
ACL KNEE BRACING
DONJOY®

GET BACK IN THE GAME WITH CONFIDENCE.

Whether your patients are weekend warriors, elite athletes or somewhere in between, ACL injuries can sideline them for months as well as raise their risk of future injuries. Help them recover and lower their risk. DonJoy® knee braces are clinically proven* to help prevent, protect and heal ACL injuries.

Combining innovative design with the most advanced technology, strongest materials and highest craftsmanship for uncompromising ligament protection, our knee braces are built to help get your patients back in action quickly and safely—with the confidence that they're protected.

It's this powerful combination of performance and peace of mind that separates DonJoy® from the rest—and continues to make DonJoy the first choice of many top professional athletes, the most-prescribed custom brace in sports, and the #1 brace company worldwide.

APPROXIMATELY

80-250K

ACL INJURIES PER YEAR OCCUR IN THE U.S.[3]

50%

OF ACL INJURIES OCCUR IN 15-25 YEAR OLDS[3]

60-80%

OF ACL INJURIES ARE NON-CONTACT RELATED[4]

WOMEN ARE

2-10X

MORE LIKELY TO INJURE THEIR ACL[5]

RE-INJURY

- The re-injury rate for the ACL reconstructed knee is 1.8-10.4%[6]
- Risk of ACL injury to the contralateral knee is double that of the reconstructed knee[6]
- Only 1/3 of reconstructed athletes attempt to play competitive sports at their pre-injury level within one year following reconstruction[7]
- Fear of re-injury prevented competitive college and high school football players from returning to play[8]
- Re-injury rate is 6x greater compared to previously uninjured patients[9]
- Re-injury rate is 5x higher in females compared to healthy females[9]
- For every month that return to sports was delayed until 9 months post ACL-reconstruction, the rate of knee re-injury was reduced by 51%[10]

References
1. Markolf KL, Gorek JF, Kabo JM, et al. Direct measurement of resultant forces in the anterior cruciate ligament. Journal of Bone & Joint Surgery, Am 1990;72:557-567.
2. Shimokochi Y, Shultz SJ. Mechanisms of Noncontact Anterior Cruciate Ligament Injury. Journal of Athletic Training. 2008 43:4. 396-408.
3. Griffin LY, Albohm MJ, Arendt, EA, et al. Understanding and Preventing Noncontact Anterior Cruciate Ligament Injuries: A Review of the Hunt Valley II Meeting, January 2005. American Journal of Sports Medicine. 2006 34:9. 1512-1532.
4. Arendt EA, Agel J, Dick R. Anterior cruciate ligament injury patterns among collegiate men and women. Journal of Athletic Trianing. 1999;34(2):86-92.
5. Silvers HJ, Mandelbaum BR. Prevention of anterior cruciate ligament injury in the female athlete. Br J Sports Med. 2007; 41 (Suppl I):i52-i59.
6. Wright RW, Magnussen RA, Dunn WR, Spindler KP. Ipsilateral Graft and Contralateral ACL Rupture at Five Years or More Following ACL Reconstruction. Journal of Bone and Joint Surgery, Am. 2011;93:1159-1165.
7. Ardern CL, Webster KE, Taylor NF, Feller JA. Return to pre-injury level of competitive sports after anterior cruciate ligament reconstruction surgery: Two-thirds of patients have not returned by 12 months after surgery. Am J Sports Med 2011; 39(3):538-5438.
8. Spindler KP, et al. Return to high school and college level football following ACL reconstruction: 2012 ACL Study Group Meeting. Jackson Hole, WY.
9. Paterno, MV, Rauh, MJ, Schmitt, LC, Ford, KR, Hewett, TE. Incidence of Second ACL Injuries 2 Years after Primary ACL Reconstruction and Return to Sport. The American Journal of Sports Medicine. 2014; 42:1567-1573.
10. Grindem H, et al. Scandinavian Journal of Sports Medicine. 2016; 50:804-808.

CLINICALLY PROVEN BRACE AND HINGE TECHNOLOGY

DONJOY® BRACES

help protect the knee with innovative technology that directly addresses the critical factors that contribute to ACL injury:

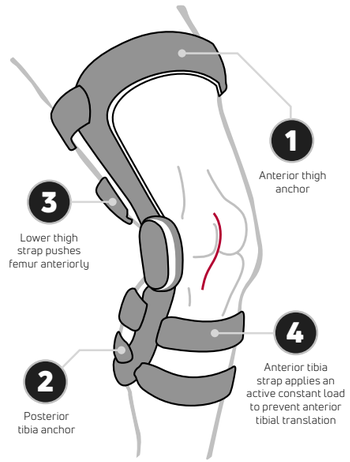
- Decreased knee flexion angle[1]
- Anterior tibial shear forces[2]
- Combined valgus and knee internal rotation moments[2]
- Combined valgus and knee external rotation[2]

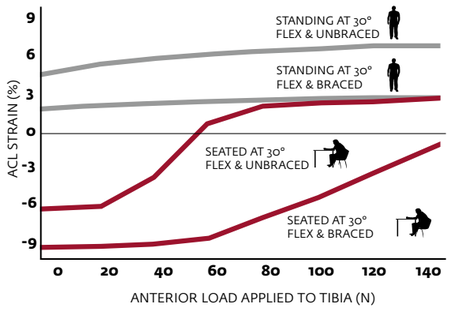
4-POINTS-OF-LEVERAGE SYSTEM™

DonJoy pioneered dynamic bracing with the 4-Points-of-Leverage System™, a unique cuff and strapping configuration that helps provide a net differential posterior force to the tibia, preventing anterior movement. The result is significantly reduced strain on the ACL.[5] Passive brace designs do not actively address instabilities.

BENEFITS OF A 4-POINTS-OF-LEVERAGE BRACE:

- Helps decrease ACL strain by up to 50% for anteriorly directed loads during weight bearing and non-weight bearing activities[1, 2]
- Significantly helps reduce tibial rotation vs. unbraced and sleeved groups[4]
- May improve both proprioception and postural control[5]
- Helps increase patient confidence after ACL reconstruction[6]





ACL strain values produced by anterior tibial loading.

Braces utilizing 4-Points-of-Leverage technology effectively reduce ACL strain which could be particularly important during rehabilitation while the graft is remodeling.[1,2,3]

A 4-POINTS-OF-LEVERAGE™ BRACE WILL HELP DECREASE ACL STRAIN BY AT LEAST

50%

Supporting Studies
1. Beynnon BD, Pope MH, Wertheimer CM, Johnson RJ, Fleming BC, Nichols CE, Howe JG. Journal of Bone & Joint Surgery, Am. 1992; 74:1298-1312.
2. Beynnon BD, Johnson RJ, Fleming BC, Peura G, Renstrom PA, Nichols CE. American Journal of Sports Medicine. 1997; 25(3):353-360.
3. Fleming BC, Renstrom PA, Beynnon BD, Engstrom B, Peura G. The Influence of Functional Knee Bracing on the Anterior Cruciate Ligament Strain Biomechanics in Weightbearing and Nonweightbearing Knees. American Journal of Sports Medicine. 2000; 28 (6): 815-824.
4. Giotis D et al. Knee braces can decrease tibial rotation during pivoting that occurs in high demanding activities. Knee Surg Sports Traumatol Arthrosc. 2011 Aug;19(8): 1347-54
5. Palm HG, et al. Effects of Knee Bracing on Postural Control after ACL Ligament Rupture. Knee. 2011 Aug 24 [https://www.ncbi.nlm.nih.gov/pubmed/21871811]
6. Risberg MA, Beynnon BD, Peura GD, Uh BS. Proprioception after anterior cruciate ligament reconstruction with and without bracing. Knee Surg Sports Traumatol Arthrosc. 1999;7(5):303-9

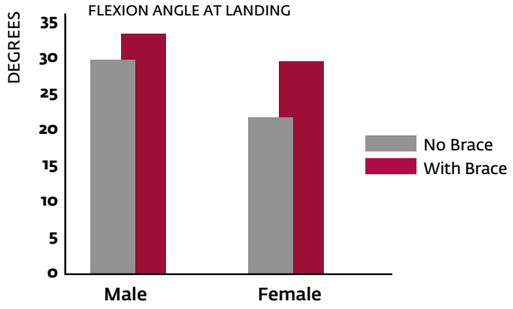
KEEP BOTH KNEES OUT OF THE “AT RISK” ZONE

FOURCEPOINT™ HINGE TECHNOLOGY

DonJoy® has taken hinge design and ACL protection to another level with our patented FourcePoint™ technology — the only hinge design clinically proven to help protect the ACL.

FourcePoint hinge technology helps increase flexion angles, reducing anterior shear forces and strain on the ACL and thus significantly decreasing the chance of injury.

REDUCING THE RISK OF ACL REINJURY TO THE RECONSTRUCTED KNEE



The anterior shear force applied on the tibia was reduced by 9% for females & 13% for males.[4]

The decrease in anterior shear force on the tibia should substantially reduce the load on the ACL.[2,4]

1.Lin CH, Liu H, Garrett WE, Yu B. Effects of Knee Extension Constraint Brace on Selected Lower Extremity Motion Patterns During a Stop-Jump Task. Journal of Applied Biomechanics.2008;4:158-165.
2. Markolf KL, Gorek JF, Kabo JM, et al. Direct measurement of resultant forces in the anterior cruciate ligament. Journal of Bone & Joint Surgery, Am. 1990; 72:557-567.
3. Stanley C, Creighton R, Gross M, Garrett W, Yu B. Effects of a Knee Extension Constraint Brace on Lower Extremity Movements after ACL Reconstruction. Clinical Orthopaedics and Related Research. 2011; 469(6):1774-1780.
4. Yu B, Herman D, Preston J, Lu W, Kirkendall DT, Garrett WE. Immediate Effects of a Knee Brace with a Constraint to Knee Extension on Knee Kinematics and Ground Reaction Forces in a Stop-Jump Task. American Journal of Sports Medicine. 2004;32:1136-1143. Nunley et al. 2003
5. Nunley RM, Wright DW, Renner JB, Yu B, Garrett WE. Gender Comparison of Patella-Tendon Tibial Shift Angle with Weight-Bearing. Res Sports Med. 2003; 11:173-185.

CLINICALLY PROVEN PERFORMANCE

By combining our 4-Points-of-Leverage™ System with our FourcePoint™ hinge, DonJoy’s bracing line offers the most widely accepted and clinically proven solution to aid ACL protection.

- Significantly helps increase knee flexion angle at peak posterior ground reaction force (PPGRF) by 9° vs. a standard braced knee and a non-braced knee[1, 3]
- Significantly helps decrease PPGRF during stop jump task landing and side-cutting activities[1]
- No significant performance limitations were associated with the knee brace with FourcePoint hinge technology[1]

FOURCEPOINT™ HELPS IMPROVE PREVENTION (NON–CONTACT)

Significant reduction aid in non-contact ACL injury rate.

- Helps reduce ACL injury reduction rate while training in brace with FourcePoint hinge[3] (both Groups A & B)
- Training effects (increased flexion angles) retained by about 50% while not wearing the brace[3] (Group B)
- Training in a single (ONE leg brace) with FourcePoint hinge technology resulted in a 60% decrease in non–contact ACL injury rate in BOTH knees[3]

THE MOST WIDELY ACCEPTED AND CLINCALLY PROVEN SOLUTION TO AID ACL PROTECTION

HELPS REDUCE THE RISK OF NON-CONTACT ACL INJURY TO THE CONTRALATERAL KNEE

Wearing NO knee brace (results at 6-12 months post-op):

- 28% deficit in joint mechanics[4]
- Asymmetry of mechanics in both knees[1, 4]
- Wearing a knee brace WITH FourcePoint hinge technology:
- Improved joint mechanics on BOTH the surgical and non-surgical knees for enhanced symmetry[1]
- Improved mechanics aided BOTH knees to act more symmetrical[1]
- Helps increase peak knee flexion velocity of BOTH knees[1]

SUPPORTING STUDIES
1 Queen R, Butler RJ, Dai B, Garrett WE. Effects of Knee Extension Constraint Bracing on Lower Extremity Motion Patterns in Post-ACL Reconstruction Patients. Interim report of six and twelve-month data from the ongoing study, 2012.
2 Yu B, Herman D, Preston J, Lu W, Kirkendall DT, Garrett WE. Immediate Effects of a Knee Brace with a Constraint to Knee Extension on Knee Kinematics and Ground Reaction Forces in a Stop–Jump Task. American Journal of Sports Medicine. 2004;32:1136–1143.
3 Yu B. Training Effects of a Knee Extension Constraint Brace on Lower Extremity Motion Patterns and the Risk for Non-contact ACL Injury. Feagin Leadership Forum. Duke Sports Medicine Center, 2010.
4 Boyi D, Butler R, Garrett WE, Queen R. Limb Asymmetries During a Side-Cutting Task in Adolescent Patients 6-12 Months Following ACL Reconstruction. Duke University, 2012

DONJOY® CUSTOM BRACING

One size doesn't fit all, especially with serious athletes. DonJoy® custom knee braces fit like they're built exclusively for your patients—because they are. Using our advanced proprietary algorithms, we custom-make each brace with ultra-strong materials and quality craftsmanship to help athletes rehab, train and play with confidence. Patients are measured and fitted by a specially trained bracing expert to help provide personalized support and protection, and DonJoy can build and ship custom braces within 24 hours.

ONE SIZE DOESN'T FIT ALL

DEFIANCE®

The undisputed market leader, Defiance® is the name athletes know and trust. DonJoy's flagship knee brace has been the world's leading custom knee brace for over 20 years. Made of hollow carbon fiber for strength and protection, Defiance has the greatest strength-to-weight ratio of any knee brace on the market, weighing less than 20 ounces. Nearly 2 million Defiance braces have been prescribed to athletes of all shapes, sizes, ages and genders.

- Backed by DonJoy's Knee Guarantee Program™
- Custom-made craftsmanship
- Clinically proven 4-Points-of-Leverage System™
- Custom fabricated
- Swooping thigh cuff for inner thigh clearance and bilateral brace use
- Strong, lightweight carbon composite frame
- ACL, PCL, or Combined Instability (CI) strap configurations
- Lifetime warranty on frame and hinges
- Can be built and shipped within 24-hours

OPTIONS:

- Patented, clinically proven FourcePoint™ hinge technology (stop kit not included)
- Over 30 custom frame colors and graphics
- Defiance Extra includes reinforced carbon composite frame
- Metal Caps - PowerCaps, metal strap tab caps (recommended for contact sports)
- High strength stainless steel gears (recommended for contact sports)
- Standard low-profile hinge
- DropLock hinge

IMPACT LEVEL

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Indications: hyperextension, moderate to severe ACL or PCL instabilities, ACL/PCL instabilities, combined (CI), MCL/LCL instabilities, ACL or PCL reconstruction, prophylactic use

A22®

The first and only all-titanium brace on the market strikes a balance of strength, weight and profile. A22® helps provide powerful customized protection in a light-weight, lower profile design. Smart engineering aerodynamically integrates straps and liners to reduce overall profile without sacrificing strength, making it the ideal lightweight option to aid top performance.

- Backed by DonJoy's Knee Guarantee Program™
- Clinically proven 4-Points-of-Leverage System™ and FourcePoint™ hinge technology
- Custom-made craftsmanship
- Custom fabricated
- Strong, lightweight titanium frame
- Swooping thigh cuff for inner thigh clearance and bilateral brace use
- Cushioning cells help absorb shock, add stability and enhance comfort and fit
- Anti-microbial coating helps neutralize odor while increasing comfort and durability
- Lifetime warranty on frame and hinges

IMPACT LEVEL

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Indications: hyperextension, moderate to severe ACL or PCL instabilities, ACL/PCL instabilities, combined (CI), MCL/LCL instabilities, ACL or PCL reconstructions, prophylactic use

DONJOY® PATIENT-READY BRACES

DonJoy® patient-ready knee braces are prefabricated and ready to prescribe off-the-shelf. Designed for varying levels of activity and impact, our prefabricated braces offer a range of options to help provide the right support and protection for every patient's needs.

PREFABRICATED & READY TO PRESCRIBE OFF-THE-SHELF

FULLFORCE™

Created for all activity levels, FULLFORCE™ has a sleek, low profile and exceptionally lightweight have made it the go-to prefabricated brace for competitive and recreational athletes of all kinds.

- Backed by DonJoy's Knee Guarantee Program™, an industry first for prefabricated bracing
- Clinically proven 4-Points-of-Leverage System
- Patented clinically proven FourcePoint hinge technology
- Internally mounted swiveling strap tabs help accommodate leg movement
- Swooping thigh cuff for inner thigh clearance and bilateral brace use
- Strong, lightweight aircraft grade aluminum frame
- 1-year warranty on frame and hinges

Indications: hyperextension, moderate to severe ACL instabilities, prophylactic/bilateral use, MCL/LCL instabilities/ACL reconstructions

IMPACT LEVEL

ARMOR FOURCEPOINT™

DonJoy's strongest prefabricated knee ligament brace is ideally suited for extreme and contact sports. The strong, aircraft-grade aluminum frame provides uncompromised strength and confidence for athletes who demand a knee brace that helps provide protection.

- Backed by DonJoy's Knee Guarantee Program™, an industry first for prefabricated bracing (FourcePoint™ version only)
- Clinically proven 4-Points-of-Leverage System™
- Patented clinically proven FourcePoint hinge technology
- Swooping thigh cuff for inner thigh clearance and bilateral brace use
- Strong aircraft grade aluminum frame (0.125" thick)
- ACL, PCL, or Combined Instability (CI) strap configurations
- Standard or short frames available
- 1-year warranty on frame and hinges

Indications: hyperextension, moderate to severe ACL instabilities, prophylactic/bilateral use, MCL/LCL instabilities/ACL reconstructions

IMPACT LEVEL

RENEGADE™

Renegade™ provides the trusted technology and clinical efficacy you've come to expect from DonJoy. The 4 Points-of-Leverage System dynamic frame is designed to aid significant strain reduction on the ACL. Tapered tibia padding helps reduce pressure on the patellar tendon.

- Proven protection with 4-Points-of-Leverage System
- Comfort Zone ultra-soft suede liners and pads encourage comfortable movement
- Pressure relief tapered tibia padding helps reduce pressure on patellar tendon
- Molded tabs (x5) provide additional strap security
- Color scheme leaves a favorable impression

Indications: moderate to severe knee instability, hyperextension, ACL injuries and reconstructions, MCL/LCL instabilities or prophylactic use

IMPACT LEVEL

DONJOY® KNEE PROTECTION PROGRAM

We don't just make braces, we vouch for them.
Register for the DJO Global® Knee Protection Program
at www.djoglobal.com/kneeprotectionprogram
That's confidence.

DJO®

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