

DENTAL TRIBUNE

The World's Dental Newspaper • Pakistan Edition



PUBLISHED IN PAKISTAN

www.dental-tribune.com.pk

MAY, 2016 - Issue No. 03 Vol.3

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PDA(K) office-bearers administered oath

DT Pakistan Report

KARACHI -The newly-elected office-bearers of Pakistan Dental Association's (PDA) Karachi chapter were administered oath at a simple but impressive ceremony held here on Sunday (May 29) at the DHA Club. All the office-bearers of PDA, Karachi were elected unopposed and they were administered oath by Dr Mahmood Shah, the incumbent President of PDA's Sindh chapter.

Felicitating the newly-elected body, Dr Shah exhorted them to work for the betterment of the

dental profession and community. He appreciated the efforts of PDA CC and the Election Commission for holding free and fair elections.

Speaking on the occasion, PDA Karachi chapter's president Dr Abubakar Sheikh vowed to serve the dental committee with the assistance of his seniors, saying guidance of seniors was a must to make PDA more effective.

"My new panel decided to contest the election for the betterment of the profession against all odds and even against the wishes of the sitting PDA (CC) President Prof Saqib Rashid," he said, adding that the

new body will leave no stone unturned in initiating educational and other activities for the benefit of dentists in Karachi. He then introduced his team of newly-elected members who were administered by the PDA Sindh Chapter President, Dr Mahmood Shah.

At the outset, he thanked all, including the PDA CC, Election Commission and then introduced the newly-elected office-bearers.

They include Dr Syed Abrar Ali (Vice President); Dr Shoaib Khan (General Secretary), Dr Murtaza Kazmi (Treasurer),

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CM nominates top candidate to head DUHS

DT Pakistan Report

KARACHI- Sindh Chief Minister Syed Qaim Ali Shah on Tuesday finally surrendered his discretionary power to nominate a candidate as his choice for the position of Dow University of Health Sciences (DUHS) vice chancellor by recommending the one who topped the list of candidates prepared by a search committee.

The officials said the chief minister sent a summary to Sindh Governor Dr Ishrat ul Ibad with the recommendation to appoint Dr saeed Quraishy as the new vice chancellor of the DUHS. Dr quraishy had topped the list of 10 candidates prepared by the search committee, the officials added.

MENACE OF 'GUTKA', CHALIA

Oral cancer assuming epidemic proportion: Prof Sirajuddaula

DT Pakistan Report

KARACHI- Prominent pathologist Prof Sirajuddaula Syed said here that oral cancer, which is directly linked to 'gutka', 'chalia', 'mainpuri', 'panprag', etc., is almost epidemic in Karachi and other parts of Sindh.

Talking to Dental News, Prof Sirajuddaula, who is associated with Ziauddin Medical University as head of its Pathology department, said that betel nut (chalia) is a heavily-infested with fungus i.e. aspergillus flavus and it produces a chemical known as aflatoxin - an established cancer causing element.

Recalling that in 2003, as many as 300 containers of fungus-infested 'chalia' were imported from Indonesia, Malaysia and Sri Lanka during the tenure of former prime minister Shaukat Aziz, was seized at Karachi Port by the then Collector of Customs, Abdul Waheed Khan. Later, he (Prof Sirajuddaula) along with a leader of PMA, Dr Sajjad Qasiser, who is also a prominent ENT surgeon, visited the port to check the consignment of a private importer.

They were taken aback when highly obnoxious fumes came out from one of the containers. Later, the Aga Khan University Lab and The Lab where the samples of the imported 'chalia' were sent found them infested with fungus.

Later, it was on the demand of the PMA, Karachi, the Supreme Court ordered the consignment be sent back to the country from where it was imported as it was not fit for human consumption, but most probably the importer of the 'chalia' using his political clouts managed to get permission from the then government for exporting the fungus-infested chalia to Afghanistan via land route, he said. "Who knows where it (fungus-infested chalia) landed as it was supposed to be exported to

Afghanistan via land route," he quipped. Elaborating, Prof Sirajuddaula said that as a matter of fact even plain 'chalia' in any form is highly injurious to health as it contains carcinogen (a substance that produces cancer) when mixed with other hazardous item like artificial colour, chemical, etc., and thus increases the chances of causing

serious diseases like oral cancer (mostly tongue, cheek and lips), mouth ulcer, maggots in mouth, submucous fibrosis, etc.

STATISTICS: Oral cancer is the second largest cancer in Pakistan as around more than 55 per cent of people are in the habit of chewing 'pa'an', 'chalia', 'gutka', 'mainpuri', etc., and approximately 15 to 20pc of teenagers are suffering from oral submucous fibrosis (OSMF or OSF), which is called pre-cancerous disease.

The most deplorable thing about a patient suffering from OSF is that he/she cannot open his/her mouth completely because of loss of elasticity of oral mucosa, burning of mouth during eating, some patient only depend on liquid diets.

Talking about the hazards of OSF, he said that it's a chronic, complex, rarely will it turn (1pc) to a precancerous condition of the mouth characterized by juxta-epithelial inflammatory reaction and progressive progressive fibrosis of submucosal tissues (the lamina propria and deeper connective

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The importance of brand and own reputation—from real daily life to the web

By Richard H. Nagelberg, DDS

We usually associate the term ‘brand’ with a product that has a unique, consistent and well-recognised character (i.e. Coca-Cola, BMW). These brands conjure up images in the minds of consumers. Large organisations work hard to raise the power and status of their brands and guard them carefully against unlicensed use or unfair imitation.

The American Marketing Association (AMA) defines a brand as a “name, term, sign, symbol or design, or a combination of them intended to identify the goods and services of one seller or group of sellers and to differentiate them from those of other sellers”.

Therefore, it makes sense to understand that branding is not about getting your target market to choose you over the competition, but it is about getting your prospects to see you as the only one that provides a solution to their problem. Looking out into the world today, it is easy to see why brands are more important now than at any time in the past 100 years. Brands are psychology and science brought together as a promise mark, as opposed to a trademark. Products have life cycles. Brands outlive products. Brands convey a uniform quality, credibility and experience. Brands are valuable. Many companies put the value of their brand on their balance sheet.

Why? Well you do not have to look very far. In today’s world, branding is more important than ever. But you cannot simply build a brand like they did in the old days. You need a cultural movement strategy to achieve kinetic growth for your brand. With that, only the sky’s the limit. What sells Chanel when it produces a cosmetic? A cream or a dream of beauty? What does the Perugina brand sell when it produces the ‘Bacio’? A chocolate or a feeling? What sells Ferrari when it produces the 458: car or social status? What sells Starbucks when opening its stores? A coffee or a third place between home and work? The list goes on with many examples. Branding is fundamental. Branding is basic. Branding is essential. Building brands builds incredible value for companies and corporations.

If you are still not convinced, let me give you another example. The dollar is a world brand. In essence it is simply a piece of paper. But branding has made it valuable. All the tools of marketing and brand building have been used to create its value. On the front you will find the owner of the brand: the Federal Reserve. There is a testimonial from the first President of the United States, George Washington. There is a simple user’s guide: “This note is legal tender for debts public and private”. And if you are still not convinced, the owner has added the all-important emotional message: “In God We Trust”. The dollar is a world brand. It confers a uniform value globally. But, as I said, it is really just a piece of paper. Branding has made it worth something.

I mentioned earlier that brands are more important today than in the past. There are a few reasons for this. Firstly, the world has come online and there are many new markets and a growing middle class in places such as India, China, Brazil, Russia, South Africa, Nigeria, Indonesia and in many more places. These consumers buy brands. They buy premium brands. The best branding today is based on a strong idea. The best brands have remarkable creativity in advertising to help them break through people’s wall of indifference to create brand heat and product lust. A case in point is the recent turnaround of Chrysler and its reliance on marketing and advertising. Or look at the reinvention of Levis. A final example is a campaign by my own agency, which has helped reenergise one of America’s great iconic brands—Jim Beam.

Developing a corporate brand is important because a positive brand image will give consumers, and other interested stakeholders, confidence about the full range of products and activities associated with a particular company.



- **Essence:** A single, energising central idea; it is the heartbeat of the organisation.
 - **Values:** What the organisation believes in and stands for.
 - **Personality:** The traits and qualities that distinguish your organisation as being different.
- Behaviour: The actions associated with values and personality.
- **Relationships:** The internal and external rules of engagement.
 - **Value Proposition:** The offer that is made to customers, the point of difference and why it matters.

The sophisticated strategy is a cultural movement strategy. I believe that building brands now requires a cultural movement strategy as opposed to simply a brand building strategy. A cultural movement strategy can accelerate your brand’s rise to dominance. Once you have cultural movement, you can do anything in a fragmenting media environment, maximising the power of social media and technology. The world has changed. We are now living in the age of uprisings and movements. I have written about how to build a brand in this new age in my new book *Uprising*. These days, building brands has become a lot less expensive and smart brands can take advantage of new tools and rocket up there globally, very fast. A common interpretation is that a brand is the promise that is made to customers. Or, the brand is not what you say it is, but what your customers say it is. While these views are legitimate ways of helping to understand a brand, an actively-managed approach makes a brand more tangible and provides it with structure. Company branding is the most efficient way to show potential customers what your business is about. It is reflected visually via the logo and company design elements, as well as through verbiage in marketing materials, slogans and informational copy. According to *Fast Company* magazine, “The brand is a promise of the value you’ll receive”.

In the face of the current economic challenges, it is worth noting that brands do better in tough times compared to unbranded products. Brands outlive product cycles. And in these challenging times, there are still great brands being built. Brand owners still recognise opportunity and their brands will thrive in the years ahead.

No branding, no differentiation. No differentiation, no long-term profitability. People do not have relationships with products, they are loyal to brands. In a movement strategy, brands have a purpose that people can get behind. Brands can inspire millions of people to join a community. Brands can rally people for or against something. Products are one dimensional in a social media enabled world, brands are Russian dolls, with many layers, tenants and beliefs that can create great followings of people who find them relevant. Brands can activate a passionate group of people to do something like changing the world. Products cannot really do that.

Brands have to contain:

- **Uniqueness:** utilise your branding to set yourself apart from your competitors. To do this, analyse what you do best and consider your target demographic. Use graphics and word choices that clearly reflect your business to your target audience, hence your brand. Use your branding to deliver clear messages.

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DENTAL TRIBUNE

The World's Dental Newspaper - Pakistan Edition

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Symptoms of sleep-disordered breathing, such as frequent snoring, apnoea and choking, may lead to health problems if untreated, the researchers said

Parents not aware of risks associated with persistent snoring in children

GOTHENBURG, SWEDEN: Occasional snoring in children is common and often harmless. However, persistent breathing disturbances during sleep can result in an increased risk of trouble concentrating, learning difficulties and delayed growth, experts say. A new study from the Sahlgrenska Academy in Sweden has now found that many parents underestimate the negative effects that the condition can have on their children's quality of sleep and life.

Examining the prevalence of snoring and sleep apnoea in 754 children aged 11 and under, the researchers found that 4.8 per cent experienced sleep-disordered breathing symptoms several times a week. Despite pronounced snoring, only 31 per cent of these children had been in contact with a health care provider regarding their symptoms, the survey established.

"The study shows that awareness is low regarding the negative effects of breathing disturbances during sleep on children's health and that most parents are not aware that this is something that should be investigated. An obvious result of the study is that we must consider how parents are given information about the condition and where they can seek help," said Dr Gunnhildur Gudnadottir from the

Department of Otorhinolaryngology at the academy.

"Children with persistent snoring often have a reduced quality of life. In particular, this applies to children who have sleep apnoea," Gudnadottir said. This is mainly due to the condition affecting sleep quality, which in turn can lead to daytime tiredness, concentration and learning difficulties, bedwetting and delayed growth.

Since many parents do not seem to be aware of the risks associated with habitual snoring, the researchers advised parents with children suffering from severe recurrent snoring and sleep apnoea to seek medical evaluation.

The most common reason for snoring in children is enlarged tonsils or adenoids. In these cases, snoring can often be resolved or reduced with surgery. Other common causes are anatomical, such as a small jaw or a small airway that the child was born with, or poorly integrated breathing muscles that do not open the airway enough during sleep.

The results of the study, titled "Healthcare provider contact for children with symptoms of sleep-disordered breathing: A population survey", was published in the March issue of the Journal of Laryngology and Otology. — *DT Sweden*



Dental lasers are predicted to grow at an accelerated pace over the next years

Dental tourism and lasers to fuel growth of dental equipment market

ALBANY, USA: Market research company Transparency Market Research has reported that the global dental equipment market is expected to reach US\$7.6 billion by 2018, from US\$5.5 billion in 2011, growing at a compound annual rate of 4.7 percent from 2012 to 2018. Technological innovations and increasing awareness of dental hygiene are contributors to the segment's growth, but high initial costs for dental equipment remain. The report analyzes different types of dental equipment, including dental radiology equipment, systems and parts, laboratory machines and hygiene maintenance devices.

An earlier report by business consulting firm Grand View Research forecast that the market would reach US\$8.45 billion by 2020, equaling a compound annual growth rate of 8.2 percent. Both reports linked the demand for dental equipment with surging dental tourism, increasing popularity of cosmetic dental treatment, and advancements in diagnostic and treatment technologies. Systems and parts remain the largest product segment, followed by dental radiology equipment. According to both reports, dental lasers are predicted to grow at an accelerated pace owing to the increasing adoption of minimally invasive surgical procedures that remove dental decay

without harming the soft and hard tissue. The growing ageing population and the baby boomers are additional factors for the rising demand for dental procedures.

North America has traditionally led the market for dental equipment, while Asia Pacific has grown at a faster rate. Increased demand for dental instruments and technologies, in combination with improving health care infrastructure, will affect this trend in the coming years. The growth in patients travelling to Asia Pacific and eastern Europe for cheaper dental surgeries and implants will also affect sales of dental equipment in these regions.

The Transparency Market Research report covers the financial figures, business strategies, product portfolios and recent developments of the major companies operating in the global dental equipment market, including Carestream Dental, GC Corporation, Henry Schein, Danaher Corporation, DENTSPLY Sirona, Planmeca, BIOLASE, Ivoclar Vivadent and A-dec.

The full report is available for purchase at www.transparencymarketresearch.com/dental-devices-market.html.

The Grand View Research report can be bought at www.grandviewresearch.com/industry-analysis/dental-equipment-market. — *DT USA*

New X-ray imaging technique visualises teeth's nanostructures

MUNICH, GERMANY: With the help of a new computed tomography (CT) method that is based on the scattering of X-rays, a team of international researchers has been able to visualise nanostructures in objects measuring just a few millimetres for the first time. To demonstrate the potential of the technique, the researchers reconstructed the precise 3-D orientation of collagen fibres in a piece of human tooth.

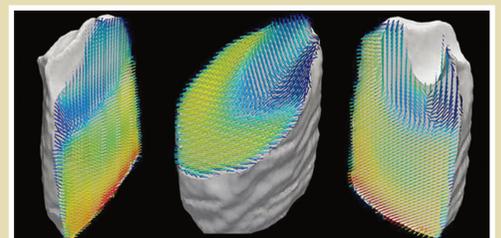
The new method, which was developed by a team of researchers from Technische Universität München (TUM), the Charité hospital in Berlin, Lund University and the Paul Scherrer Institute in Switzerland, utilises the scattering of X-rays rather than their absorption.

Conventional CT methods calculate exactly one value, known as a voxel, for each 3-D image point within an object. The advantage of the new technique is that it assigns multiple values to each voxel, as the scattered light arrives from various directions.

"Thanks to this additional information, we're able to learn a great deal more

about the nanostructure of an object than with conventional CT methods. By indirectly measuring scattered X-rays, we can now visualise minute structures that are too small for direct spatial resolution," explained Prof. Franz Pfeiffer, head of the Institute of Biomedical Physics at TUM.

By combining 3-D information from scattered X-rays with CT, the researchers were able to view clearly the 3-D orientation of collagen fibres in a piece of human tooth measuring around 3 mm. In order



Representation of the orientation of collagen fibres within a tooth sample. The new method makes it possible to visualise structures in the nanometre range in millimetre-sized objects at a high level of precision

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new



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References: 1. Gillam DG et al. J Clin Periodontol 1996;23:993-997. 2. Morris A et al. Efficacy of a Potassium Nitrate Mouthrinse for Relieving Dentinal Hypersensitivity, IADR/AADR/CADR 87th General Session and Exhibition, April 1-4 2009. 3. Pereira R et al. J Periodontol 2001;72(12);1720-1725. 4. GSK Data on File (Study RH01751): A Clinical Study Investigating the Efficacy of a Mouthwash in Providing Long Term Relief from Dentinal Hypersensitivity. Prepared November 2015. CHPAK/CHSENO/0050/15.

Advanced Restorative Techniques and the Full / Partial Mouth Reconstruction - Part 2 Occlusal Concepts

By Prof. Paul Tipton, UK

Most advanced restorative dentistry techniques have changed little over the last 20-30 years, including that of the full mouth reconstruction. However, the impact of new dental materials, such as titanium and zirconia, has had a major influence on aesthetic dentistry and implantology during this time period. As a result, the profession

of locating the transverse horizontal axis and transferring the recording to an articulator using a facebow. Stuart became associated with the Gnathological Society early and published the classic 'Research Report' with McCollum in 1955. Their observations led to the development of the principles of mandibular movements, transverse

This has evolved into the five principles of occlusion I embrace today:

1. RCP = ICP around RAP
2. Mutually protected occlusion
3. Anterior guidance
4. No non-working side interferences
5. Posterior stability

The early gnathologists studied the recorded tracings made during

be discussions between groups as to the exact definition of RAP, it is generally accepted as a muscular relaxed, reproducible and braced position that is an area not a pinpoint and can only be achieved with relaxed musculature.

Placing the condyles with the correct position and having immediate disclusion (canine guidance and



Fig 1: Full face pre-op view



Fig 2: ICP



Fig 3: Upper arch pre-op



Fig 4: Facebow recording

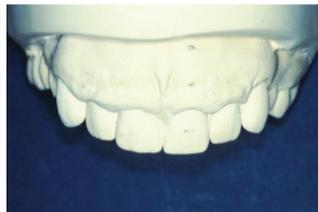


Fig 5: Upper cast front view



Fig 6: Upper cast right-hand view



Fig 7: Upper cast left-hand view



Fig 8: Lower study cast



Fig 9: Diagnostic waxing front view



Fig 10: Diagnostic waxing right-hand view



Fig 11: Diagnostic waxing left-hand view



Fig 12: Lower wax-up



Fig 13: Prototypes types upper arch



Fig 14: Prototypes lower arch



Fig 15: Upper prep guide

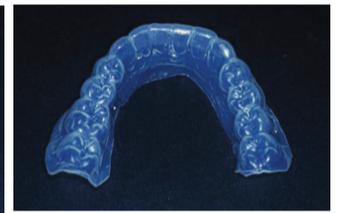


Fig 16: Lower prep guide

may have an over-reliance on new materials rather than tried and tested techniques.

Some fundamental techniques are just as relevant today as they were when I started my Master's degree in conservative dentistry at the Eastman Dental Hospital in 1987. During the course of this series of articles on advanced restorative techniques, some old techniques will be revisited in light of today's aesthetic and restorative requirements and some newer concepts will be discussed in greater detail whilst dealing with the overall topic of full mouth reconstruction. This article discusses the topic of occlusion and occlusal concepts.

Gnathology

Stallard first coined the term gnathology in 1924, defining it as the science that relates to the anatomy, histology, physiology and pathology of the masticatory system. McCollum formed the Gnathological Society in 1926 and is credited with the discovery of the first positive method

horizontal axis, maxillomandibular relationships, and an arcon-style articulator that was designed to accept the transfer of these occlusal records. The goal was to truly capture maxillomandibular relationships that accurately reproduced border jaw movements and which would then allow the technician to produce the most stable, functional and aesthetic occlusal form for indirect cast restorations. The registration of the horizontal and sagittal movements of patients was believed to allow the maximum cusp height-fossae depth with proper placement of ridges and grooves to enhance stability, function and aesthetics.

Fundamentals of gnathology

The fundamentals of gnathology include the concepts of retruded axis position (centric relation), anterior guidance, occlusal vertical dimension, the intercusp design, and the relationship of the determinants of mandibular movements recorded using complex instrumentation to the occlusion in fixed prosthodontics.

mandibular movements. When the mandible travels forward along the sagittal plane it is considered a protrusive excursion or protrusion. Therefore, retrusion is the movement toward the posterior; and it is the most retruded physiologic relation of the mandible to the maxilla to and from which the individual can make lateral movements that initially defined retruded axis position (RAP) or centric relation (CR) to the gnathologist. Further investigations led the gnathologists to believe that mandibular (condylar) movements are governed by the three axes of rotation.

The concept of retruded axis position evolved into a three-dimensional position, resulting in its description as the rearmost, uppermost, and midmost (RUM) position of the condyles in the glenoid fossa. More recently, with the input of anatomists and physiologists, the concept has also included a bone braced position slightly anterior to the RUM position. Whilst there can

incisor guidance) upon movement away from that position, with no vertical or horizontal deflective contacts is fundamental to gnathology. Tooth wear is considered pathological in gnathology and one of its fundamental concepts is trying to advance a dentition with minimal wear.

Alternative occlusal concepts: Pankey Mann Schuyler

As gnathology was evolving, several competing occlusal concepts and permutations were theorised, such as the Pankey Mann Schuyler (PMS) theory of occlusion. The Pankey Mann Schuyler concepts evolved out of an initial study group headed by LD Pankey on the east coast of America. Nomenclature was different and included centre relation (CR) instead of retruded axis position (RAP); centre related occlusion (CRO) instead of retruded contact position (RCP) and centric occlusion (CO) instead of inter-cuspal position (ICP). Beyron, following his observations on Australian Aborigines,

suggested that uniform tooth contact and resultant wear on several teeth in lateral occlusion was a positive and inevitable outcome. As a modification of canine guidance, the Pankey Mann Schuyler philosophy in complete full mouth reconstruction was to have simultaneous contacts of the canine and posterior teeth in the laterotrusive (working) excursion, known as group function, and only anterior teeth contact in the protrusive excursive movement.

Schuyler further suggested that incisal guidance without freedom of movement from a centric related

related occlusion to centric occlusion, should be incorporated into a restoration by means of a post restorative occlusal adjustment.

Dawson illustrates the 'freedom in centric' concept within the lingual concavity of the maxillary anterior teeth. He redefines long centric as 'freedom to close the mandible either into centric relation or slightly anterior to it without varying the vertical dimension at the anterior teeth'. Additionally, long centric accommodated changes in head position and postural closure (Mohl position).

to adapt to various influences and though, in the author's opinion, the concept of gnathology will produce stable long-term results, some patients may require more freedom in their occlusion and the PMS concepts are not to be dismissed in these patients. Indeed, some PMS concepts such as waxing-up the curve of Spee and Monson prior to occlusal rehabilitation are incorporated into every day occlusal practice.

Case study

Patient A was referred to me for a full mouth reconstruction and aesthetic improvements to her smile

'freedom in centric' style approach where initial guidance in both left and right lateral excursions came from posterior teeth until such time as the canines contacted and then took over as canine guidance. In protrusion, a similar long centric was established on posterior teeth so that in protrusive movements the initial guidance was from the posterior teeth until such time as the incisors touched and then took over the further smooth protrusive movements. This was achieved by using a fully adjustable articulator to complete the restorations (Figures 17 and 18).

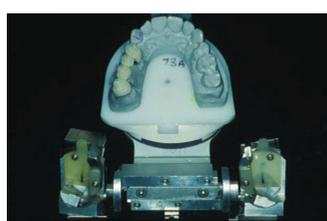


Fig 17: Upper right restoration on fully adjustable articulator

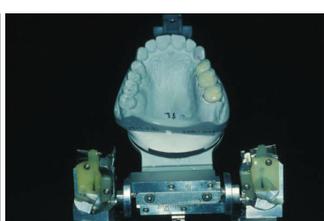


Fig 18: Upper left restoration on fully adjustable articulator



Fig 19: Anterior crowns front view



Fig 20: Anterior crowns right hand view



Fig 21: Anterior crowns left hand view



Fig 22: Upper arch occlusal view



Fig 23: Upper right quadrant with palatal ramps



Fig 24: Upper left quadrant with palatal ramps



Fig 25: Intercuspal position with no anterior contacts



Fig 26: Upper anteriors

occlusion (CRO) to a more anterior tooth intercuspation (CO) will 'lock-in' the posterior occlusion (long centric).

The incisal guidance, along with 'long centric', is determined by the distance from transverse horizontal axis-centric relation and the normal freedom of movement in the envelope of function. This method requires that the incisal guidance be established and the mandibular posterior buccal cusps be placed to a height measured along the occlusal plane as dictated by the curve of Monson. The maxillary posterior teeth are developed after the completion of the mandibular restorations as dictated by a wax functionally generated path record. The definitive restorations are equilibrated into a centric relation position with mandibular buccal cusps onto a flattened fossae-marginal ridge contact with 'freedom in centric' anterior guidance and group function in laterotrusive (working) excursion.

Deflective contacts

Though 90% of natural dentitions have a deflective occlusal contact or an occlusal 'prematurity' between centric related occlusion (CRO) and centric occlusion (CO), it is usually in the form of a slide that has both a vertical and horizontal component occurring in all three planes. According to Ash and Ramfjord, the horizontal 'long centric', from centric



Fig 27: Upper anteriors final view



Fig 28: Lower anteriors final view



Fig 29: Full face final view

Gnathology versus PMS

Gnathologists believe that once the condyles are positioned in retruded axis position (centric relation), any movement out of this position should disocclude the posterior segment, thus nullifying any horizontal cusps-fossae area contact.

This belief, combined with the immediate anterior disocclusion, forms the basis of a mutually protected occlusion and limits tooth wear. The PMS occlusal scheme, however, encourages multiple occlusal contacts during lateral movements (group function or wide centre) and during protrusive movements (long centric). This may have the effect of increasing tooth wear. It is, therefore, logical that the PMS occlusal scheme recommends that occlusal wear is physiological, not pathological as suggested by gnathologists. The task of adjusting maximum intercuspation contacts in two different positions on an articulator may result in a lack of precision in both positions. However, the masticatory system has the ability

(Figures 1-3). Initial impressions, facebow and jaw registration were taken for mounted study models (Figure 4). The study models showed the degree of over-eruption of her anterior segments and disturbances to the occlusal plane (Figures 5-8).

Initial diagnostic waxing (Figures 9-12), prototypes (Figures 13 and 14) and prep guides (Figures 15 and 16) were completed using a lower curve of Spee of a 4" radius (anatomical average as recommended by the PMS techniques).

Initial prototypes were placed with large palatal ramps on the upper anterior teeth to allow anterior tooth contacts and thus an immediate disclusion style of occlusal scheme as recommended in the gnathological approach.

During the course of the initial preparation and prototypes and after a period of stabilisation, the patient was struggling to come to terms with the palatal ramps from a speech and comfort point of view.

The decision was made to change the occlusal scheme to a PMS

Conclusions

The definitive anterior crowns were made of Procera all ceramic (Nobel Biocare) (Figures 19-21). The posteriors were constructed of traditional porcelain fused to metal with large flat areas on the palatal cusps for the establishment of both 'long and wide centric' (Figures 22-24) as in the new intercuspal position there were no anterior contacts (Figure 25) due to loss of the palatal ramps. The final aesthetic result can be seen in Figures 26 to 29.

Occlusion and the various occlusal concepts have caused – and continue to cause – debate. Whilst the author has been trained throughout his career in the concepts of gnathology, there is the recognition that other occlusal concepts, such as PMS and bilateral balance, may have a part to play in treatment of some patients.

During the rest of this series, the principles of gnathology will be used in the treatment of the partial or full mouth reconstruction.

Acknowledgements

For the writing of this article on advanced restorative techniques, the author would like to thank the following people for their help: Dr Ibrahim Hussain, BDS, M.Med.Sci. Implantology – implant surgeon Dr Andrew Watson, BDS, MSc, specialist in endodontics Mr Bradley Moore – dental technician, ADS Laboratory, Harrogate. –DT UK

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