Enterococcus Faecalis
A Mechanism For its Role in Endodontic Failure

**Author:** Love  
**Year:** 2001  
**Journal:** IEJ

**Aim**  
To identify a possible mechanism that would explain how *E. faecalis* could survive and grow within dentinal tubules and reinfect an obturated root canal.

**Materials & Methods**  
- Cells of *S. gordonii*, *S. mutans*, or *E. faecalis* were grown in brain heart infusion broth containing various amounts of human serum for 56 days.
- Carious free, unrestored roots with single root canals were prepared for invasion exp.
- Roots were randomly selected & presoaked in brain heart infusion broth containing yeast (BHY) for 2 days.
- They were then incubated, fully submerged, in BHY medium containing bacterial cells for 14 days.
- The ability of the 3 species to invade dentine and bind to immobilized type 1 collagen in the presence of human serum was assessed.

**Results**  
- All 3 species remained viable over the period of the experiment when grown in human serum.
- Cells of all 3 bacteria were able to invade dentine and bind to immobilized collagen.
- Human serum inhibited dentine invasion and collagen adhesion by *S. gordonii* and *S. mutans*, whilst dentine invasion by *E. faecalis* was reduced in the presence of serum, but not inhibited, and binding to collagen was enhanced.

**Conclusion**  
- The virulence factor of *E. faecalis* in failed endodontically treated teeth may be related to the ability of *E. faecalis* cells to maintain the capability to invade dentinal tubules and adhere to collagen in the presence of human serum.

**Author**  
Robert Love