

### 3 种锆瓷表面形貌对氧化锆瓷与饰瓷结合强度的影响

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**【摘要】目的** 探讨计算机辅助设计/计算机辅助制造(CAD/CAM)切削表面形貌对氧化锆瓷与饰瓷结合强度的影响。**方法** 将40个Upcore氧化锆基底材料以CAD/CAM切削烧结瓷块试件,随机等分为4组。其中对照组按常规操作进行打磨、喷砂及抛光等处理。实验组均采用CAD/CAM时预设程序,分别使切削产生的刀路与剪切强度测试加力方向呈垂直(A组)、平行(B组)及突起(C组),并对试件进行喷砂处理。测量并比较各组试件的表面粗糙度和剪切强度。扫描电镜观察断裂界面的情况。**结果** 各组的剪切强度分别为:A组( $27.64 \pm 4.24$ )MPa、B组( $27.12 \pm 5.32$ )、C组( $36.86 \pm 7.21$ )MPa、对照组( $24.14 \pm 2.74$ )MPa,其中对照组与A组、B组之间差异均无统计学意义( $P > 0.05$ ),对照组与C组之间的差异具有统计学意义( $P < 0.05$ )。各组的表面粗糙度分别为:A组( $5578.34 \pm 1165.58$ )Ra、B组( $5227.98 \pm 1440.29$ )Ra、C组( $5699.97 \pm 1234.28$ )Ra、对照组( $5964.92 \pm 1013.834$ )Ra,各组之间的差异无统计学意义( $P > 0.05$ )。Pearson相关性分析显示,试件表面粗糙度与剪切强度之间无线性相关关系( $P > 0.05$ )。扫描电镜观察显示C组较其他组氧化锆瓷与饰瓷结合更致密,未见气泡,无孔隙存在。**结论** 固位突起的锆瓷表面形貌可有效增加锆瓷与饰瓷间的结合强度,而表面粗糙度对界面的结合强度无明显影响。

**【关键词】** 氧化锆 CAD/CAM 表面形貌 结合强度 固位突起

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### Effect of three types of zirconia surface morphology on bond strength of zirconia core ceramic to veneering porcelain

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**【Abstract】Objective** To explore the effect of three types of zirconia surface morphology on bond strength of zirconia core ceramic to veneering porcelain. **Methods** 40 Upcore zirconia specimens were prepared by CAD/CAM and equally divided into four groups in random. Control group was prepared by general procedure including grinding, sandblasting and polishing, and experiment Group A,B,C was cut by preset programs of CAD/CAM in vertical, parallel and protuberance directions, and given sandblasting. Roughness and shear strength of all specimens were measured and compared. **Results** The shear strength was respectively  $27.64 \pm 4.24$  MPa in Group A,  $27.12 \pm 5.32$  MPa in Group B,  $36.86 \pm 7.21$  MPa in Group C and  $24.14 \pm 2.74$  MPa in control group. There was significant difference on the shear strength between Group C and control group( $P < 0.05$ ). The roughness was  $5578.34 \pm 1165.58$  Ra in Group A,  $5227.98 \pm 1440.29$  Ra in Group B,  $5699.97 \pm 1234.28$  Ra in Group C and  $5964.92 \pm 1013.834$  Ra in control group. There was no significant difference on the shear strength among control group, vertical group and parallel group( $P > 0.05$ ), while that was significantly higher in protuberance group than that in control group, vertical group and parallel group( $P < 0.05$ ). Pearson correlation analysis showed