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5 *Basic Study*

6 Comminuted olecranon fracture fixation with pre-contoured plate: Comparison of  
7 composite and cadaver bones

8

9 David A Hamilton Jr, Danielle Reilly, Felix Wipf, Srinath Kamineni

10

11 **Abstract**

12 AIM: To determine whether use of a precontoured olecranon plate provides adequate  
13 fixation to withstand supraphysiologic force in a comminuted olecranon fracture model.

14

15 **METHODS:** Five samples of fourth generation composite bones and five samples of  
16 fresh frozen human cadaveric left ulnae were utilized for this study. The cadaveric  
17 specimens underwent dual-energy x-ray absorptiometry (DEXA) scanning to quantify  
18 the bone quality. The composite and cadaveric bones were prepared by creating a  
19 comminuted olecranon fracture and fixed with a pre-contoured olecranon plate with  
20 locking screws. Construct stiffness and failure load were measured by subjecting  
21 specimens to cantilever bending moments until failure. Fracture site motion was  
22 measured with differential variable resistance transducer (DVRTs) spanning the

23 Custom fabricated mechanism performed with two 100 lb force transducers and with

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operative **fixation** and early mobilisation is the **treatment** of choice, as it gives .... with either surgeon-contoured or **pre-contoured plates** with ... ment for a **comminuted** intra-articular **fracture** of the distal ... **composite** epoxy humeri in vitro. ... penic **cadaver bones**. ... with a mean age of 52.5 years, **comparing** the results of per-

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More recent studies on dual **plate fixation** of distal humeral fractures however, ... for **olecranon fractures** evaluates displacement, stability, and **comminution** and ... 15 patients treated with anatomically **pre-shaped** locking compression **plates**. ... achieved with **contoured** dorsal **plate fixation** and autogenous **bone** grafting (60).

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Keywords: distal humerus; elbow joint; **fractures**, **comminuted**; **bone plates**; .... Koone et al9 **compared precontoured** locking **plates** in a perpendicular ... performed via a biomechanical test on the **cadaver bone** or **composite bone**. .... If fixed with a screw, holes were drilled for **olecranon fixation** before making the osteotomy.

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