Are Active Plates Better Than Conventional Locking Plates?

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Rationale:
Natural fracture healing can be promoted by controlled dynamization, and can be inhibited by overly stiff plating constructs.\(^1\) Active plates have elastically suspended screw holes that enable dynamic stabilization to promote natural fracture healing (Fig. 1).\(^2\)

ACTIVE versus Locked Bridge Plating:
In the sheep tibia, bridge plating of a 3-mm fracture gap with ACTIVE plates resulted in faster and over 4 x stronger healing compared to locked bridge plating: 81% (ACTIVE) versus 17% (Locked) strength recovery at 9 weeks post-op (Fig. 2).\(^3\)

ACTIVE versus Compression Plating:
In the sheep tibia, stabilizing a simple fracture with an active plate resulted in faster and over 2 x stronger healing compared to compression plating (CP): 64% (ACTIVE) versus 24% (CP) strength recovery at 9 weeks post-op (Fig. 3).\(^4\)

ACTIVE plating of humeral shaft fractures:
In a clinical trial, humeral shaft fractures stabilized with ACTIVE plates healed on average after 11 weeks, as evident by bridging callus and pain-free function (Fig. 4).\(^5\)

CONCLUSION: Dynamic stabilization with active plates can provide faster and stronger healing of both simple and comminuted fractures.

REFERENCES: