population is affected by oral disease whereas, in India, the population affected is 70%.

Lack of awareness about oral hygiene practices is a major impediment. As a result of this, the quality of life comes into question. The good news is that 90% of Cavities are preventable.

Causes of Tooth Decay in a Child

The causes of Tooth Decay in a child are probably due to the poor maintenance of oral hygiene practices, heavy intake of carbonated soft drinks and excessive consumption of sugars from snacks, processed foods, etc.

Many people think that milk teeth with or without cavities will fall out when a child is seven years old, but the fact is that they usually fall out at different times, ranging from seven to twelve years of age. It is important to note that a child is rapidly growing both physically and mentally.

90% of brain development occurs at nine years of age. This rapid growth period requires a lot of energy, nutrition, and protein. Any infection or pain in the teeth affects a child's chewing ability and hence, the child may tend to switch to a soft diet and start gulping food, which can affect proper digestion, restricting the efficient utilization of nutrition and affecting the child's overall growth.

Studies have shown that children and adolescents with dental malformation are a potential target of ridicule at schools and in family circles. As a result, it may reflect in




In young children who are at risk for dental caries, interventions need to focus on reducing the burden of bacteria, reducing the intake of refined sugars, and increasing the resistance of teeth to caries development

their self-perceived image and behavior, often leading to irreparable psychological impairment, affecting their self-esteem, self-confidence, socialization and academic performance, which ultimately impedes their quality of life and overall personality.

In young children who are at risk for dental caries, intervention needs to focus on reducing the burden of bacteria, reducing the intake of refined sugars, and increasing the resistance of teeth to caries development. Apart from brushing teeth twice a day and cultivating healthy eating habits, the use of Dental Sealants and Fluoride supplements may help keep Tooth Decay at bay.

Dental Sealants are applied to the chewing surfaces of the back teeth where Tooth Decay most often occurs. The surfaces of these teeth often have pits and grooves which are hard to clean as the bristles of a toothbrush cannot reach into them. Dental Sealants serve as a barrier to prevent food particles and bacteria from sticking to the chewing surfaces of these teeth and protecting these teeth from plaque and acid attack.

Conclusion

Screening for dental caries in young children prior to school entry could aid in identifying caries at an earlier stage, thereby preventing its progression as well as in reducing the incidence of future lesions. 



ALZHEIMER'S DISEASE

Loss of memory is one of the scariest prospects many people are likely to face as they get aged as memories make up the fabric of our lives.

Dementia is an umbrella term for a range of conditions that involve a loss of cognitive functioning, including memory. Worldwide, at least 44 million people are living with Dementia, making the disease, a global health crisis. In India, more than 4 million people are estimated to be suffering from Alzheimer's and other forms of Dementia.

Alzheimer's Disease is a brain disorder that impacts daily living due to memory loss and cognitive impairment. An annual report released by the Alzheimer's Association reveals that one in ten people over 65 years of age and nearly one-third of those over 85 have Alzheimer's. Symptoms of Alzheimer's usually develop slowly and gradually worsen over time, progressing from mild forgetfulness to widespread brain impairment.



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“

Alzheimer's Disease is a brain disorder that impacts daily living due to memory loss and cognitive impairment

Causes of Alzheimer's Disease

Alzheimer's is a neurodegenerative disease, which means that there is progressive brain cell death that happens over time. The nerve tissue in the brain of a person with Alzheimer's has tiny deposits, known as plaques and tangles, especially on the Hippocampus (responsible for the formation of memories and spatial cognition) and the Medial Temporal Lobe (contains several structures related to important cognitive and emotional functions).

The plaques are found between the dying brain cells, and they are made from a protein known as Beta-amyloid (a sticky compound that accumulates in the brain, disrupting communication between brain cells and eventually killing them). Unavoidable risk factors for developing the condition include aging, a family history of Alzheimer's and carrying a major risk-factor gene called Apolipoprotein E4 (ApoE4).

Early-onset Alzheimer's Disease

Early-onset familial Alzheimer's disease can affect younger people with a family history of the Disease, typically between the ages of 30 and 60 years. It accounts for under 5 percent of all Alzheimer's cases.

Stages of Alzheimer's Disease

It is important to remember that everyone with Alzheimer's Disease progresses differently and there are steps you can take to slow the onset of symptoms at each stage. Cognitive, Physical, and Functional phases often overlap, the time in each stage varies from patient to patient, and not everyone experiences all symptoms.

Stage 1

Many people at this stage experience frequent memory loss, particularly of recent conversations and events. They may ask repeated questions and have some problems expressing and understanding language.

Stage 2

People at this stage can no longer cover up likely problems. Pervasive and persistent memory loss includes forgetfulness about their personal history and inability to recognize friends and family. They may experience rambling speech, unusual reasoning, and confusion about current events, time, and place. They are more likely to become lost in familiar settings, experience sleep disturbances, and changes in mood and behavior, which can be aggravated by stress



and change. Experiencing delusions, aggression, and uninhibited behavior are common. They need structured reminders, and assistance with the activities of daily living.

Stage 3

In this stage, most people are confused about the past and present. They lose the ability to remember, communicate, or process information. They are generally incapacitated with severe to total loss of verbal skills and unable to care for themselves. Problems with swallowing, incontinence, and illness are also common. Many also experience extreme problems with mood, behavior, hallucinations, and delirium. They need around the clock care.

Diagnosing Alzheimer's Disease

There is no single definitive medical test for identifying Alzheimer's. To receive a diagnosis of Alzheimer's, the person must have experienced a decline in cognitive or behavioral function and performance compared with how they were previously. This decline must interfere with their ability to function at work or in usual activities.


The cognitive decline must be screened in various aspects like memory, ability to use the language, reasoning, complex tasking, and exercising judgment, visuospatial abilities, and changes in personality and behavior. Also, neurological functions, such as balance, senses, and reflexes have to be assessed.

Medical tests, including blood, urine and genetic tests, as well as brain scans, are sometimes used in the diagnosis of Alzheimer's Disease.

How to prevent the risk of developing Alzheimer's Disease?

1. **Regular Exercise** – Exercise stimulates the ability of your brain to maintain old connections and make new ones, besides slowing down the deterioration of your cognitive abilities.
2. **Social Engagement** – The more you connect face-to-face with others, the more you engage socially, the better your cognitive function will be.
3. **Healthy Diet** – A healthy diet, such as the Mediterranean diet, can reduce inflammation; protect neurons, and promote better communication between brain cells.
4. **Mental Stimulation** – By continuing to learn new things and challenging your brain, you can strengthen your cognitive skills and stay mentally active for longer.
5. **Quality Sleep** – A quality sleep can flush out the toxins in the brain and prevent the build-up of Amyloid plaques (found in the brains of Alzheimer's patients) that destroy the connections between the nerve cells.

Conclusion

In the future, emerging biological tests may make it possible to alter the progression of Alzheimer's Disease. The earlier a patient seeks treatment, the better are the chances of delaying the onset of more debilitating symptoms of the disease and ensuring the quality of life for a longer duration. 

MISUSE OF TOPICAL MEDICATIONS

Human skin color is quite variable across around the world. Some skin tones are susceptible to pigmentation disorders. Furthermore, exposure to ultraviolet radiation is known to trigger or exacerbate pigmentation disorders.

The most common pigmentation disorders include Lentigines (spots on the skin that is darker than the surrounding skin), Post-inflammatory Hyperpigmentation (a type of hyperpigmentation that can affect the face and body), Melasma (a patchy brown skin discoloration that occurs on the face) and dark eye circles.

In India, there is an immense desire to get fairer skin, irrespective of age or sex. People try out different skin-whitening creams and products, including natural remedies without knowing that they can cause serious side effects and complications.

Certain creams prescribed for Melasma contain potent topical steroids and are indicated for a short duration to a limited area. Unfortunately, such creams are marketed as fairness creams and people extensively use it extensively for a long period. Some people use it topically all over the body with a desire to get fairer skin. As these creams contain steroids along with other harmful chemicals, it can cause lasting effects on the skin like patchy discolorations. These changes are difficult to treat.



Chronic use of topical steroid cream on the skin can cause many side effects, such as thinning of the skin, dilatation of the small vessels on the skin, excess hair growth, presence of single or multiple, round or oval lesions with a well-defined border etc.





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Chronic use of topical steroid cream on the skin can cause many side effects, such as thinning of the skin, dilatation of the small vessels on the skin, excess hair growth, presence of single or multiple, round or oval lesions with a well-defined border etc. In addition, there can be secondary changes like increased chance of fungal infections and greater susceptibility to getting sunburns on the exposed skin.

Therefore, skin-lightening or cosmetic procedures should be done along with adequate sun protection which is mostly lacking in such self-prescribed treatments resulting in dark spots on the skin.


Another point of concern is the steroid-antibacterial-antifungal (triple combination) combination of drugs in topical creams. Most people buy over-the-counter creams by taking the advice of a medical shop keeper who is ignorant of the contents and only knows their uses as told by a medical representative. As these creams contain a steroid, they may have a temporary beneficial effect on a skin rash; be it a fungal infection or Psoriasis. But the disease may recur or the correct diagnosis may be delayed due to change in the morphology of lesions.

It is the lack of public awareness of skin problems and the belief that externally applied creams are not harmful, that popularizes the practice of buying over-the-counter creams.

Extensive application of topical steroids on the body will lead to absorption of steroid into the body and produce side effects similar to that of taking oral steroid tablets. These include some serious conditions like Osteoporosis, increased Blood Pressure, steroid-induced Diabetes, Infertility, etc. It can also lead to the suppression of the Hypothalamic-Pituitary Axis (HPA) wherein the normal hormone, Cortisol, produced by the body is suppressed to a very minimal level.

In this state when the patient stops the steroid cream, some physical problems like excessive tiredness, dizziness, nausea, and vomiting similar to that seen on account of oral steroid dependence may develop, forcing the patient to continue with the steroid preparations.

Most countries restrict the sales of topical steroid containing creams strictly by prescription because they should only be used judiciously, for appropriate clinical indications and duration. Such stringent rules are the need of the hour in India to prevent this menace.

Some of the irrational triple drug combinations of topical steroids that were used even by some practitioners are now banned by the Drugs Controller General of India. Greater awareness of skin problems by the public and the rational use of topical creams by medical professionals can help solve the misuse of these medications. 

DENTAL CONSIDERATIONS IN PREGNANCY

In many dental offices, pregnant women who come with dental problems are treated in the same way as other patients with similar problems. Most often, the possible side effects of dental treatment during pregnancy are underestimated or overlooked by both patients and Dentists.

The dental or oral challenges during pregnancy can sometimes be distressing. Oral problems during pregnancy may include Gingivitis, Gingival Hyperplasia, Pyogenic Granuloma, and Salivary changes. Increased facial pigmentation may also be seen in some women.

Elevated levels of Estrogen, a hormone, can cause increased Capillary permeability, predisposing pregnant women to Gingivitis and Gingival Hyperplasia. An increase in Salivary Estrogen may cause the proliferation and desquamation of the oral mucosal cells, helping establish a suitable environment for bacterial growth, making pregnant women susceptible to Dental Caries.

Management of pregnant women with dental diseases is different from that of other patients with dental problems because of the physiological and hormonal changes associated with pregnancy. Because of these changes, pregnant women need special dental care and treatment in order to minimize the possible risks to the fetus and the mother. All elective surgical procedures should be postponed until the postpartum period.



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Prescription of drugs during Pregnancy

Some oral infections may require Antibiotic treatment. But certain Antibiotics may cross the placenta, causing detrimental effects to the fetus. As a rule of thumb, it is preferable not to prescribe Antibiotics to pregnant patients when the infection can be eliminated by other means.

Antibiotics in Pregnancy

- » **Penicillin** is the commonly prescribed Antibiotic in the dental office because of its specificity and sensitivity against oral microbes. Penicillin often crosses the placenta but it will not cause hazardous effects on the fetus. It is the drug of choice for pregnant patients, unless the patient has a history of allergy to Penicillin.
- » **Erythromycin** is usually prescribed as an alternative to Penicillin. It is a bacteriostatic drug, but it can become bactericidal when used in a high dose.
- » **Clindamycin** is a potential alternative Antibiotic for individuals who are allergic to Penicillin.
- » **Cephalosporin** is not contraindicated in pregnant women as there are no known reports of Teratogenicity (capable of producing congenital malformations).
- » **Tetracyclines** have been contraindicated in pregnant women. It poses a risk for Enamel Hypoplasia which significantly increases the risk for Dental Caries.
- » **Metronidazole** is a drug usually prescribed to encounter anaerobic microbes. It is usually prescribed for Dental Abscess. Metronidazole has been associated with an increased risk of midline facial defects. Thus, it is contraindicated in pregnant women.
- » **Vancomycin** (Oto- and nephrotoxic) and **Streptomycin** (ototoxic) are the other common Antibiotics that are not recommended during pregnancy.

Analgesics

The use of Analgesics during early pregnancy may increase the risk of Miscarriage. Therefore, it is important to take appropriate measures to relieve pain during pregnancy without using Analgesics. It is



preferable to identify and eliminate the cause of pain. When an Analgesic is indicated, it should be used with a minimal dosage and potency for the shortest possible duration.

Anaesthetic and Sedative agents

Lignocaine, Lidocaine, and Prilocaine, which are used as local Anaesthetic injections in dental treatment, are safe and can be administered to pregnant patients in a clinical dose. However, giving high doses of Prilocaine is not advisable as it can cause Methemoglobinemia—a condition with life-threatening potential in which diminution of the oxygen-carrying capacity of circulating Hemoglobin occurs. It is also considered a safe practice to use a vasoconstrictor like Adrenaline/Epinephrine.

Conclusion

It is expedient to do dental treatment in pregnant women after consulting the patient's Gynecologist. Also, avoid prescribing drugs and providing treatment that can put a fetus at risk. Oral and Maxillofacial Surgeons should avoid elective surgery in pregnant patients as far as possible.

Routine dental procedures should be accomplished before conception in a planned pregnancy and during the middle trimester in an unplanned pregnancy. An Oral and Maxillofacial Surgeon should be called in to treat urgent or emergency cases involving trauma, infection, and pathology, as the treatment of such conditions can never be postponed until after childbirth. ^{DC}



STYLE YOUR SMILE

Smile Designing is a dental procedure, which helps to create a beautiful natural-looking smile. Smile Designing can do wonders by enhancing your dental appearance regardless of the original condition of the natural teeth.

A Smile Makeover includes procedures like

- * Bleaching
- * Composite Restorations
- * Veneers
- * Lumineers
- * Tooth Jewellery
- * Dental Crown and Bridge
- * Dental Implants

Bleaching

Bleaching lightens teeth that have been stained or discoloured by food and / or age, or have darkened as a result of injury.

There are two ways to professionally bleach teeth. The dentist can apply a bleaching agent to one or more of your teeth per visit, over the course of several appointments or can fabricate a custom made bleaching tray on which the bleaching agent is loaded by the patient himself and worn for a few hours every night at home. This process helps the teeth get a whiter appearance.



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Composite Restorations

Composite Restorations are tooth-coloured restorations widely used for aesthetic dental fillings of the anterior and posterior teeth, diastema closure, orthodontic bracket bonding etc. This type of restoration is contraindicated in people who have traumatic occlusion, high caries index, bruxism, and poor oral hygiene.

Composite Restorations are highly aesthetic and conservative in the removal of tooth structure. It also possesses good retention due to its strong bonding to the tooth structure.

Veneers

A Veneer is a layer of material placed over a tooth to improve the aesthetics of a smile.

There are two types of Veneers

❖ Porcelain Veneers

This is the most commonly used Veneer. It is a thin piece of porcelain that is bonded to the visible surface (labial) of a tooth. It can be either prefabricated or custom-made.

❖ Composite Veneers

Composite Veneers are a conservative alternative to Porcelain Veneers and are made from translucent resin that is carefully sculpted and hardened by the Dentist in a single appointment.

Lumineers

Lumineers are a type of Dental Veneer, much thinner than traditional Veneers. Their thickness can be compared to that of a contact lens. The main advantage of Lumineers is that they can be placed over the natural teeth without removing any tooth structure except making a slight modification to the Enamel. They are strong and durable and are directly bonded to the front surface of the teeth.

The main limitations of Lumineers are that they can be placed only on a tooth with a good structural condition and that a patient should maintain good oral hygiene practices.

Tooth Jewellery

Tooth Jewellery is an accessory placed on the labial surface of the tooth. This style craze lets you express your individuality through your smile, making it more unique and fashionable. There are different types of Tooth Jewellery to choose from, such as Tooth Gems and Twinkles (pure gold or precious stones like Diamonds, Sapphire, and Ruby). Twinkles are the most commonly used Tooth Jewellery.

Dental Crown and Bridge

A Dental Crown is a tooth-shaped "cap" that is placed

over a tooth to cover the tooth to restore its shape and size, strength, and improve its appearance. Dental Crowns when cemented into place fully encase the entire visible portion of a tooth that lies at and above the gum line.

Crowns are fabricated for patients who have deformed, discoloured or fractured teeth. The crowns are fabricated based on the shade of the other teeth of the patient and is cemented over the tooth.

Permanent crowns may be fabricated using all metal, all ceramic, porcelain-fused-to-metal, and all resin materials.

A Bridge is made up of two or more crowns for the anchoring teeth and a false tooth / teeth in between them that bridges the gap created by one or more missing teeth. These two or more anchoring teeth are called Abutment teeth and a false tooth / teeth in between are called Pontics. Dental Bridges are supported by natural teeth or implants.

Bridges help in restoring your smile, maintaining the shape of your face, distributing the forces in your bite properly by replacing missing teeth, preventing the remaining teeth from drifting out of position, besides improving chewing and speaking ability.


It does not mean that a tooth is protected from decay or gum disease if it is crowned, therefore, continue to follow good oral hygiene practices, including brushing your teeth at least twice a day, flossing daily especially around the crown area where the gum meets the tooth and rinsing with a mouthwash.

Dental Implants

A Dental Implant is a surgical fixture that is placed into the jawbone and allowed to fuse with the bone over the span of a few months. The Dental Implant acts as a replacement for the root of a missing tooth. This "artificial tooth root" serves to hold a replacement tooth or bridge.

Patients should have healthy gums and enough bone to hold the Implant. They also must be committed to good oral hygiene and regular dental visits. Heavy smokers, people suffering from uncontrolled chronic disorders such as Diabetes or Heart disease or patients who have had radiation therapy to the head / neck area need to be evaluated on an individual basis before getting Dental Implants.

Conclusion

Smile designing should always be as conservative as possible to achieve greater aesthetics by less reduction of tooth structure. If needed, the Smile Designing approach should include different branches of Dentistry such as Prosthodontics, Orthodontics, Periodontics and Oral Surgery to achieve the best possible results for patients. 



SCENARIO OF DENTISTRY IN INDIA

Dentistry throughout the world is considered as a noble profession. But in India, it is still underrated.


India has approximately 300 Dental Colleges from where around 26,000 graduates pass out every year. Still, it is deprived of basic oral health care services in rural areas. There is a huge difference in the Dentist-to-Population ratio. It is 1:10000 in urban areas while it drastically falls to 1:150000 in rural areas.

Dental care services are now available only at the primary healthcare level, in some States. Charges of dental treatment differ highly from the government sector to private and corporate sectors. The treatment cost varies from clinic to clinic for the same type of treatment. This disparity will affect the willingness of the patient to seek oral care and may create doubt in the mind concerning the skill of the dentist and the financial system of clinics and hospitals.

The lack of awareness about oral health among the public is another challenge faced by Dentistry in India. On the other hand, Cosmetic Dentistry is gaining popularity but it is highly expensive and only a population possessing high-income can afford the treatment cost.

Another important fact is that Dentistry per se is not covered under any type of Insurance, so people from both public and private sectors have to pay out of their pockets for their dental treatment. Dental insurance is the burning need of our country and there must be a dental insurance system made available to the Indian population, especially to low-income people.

Conclusion

Increased attention to the prevention of oral disorders and diseases could improve the oral health of all Indians. The Government should implement useful strategies to increase the supply of Dental Providers to all parts of the country to make Dentistry more socially sustainable which in turn will help promote dental awareness in the society. 



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TRIGEMINAL NEURALGIA AND OMEGA-3 FATTY ACID



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Trigeminal Neuralgia is considered as one of the most excruciating afflictions known to Humanity. It is also known as Tic Douloureux, Trifacial Neuralgia, or Fothergill's Disease. It usually affects females, especially on the lower right side of the face. To be more particular, regions near the mouth, ala of the nose, as well as periorbital areas are usually affected.

Why does it occur?

The cause of this condition is generally due to the compression and demyelination of the Trigeminal nerve root at the entry into the Pons (a part of the brain stem).

When does the pain strike?

Usually, the patient experiences pain whenever they touch their face. Reports say that activities like washing the face, shaving, and chewing may trigger the pain.

Diagnosis of Trigeminal Neuralgia

The diagnosis of Trigeminal Neuralgia depends upon the clinician's ability in recognizing a distinctive series of signs and symptoms which may include

- » Sudden and sharp shooting pain
- » A light touch to the face on the trigger zone which provokes the pain
- » Pain which is confined to the Trigeminal nerve distribution
- » Pain which is unilateral in manifestation

There are no particular investigations available for diagnosing Trigeminal Neuralgia. But still Computed Tomography (CT) of the brain is done to rule out any intracranial lesions, clots or tumours which may cause compression of the nerve.

Treatment options for Trigeminal Neuralgia

Commonly, Anticonvulsants are prescribed to relieve pain. Though Carbamazepine is the drug of choice for treating this condition, it may cause certain adverse effects like Bone marrow depression, Drowsiness, Dizziness, Blurred vision, Vertigo, or Dryness of Mouth. So, the patient may need routine check-ups to assess the bone marrow activity.



Over time, this drug may lose its effectiveness and the patient may start experiencing pain. In such situations, surgical procedures like Microvascular Decompression may become necessary.

Simple Home remedies

Studies have shown that Carrot juice, Unsaturated Fatty Acids, Almond milk, Fish liver oil, Vitamin B2, etc. can be used as an adjuvant to medical therapy.

Why is Omega-3 Fatty Acid important?

There are mainly three Omega-3 Fatty Acids, namely, Alpha-linolenic Acid (ALA), Eicosapentaenoic Acid (EPA), and Docosahexaenoic Acid (DHA). ALA is found mainly in plant oils such as flaxseed, soybean, and canola oils. EPA and DHA are found in fish and other seafood. DHA helps to stabilize the nerve membrane and thereby reduce the neuropathic pain associated with Trigeminal Neuralgia.

Conclusion

The use of Omega-3 Fatty Acid in conjunction with Carbamazepine has proven to reduce the intensity of pain and improve the quality of life of a patient with Trigeminal Neuralgia without causing any long-term side effects. ^{DC}

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SUICIDE PREVENTION

Every death is a tragedy that has long-lasting effects on the family, friends and colleagues of the person who commits suicide. It is never a solution to any sort of problems in life.

Every suicide is different and many are tempted to commit suicide by intense feelings of anger, despair, hopelessness or anxiety; early loss of a parent or spouse; Academic or Professional failure, etc. Suicide usually starts with depression and this condition can affect anyone of any age group from all walks of life in any country. It affects people's ability to carry out day to day activities, as well as takes away their self-esteem and enthusiasm towards life.

What prompts a person to take their life? No one really knows. Although some people who commit suicide have an identifiable mental health problem.

According to World Health Organization (WHO), Mental Health is defined as 'a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community'.

A report on global suicide estimates by the WHO shows that one person dies by suicide every 40 seconds.



Ms. Shraddha Joshi
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How can you improve your Mental Health?

Building Self-Worth

Make time for yourself, your hobbies and keep aside at least 30 minutes of 'Me Time' every day to do anything of your choice that gives you happiness. Do little things in life that make you happy.

Treat yourself with kindness and respect. Never criticize yourself. Every individual is born different. So try to identify the potential in you and believe in your own self-worth which is essential to achieve your potential. Aim high but set realistic goals and then work hard towards your goal.

Be wise with your planning. You will enjoy a tremendous sense of accomplishment and self-worth as you progress towards your goal, but expecting too much can lower your self-esteem, if the goals are not achieved.

Taking good care of your body

By being physically healthy, you can improve your mental health too. This will keep your body free from infectious radicals. Getting sufficient and sound sleep, eating a nutritious well-balanced diet (from all food groups), drinking 12 glasses of water / day, maintaining hygiene (personal and surrounding), and performing regular physical activity can do real wonders.

Keeping good company with optimistic people

Always try to be with people who are happy, cheerful and positive towards life. Positive people will enrich your life and make you a happy person.


How to deal with Stress?

Stress is a part of our daily routine. Try to learn and practice good stress coping skills like yoga, meditation, mindful prayers, daily walking, spending time with family, etc. Never consider alcohol, smoking, and drugs as a solution to deal with stress and grief. Spiritual prayers and meditation may help you feel calm and can improve your state of mind and outlook in life.

Asking for help is normal

Everyone may need help at some point in time in life and if you ask for help from your dear and near ones, it is a sign of strength and not weakness. When you do not ask for help when you need it, you assume a burden that might easily be shared. You also deprive those who love to assist you from the opportunity to do so. We can all do so much more together than we ever can alone.

Conclusion

Be optimistic in life. Respect and adore the life which is given to you. Stay happy and stay healthy! 



BREAST CANCER – A COMPREHENSIVE OVERVIEW

In India, Breast cancer cases have seen an alarming rise over the past few years. The high incidence and mortality rates of Breast cancer can be decreased only by effective screening and early detection, adjunct chemotherapy and hormone therapy.

Risk Factors

Increasing age, family history, hormone exposure, dietary factors, benign breast diseases, reproductive factors, environmental factors are the known risk factors for Breast cancer development. Even then approximately 50% of women who develop Breast cancer have no identifiable risk factors. This is exactly the reason why it is extremely difficult to formulate a preventive strategy.



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Screening and Early detection

Institution of screening strategies has helped to reduce the Breast cancer mortality rate by detecting the disease at an early stage. The methods routinely used for screening are Breast self-examination, Mammogram, Ultrasonography, and Magnetic resonance imaging (MRI).

- * **Breast Self-examination (BSE)** – Out of all screening methods, this is the most cost-effective one. It is a method which allows an individual to examine the breast tissue for any physical or visual changes. It is often used as an early detection method for Breast cancer. It is recommended that all women routinely perform breast self-exams as part of their overall Breast cancer screening strategy.
- * **Screening Mammogram** – Women aged between 45 to 54 should have a mammogram each year and those aged 55 years and above should continue getting mammograms every 1 to 2 years.
- * **Magnetic resonance imaging (MRI)** – It is not routinely recommended. But this is the preferred method for screening in high-risk patients.


Treatment

There are five treatment modalities

1. Surgery
2. Chemotherapy
3. Radiotherapy
4. Endocrine (Hormone) therapy
5. Targeted therapy

Breast cancer treatment is a multimodality treatment. Most Breast cancers will require more than one modality of treatment.

Conclusion

The outcome of Breast cancer depends on many factors. They are Stage of diagnosis, Grade of the tumor, Hormone receptor status, Her2-neu status (Human Epidermal Growth Factor Receptor – a protein that appears on the surface of some Breast cancer cells) and other factors like Proliferative Index – the percentage of Ki-67 (prognostic parameter in Breast cancer patients) positive cells among overall cell population, etc. The outcome/survival can be predicted more or less correctly taking all these factors into consideration. 



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I had a very good opportunity to know the working pattern and standards of the lab and this visit to DentCare has increased my knowledge in the field of Dentistry.

I recommend DentCare to all my colleagues. 



Mr. U. Atreya Sarma
Chief Editor
Muse India e - journal
Secunderabad, Telangana, India

LETTERS TO THE EDITOR

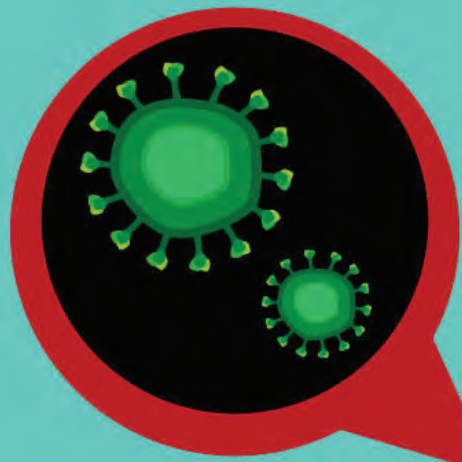
Whenever I visit Dr. Aravind's Dental Clinic, Secunderabad, as a patient, the wait in the lounge is worth it. Thanks to The DentCare on its shelves.

I have gone through a few issues of The DentCare. The articles are interesting, lucid and useful. They certainly enhance awareness about health in general and dental care, in particular.

I give full marks to the September 2018 issue of The DentCare for its rich variety of exciting articles. A collector's treasure indeed.

The special attraction in every issue is the MD's Message by Mr. John Kuriakose, whose reflections beam with a positive, sublime and humanitarian spirit.

Kudos to 'The DentCare' team. 



ZIKA

VIRUS DISEASE



Zika Virus Disease is a viral infection caused by Zika Virus which is a member of the Flavi Virus family. It was first identified in 1947 in the Zika forests of Uganda. World Health Organization report shows that this disease has been reported in 86 countries so far.

In India, Zika Virus Disease was first reported in Ahmedabad, Gujarat in 2017 followed by an outbreak in Krishnagiri (Tamil Nadu). The third Zika Virus outbreak occurred in Jaipur, Rajasthan.



Dr. (Maj.) Nalini Janardhanan
Family Medicine Specialist
Hadapsar, Maharashtra, India

How is Zika Virus Disease transmitted?

Zika Virus is transmitted through the bite of an infected *Aedes* species mosquito which also transmits fevers like Chikungunya, Dengue and Yellow fever. These mosquitoes bite during the day and night.

Zika Virus can also spread through sexual intercourse. If a pregnant woman gets Zika Virus infection, it can cause birth defects in the newborn called Microcephaly—a condition defined by a small head and brain damage along with other defects like blindness, deafness, seizures and other congenital defects. Microcephaly was first reported in Brazil.

Symptoms

Zika Virus Disease is a mild disease and many people may not have symptoms. The incubation period of Zika Virus Disease is estimated to be 3 – 12 days and the symptoms can last for 2 – 7 days. Symptoms are fever, headache, muscle pains, red eyes, joint pains, weakness, skin rashes etc.

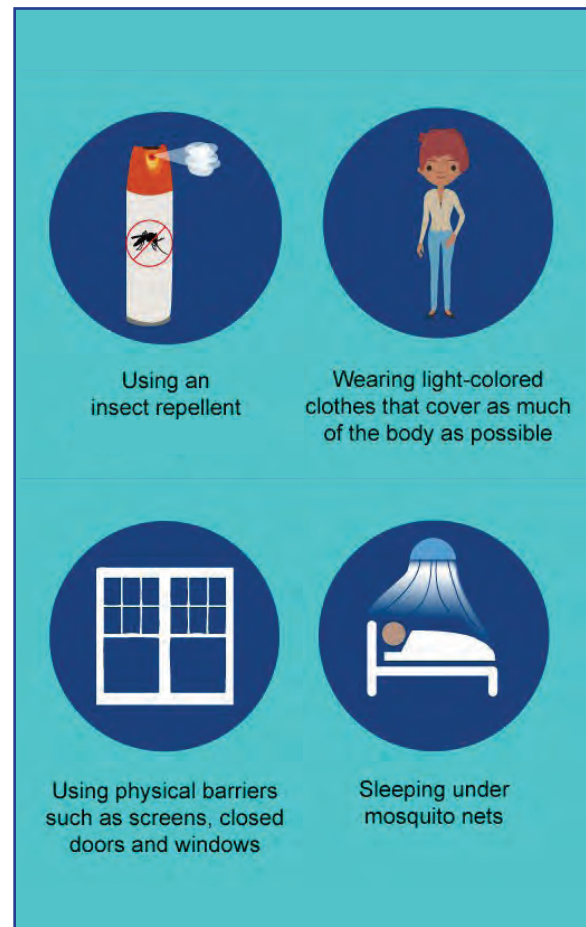
Generally, patients recover and do not die due to this disease. But if the patient develops complications, they may need to be admitted in hospital. Once infected, the patient is likely to be protected from future infections with Zika Virus.

Diagnosis

The Doctor assesses the patient based on the symptoms of persons living in or visiting ZikaVirus affected areas and / or *Aedes* mosquito vectors. Zika Virus can be detected in blood, urine, amniotic fluid, semen, saliva and body fluids of brain and spinal cord. Lab tests can confirm the presence of virus.


Treatment

There is no specific medication for Zika Virus Disease. The Doctor treats the patient as per the symptoms (e.g. Medicines for pain, fever and advising bed rest, plenty of fluids etc.) If the symptoms worsen, the patient needs to be admitted in hospital. One should not take Aspirin or other pain killers during this infection as it can cause complications.



Conclusion

There is no vaccine for prevention of Zika Virus infection. Protection against mosquito bites during the day and early evening is a key measure to prevent Zika Virus infection. Fixing mosquito screens on windows, doors and ventilators as well as keeping the doors and windows closed during evening time to prevent entry of mosquitoes is advised.

It is better to avoid travel to areas where there is Zika Virus Disease. Stay safe and protected. 

ASK THE EXPERT!



1. **W**ill the dental procedure of Scaling and Polishing cause loosening of the teeth?

The teeth will not loosen because of Scaling and Polishing.

The teeth are held in place by the gums and bone that surrounds them. When bacterial plaque is allowed to stay on the teeth, it may harden into Tartar, causing infection of the gums and bone, gradually resulting in Gum Recession. Therefore, it is important to do professional scaling and polishing procedures once in six months so as to prevent the formation of plaque on the teeth and inhibit Gum Recession.

2. **Is a Root Canal Procedure painful?**

A Root Canal Procedure is usually recommended in cases where a tooth or teeth are badly damaged or infected due to tooth decay, trauma, or fracture. This procedure involves the removal of the diseased pulp; cleaning and shaping the root canal, and filling the canals with a suitable filling material. Since this procedure is done under local anaesthesia, it is not painful.



Dr. Aparna Pandya
Periodontist and Implantologist
Mumbai, Maharashtra, India

3. How can I whiten my teeth?

The teeth can be whitened by a procedure called Tooth Whitening. It is a very simple procedure with a predictable result and can be done either in a dental office or at home. Extrinsic stains on the teeth caused as a result of smoking and excessive intake of tea / coffee or wine can be effectively removed with this procedure, making your teeth appear brighter and more beautiful.

4. Why do my gums bleed?

There are several reasons for this very common problem of Bleeding Gums, such as the formation of Tartar around the neck of the teeth; the use of a hard-bristled toothbrush; the intake of certain medications like Antiepileptic drugs, etc. Therefore, it is important to seek the help of a Dental Professional to detect the cause and identify suitable treatment options.



5. What can I do to get rid of Bad Breath?

Bad Breath, also known as Halitosis, is a common oral health problem that can be due to dental and / or oral problems or certain systemic conditions like Diabetes, Liver Diseases, Kidney Disorders, etc. Bad Breath most commonly arises due to Periodontitis, poor oral hygiene practices, food lodgement in between the teeth, etc.

You can make your mouth feel fresh and clean by brushing your teeth at least twice and flossing at least once a day. If you are concerned about your breath, do both a little more often. A Mouthwash adds extra protection by getting rid of bacteria. However, prolonged use of Mouthwash is not advisable.

6. Why is dental treatment so expensive?

Dental treatment needs to be rendered by a skilled Dental Professional. A dental procedure may necessitate one or more visits to the Dentist, depending on the dental problem of the patient. Besides, dental equipment and materials are very costly. Therefore, dental treatment may often be costly. However, considering the longevity of the results obtained, the benefits of dental treatment far outweigh the cost involved.


7. How often should I visit a Dentist?

It is advisable to visit your Dentist at least twice a year for regular dental check-ups. However, if there is a Toothache, Bleeding Gums, Tooth Sensitivity, or other dental problems, visit your Dentist immediately.

8. Is chewing gum healthy for the teeth?

The use of chewing gums will stimulate the flow of saliva. Saliva works as a natural Mouthwash by dissolving the Volatile Sulphur Compounds (VSC) that makes the breath smell bad. Saliva also neutralizes acids produced by bacteria.

9. What are the symptoms associated with teething?

When the teeth start coming in, babies generally experience irritability, restlessness, drooling, and loss of appetite. The best solution to comfort a teething child is to have him chew on a cold or frozen rubber teething ring. 

IMPORTANCE OF FORENSIC FACIAL RECONSTRUCTION





Dr. Mayuri Ganguly Soni

Dental Practitioner and
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Bhubaneswar, Odisha, India

There are different tools in Forensic Science like fingerprints, dental and medical records, and Deoxyribonucleic Acid (DNA) analysis, including belongings of the dead to establish the identity of a person. However, when all these methods fail to prove the identity of a dead body, especially when the body is completely decomposed / burnt/ skeletonized, a Facial Reconstruction may help an Odontologist identify the dead.

Facial Reconstruction is a process in which a corresponding face is created from an unidentified skull, which aids in the identification of a dead body. The facial appearance of a person largely depends on the arrangement of the skin, fat, and muscles over the bone, which serve as critical factors that help form the shape and size of the face.

Facial Reconstruction is used for identification in legal cases, particularly when the face is decomposed beyond recognition after disasters like aviation accidents, massive floods, or tsunamis and also when there is no ante-mortem record of the dead to prove the identity. Facial Reconstruction is also used for archaeological purposes, especially to reproduce the face of famous personalities from their skeletal remains.

Case Report

On 10th April 2018, a beheaded body was recovered by the Police Personnel of Ambernath, Mumbai, Maharashtra, India from an isolated village in their jurisdiction. Approximately, 500 meters away from the spot, a severed head was found but it was mutilated beyond recognition.

Failing to trace out a clue of the victim, the Police Personnel contacted the Doctors of the Department of Forensic Science, King Edward (VII) Memorial Hospital and Seth Gordhandas Sunderdas Medical College (KEM Hospital), Mumbai. Accordingly, the Doctors took the measurements of the face and assessed the shape, size, and composition of the skull. After assessing the size of the skull, they were able to determine the size of the eyeballs, ears, nose, lips, and forehead.

Using a three-dimensional (3-D) technique, the Doctors made a replica of the victim's skull and facial reconstruction was carried out on that basis. The Forensic Odontologist sculpted the face of the victim using Plaster of Paris.




The 3-D image of the face was recreated and printed on posters that gave a lead to identify the murdered victim. After interrogating the kith and kin of the victim, the Police Personnel could nab the culprit and the accused was brought before the law of the land.

Conclusion

Forensic Facial Reconstruction is gaining importance across the world as it is acclaimed as an efficient tool in the identification of the dead. It is often used as the last resort to identify a dead body. In addition to cases involved in criminal investigations, Facial Reconstruction is employed as a handy tool to identify the mortal remains of historical value.

Both manual and computerized Forensic Facial Reconstructions are available with their own advantages and limitations. The manual method gives an excellent result, but it involves an in-depth knowledge of the anatomy of the face along with artistic skills. However, it is a time-consuming process.

The computer-assisted method is fast and efficient. It has good reproducibility as many images as desired can be produced and compared until the Forensic Scientist is satisfied with the result whereas in the manual method the image of facial construction is often made once. When another facial image is required, it takes the same length of time and materials as required for the first one. However, the computer-assisted method is not as efficient as the manual one. 



CAN METFORMIN CAUSE VITAMIN B12 DEFICIENCY?



Dr. Nagaraj S.
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Diabetes, a global epidemic, is a group of metabolic disorders in which a person has high sugar levels in the blood. If left untreated, it can cause major complications like Diabetic Ketoacidosis (a buildup of acids in the blood), Diabetic Neuropathy, Diabetic Nephropathy, or even death. Insulin, a hormone produced by the Pancreas, helps in the regulation of blood sugar levels in the body.

There are two main types of Diabetes: Type 1 and Type 2. Type 1 Diabetes is an Autoimmune Disease. It is caused when the body attacks its own pancreatic cells with antibodies. In people with Type 1 Diabetes, the damaged Pancreas does not make enough, or any, Insulin. With Type 2 Diabetes, the Pancreas usually produces some Insulin. But either the amount of Insulin produced is insufficient for the body's needs or the cells of the body resist it. Insulin resistance or lack of sensitivity to Insulin happens mainly in the fat, liver, and muscle cells.

Metformin: A blood glucose-lowering agent

Metformin (Dimethylbiguanide) has become the most preferred oral blood glucose-lowering agent to manage Type 2 Diabetes.

Metformin was approved by the United States Food and Drug Authority (USFDA) in 1994 and was introduced in the list of essential medicines of the World Health Organization (WHO) in 2011. Currently, this drug is being prescribed to more than 120 million patients worldwide.

Every drug has its own unwanted effects and so does Metformin. The most common side effects of Metformin include Gastrointestinal Irritation, including Diarrhoea, Cramps, Nausea, Vomiting, and Flatulence.

Vitamin B12 deficiency associated with Metformin

Recent studies conducted in France have revealed that approximately one out of 20 patients treated with Metformin suffered from Vitamin B12 (a water-soluble Vitamin that plays a fundamental role in Deoxyribonucleic Acid (DNA) synthesis and neurological function) deficiency. Besides, about one-third of them




experienced decreased Vitamin B12 absorption from the gut, gradually resulting in the reduction of Vitamin B12 in the blood.

Gingivitis

Gingivitis (Gum Disease) has been called the fifth complication of Diabetes behind Heart, Nerve, Kidney, and Eye Diseases. Too much sugar in your blood can lead to high glucose levels in your saliva, helping harmful bacteria grow fast. These bacteria produce acid that attacks the tooth enamel and damages the gums. High blood sugar levels can also damage the blood vessels in the gums, making them vulnerable to infection.

Although a nondestructive disease, the progression of Gingivitis can lead to Periodontitis, a condition that can eventually result in tooth loss. Periodontitis can also result in the progressive destruction of the periodontal ligament and alveolar bones. Metformin, an oral hypoglycemic, has been used to treat Periodontitis.

Conclusion

Long-term use of Metformin can result in Vitamin B12 Deficiency. Vitamin B12 Deficiency has been demonstrated to be highly prevalent among patients with Type 2 Diabetes Mellitus. Annual screening for Vitamin B12 Deficiency and supplementation should be adopted among Diabetic patients to bring Diabetes under control and keep Gingivitis at bay. 

Congratulations !!!



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K.G. Ortho Cosmetic Dental Clinic
Mavelikkara, Kerala, India

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Ingredients

Flour	225 grams
Brown Sugar	125 grams
Baking Soda	½ teaspoon
Salt	⅛ teaspoon
Banana, peeled and mashed	3 – 5
Eggs	5
Unsalted Butter	1 tablespoon
Vanilla Extract	½ teaspoon
Cinnamon Powder	½ teaspoon
Nutmeg Powder	½ teaspoon
Milk	50 milliliters

Preparation

Grease an 8-inch square or loaf pan. Mix Flour, Sugar, Baking Soda, Cinnamon Powder, Nutmeg Powder, and Salt together in a medium bowl. In another bowl, whisk mashed Banana, Eggs, melted Butter, and Vanilla Extract together until the mix becomes smooth. Fold Flour mix in Banana mix. Pour in Milk to the mixture and mix it with a rubber spatula until it is well blended. Transfer the batter into the pan. Bake it using a water bath until it becomes golden brown and a toothpick inserted into the middle comes out clean. **DC**



DENTCARE ZIRCONIA: THE TRUSTED BRAND

DentCare Dental Lab has embedded itself with an objective to bring together the world's preeminent branded materials of proven quality and high-end technologies. Most recognized brands like Ivoclar Vivadent, Shofu, EOS, and 3Shape sourced from Germany, Switzerland, Europe and the United States of America are used for manufacturing its extensive range of dental prostheses.

Over the past 31 years, we have dedicated ourselves to contributing to healthy, confident smiles for over 40 million satisfied patients and to the delight of more than 40 thousand dentists around the globe.



DentCare Zirconia Variants

- » DentCare Zirconia Platinum Plus
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- » DentCare Zirconia Premium Plus
- » DentCare Zirconia Classic
- » DentCare Zirconia Excel Plus
- » DentCare Zirconia Ultra Plus
- » DentCare Zirconia BruxCare
- » DentCare Zirconia Solid Plus

DentCare Zirconia – “One Product for Diverse Options”

A paradigm shift in dentistry for lifelike restorations that mimic natural tooth structure based on perceived and actual aesthetic and functional demands of the patient has led DentCare Dental Lab to offer DentCare Zirconia– a revolution in Metal-Free Prostheses.

DentCare Zirconia is a biomedical grade Zirconia made in Germany. Available in diverse options, DentCare Zirconia range of products assure natural feel and functionality, unmatched aesthetics and unlimited characterization and are made available in more than 40 natural and lifelike shades.

It is manufactured using an innovative Computer Aided Design / Computer Aided Manufacturing (CAD / CAM) technology offering perfect fit and marginal adaptation to the final product. This unique material provides full scope for cement-retained crowns and bridges (having up to 16 units as a single restoration) on natural teeth as well as cement and screw-retained solutions for implants (single and multiple-units).

Why Medical Grade DentCare Zirconia?

- Natural feel and functionality
- Unmatched aesthetics
- High strength
- Extremely biocompatible
- Unlimited characterization made available through more than 40 natural and lifelike shades
- The tooth-coloured translucent substructure helps ensure that the natural tooth shade comes right from the internal framework level, unlike Porcelain Fused to Metal (PFM) or other normal Zirconia systems with opaque frames
- Designing and manufacturing using CAD / CAM systems helps ensure outstanding marginal fit and prosthetic accuracy

DentCare Zirconia Platinum Plus

Benefits

- Natural translucency and Excellent aesthetics
- Computer Aided Design will be provided to Doctors even before the production process starts
- Free CAD / CAM Provisional is available for Doctors
- Export quality
- High flexural strength helps ensure the long-term success of restorations
- Extremely biocompatible
- The tooth-coloured translucent substructure helps ensure that the natural tooth shade comes right from the internal framework level, unlike PFM or other normal zirconia systems with opaque frames

Indications

- Crowns and Bridges having up to 16 units are possible
- Implant prostheses
- Primary telescopic crowns
- Custom Zirconia abutments for a wide variety of implant systems
- Inlays and Onlays

DentCare Zirconia Platinum Cube

Benefits

- Multi-layer cubic Zirconia for smooth Cervico-Incisal shade gradation
- Highest level of Translucency over 49%
- Flexural strength of 800 MPa
- Uncompromised aesthetics for high levels of patient satisfaction

- The most life-like appearance of restorations can be achieved even with a highly discoloured stump shade when luted with an opaque cement
- Highest level of customizations available with shade liquids, stains and internal characterizations as options
- Design verification can be done using Computer Aided Design
- Free Polymethyl methacrylate (PMMA) provisional is available for Doctors

Indications

- Single Crowns and Bridges up to 4 units (possible till the second premolar)
- A 4-unit Anterior bridge having two pontics supported by two abutments is possible; when premolars are involved, only a single pontic can be given

DentCare Zirconia Premium Plus

Benefits

- Natural translucency and Excellent aesthetics
- Extremely biocompatible
- High flexural strength helps ensure the long-term success of restorations
- Designing and manufacturing are done using precision CAD / CAM systems for outstanding marginal fit

Indications

- Crowns and Bridges having up to 16 units are possible
- Implant prostheses
- In Bridges having up to 8 units, 4 continuous pontics may be given in the anterior region while two continuous pontics may be given in the posterior region
- In Bridges having more than 8 units, two continuous pontics may be given in the anterior region as well as posterior region
- A cantilever may be considered in the case of Crowns and Bridges with at least two adjacent abutments. However, a distal cantilever is not advisable; it is also advised to avoid a cantilever in the canine and molar regions
- Primary telescopic crowns
- Inlays and Onlays

DentCare Zirconia Classic

Benefits

- Extremely biocompatible
- High flexural strength which ensures the long-term success of restorations
- Designing and manufacturing using precision CAD/ CAM systems for outstanding marginal fit

Indications

- Crowns and Bridges having up to 16 units are possible
- Implant prostheses
- Primary telescopic crowns
- Inlays and Onlays



DentCare Zirconia Excel Plus

Benefits

- Full contour crowns are chip resistant
- Highly biocompatible

Indications

- Crowns and Bridges having up to 5 units (three continuous pontics may be given in the anterior region while two continuous pontics may be given in the posterior region respectively)
- A cantilever may be considered in the case of Crowns and Bridges with at least two adjacent abutments. However, a distal cantilever is not advisable; it is also advised to avoid a cantilever in the canine and molar regions



Smile confidently, go for DentCare Prostheses

DentCare Zirconia Ultra Plus

Benefits

- Full contour Crowns and Bridges with no ceramic layering
- Staining technique is adopted along with cutback-technique to achieve incisal translucency
- Flexural strength ranging from 1150 – 1250 MPa
- Available in 16 monochromatic shades from the VITA shade guide at translucency levels of 40%
- Designing and manufacturing are done using precision CAD / CAM system for outstanding marginal fit

Indications

- Full Contour Crowns and Bridges up to 6 units in Anterior and Posterior regions
- Maximum of 3 – 4 pontics may be given in the Anterior Region and 2 in the Posterior region

DentCare Zirconia BruxCare

BruxCare crowns are monolithic medical grade zirconia restorations with no ceramic layering. They are designed specifically for the anterior and posterior teeth with more emphasis on strength, making it an ideal restoration for Bruxers and those people with limited occlusal space.

Benefits

- Glazed to a smooth surface to reduce plaque accumulation
- Low wear on opposing dentition
- Extraordinary strength
- Monolithic material makes the restoration completely chip-proof
- Staining technique is used (No ceramic layering)

Indications

- Ideal for patients with Bruxism
- Crowns and Bridges having up to 3 units as a single restoration



DentCare Zirconia Solid Plus

Benefits

- Manufactured using CAD / CAM technology for optimum marginal fit
- Monochromatic shades only (16 VITA shades)

Indication

- Full contour Crowns and Bridges having up to 3 units in the posterior region

Conclusion

DentCare strongly believes that technology hand in hand with art results in dental prostheses of greater precision and quality.

World-class products are the outcome of our incessant passion for improving the standards of dental care. And this helps to keep us at the forefront of innovation. Our dental prostheses experts are incessantly passionate about exploring new ways to address challenges in enhancing smiles.

All the materials we use in production have proven scientific quality and excellence, at par with international standards and live up to the expectations of our customers. This has given us reason to brighten the smiles of more than 40 million patients, the world over.

Smile confidently, go for DentCare Prostheses. 

FORENSIC ODONTOLOGY AS A HUMANITARIAN TOOL



Dr. Gargi Jani
Dental Practitioner
Ahmedabad , Gujarat, India

Human Rights are the basic rights and freedom that every individual is entitled to, without any discrimination. These rights can sometimes be restricted in case of violation of Law by an individual and in the interests of national security. Article 6 of the Universal Declaration of Human Rights (UDHR), a historic document adopted by the United Nations General Assembly in 1948, envisages that 'everyone has the right to recognition everywhere as a person before the Law'.

Humanitarian Forensic Action (HFA), which was first coined by the International Committee of the Red Cross (ICRC), is defined as the application of Forensic Science to humanitarian activities. HFA involves dignified management of the dead; alleviating the suffering of the victims, and establishing the identity of individuals.

In Forensic Anthropology, Fingerprinting, Forensic Odontology, Radiology, and Deoxyribonucleic Acid (DNA) Typing are the tools commonly used to identify the deceased or victims of a disaster.

Dental identification is one of the most reliable methods of identifying the victims of a disaster, as the tooth, which is the toughest tissue in the body, is not often subjected to change due to external factors like fire or earthquake.

Forensic Dentistry mainly deals with the establishment of identification through proper handling and examination of dental evidence.

A Forensic Dentist can establish the identity of an individual by determining the age and sex. If a positive identification is conclusively established based on dental analysis, it may be accepted as a standalone identifier.

A Forensic Odontologist utilizes the principles of Forensic Odontology and Forensic Science to identify the perpetrators of Human Rights violations or crime by applying the best practices in human identification in cases where dental evidence is involved.

The Role of Forensic Odontologists

Age Estimation

Dental age estimation is one of the most accurate methods to establish the age of an individual, as the tooth, which is one of the hardest and most resilient parts of the skeletal system may be better preserved than other parts of the body.

Identification Process

Forensic Odontologists employ various methods like Dental Examination, Deoxyribonucleic Acid (DNA) Profiling, and Fingerprints to identify an unknown individual, enabling the relatives to obtain the cadaver to perform the last rites.


Cross Border Conflict

Due to cross border terrorism, many servicemen may become martyrs pursuant to the explosion of landmines and as a result, their body may be disfigured beyond recognition. Also, in a number of cases, skeletonized remains of the servicemen may be detected long after the conflict is over; in such cases, it is difficult to establish the identity of the deceased. A Forensic Odontologist can help identify the individual by comparing the antemortem and postmortem dental records of the same individual.

Human Trafficking

Human Trafficking is believed to be the second-largest criminal activity in the world. By lending expertise, Dental Professionals may help Police Personnel establish the identity of the victims of or the individuals involved in Human Trafficking.

Conclusion

Forensic Odontologists and Oral Health Professionals can promote Forensic Odontology for the purpose of preventing human rights violation. 



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