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Knoop hardness and compressive strength measurements of nanofiller composite resin

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The aim of this study was to evaluate the Knoop hardness test(KHN) and compressive strength of different composite resins. Four composite resins were selected for the study. Nano composite Gaenial universal flow (GC) Utopia inc., SDI composite resin (SDI, Australia), posterior nano hybrid universal composite, Filtek Z250 universal restorative (3M ESPE, St Paul, MN, USA) dental products, and Spectrum TPH (dent supply) a submicron hybrid composite for the restoration of both anterior and posterior. A total of 80 specimens of all tested materials were prepared. For hardness test, 10-disc specimens (2x4) of each material were prepared according to manufacturer's instructions. The KNH was determined with a Micromet II Microhardness tester using a Vickers diamond interdenter and a 50g load applied for 60s at different time, immediately after 24 hours, 7 days and 21 days. Five square indentations were produced in each composite resin tested. The dimensions of each indentation produced were measured as the length of the diagonals of the indentation mark at a microscopic level and each measurement was repeated five times; the corresponding average was used to determine the Vicker's hardness number (VHN). Compressive strength measurements were recorded using instruments 8500 machine. Ten cylindrical specimens with diameter of 6 mm and a length of 12mm of each material were prepared according to ISO 4040. The compression test was carried out with a constant cross head speed of 0.5mm/min and compressive values measured immediately and after 7 days of dry storage at 37°C.

Biography

Hessa Mohammed Al-Jerayed, consultant in advanced restorative dentistry from Kingdom of Saudi Arabia worked in dental hospital at King Saud Medical City, Ministry of Health in Riyadh region, Assistant Medical Director of Dental hospital and Chairman of Scientific committee for continuing education, staff member in the Training and Teaching of Saudi Dental Board Postgraduate Students in Restorative dentistry. She has completed Saudi board in Restorative dentistry and Master of Science degree in Operative dentistry, 2004. She has Fellowship Diploma in advanced Endodontics by Genoa University, 2017, Fellowship Diploma in Advanced Esthetic Dentistry Genoa University, 2018. She had work experience as Deputy Management Training, Scholarship & Continuous Education, 2011 at General directorate of Health Affairs (MOH) and served as Vice Dean at College of Health Science, General directorate for institute & health college from 2006-2008. She has participated in dental conferences and scientific activities and published articles in Saudi Dental Journal and American Journal of Dental Research.

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