Corrigendum

Schilaty ND, Bates NA, Nagelli C, et al. Sex-based differences in knee kinetics with anterior cruciate ligament strain on cadaveric impact simulations. *Orthop J Sports Med.* 2018;6(3). (Original DOI: 10.1177/2325967118761037)

Cross-validation of the results through various in silico methodologies[5] determined that the 6-axis load cell transformation previously applied to localized kinetics of the knee joint center point[2] was incorrect during postprocessing. Rather, the data reported were localized 20 cm proximal to the knee joint in the femoral shaft. The following sections are updated to clarify the accurate significant differences with the 6-axis data translated correctly to the knee joint center point:

TABLE 1
Load Magnitudes Based on In Vivo Population Percentile[a]

	KAM		ATS		ITR	
Risk Classification	Percentile	Load, N·m	Percentile	Load, N	Percentile	Load, N
Baseline	2	2.4	0	40.0	0	1.0
Low	—	—	—	—	33	9.7
Moderate	68	27.0	—	—	67	18.6
High	99	53.6	90	98.0	100	53.7
Very High	200	114.6	—	—	—	—

[a]ATS, anterior tibial shear; ITR, internal tibial rotation; KAM, knee abduction moment.

TABLE 4
P Values of Each Knee Kinetic Parameter in the Raw and Normalized Conditions[a]

	Rotation		Translation		
	Abduction/Adduction	Internal/External	Anterior/Posterior	Lateral/Medial	Distraction/Compression
Raw					
Sex	**<.001**	***<.001***	**<.001**	**<.001**	**<.001**
Load	**<.001**	**<.001**	.052	**<.001**	**.034**
Sex × Load	***<.001***	***<.001***	.322	**.009**	.775
Normalized					
Sex	*.095*	***.004***	.188	.790	.166
Load	**<.001**	**<.001**	.193	**<.001**	.080
Sex × Load	.065	.086	.663	.225	.901

[a]Bolding indicates statistically significant variable ($P < .05$). Italicized values indicate where significance changes were observed relative to previously reported data.

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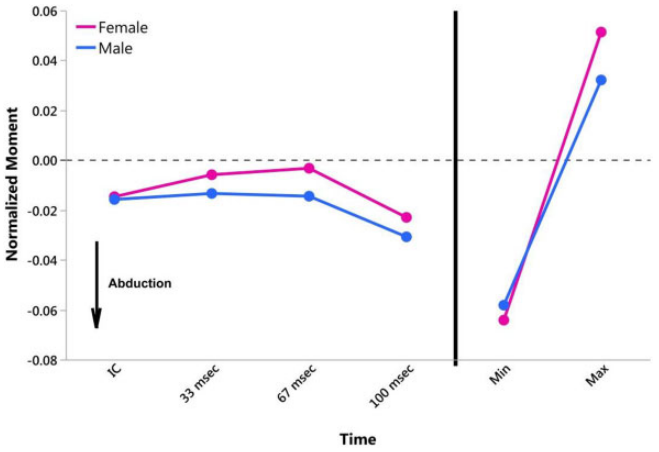

Figure 2. Normalized knee abduction/adduction moments at various time points. Females demonstrated an overall greater range of knee frontal plane motion (min/max), but males had greater instantaneous magnitude of knee abduction moment at the 3 time points sampled after impact. IC, initial contact.

Knee Abduction/Adduction Moments

For loading condition, the "ACL maximum" condition demonstrated a difference of peak KAM of 28.1 and 18.2 N·m at 66 milliseconds postimpact for males compared with females. For females, with normalized knee abduction values, normalized values of KAM were 10% greater than males (Figure 2).

Internal/External Knee Rotation Moments

The "ACL maximum" condition demonstrated increased internal rotation across time points IC, 33, and 67 milliseconds compared with the other load conditions (Table 4). Males exhibited greater internal rotation than females after 67 milliseconds. Similar to KAM, when normalized, females had greater internal rotation and overall range than males.

In the previous Discussion section, the authors stated, "It is currently unclear why the 'ACL maximum' condition exhibited external rotation at 66 milliseconds postimpact and at maximum value compared with the other load conditions. This disparity will be explored in future work." This statement is now rescinded as correct translation of the moments from the femur to the knee joint center point exhibits internal rotation and is consistent with what has been reported previously in the literature.[1,3,4,6]

Also, the statement "After normalization, there were no significant differences between sexes for anterior/posterior knee translational force, medial/lateral knee translational force, knee distraction/compression force, or knee internal/external rotation moment" should now read, "After normalization, there were no significant differences between sexes for anterior/posterior knee translational force, medial/lateral knee translational force, knee distraction/compression force, or knee abduction/adduction moment." However, close examination of normalized data (Table 4) may demonstrate that although the factors sex and sex × load may lack statistical significance ($P > .05$), these factors may still be clinically important for ACL injury risk.

REFERENCES

1. Bates NA, Nesbitt RJ, Shearn JT, Myer GD, Hewett TE. Knee abduction affects greater magnitude of change in ACL and MCL strains than matched internal tibial rotation in vitro. *Clin Orthop Relat Res*. 2017;475(10):2385-2396. doi:10.1007/s11999-017-5367-9
2. Grood ES, Suntay WJ. A joint coordinate system for the clinical description of three-dimensional motions: application to the knee. *J Biomech Eng*. 1983; 105(2):136-144.
3. Levine JW, Kiapour AM, Quatman CE, et al. Clinically relevant injury patterns after an anterior cruciate ligament injury provide insight into injury mechanisms. *Am J Sports Med*. 2012;41(2):385-395. doi:10.1177/0363546512465167
4. Meyer EG, Haut RC. Anterior cruciate ligament injury induced by internal tibial torsion or tibiofemoral compression. *J Biomech*. 2008;41(16):3377-3383. doi:10.1016/j.jbiomech.2008.09.023
5. Quatman CE, Quatman CC, Hewett TE. Prediction and prevention of musculoskeletal injury: a paradigm shift in methodology. *Br J Sports Med*. 2009;43(14):1100-1107. doi:10.1136/bjsm.2009.065482
6. Shin CS, Chaudhari AM, Andriacchi TP. Valgus plus internal rotation moments increase anterior cruciate ligament strain more than either alone. *Med Sci Sports Exerc*. 2011;43(8):1484-1491. doi:10.1249/MSS.0b013e31820f8395