

PowerPick™ Instrument and Chondro Pick Comparison: Quantitative and Qualitative

Arthrex Research

OBJECTIVE

The purpose of this testing was to determine and compare the time required for an experienced orthopedic surgeon to complete a microfracture procedure using the PowerPick instrument and the 40° chondro pick. Additionally, the study aimed to compare the images of the condylar holes created by each device to evaluate their effectiveness.

METHODS AND MATERIALS

Experienced orthopedic surgeons were recruited for the testing. Each surgeon was instructed to arthroscopically remove a portion of articular cartilage from the medial and lateral condyles of a cadaveric knee using a curette. The area of cartilage removed needed to be large enough to create 5 holes with each pick device, totaling 10 holes per condyle.

Beginning with the medial condyle, each surgeon chose which device to use first and prepared to begin the microfracture process. A stopwatch recorded the time taken to create 5 holes, starting as the first hole was arthroscopically created. The process was then repeated on the medial condyle with the second device, and both devices were used to complete the procedure on the lateral condyle.

The knees were cleaned of soft tissue to allow direct visualization of the condyles. The microfracture holes created by each device were photographed under magnification for visual analysis.

RESULTS

The results of the surgeon trials are listed in Table 1. A paired t-test was used to compare differences between the 2 sample groups. The time needed to complete 5 microfractures with the PowerPick instrument was significantly less than with the chondro pick ($P = .002$).

Images of the holes created by the PowerPick instrument and chondro pick in the subchondral bone are shown in Figures 1 and 2, respectively.

Figure 1: Two typical holes created using the PowerPick instrument during the time trials, magnified to 3×.

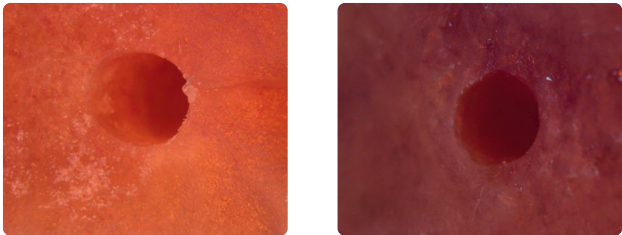


Figure 2: Two typical holes created using the chondro pick during the time trials, magnified to 3×.

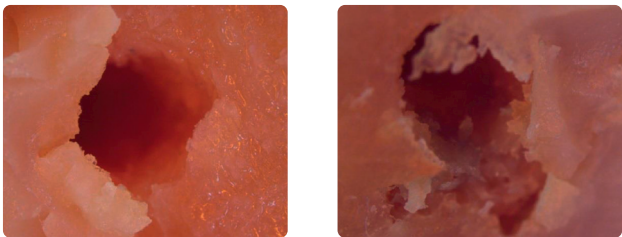


Table 1: Time (seconds) to complete 5 microfracture holes with each device.

	PowerPick instrument	Chondro Pick
Surgeon 1 medial	29	41
Surgeon 1 lateral	25	61
Surgeon 2 medial	40	69
Surgeon 2 lateral	24	43
Surgeon 3 medial	9	31
Surgeon 3 lateral	15	30
Surgeon 4 medial	12	18
Surgeon 4 lateral	10	17
Average	20.5 s	38.8 s
Standard deviation	10.9 s	18.8 s

CONCLUSION

Surgeons created visibly cleaner microfracture holes in almost half the time using the PowerPick instrument compared to the 40° chondro pick.