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College of Dentistry

Finishing and Polishing for Restorative Materials

A Project Submitted to
The College of Dentistry, University of Baghdad, Department of Restorative and Aesthetics Dentistry in Partial Fulfillment for the Bachelor of Dental Surgery

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Certification of the supervisor

I certify that this project entitled " Finishing and polishing for restorative materials" was prepared by the fifth-year student NabaaLaithAbdulzahraaunder my supervision at the College of Dentistry/University of Baghdad in partial fulfilment of the graduation requirements for the Bachelor Degree in Dentistry.

Supervisor's name:
Dr. YasameenHasanMotea

Dedication

Firstly , all gratefulness thanksto "Allah" for grant good fortune to me to be here now.

I want to dedicate my graduation project to myparents and my friends , who supported and encouraged me.I would like to thank supervisor Lecturer YasameenHasanMotea for her continuous guidance ,time advice and support.

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Introduction

Finishing and polishing of dental restorations are principal ingredients of clinical procedures that supplement both aesthetics and durability.**(AnusaviceKJ،2012)**.Remnant surface irregularitycorresponding to improper finishing and polishing can resultin accumulation of plaque, irritation of gingival epithelium,and increased surface staining producing poor or suboptimalaesthetics. **(Dutra DAM et al.,2018)**.Finishing and polishing are procedures that are both based on the principle of wear activity, but they differ in their end purpose and degree.**(Nasoohi N et al.,2017)**.These procedures call for an incremental stepwise approach establishing finest scratches to the substrate surface in order to systematically eliminate the deeper or profound scratches from previous grinding.**(Nasoohi N et al.,2017)**.The primary objective of a dental specialist is to reinstate the individual tooth close to the form and functions of that of an original tooth structure alongside imparting gratifying aesthetics and maintaining periodontal tissue condition in great regard. It has been stated and reported in literature that rough or uneven surfaces act as active substrates for microbial flora to initiate and flourish. Furthermore, the light reflected by these surfaces may not be even and uniform**.(Dutra DAM et al.,2018).**Hence a restored tooth structure should be smooth evenly and reflect light uniformly which is obtained through finishing and polishing. Finishing is defined as the transformation of an object from a rough to a refined form. The technique includes expulsion of surface irregularities, shaping and constructing a restoration according to the fundamentals of occlusion. Polishing is defined as the production of a shiny mirror like surface, which reflects light similar to enamel and reduction in roughness and scratches typically created by finishing instruments.**(Bashetty K and Joshi S,2010)**.Many steps go into the success and longevity of a restoration out of which finishing and polishing are considered critical steps to decrease plaque accumulation and prevent gingival irritation,

secondary caries and discoloration of restorative materials.(**Morgan M,2004)**. These systems bring about reduction in wear and add to the marginal and periodontal integrity thus enhancing the clinical life span of dental restorations.**(Jeffries SR,2007)**.Several techniques have been standardized and utilized in order to measure a surface for its roughness. Profilometer, an optical microscope or a Scanning Electron Microscope that can be considered as one of the few standard instruments used to assess the quality of the surface finish and lustre by the estimation of surface roughness**.(Jeffries SR,2007)**.The mechanism behind finishing and polishing is to utilize a sequence of coarse articles or abrasives to remove material at micro level from a comparatively softer body to an extent that the produced surface scratches by each abrasive are successively eliminated with ones of smaller dimension**.(Jeffries SR,2007).**

Aim of study

The aim of this project is to review the definition of Finishing and polishing for restorative materials ,their importance in aesthetics and function of the teeth, basic principles of finishing and polishing and the objectives of this procedures.

Importance of Finishing and Polishing

1. It guarantees the oral well-being and longer life span of restorations. A shiny glassy well-polished surface diminishes the probability of adherence, implying that plaque is more averse to aggregate on a cleaned surface.This promotes better, longer enduring restorations**.(Rashid H,2017)**.
2. A well smoothened and polished tooth is more organically viable with the gingival tissue, so the health and soundness of the surrounding gingival tissue is maintained and preserved. Such teeth require less maintenance and are simpler to keep up in a clean hygienic state with day-to-day oral hygiene practices .It guarantees the oral well-being and longer life span of restorations. A shiny glassy well-polished surface diminishes the probability of adherence, implying that plaque is more averse to aggregate on a cleaned surface.This promotes better, longer enduring restorations.**(Rashid H,2017)**.
3. Proper contouring, finishing, and polishing will strengthen the marginal integrity of the restoration especially the ones that are under tension. Interproximally the potential for plaque retention is reported to be the highest and polishing these areas will significantly reduce the likelihood of secondary caries and diseases related to the periodontium**.(Rashid H,2017)**.
4. An exceptionally polished tooth surface results in more natural enamel - like lustre creating aesthetic smiles. This is due to the increase in the reflective and refractive index properties of restoration. So from an aesthetic point of view, a restoration simply cannot be left unpolished**.(Rashid H,2017)**.
5. Tarnish and corrosion, an activity seen with certain dental materials can be significantly reduced or even prevented if the entire restoration is highly polished**.(Rashid H,2017).**
6. Rough materials tend to act as stress concentrating areas that can result in loss of stable and functional contacts within the occlusion. If properly followed,

finishing and polishing greatly enhances the longevity, durability, and long-term wear resistance of the restoration.(**Rashid H,2017)**.

7. As aesthetics has become the prime concern these days, finishing and polishing enhances patient comfort and satisfaction, and patients greatly appreciate the natural aesthetical compatibility and health benefits acknowledged from an appropriately polished restoration**.(Ikeda M et al.,2007)**.

Basic principles of finishing and polishing

The principles involved in mechanical finishing and polishing using abrasive particles are based on the concept of tribology which is the discipline associated with material science, physics, chemistry, and surface - contact engineering.**(Jeffries SR,2007).**This concept is a combination of experimental parameters (e.g., applied load, velocity, and duration of motion) and the system structure (e.g., the two - body contact, the interfacial media, and the surrounding media)**.(Jeffries SR,2007).**Finishing and polishing tools, mediums, and methods are intended to execute a specific, intentional, and guided wear of the restorative material surfaces.**(Gulati GS and Gulati NK,2014).**Wear is defined as a cumulative surface damage in which the material is removed from a body as small debris particles, mainly by mechanical processes. The wear mechanism is the transfer of energy with removal or displacement of material**.(Rémond G et al.,2002).**The four wear mechanisms are adhesion, abrasion, surface fatigue, and tribochemicalreactions.**(Jeffries SR,2007)**.The ultimate goal is to achieve the desired anatomical features, a balanced occlusion, and the decrease in roughness, gouges and scratches that were formed during the preparation phase **.(Jeffries SR,2007).**

Objective

Finished and polished restorations result in four advantages of dental / oral care: healthy gums / gingiva, better efficiency in chewing, patient comfort, and improved aesthetics. The objectives of finishing and polishing of any restoration is to obtain a satisfactory fit and continuity in margins, optimal contour and contacts and a scratch or irregularity free surface to make it biologically acceptable. These objectives together establish the framework of an ideal oral well-being and aesthetics**.(Mahalaxmi S,2013).**

Oral Health:A skilfully defined and burnished restoration will have a decreased surface area and reduced roughness of the restoration surface which promotes the oral health by resisting the accumulation of food debris and pathologic bacteria**.(Mahalaxmi S,2013).**Smoother surfaces are easier to maintain in a hygienic state when preventive oral care is practiced. With some restorations, tarnish and corrosion activity can be significantly reduced if the entire restoration is highly polished, which is very important for the biocompatibility property of a material**.(Mahalaxmi S,2013).**

Oral Function:

It is amplified with a well burnished restoration because food glides more freely over well contoured occlusal and embrasure surfaces during mastication. Smooth restoration contacts minimize wear rates on opposing and adjacent teeth, which is particularly true for restorative materials such as ceramics that contain phases that are harder than enamel and dentin**.(Mahalaxmi S,2013)**.Friction is defined as the resistance to motion of one body over another and a restraining force is produced to resist this motion. This phenomenon can be reduced if the surfaces are glossy or smooth and found in a single plane. Reduced friction results in reduced wear which ultimately increases the life span of the existing restoration**.(Mahalaxmi S,2013).**

Irregularities or roughness on material surfaces attract high-contact stresses and hence development of these stresses results in the loss of functional and stabilizing contacts between teeth**.(Mahalaxmi S,2013).**

Aesthetics :

With the increase in aesthetic demands the clinician is required to emphasize and prepare highly visible surfaces of restorations differently as compared to those that have least accessibility. When a solid is exposed to white light, a minor proportion of this light is reflected directly from the surface and hence remains white. **(Mahalaxmi S,2013).**This in turn gets mixed with the existing light and causes a dilution of the colour. An application of this phenomenon is seen in the case of an extremely rough surface which appears to be lighter in contrast to a smoother surface of the same material. This drawback is noticed with unpolished or sapped glass ionomer cement (GIC) and resin -composite restorations**.(Mahalaxmi S,2013).**Opacity, translucency, and transparency are three characteristic features of a dental material that are affected by the surface quality of the material. Opacity is a property of materials that obstructs the light from passing. An opaque surface absorbs some of the light and reflects the remainder**.(Mahalaxmi S,2013).**An example of this is porcelain, which is opaque and hence reflects yellow light resulting in yellowish appearance. Translucency is another property that also obstructs light transmission but causes dispersion of the light, because of which items can't be seen through the material. **(Mahalaxmi S,2013).**Examples of translucent materials used in dentistry are ceramics, resins,composites etc. Transparent materials allow complete light transmission with little distortion and objects appear clearly when seen through these materials**.(Mahalaxmi S,2013)**.

Recent advances in finishing and polishing

Evolving methods and technologies offer clinicians new tools to meet patient demand and satisfaction for quality delivery.While most recent products in the dental finishing and polishing arena are added upon contemporary products,welcoming new ideas, blueprints,or materials ultimately improve and broaden the access to dental care and

periodically raises greater interest. **(Hegde VS and Khatavkar RA,2010)**.This review article focuses on representing the recent concepts of finishing and polishing currently in research or those that require further evaluation and needs more focus and limelight in the current practice.**(Hegde VS and Khatavkar RA,2010).**

Air-Particle Abrasion Technology

As an alternative to the use of rotary instrument, air-particle abrasive systems are minimal invasive technologies that can deliver a definitely controlled high - pressure fine stream of 25µm to 30 µmaluminium oxide ($Al_2 O_3$) or silica particles to remove decayed or stained enamel, dentin, and restorative materials. Because air particle abrasion generates minimal heat and vibration, there is relatively little potential for tooth chipping or microfracturing.**(Hegde VS and Khatavkar RA,2010)**.

Figure(1):Air-Particle Abrasion device

These systems have been used for the following applications:

* tooth preparation for receiving any restoration..

*removal of defective restorations such as resin-based composite

access cavity through all ceramic crowns.

*repair of crown margins through a minimal invasive approach

tunnel preparations.

*Elimination of extrinsic stains.

* cleaning of tooth surfaces before adhesive bonding .

*Abrasion of internal surfaces of indirect tooth colouredrestorationsbefore adhesive bonding.

Recently electro medical systems (EMS) have launched AIR flow HANDY systems which use sodium bicarbonate ($NaHCO_3$) as the abrasive. The powder travels through the narrow nozzle of a specially delineated hand piece with the aid of compressed air.**(Hegde VS and Khatavkar RA,2010).**This system is indicated to eliminate biofilm, superficial stains, and young calculus on natural tooth surface, implants and restorations. **(Hegde VS and Khatavkar RA,2010).**

It can overcome the limitations seen with rubber cups and polishing paste such asinaccessibility of areas like:

• interdental spaces of malaligned teeth .

• Exposed tooth necks .

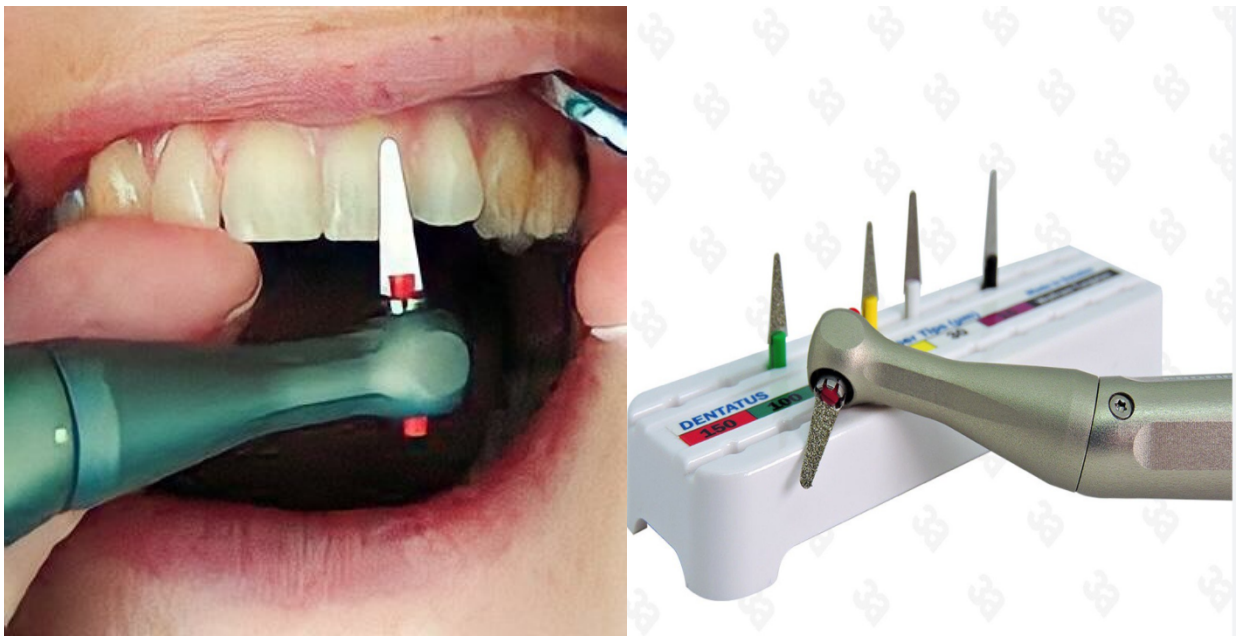
• Pits and fissures .

•Orthodontics brackets.

Other advantages are that it cleans and polishes in a single sitting. When seen by its clinical relevance with regards to restorative dentistry, low abrasive powder air polishing technique is more useful for frequent cleaning of discolouredrestorations**.(Rainey JT et al.,2002).**

Profin PDX System:

Profin PDX system comprises of a contra-angle handpiece using reciprocal motion with special finishing and polishing tips - Lamineers LTA (Dentatus AB, Sweden**.(Iovan G et al.,2016).**This system is mainly indicated for elimination of overhangs, contouring, grinding, and smoothening of restorations particularly in the sub-gingival and interproximal regions. The handpiece and wide assorted range of colour coded abrasive tips render extensive access to inaccessible or distant intraoral regions, permitting reshaping of enamel and other materials such as porcelain, metal fillings, resin composite and silver amalgam.**(Iovan G et al.,2016)**



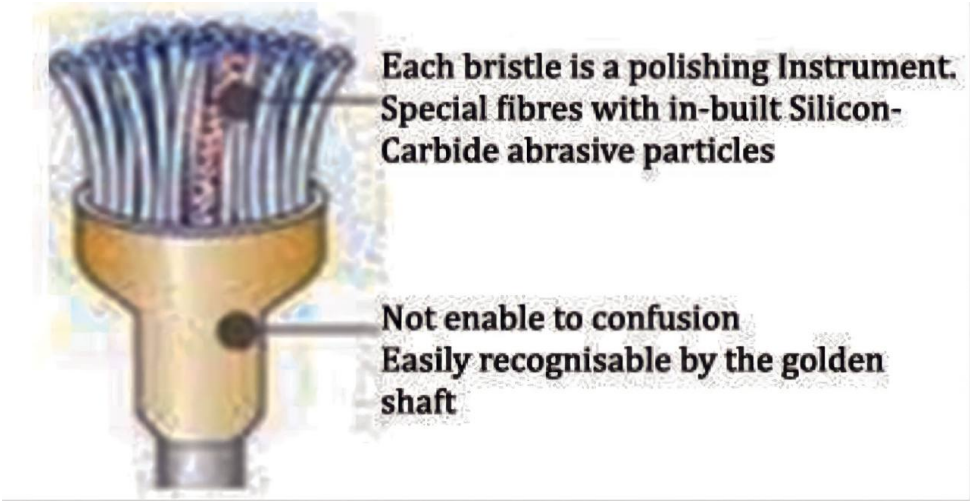
Figure(2):Profin PDX System

The wide range of tips and their uses are described as following :

1. Standard Spatula #LTA - (x): For gross reduction, reshaping or finishing of bulky restorations and enamel. Colour-coded grit (x) range: 150 to 15 microns.
2. Wolfram Tungsten Spatula #LTA - (36, 38 or 39):Superfine abrasive for finishing and polishing of all restorations and enamel. Scuffing of healthy enamel is prevented.
3. Short Spatula #LTA - S(x): Similar to a spatula yet shorter, narrower and knife edge shaped for better access to inter - proximal regions. Colour-coded grit (x) range: 150 to 15 microns.
4. Flexible Spatula #LTA - F(x): Flexibility allows the tip to conform to the restoration surface. Colour-coded grit (x) range: 100 to 50 microns.
5. Paddle #LTA - D(x): For finishing purposes, eliminates grooves and undercuts. Colour-coded grit (x) range: 50 to 30 microns.
6. Saw Blade #LTA - T(x): For opening incisal and gingival embrasures. Colour-coded grit (x) range: 50 and 30 microns.
7. Shoulder / Bevel Tip #LTA - C(x): For shaping finish lines and bevels to precision. Colour-coded grit (x) range: 50 microns.
8. Concave Spatula #LTA - E(x): For extra fine protrusive and lateral adjustments on concave surfaces. Colour-coded grit (x) range: 50 microns**.(Iovan G et al.,2016).**

Abrasive-Impregnated Brushes:

These polishing brushes are available in few shapes (pointed, cup shaped), with an assortment of polymer ‘‘bristles’’ impregnated with different types of abrasive particles. These flexible brushes aim for reaching into the detail grooves, protrusions, patterns, and other inaccessible interproximal areas of ceramic and composite resin restorations. 3M ESPE organization holds the patent for 3M Sof - Lex Brush where the abrasive used in the brush is Al_2O_3.**(Jeffries SR,2007).**



Figure(3):Occlubrush; Each Bristle is a Polishing Instrument; Special Fibres with In-Built Silicon Carbide Abrasive Particles.

The Sof-Lex finishing brush from 3M ESPE is a soft, thermoplastic polyester elastomer that is composed of aluminum oxide abrasive particles for highly effective polishing.**(Babina K et al.,2020).**

The brush is detachable type from a mandrel. The Sof-Lex Finishing Brush is easy to use, one-step, autoclavable and reusable brush developed to eliminate the separate finishing and polishing procedures. **(Babina K et al.,2020).**The brush bristles are gentle on the gingiva and conform as they travel over for polishing the concave and convex anatomy found on posterior composite

restorations resulting in a smooth polished finish. It delivers superior finish in less time and less effort making restorative procedures more efficient.**(Babina K et al.,2020).**

The intro kit consists of :

• Twelve Sof - Lex Finishing Brushes

• Two Sof - Lex Finishing Brush Mandrels – Right Angle

polycarbonate fibers impregnated with silicon carbide abrasive particles. It is a one-step polishing system for all types of composite compomers, resin modified glass ionomer cements (RMGIC) and ceramic indirect restorations. **(Jeffries SR,2007).**The bristles' special fibre ensure it is non-destructive to tooth structure or to the margins of the restorations Polishing particles are already embedded in the bristles, so no paste is required**.(Jeffries SR,2007).**Research reports that the silicon carbide– impregnated bristle polishing brushes are non-destructive and maintain surface texture, smoothness, and a high gloss shine comparatively more than an extra-fine diamond coated

abrasive discs (on composite resin and enamel). **(Nithya K et al.,2020).**Also these could be reused with autoclaving. Polishing efficacy of these abrasive-impregnated polishing brushes is found

comparable to that seen following the use of a rubber or bonded abrasive diamond polishing device.**(Jeffries SR,2007).**These polishing brushes configuration is intriguing in its methodology for giving improved ''micro - access'' and hence requires further investigations and clinical assessment.Currently a new abrasive known as organisilicon is under research. In comparison to SiO2, it is showing better wear performance of brush materials and decreased wear percentage of materials**.(Lin X et al.,2021).**

Rotary Polishing Tools:

Rotary tools designed on basis of a polymer or composite resin composition or matrix, with controlled grinding have recently come into limelight for their specific action on removal of surface adherent restorative materials, including composite resin and surplus cement**.(Jeffries SR,2007)**

Figure(4):Rotary Polishing Tools

Stainbuster (Danville, San Ramon, California; and Carbotech, Ganges, France) is a slow speed, rotary zircon - rich fiber - glass bur of 14 µm diameter. It is designed to remove residual composite resin, coloured coatings, provisional cement without abrading or any harm to either enamel or porcelain**.(Jeffries SR,2007).**

Figure(5):White, Fiber-Impregnated Polymer Rotary Burs with ‘‘Minimal’’ Abrasive Action.

Other indications include:

- removal of remnants of adhesive after bracket debonding in orthodontics.
- Smoothening and softening of root surface post root planing for encouraging healing and flap re-attachment.
- Stain removal in areas of inaccessible tooth structure.
- For maintenance of implant surfaces by gentle removal of low level calculus.

The rod-shaped bur is made up of fibres of special characteristics – they are self-sharpening and maintain abrasive power i.e. every time the resin matrix gets used up, new fibres get exposed.**(Babina K et al.,2020).**

Figure(6):OptiClean Single Use Rotary Debrider.

a latch type rotary bur of 1.65 mm tip diameter is composed of aromatic polyamide containing 40 µm Al_2O_3**.(Babina K et al.,2020).**It is the first and the smallest tool available for faster, easier, and complete removal of any residual provisional cement and chaff on dentine / tooth preparations before final cementation and making the procedure simpler by eliminating the multiple steps of surface preparation, such as a rubber cup and pumice, or use of hand instruments**.(Bachmann MW et al.,2002).**It is a single use tool and hence is considered highly hygienic.

Nanotechnology Liquid Polish:

This new paint - on - polish adds a smooth, dazzling finish to any composite or temporary restoration. Nano - Beautiful or Lasting Touch (Dentsply caulk) is a recent paint on polish technique that provides smoother surfaces when used after finishing and polishing. A study conducted by D Atabek et al**.(Atabek D et al.,2010).**concludes to have better results and positive effects on surface topographic properties with the application of nanotechnology liquid polish along with other finishing and polishing procedures.37 Although very little literature exists to support as evidence and hence further evaluation is required.**(Atabek D et al.,2010).**

Finishing and Polishing with Modern Ceramic Systems

Advances in Rotary Instrument Technology inCeramic

Recent rotary instrument technology advances have optimized finishing and polishing of modern all-ceramic systems. Brasseler USA has developed a new multi-layer chromium nitride coating for diamond burs that better bonds diamond particles to the bur and increases the useable life of the bur. For sharper-tip diamond burs, the coating reduces the chances of wearing off the diamond particles and leaving dark metal marks. **(Chang CW et al.,2011).**The Brasseler red-band Fine Finishing Diamond (mean particle size 30 µm) has been the author's favorite rotary instrument for adjusting and refining the occlusion. The new Dialite finishing diamond with football shape is ideal for occlusal adjustment and grinding in anatomy of full-contour zirconia crowns.**(Chang CW et al.,2011).**Fine contouring, grooves, and refining secondary anatomy are rapidly achieved with a small, round Dialite finishing diamond bur Used at relatively low RPM and low pressure, the finishing diamond is effective for material removal, yet is not traumatic to the ceramic. This is critical for avoiding damage to the ceramic, incurring flaws, which may later propagate into cracks, causing failure in function or parafunction..**(Chang CW et al.,2011).**Besides preventing damage to the ceramic, another concern is avoiding heat spike generation, which can cause thermal shock damage and phase changes in the ceramic**.(Chang CW et al.,2011).**The zirconia used in dentistry has metal oxides added to create the metastable tetragonal phase, which enables the structure to undergo transformation toughening; this unique property of zirconia ceramics arrests crack formation**.(Schmidtke M,2012).**Excessive heat generation can cause the zirconia to shift back to its thermodynamically preferred monoclinic state, rendering the ceramic unable to undergo transformation toughening.**(Schmidtke M,2012).**Excessive heat

generation can cause the zirconia to shift back to its thermodynamically preferred monoclinic state, rendering the ceramic unable to undergo transformation toughening**.(Schmidtke M,2012).**

The objective in designing efficient polishing instruments is to achieve rapid removal of material, progressively replacing bigger scratches with smaller scratches while minimizing heat generation. Optimization of new polishing systems is achieved by the abrasive particle size, the particle concentration, and the binder used to form the polishing shapes**.(Schmidtke M,2012).**The Dialite System by Brasseler was the original bench mark for diamond-impregnated porcelain polishing systems that revolutionized polishing of all types of porcelain and ceramic surfaces. Surface profilometry research showed that the Dialite Kit could polish surfaces to be smoother than

overglazed porcelain**.(Sorensen JA and Sultan E,2000).**The Dialite System uses a three-step process that varies the grain size, grain loading, and binder. **(Sorensen JA and Sultan E,2000).**

New Frontiers in Ceramic Polishing Technologies

Understanding the unique properties of modern ceramic systems such as lithium disilicate (e.max) and Y-TZP zirconia, Brasseler USA has made revolutionary developments resulting in new polishing systems**. (Schmidtke M,2012).**These polishing systems have been optimized to: reduce the number of polishing steps (bur changes); polish more efficiently; and achieve an overall higher quality polish and luster**. (Schmidtke M,2012).**Additionally, the new polishing systems consider the unique properties of lithium disilicate and zirconia ceramics to minimize damage and diminish potential deleterious effects on ceramic strength**. (Schmidtke M,2012).**The results are polishing instruments that are easy to use and that reduce restoration failure with the right combination of physical and chemical properties of the different ceramics. Therefore, two specialized polishing systems specific to their ceramic structure have been developed..(**Schmidtke M,2012).**

Dialite LD System

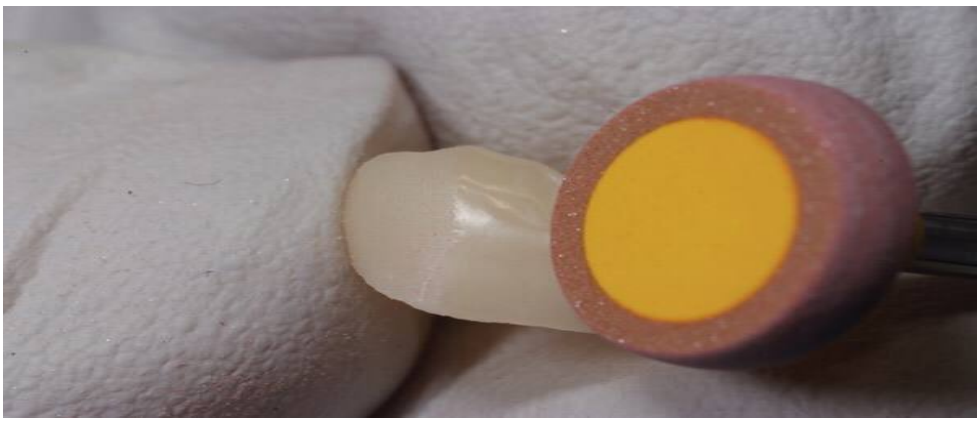
Specific to lithium disilicate ceramics, a system was created that consists of a grinder for contouring and then only two steps for polishing instead of three steps like the original Dialite system. This provides for reduced chairtime in the delivery of e.max restorations, yet enhanced quality of finish, polish, and luster**. (Schmidtke M,2012).**

1.Dialite LD Grinder

This epoxy-based diamond impregnated grinder with medium coarse grain efficiently and rapidly removes large amounts of ceramic, yet due to the grain size and binder, minimizes potential damage to the internal ceramic structure.(**Schmidtke M,2012).**

1.1.Red Pre-Polish

This polyurethane-bound fine polisher with high diamond particle concentration facilitates aggressive removal of ceramic structure and smoothing to a brilliant surface roughness—all with a light touch to minimize heat generation.(**Schmidtke M,2012).**



Figure(7):Dialite LD Red Pre-Polish rubber wheel for establishing shine on lithium disilicate

1.2.Yellow Fine Polisher

With a smaller diamond grit size than Original Dialite Fine (Grey) polisher, this polisher enables the system to cut and remove structure for superior shine and ultra-high luster.(Schmidtke M,2012).

Figure(8):Dialite LD Yellow Fine Polish rubber wheel for establishing high shine and luster on lithium disilicate. Note right side with finish polish.

2.Dialite ZR System

Specifically designed for zirconia, the Dialite ZR System also reduces the number of steps to involve two rubber wheels instead of three**.(Schmidtke M,2012).**

2.1.Dialite ZR Grinder (Green)

This epoxy-based, high-performance grinder has a high diamond concentration and is optimized for bulk material removal at low speed and low pressure. A major improvement over standard diamond-impregnated stones, its design

makes it possible to keep the zirconia below 80oC, even with dry grinding. No water cooling or special equipment is needed**.(Schmidtke M,2012).**

Figure(9):Gross adjustment of full zirconia crown with Dialite ZR Grinder.

2.2.Dialite ZR Medium Grinder (Pink)

This medium grinder system has similar characteristics to the ZR Grinder abrasive only and would be an intermediarystep between green coarse grinder and polishing instrumentsDialite**.(Schmidtke M,2012).**

Figure(10):Refining adjustment of full zirconia crown with Dialite ZR Medium Grinder.

2.3.Green Medium Fine Polish

This very soft, polyurethane-matrix-bound, high-concentration, medium-fine grain diamond polisher allows a soft touch, with a high material removal rate to achieve a brilliant surface structure with a wheel on the broad surfaces**.(Schmidtke M,2012).**

Figure(11):Dialite ZR green Medium Fine polishing point for crafting a shine in the occlusal grooves.

2.4.Orange Fine Polish

A polyurethane binder with super-high loading of fine diamond particles, this super-soft matrix instrument promotes achievement of ultra-high polish and luster with minimum heat generation The Dialite polishing instruments help to achieve a durable high-luster finish intraorally**.(Schmidtke M,2012).**

Figure(12):Dialite ZR orange Fine polishing point for high shine in theocclusal grooves

CONCLUSIONS

Finishing and polishing procedure is a significant step to achieve successful restorations clinically. The type of abrasive being used, its properties, and the material being abraded are some significant properties affecting the process of abrasion. Finishing and polishing is a guided procedure which follows asequence descending from coarse abrasives to fine abrasives to achieve mirror like polish. Clinically the rate of abrasion is easier to manage in terms of speed in comparison to the pressure. One must keep in mind to avoid over finishing margins and contours of restorations and to abstain from overheating. Adoption of a definite sequence is the key factor in finishing and polishing of each restoration. The objective of any new office technology or innovation is to accelerate the workflow process, giving clinicians a definite asset – additional time – to concentrate on and deliver the precision. The knowledge of these new emerging concepts in restorative dentistry helps clinicians take advantage of the latest technological trends to ensure growth and stay competitive.

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