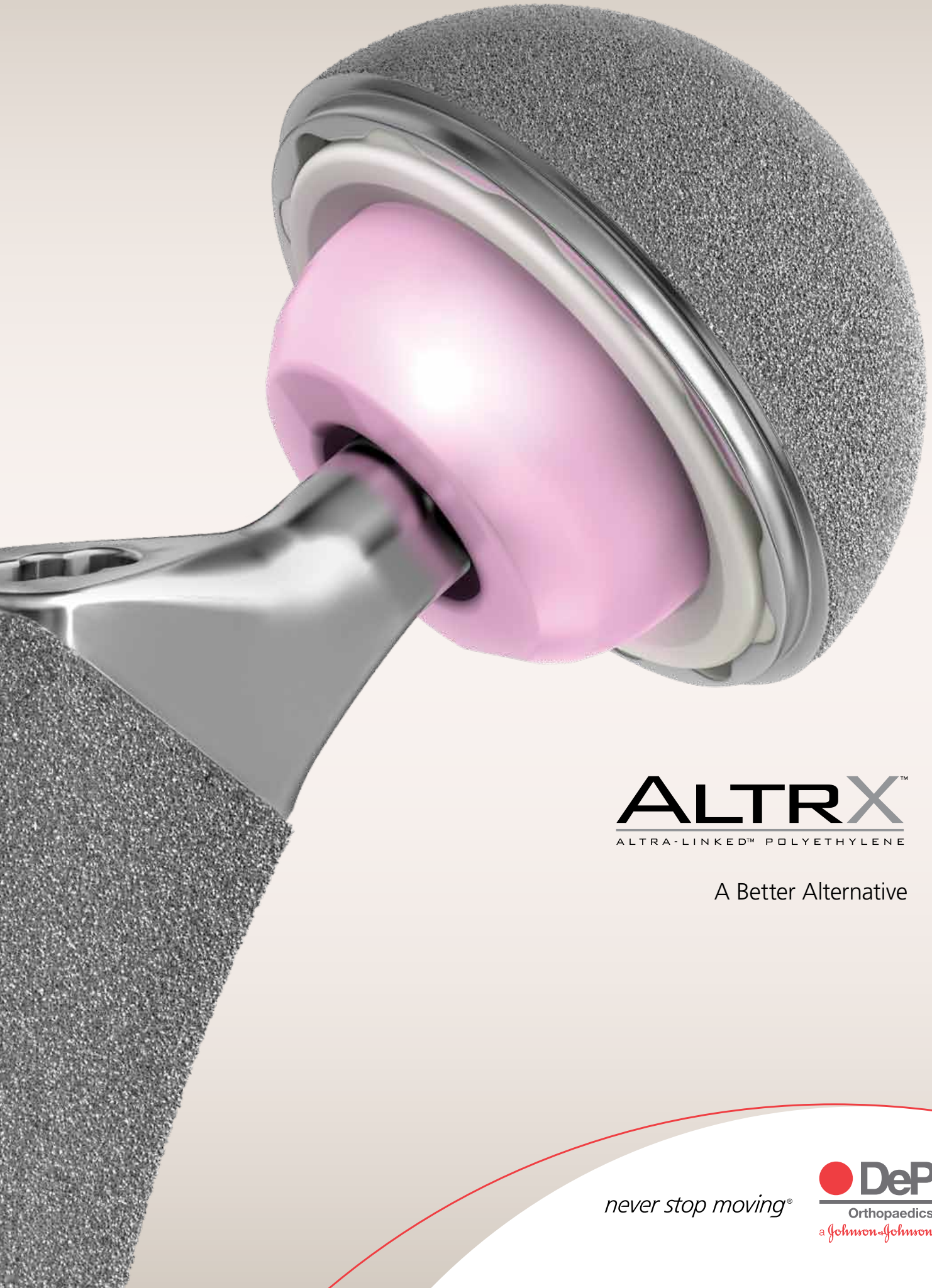


ALTRX™

ALTRA-LINKED™ POLYETHYLENE

A Better Alternative

never stop moving®

DePuy
Orthopaedics Inc.
a Johnson&Johnson company

Pinnacle® Hip Solutions

PINNACLE®
HIP SOLUTIONS

AltrX liners are designed to work with the Pinnacle Acetabular Cup System, which provides a range of acetabular cup options, biological and mechanical fixation alternatives and advanced bearing technologies to provide surgeons the power to choose the precise combination that best meets the individual needs of each patient.

Pinnacle Hip Solutions was developed with a team of surgeon thought-leaders from across the country. They utilized the proven Porocoat® Porous Coating fixation and combined it with engineering advances such as the patented Variable Interface Prosthesis (VIP) taper technology. This allows for the support of optimum performance metal and cross-linked polyethylene liners without compromising cup/insert congruency.

- Over 400,000 implanted
- 99.9 percent survivorship at 5 years[4]

A Solid Foundation

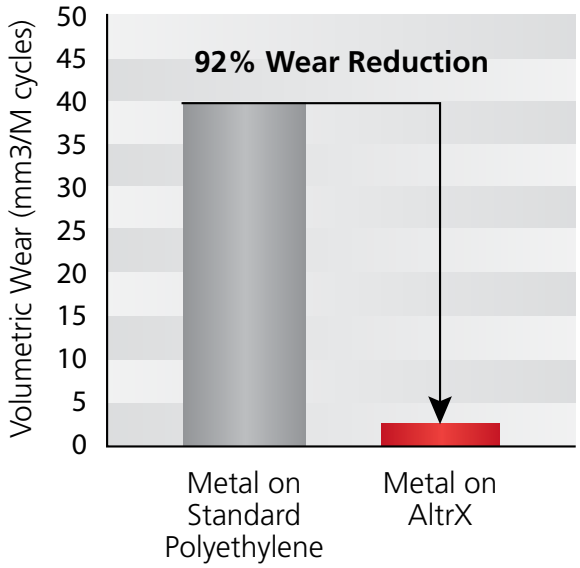
ALTRX™
ALTRA-LINKED™ POLYETHYLENE

AltrX™ was built on the proven clinical heritage of Marathon® cross-linked polyethylene. Introduced in 1998, Marathon was the first FDA-cleared cross-linked polyethylene in orthopaedics.

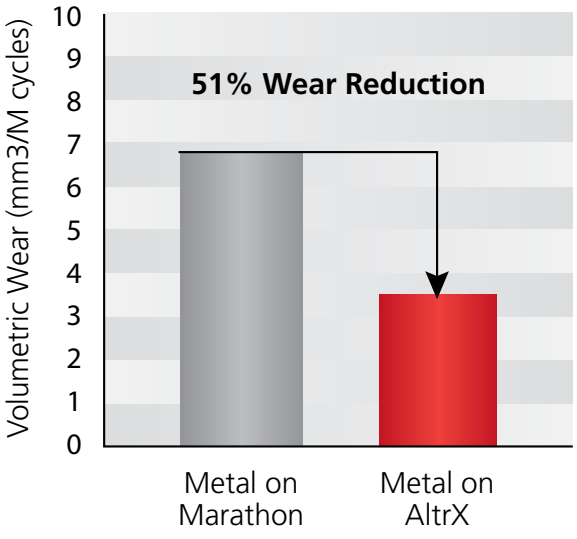
Through the exclusive Altra-Link™ material enhancement process, AltrX polyethylene was optimized to balance wear reduction and mechanical integrity while eliminating oxidation.[1,5]

Wear Resistance

To address a growing trend toward high demand patients, AltrX polyethylene liners were developed to reduce wear by 92 percent versus standard polyethylene and 51 percent versus Marathon polyethylene liners.[1,5]



Optimized Wear Resistance[1,5]

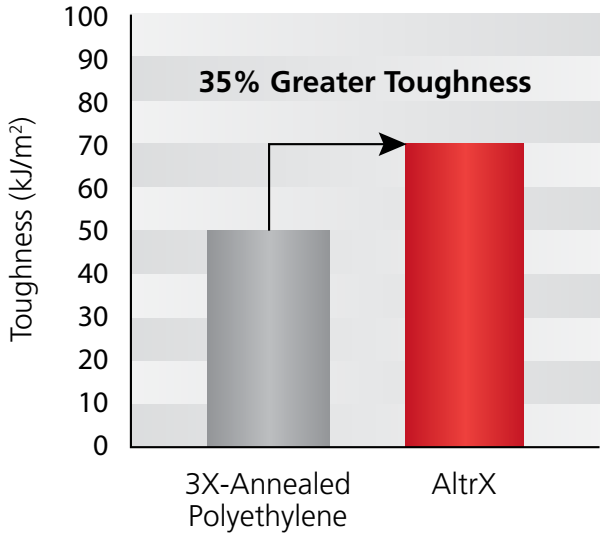


Improvement over Marathon[1,5]

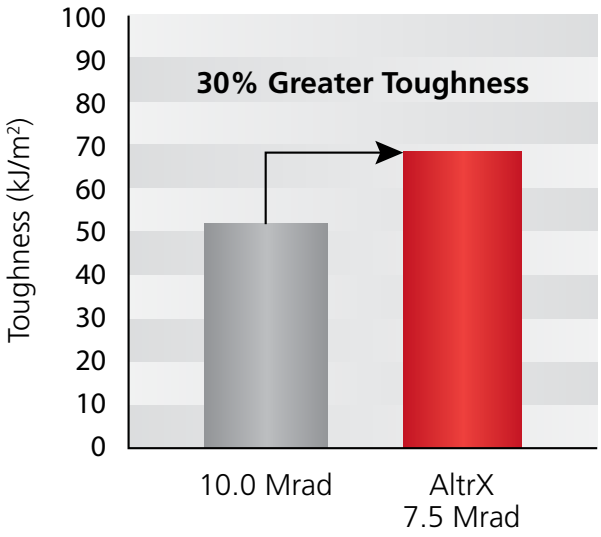
Mechanical Integrity

AltrX is manufactured using a base resin bar stock of GUR 1020 and then moderately cross-linked at 7.5 megarads, resulting in a material that maximizes wear resistance while optimizing mechanical integrity.

Compared with a 3X-annealed polyethylene, AltrX material has superior toughness, which reduces the risk of failures due to impingement or rim loading.[2,5]



Enhanced Mechanical Toughness[2,5]

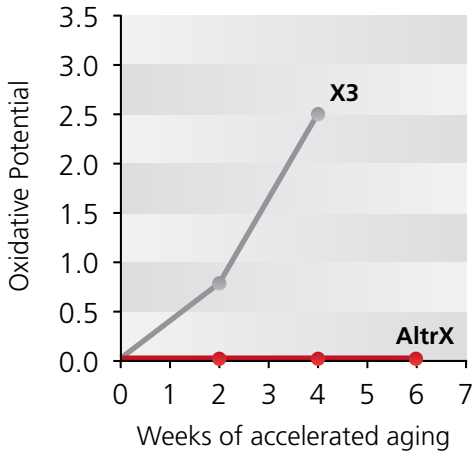


Effect of Irradiation Dose on Toughness[2,5]

And, because AltrX is moderately cross-linked at 7.5 megarads, the risk of cracking or fractures is reduced compared with a highly cross-linked material.[5]

Oxidative Stability

AltrX material is remelted in an argon convection to consistently eliminate free radicals and oxidative potential. Annealed polyethylenes do not eliminate oxidation.[2,5,6]



Oxidative Resistance[5,7]

High Stability, Low Wear

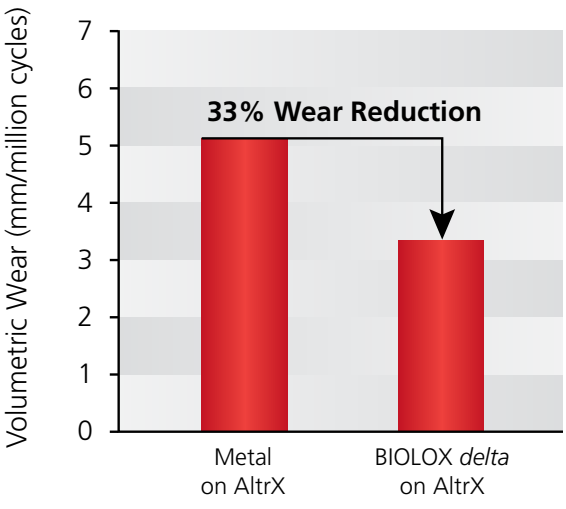
To enhance stability, AltrX liners are available up to 36mm inner-diameter (ID) and now AltrX LD in 40, 44 and 48mm ID. AltrX liners are available in neutral, lateralized, face changing, and lipped designs.

With a focus on wear reduction, AltrX liners are potentially less susceptible to higher wear as a function of head size.[5]

An Alternative For High Demand Patients

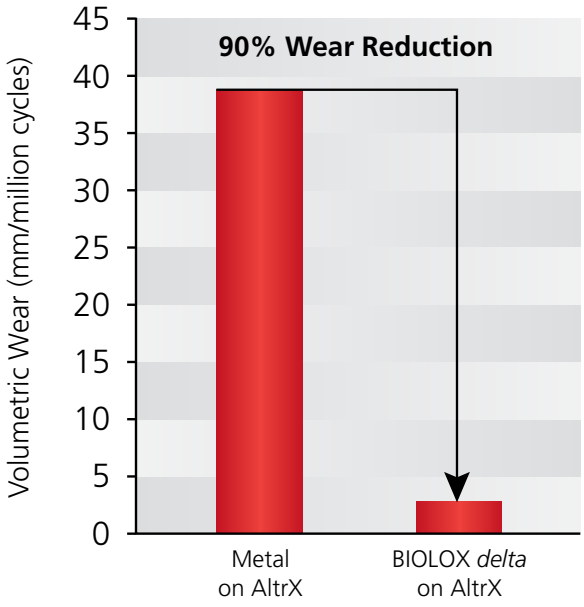
BIOLOX® *delta* ceramic heads on AltrX polyethylene liners provide a low-wear bearing for younger, high demand patients. This bearing combination produces 33 percent less volumetric wear than metal on AltrX, while resisting scratches and wear from third body debris such as bone fragments or cement.[3,5]

ALTRX™ LD
LARGE DIAMETER ALTRA-LINKED™ POLYETHYLENE



High Performance Option[5]

Volumetric wear with 36mm heads



Scratch Resistance[3,5]

Above chart compares volumetric wear after heads were roughened to emulate scratching from 3rd body debris

References

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2. Orthopaedic Research Society, 2007, P1784.

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4. Kindsfater, K., W.P. Barrett, J.E. Dowd, C.B. Southworth and M.J. Cassell. "99.9% Midterm Survival of the Pinnacle Multi-Liner Acetabular Cup in a Prospective Multi-Center Study." Poster Presentation #P077, AAOS, San Diego, CA. February 14-18, 2007.

5. Data on file, DePuy Orthopaedics, Inc.

6. Keith K. Wannomae, BS, Shayan Bhattacharyya, BS, Andrew Freiberg, MD, Daniel Estok, MD, William H. Harris, MD, and Orhun Muratoglu, PhD. "In Vivo Oxidation of Retrieved Cross-linked Ultra–High-Molecular-Weight Polyethylene Acetabular Components with Residual Free Radicals." The Journal of Arthroplasty Vol. 21 No. 7 2006.

7. X3 data reported by Orhun Muratoglu from Mass General Hospital during a Grand Rounds Presentation at the Dartmouth-Hitchcock Medical Center on May 16th, 2007. http://www.dhslides.org/ortho/ortho051607/msh.htm

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