

# Perbandingan antara gerakan resiprokal dan kontinyu pada instrumen single-file terhadap terbentuknya crack dinding saluran akar = Comparison between rotary continuous and reciprocating movement of single-file instruments in the induction of dentinal cracks.

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## Abstrak

Latar Belakang: Preparasi saluran akar dengan instrumen putar NiTi dapat menyebabkan *crack* pada dinding saluran akar.

Tujuan: Menganalisa dan membandingkan efek penggunaan instrumen putar NiTi *single-file* gerakan resiprokal dan kontinyu terhadap terbentuknya *crack* pada dinding saluran akar.

Metode: Tigapuluh dua sampel saluran akar tunggal dipilih secara acak dan dibagi menjadi dua grup (n=16) sesuai dengan instrumen yang digunakan untuk preparasi saluran akar, yaitu instrumen putar NiTi gerakan resiprokal dan gerakan kontinyu. Micro-CT digunakan untuk mengevaluasi *crack* sebelum dan setelah preparasi saluran akar. Analisis statistik menggunakan *Continuity correction*.

Hasil: Tidak terdapat perbedaan bermakna antara preparasi saluran akar menggunakan instrumen putar NiTi gerakan resiprokal dan gerakan kontinyu ( $p > 0,05$ ). *Crack* yang terbentuk ditemukan pada bagian sepertiga apikal saluran akar dengan tipe *incomplete crack*.

Simpulan: Preparasi saluran akar menggunakan instrumen putar NiTi *single-file* dengan gerakan resiprokal dan kontinyu dapat menyebabkan terbentuknya *crack* pada dinding saluran akar.

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Background: Root canal preparation with NiTi rotary instrument has the potential to induce cracks in the root canal wall.

Objective: To analyze and compare the effects of single-file NiTi rotary continuous and reciprocating instruments in the propagation of cracks in the root canal wall.

Methods: Thirty two single root canal samples were randomly assigned into two groups (n=16 per group) according to the system used for root canal preparation : reciprocating instruments and rotary continuous instruments. The samples were scanned through high-resolution micro-computed tomographic imaging to evaluate cracks before and after root canal preparation. The comparison between two groups was analysed statistically using Continuity correction.

Results: There was no significant difference in the number of cracks between reciprocating group and rotary continuous group ( $p > 0.05$ ). Cracks that occurred was found in the apical third of the root canal, with incomplete cracks.

Conclusion: Root canal preparation with single-file NiTi rotary continuous and reciprocating instruments can induce dentinal cracks in the root canal wall.