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Materials and Methods: From December 2018 to April 2019, a total of 1064 patients, from public health centres of Almada-Seixal Group of Centres, were randomly enrolled in the study. RDs were assessed through a medical history and medication questionnaire. Periodontitis and Gingivitis were circumferentially evaluated according to the 2018 World Case Definitions [4,5] by two calibrated examiners (J.B. and V.M). This study was approved by the ARSLVT Ethics Committee (3525 & 8696/CES/2018).

Results: Overall, the prevalence of rheumatic conditions was 2.8% (95% CI: 1.8–3.8%) ($n=30$). Individual RD prevalence distribution in the study group were as follows: rheumatoid arthritis (RA) 23.3% ($n=7$), fibromyalgia (FM) 36.7% ($n=11$), systemic lupus erythematosus (SLE) 10.0% ($n=3$), arthritis (ART) 13.3% ($n=4$), gout 3.3% ($n=1$), systemic sclerosis 3.3% ($n=1$), FM + osteoarthritis (OA) 3.3% ($n=1$), FM + SLE 3.3% ($n=1$), FME + OA + ART 3.3% ($n=1$). The prevalence of periodontitis among RD patients was 60% ($n=18$), with 13.3% ($n=4$), 16.7% ($n=5$) and 26.7% ($n=8$) of mild, moderate and severe stages, respectively. Gingivitis cases were residual, 3.3% ($n=1$). The average missing teeth were 10.7 (± 6.8) and the mean percentage of probing depth ≥ 4 mm was 5.7% ($\pm 10.9\%$).

Discussion and conclusions: Despite the low incidence of RDs, these results reveal a considerable high prevalence of periodontitis and gingivitis among those patients. Also, the average number of missing teeth is worrisome. These findings unveil a very disturbing high burden of periodontitis in this sample of Portuguese rheumatic patients and roots basis for future public health measures implementation.

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Translucency evaluation of an ultra-translucent monolithic zirconia and a super translucent multilayer zirconia: a pilot study on the thickness effect

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ABSTRACT

Introduction: The increasing application of zirconia as an aesthetic material has led to an evolution with improvement on its optical properties [1]. Nowadays, zirconia presents a compatible translucency with natural teeth. Depending on the clinical situation, you can choose a more translucent or more opaque zirconia. Due to its excellent mechanical properties, it is possible to return the function and aesthetics through a restoration with thicknesses lower than those required by other materials [2].

Materials and methods: Twenty specimens of pre-sintered ultra-translucent (UT) monolithic zirconia (Bloomden W00098014UT) and twenty specimens of pre-sintered super translucent (ST) multilayer zirconia (Bloomden W00098016ST-ML-A2) were cut through the computer-aided design/computer-aided manufacturing system (Wieland Dental). For each type of zirconia, four subgroups ($n=5$) were defined according to its thickness: 0.5, 1.0, 1.5 and 2.0 mm. All monolithic specimens were coloured with colouring liquid (BloomZir® UT Coping Crown A2) for 2 min. Finally, all zirconia specimens were sintered in the furnace (IMES-Wieland Zeno® Fire) at a temperature range of 1500 – 1550 °C and subsequently submitted to an ultrasonic bath (VGT-2120QTD 20 L) [3]. The values of L^* , a^* and b^* were measured, under natural light (D65), using the spectrophotometer SpectroShade Micro (MHT S.p.A., Arbizzano di Negrar, Itália) at six different locations on a white background (Comission Internationale de l'Éclairage (CIE) $L^*=95.6$ $a^*=0.8$, $b^*=0.1$) and on a black background ((CIE) $L^*=13.2$, $a^*=0.8$, $b^*=-0.7$). Translucency was assessed through the contrast ratio (CR) [4] and the translucency parameter (TP) [5]. Data was submitted to descriptive statistical analysis.

Results: Mean CR values ranged from 0.7 (± 0.0) to 0.9 (± 0.0) in UT monolithic zirconia and 0.8 (± 0.0) to 0.9 (± 0.0) in the ST multilayer zirconia. Mean TP values ranged from 14.1 (± 0.3) to 26.7 (± 0.4) in UT monolithic zirconia and 9.9 (± 0.4) to 18.6 (± 0.3) in ST multilayer zirconia. As thickness increases, translucency values decreased, in both materials.

Discussion and conclusions: Overall, ultra-translucent monolithic zirconia was found to be more translucent than the super translucent multilayer zirconia. The translucency showed to decrease when zirconia thickness increases.

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Translucency of HT lithium disilicate specimens with different thicknesses – preliminary study

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ABSTRACT

Introduction: The main advantage of using an all-ceramic system is to achieve a superior aesthetic result by increasing the translucency [1]. When dealing with darkened substrates, it is important to understand the level of translucency of the restorative materials according to their thickness, in order to adapt their application to specific clinical situations. Studies evaluating the translucency of different thicknesses of lithium disilicate, for CAD/CAM technology, are limited. This study aims to evaluate and compare the translucency of high translucency (HT) lithium disilicate with different thicknesses.

Materials and methods: Lithium disilicate blocks IPS e.max® CAD HT (Ivoclar Vivadent®), shade A3, were sintered in a furnace (Vita Vacumat 6000 MP). The sintered blocks were cut, with a hard tissue microtome (Accutom-50; Struers Inc), in quadrangular specimens ($n=20$). Four subgroups ($n=5$) were defined, according to thickness (0.5, 1.0, 1.5, and 2.0 mm). The translucency of the specimens was measured using the spectrophotometer SpectroShade Micro (MHT S.p.A., Arbizzano di Negar, Italy) ($\lambda=410\text{--}680\text{ nm}$). All measurements were made from 6 different areas of each specimen against a white background (Commission Internationale de L'Eclairage (CIE) $L^*=94.5$, $a^*=-0.3$, $b^*=-1.5$) and against a black background (CIE: $L^*=6.1$, $a^*=1.4$, $b^*=-4.0$), in order to obtain their L^* (value coordinate), a^* (red-green coordinate) and b^* (yellow-blue coordinate) values under natural light (D65) [2,3]. Based on the obtained values, the translucency was calculated using the translucency parameter (TP) and the contrast ratio (CR) formulas [4]. Resulting TP and CR data were submitted to descriptive statistical analysis.

Results: Mean TP values ranged from 15.5 (± 0.4) to 31.6 (± 2.3) and mean CR values ranged from 0.65 (± 0.03) to 0.84 (± 0.01). Thinner thicknesses showed higher translucency.

Discussion and conclusions: Translucency is a fundamental optical property and a determinant factor when it comes to selecting the restorative material for highly aesthetical areas. This study had, therefore, the purpose of understanding which data may or may not be useful in clinical practice. The dentist should be familiar with the properties and characteristics of new and innovative materials in order to pick the one that better adapts to a certain clinical situation [3]. HT Lithium disilicate specimens showed that as thickness decreases, translucency values increase.

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