Effect of different cut preparation and methylene chloride (CH_2Cl_2) pretreatment on transverse strength of acrylic denture base

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Normally, repair of a fractured denture bases usually has many types of repair surface design for strengthening of mechanical bond. This study investigated transverse strengths of heat-activated acrylic denture base which have 3 different repaired surface designs and effect of CH_2Cl_2 treatment. 30 samples were prepared in 10x6.4x2.5 mm. They were measured with a 3-point bending test, after testing the samples were studied in 3 repair joints : 45° bevel, cross, and step, with and without CH_2Cl_2 surface treatment (n=5). They were repaired with chemically-activated acrylic resin, then they were measured the transverse strength. By 2-way ANOVA, repaired surface design significant effected on average transverse strength, but CH_2Cl_2 treatment did not ($p>0.05$). Tukey HSD of one-way ANOVA revealed that the transverse strength of repair made with cross design were significantly greater than other designs ($p<0.05$). The transverse strength of unrepaired test samples were significantly greater than repaired test samples
($p<0.05$). The values of transverse strength were highest when repaired with cross design which there were not influence by CH_2Cl_2 treatment.

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