Are Endodontically Treated Teeth more Brittle?

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Aim
- This study was planned to answer the question of whether loss of pulp vitality results in changes in tooth structure.

Materials & Methods
- 23 matched pair teeth with relatively large, regularly shaped straight roots were selected from patients scheduled for multiple extractions for prosthetic reasons were included in this study.
- One tooth of each pair had a history of RCT & vitality of the contralateral tooth.
- **Excluded teeth**
  a- Hx. of periapical surgery
  b- Extensive periodontal disease
  c- Endodontic treatment performed less than 1 yr. previously
- Each pair was extracted by the same operator at the same appointment.
- The 23 matched pair were tested for punch shear strength, toughness, and load to fracture:
  a- 17 immediately after extraction
  b- One pair was tested 3 days after extraction
  c- Two pairs 2 months after extraction
  d- Three pairs 3 months after extraction
- Micro-hardness testing was performed within 5 days of the other tests.

Results
- No significant differences in punch shear strength, toughness & load to fracture between the 2 groups.
- Vital dentin was 3.5% harder than dentin from contralateral endodontically treated teeth.

Conclusion
- Teeth do not become more brittle following endodontic treatment.
- Other factors may be more critical to failure of endodontically treated teeth strength.

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