

PowerPick™ Instrument and Chondro Pick Comparison: Quantitative and Qualitative

Arthrex Research and Development

Objective

Determine the time required for an experienced orthopedic surgeon to complete a microfracture procedure using the Arthrex PowerPick instrument and the Arthrex 40° Chondro Pick. Also, directly compare the images of the condylar holes made with each device to evaluate their functional effectiveness.

Methods and Materials

Experienced orthopedic surgeons were recruited to take part in the testing. Each surgeon was instructed to remove a portion of articular cartilage, arthroscopically, from the medial and lateral condyles of a cadaveric knee, using a curette. The area of cartilage removed needed to be large enough such that 5 holes could be made using each pick device, for a total of 10 holes on each condyle. Beginning with the medial condyle, each surgeon selected which device they would like to use first and prepared to begin the microfracture process. Once the first hole was being arthroscopically created, a stopwatch was started, and the amount of time required to create 5 holes was determined. The process was 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, and the microfracture holes for 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 was significantly less than that with the Chondro Pick ($P = .002$).

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

	PowerPick	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 seconds	38.8 seconds
SD	10.9 seconds	18.8 seconds

Some representative images of the PowerPick holes and Chondro Pick holes in the subchondral bone are shown in Figures 1 and 2, respectively.

Conclusion

Surgeons created visibly cleaner microfracture holes in almost half the time using the PowerPick versus the 40° Chondro Pick.

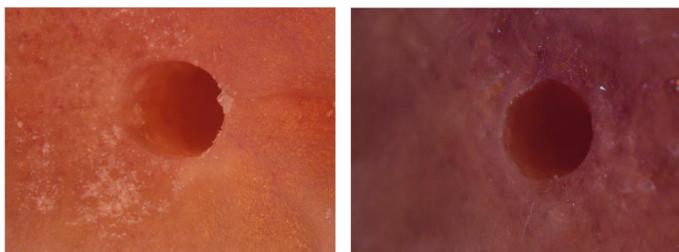


Figure 1: Two typical holes created using the PowerPick during the time trials, magnified to 3X.

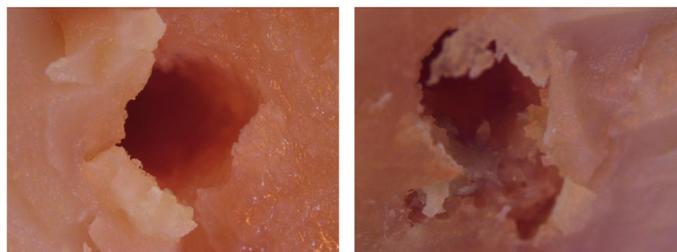


Figure 2: Two typical holes created using the Chondro Pick during the time trials, magnified to 3X.