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# Bacterial invasion into dentinal tubules of human vital and nonvital teeth

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## Abstract

The difference in resistance to bacterial invasion into the dentinal tubules between vital and nonvital teeth has not been determined. This study was conducted to clarify the effect of vital pulp on bacterial invasion into the dentinal tubules. The specimens were 19 intact pairs of bilateral upper third molars of 19 healthy, young adult male volunteers. In each case, 30 or 150 days before extraction, pulpectomies and root canal fillings were carried out unilaterally and a class V cavity involving the dentin was made on the palatal surface of both the pulpectomized tooth and the nonpulpectomized opposite tooth. The cavities were left unprotected to expose them to oral flora until the extractions were done, and the extracted teeth were examined histologically. When extraction followed 150-day exposure to the oral flora, there was a statistically significant difference in the bacterial invasion rate between the vital and nonvital teeth. It was postulated that vital teeth were much more resistant to bacterial invasion into the dentinal tubules than were nonvital teeth, thereby suggesting that the vital pulp plays some important role in this process.

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