

ALICE ANTERIOR CRUCIATE LIGAMENT INTEGRITY CRITICAL EVALUATION KNEE SIMULATOR

#1517-53-1

USER GUIDE

The ALICE (Anterior
cruciate Ligament
Integrity Critical

Evaluation) Knee Simulator

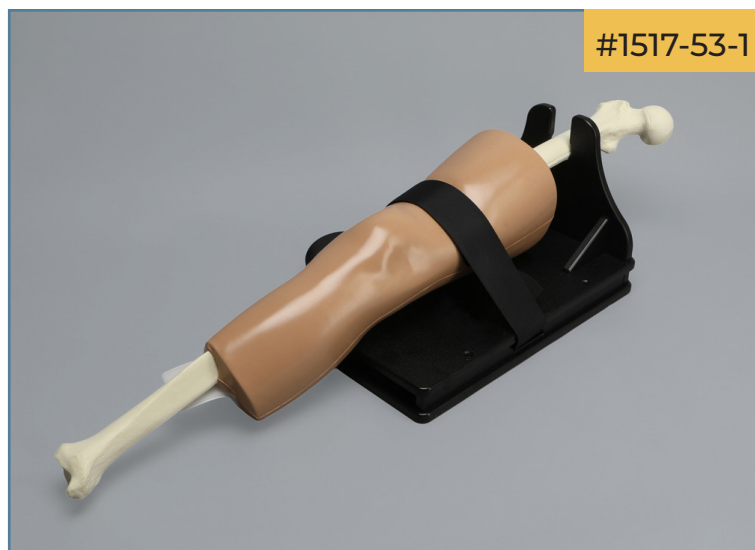
is designed for educators in athletic training,
medical school/residency, and physical
therapy. Users of this product should be
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RATIONALE FOR USE

The ACL tear is a common knee injury (250,000/year¹), and positive post-injury outcomes rely on a correct initial diagnosis. Unfortunately, the majority of ACL injuries seen in family practice clinics and emergency departments are incorrectly diagnosed as a knee sprain or meniscus tear.²⁻⁴ Additionally, the ACL tear typically occurs as an origin or insertion avulsion, or may rupture mid-substance. The origin and insertion ACL tears may appear as intact on an MRI, resulting in diagnostic errors, making the accurate clinical diagnosis more significant.⁵ Patients who receive an inaccurate diagnosis and return to work or sport are at risk of suffering articular cartilage or meniscus damage, which may lead to premature osteoarthritis or loss of joint function.^{2-4,6}



PURPOSE

The purpose of the ALICE Knee Simulator is to provide students and novice clinicians a simulator to learn how to correctly perform the Lachman test and assess injuries to the anterior cruciate ligament (ACL).

ACL tears are typically assessed clinically using two tests, the anterior drawer test and the Lachman test.⁷ Performing each of these clinical diagnostic tests requires correct examiner hand placement and correct tibial translation. According to previous research, the Lachman test has higher sensitivity, specificity, and accuracy than the anterior drawer test for correctly assessing ACL tears.⁸⁻¹¹ Upon graduation and certification, athletic training, physical therapy, and medical students are expected to be able to correctly assess an ACL tear. However, becoming proficient at performing the Lachman test is dependent on practicing the test on partially torn and completely torn ACLs. Due to the low number and types of patient encounters in traditional clinical experiences,¹² practicing the Lachman test on actual patients may not be realistic for all students. The ALICE Knee Simulator can provide students the opportunity to practice the Lachman test to become proficient and correctly assess ACL injuries.

The ALICE Knee Simulator is made of a normal length tibia and femur, and is surrounded by a synthetic skin material that gives the ALICE Knee a human-like feel.

The ACL is simulated using non-stretch paracord and elastic cords. The ALICE Knee Simulator is capable of simulating an intact ACL, a partially torn ACL, a completely torn ACL with muscle guarding, and a completely torn ACL without muscle guarding.



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COMPONENTS

#1517-53-1 ALICE Knee Simulator includes:

- Normal length femur
- Normal length tibia
- Collateral ligaments
- Posterior cruciate ligament
- Menisci
- ACL non-stretch paracords
- ACL elastic cords
- Stabilization Base – optional add-on purchase

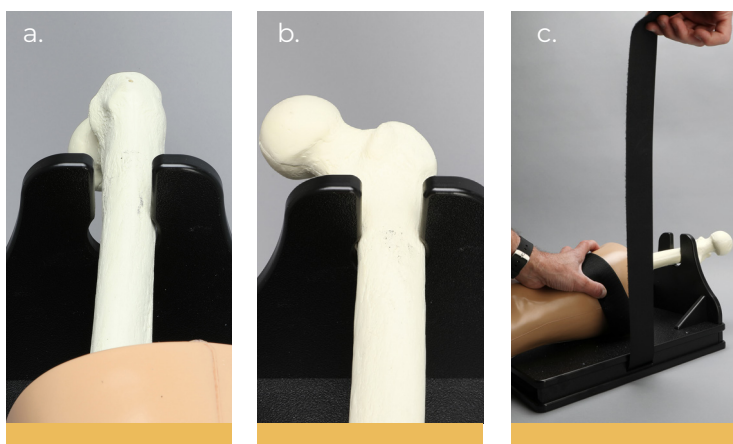


CARE AND MAINTENANCE

Your model can be wiped down with any mild cleaner. Store in a dry, dark place out of direct contact with sunlight.

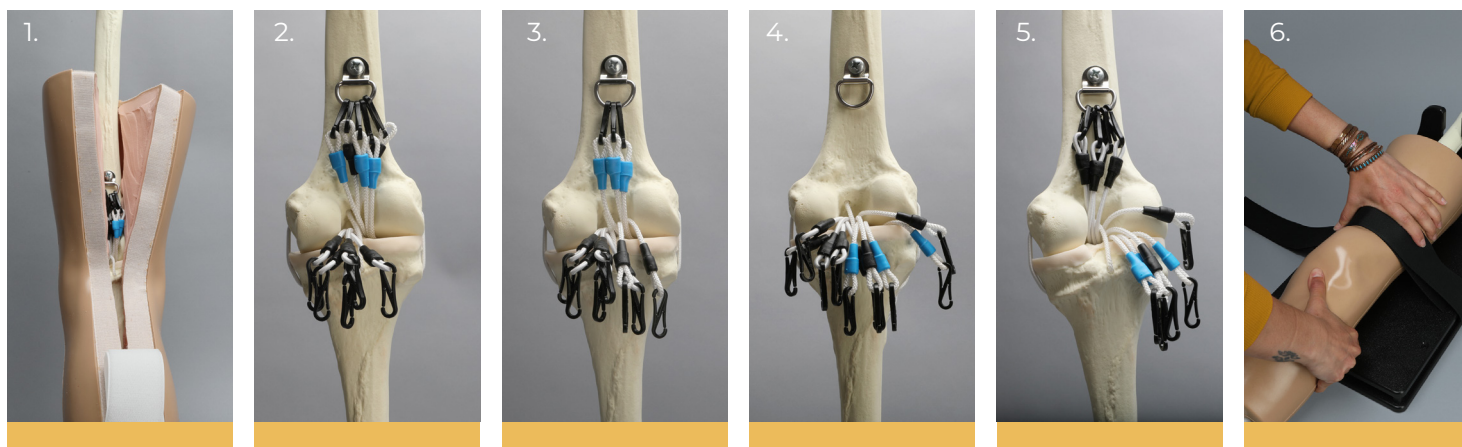


The #1703-588-1 Stabilization Base is designed to simulate femoral attachment at acetabulum and stabilize proximal femur.



To attach the ACL Integrity Simulator to the Stabilization Base:

- Rotate femur and slide into base and
- Pull femur distally so femoral neck is secure
- Secure distal femur velcro, this acts as the stabilizing hand that would be on the patient through the completion of the Lachman test



- To access the ACL, remove posterior Velcro strip and open skin
- To simulate an intact ACL, connect 3 blue non-stretch paracords and 2 black nonstretch paracords
- To simulate a partially torn ACL, connect 3 blue non-stretch paracords
- To simulate a completely torn ACL without muscle guarding, connect 0 cords.
- To simulate a completely torn ACL with guarding, connect 5 black elastic cords
- Correct Hand Placement on ACL Integrity Simulator

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12. Armstrong KJ, Walker SE, Weidner T. Simulated patients are predominantly used to teach and evaluate athletic training students' skills: A 10-year follow-up. *Athl Train Educ J.* 2018;13(3):281-289.

