

**Online resource 6. Risk of bias for all papers included in the meta-analyses and publication bias for sex, family history, return to sport and concomitant meniscal tear as risk factors for graft rupture**

**Table 1.** Risk of bias assessment using the QUIPS tool

Article	Study participation	Study attrition	Prognostic factor measurement	Outcome measurement	Study confounding	Statistical analysis	RoB
Ahktar et al. 2016	High	Low	Low	Low	High	Low	High
Akada et al. 2019	Low	Low	Low	Low	High	Low	High
Allen et al. 2016	Moderate	Low	Low	Low	Low	Low	Low
Annear et al. 2019	Moderate	Low	Low	Moderate	Moderate	Low	High
Barret et al. 2011	Low	Moderate	Low	Low	High	Low	High
Bayomy et al. 2019	Moderate	Low	Low	Low	Low	Low	Low
Beischer et al. 2020	Moderate	Low	Low	Low	Moderate	Low	Moderate
Benner et al. 2016	Moderate	Low	Low	Low	Moderate	Low	Moderate
Bodkin et al. 2021	Low	Low	Low	Low	Low	Low	Low
Borton et al. 2018	Moderate	Low	Low	Moderate	Moderate	Low	High
Bourke et al. 2012	Moderate	Low	Low	Moderate	Low	Low	Moderate
Bram et al. 2020	Low	High	Low	Moderate	Low	Low	High
Britt et al. 2020	Moderate	Low	Low	Low	Moderate	Low	Moderate
Christensen et al. 2015	Moderate	Low	Low	Low	Low	Low	Low
Cooper et al. 2018	High	Low	High	Low	Low	Low	High
Cruz et al. 2017	Moderate	Low	Low	Low	Low	Low	Low
Csapo et al. 2021	Low	Low	Low	Low	Moderate	Low	Low
Defranesco et al. 2020	Moderate	Low	Low	Moderate	Moderate	Low	High
Della Villa et al. 2021	Low	Low	Low	Low	Low	Low	Low
Digiacoimo et al. 2018	Moderate	Low	Low	Low	Moderate	Low	Moderate
Ellis et al. 2012	Low	Low	Low	Low	Low	Low	Low
Engelman et al. 2014	Moderate	High	Low	Low	Low	Low	High
Everhart et al. 2020	Moderate	Low	Low	Low	Low	Low	Low
Filbay et al. 2017	Moderate	Low	Low	Low	Low	Low	Low
Fleming et al. 2013	Moderate	Low	Low	Low	Moderate	Low	Moderate
Fones et al. 2020	Low	Moderate	Low	Moderate	Low	Low	Moderate
Fältström et al. 2016	Low	Moderate	Low	Low	Low	Low	Low
Fältström et al. 2021	Moderate	Low	Low	Low	Moderate	Low	Moderate
Gagliardi et al. 2019	Moderate	Low	Low	Low	Low	Low	Low

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Gans et al. 2018	High	Low	Low	Moderate	Moderate	Low	High
Ghosh et al. 2020	Moderate	Low	Low	Moderate	High	Low	High
Gifstad et al. 2014	Low	Low	Low	Low	Low	Low	Low
Goncalvez et.al 2017	Moderate	Low	Low	Low	Low	Low	Low
Goshima et a. 2014	Moderate	Low	Low	Moderate	Moderate	Low	High
Grassi et al. 2020	Low	Low	Low	Low	Low	Low	Low
Grassi et al. 2021	Moderate	Low	Low	Low	Low	Low	Low
Grassi et al. 2019	Moderate	Low	Low	Low	Low	Low	Low
Graziano et al. 2017	Moderate	Low	Low	Moderate	High	Low	High
Gupta et al. 2019	Moderate	Low	Low	Moderate	High	Low	High
Heath et al. 2019	Low	Low	Low	Low	Low	Low	Low
Henle et al. 2018 <sup>1</sup>	Low	Low	Low	Low	Low	Low	Low
Henle et al. 2018 <sup>2</sup>	Moderate	Low	Low	Low	Low	Low	Low
Ho et al. 2018	Moderate	Low	Low	Low	Low	Low	Low
Ifran et al. 2020	Moderate	Low	Low	Low	Low	Low	Low
Jaeger et al. 2018	Moderate	Low	Low	Low	Low	Low	Low
Kaeding et al. 2017	Low	Low	Low	Low	Low	Low	Low
Kajetanek et al. 2017	Low	Low	Moderate	Low	Moderate	Low	Moderate
Kamien et al. 2013	Moderate	Low	Low	Low	High	Low	High
Kim et al. 2020	Low	Low	Low	Low	Low	Low	Low
King et al. 2020	Low	Low	Low	Low	Low	Low	Low
King et al. 2021	Moderate	Low	Moderate	Moderate	Low	Low	High
Kinsella et.al 2020	High	Low	Low	Low	Low	Low	High
Krismer et.al 2017	Moderate	Low	Moderate	Low	Low	Low	Moderate
Krosshaug et al. 2016	Low	Low	Low	Low	Low	Low	Low
Kyritsis et al. 2016	Low	Low	Low	Moderate	Low	Low	Low
Laboute et al. 2010	Low	Moderate	Low	Moderate	Moderate	Low	High
Lai et.al 2018	Moderate	Moderate	Low	Low	High	Low	High
Larson et al 2016	Low	Low	Low	Moderate	Low	Low	Low
Larson et al. 2017	High	Low	Moderate	Low	High	Low	High
Lee et al. 2018	High	Low	Low	Low	Low	Low	High
Lee et al. 2017	Moderate	Low	Low	Moderate	Moderate	Low	High
Lee 2021	Low	Low	Low	Low	Low	Low	Low
Levins et al. 2016	Moderate	High	Low	Low	Low	Low	High
Leys et al. 2012	Moderate	Low	Low	Moderate	Moderate	Low	High
Lord et al. 2020	Moderate	Low	Low	Low	Low	Low	Low
Magnussen et al. 2012	Low	High	Low	Low	Moderate	Low	High
Magnusson et al. 2018	Low	Low	Moderate	Low	Low	Low	Low
Maletis et al. 2015	Moderate	Low	Low	Low	Low	Low	Low

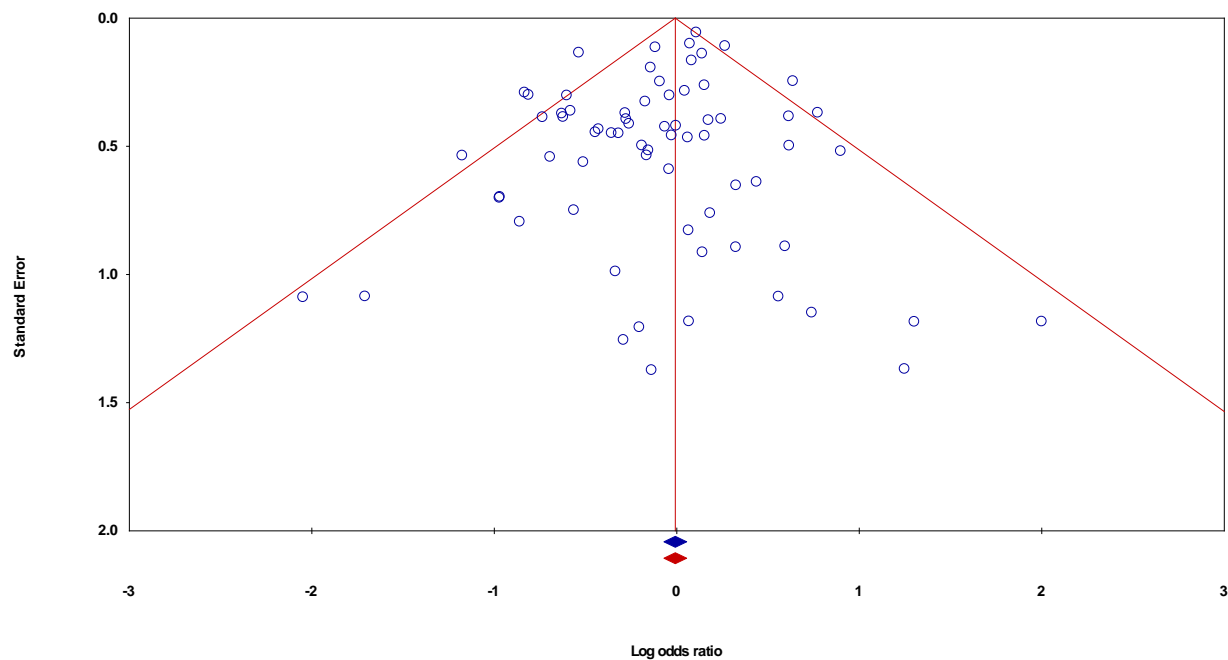
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Mardani-Kivi et al. 2019	Low	Moderate	Low	Moderate	High	Low	High
McPherson et al. 2019	Low	Low	Low	Low	Moderate	Low	Low
Mitchell et al. 2021	Moderate	Low	Low	Low	Low	Low	Low
Mohtadi et al. 2016	Low	Low	Low	Low	Low	Low	Low
Morgan et al. 2016	Low	Low	Low	Moderate	Low	Low	Low
Okorooha et al. 2019	Low	Low	Low	Low	Low	Low	Low
Patel et al. 2019	Low	Low	Low	Low	Low	Low	Low
Paterno et al. 2012	Moderate	Low	Low	Low	Moderate	Low	Moderate
Paterno et al. 2018	High	Low	Low	Moderate	High	Low	High
Perkins et al. 2019	Moderate	Low	Low	Low	Low	Low	Low
Pfeiffer et al. 2018	Moderate	Low	Low	Low	Moderate	Low	Moderate
Pinczewski et al. 2007	Moderate	Low	Moderate	Moderate	Moderate	Low	High
Poston et al. 2020	Moderate	Low	Low	Low	Low	Low	Low
Pullen et al. 2016	Low	Low	Low	Low	Low	Low	Low
Rahardja et al. 2020	Moderate	Low	Low	Low	Low	Low	Low
Ranade et al. 2018	High	Low	Low	Moderate	Moderate	Low	High
Rauck et al. 2021	Low	High	Moderate	Low	Low	Low	High
Riff et al. 2017	Moderate	Low	Low	Low	High	Low	High
Rosenstiel et al. 2019	Low	Low	Low	Low	Low	Low	Low
Runer et al. 2020	Low	Low	Low	Moderate	Low	Low	Low
Salmon et al. 2005	Low	Low	Low	Low	Low	Low	Low
Salmon et al. 2006	Low	Low	Low	Low	Low	Low	Low
Salmon et al. 2018	Moderate	Low	Low	Low	Low	Low	Low
Sanders et al. 2017	Moderate	Low	Low	Low	Low	Low	Low
Sandon et al. 2020	Low	High	Low	Moderate	High	Low	High
Sauer et al. 2019	Moderate	Low	Low	Low	Low	Low	Low
Schlumberger et al. 2017	Moderate	Low	Low	Low	Moderate	Low	Moderate
Schmale et al. 2014	Low	High	Low	Low	High	Low	High
Shelbourne et al. 2009	Low	Moderate	Low	Moderate	High	Low	High
Shelbourne et al. 1998	Low	Low	Low	Moderate	Moderate	Low	Moderate
Singhal et al. 2007	Moderate	High	Low	Low	High	Moderate	High
Sonnery-Cottet et al. 2017	Low	Low	Low	Low	Low	Low	Low
Sousa et al. 2017	Low	Low	Low	Low	Low	Low	Low
Su et al. 2020	High	Low	Low	Low	Low	Low	High
Tagesson et al. 2016	Moderate	Low	Low	Low	Moderate	Low	Moderate
Thompson et al. 2015	Moderate	Low	Low	Low	Low	Low	Low

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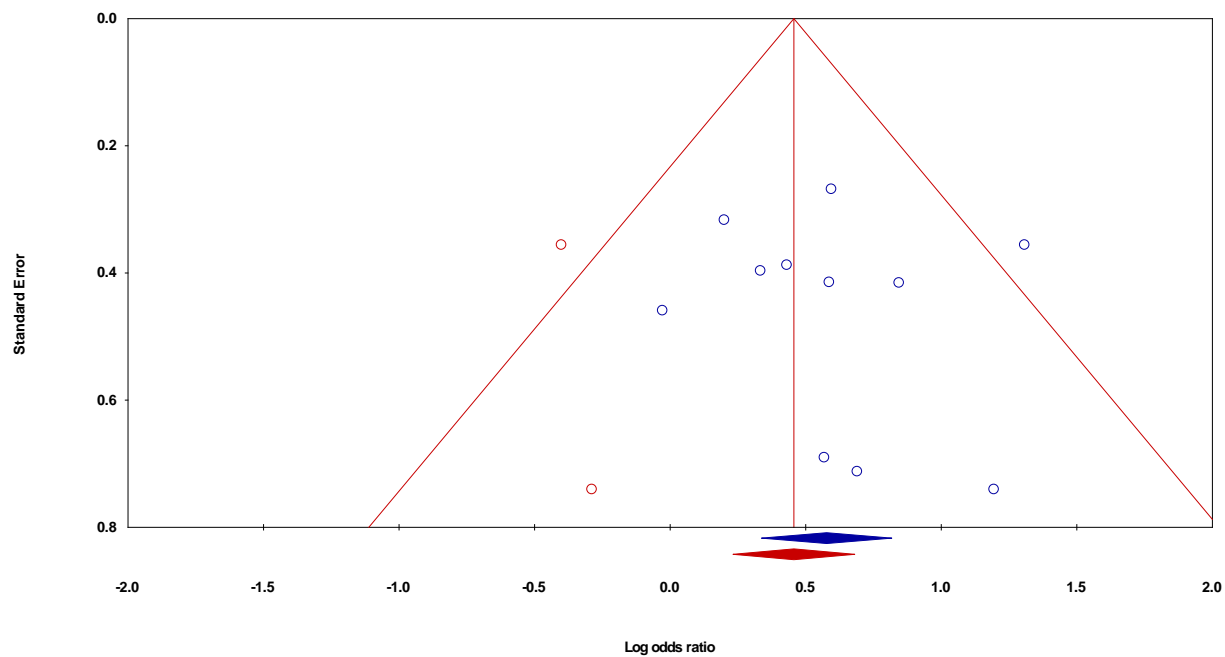
Tulloch et al. 2019	Low	Low	Low	Low	Low	Low	Low
Van Eck et al. 2012	Moderate	Low	Low	Low	Low	Low	Low
Vincent et al. 2017	Moderate	Low	Low	Low	Low	Low	Low
Wall et al. 2017	Moderate	Moderate	Low	Low	Low	Low	Moderate
Wasserstein et al. 2013	Moderate	Low	Low	Low	Low	Low	Low
Webb et al. 2013	High	Low	Low	Low	Low	Low	High
Welling et al. 2020	Moderate	Low	Low	Moderate	Moderate	Low	High
Webster et al. 2014	Moderate	Low	Low	Low	Moderate	Low	Moderate
Webster et al. 2019	Moderate	Low	Moderate	Moderate	Moderate	Low	High
Webster et al. 2021	Low	Low	Low	Low	High	Low	High
Webster et a. 2021	Low	Low	Low	Moderate	Low	Low	Low
Wright et al. 2007	Moderate	Low	Low	Low	High	Low	High
Yabroudi et al. 2016	Moderate	High	Low	Low	Low	Low	High

RoB = risk of bias, Low RoB = all domains are rated as low or at most one rated as moderate, moderate Rob = 4 domains are rated as low and two domains are rated as moderate RoB, high RoB = at least 3 domains are rated as moderate or at least 1 domain rated as high RoB.



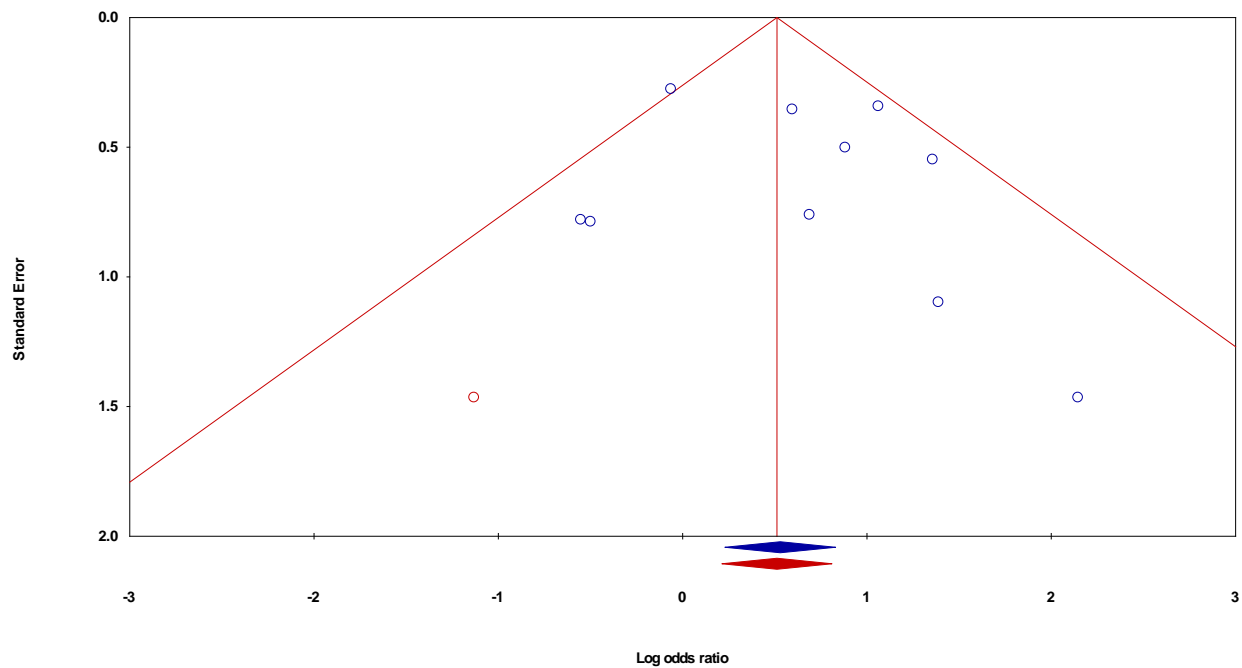
**Fig 1.** Funnel plot with trim and fill imputations for sex difference as a risk factor for sustaining a graft rupture

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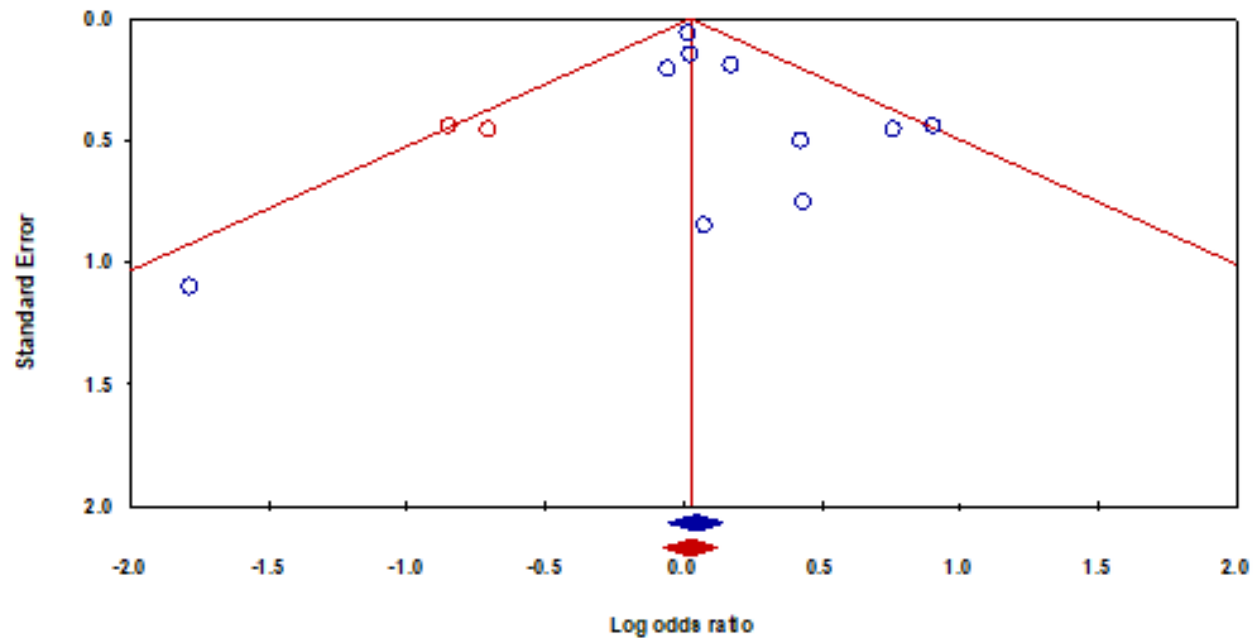
**Fig 2.** Funnel plot with trim and fill imputations for family history as a risk factor for sustaining a graft rupture

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**Fig 3.** Funnel plot with trim and fill imputations for return to a high activity level as a risk factor for sustaining a graft rupture

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**Fig 4.** Funnel plot with trim and fill imputations for concomitant meniscal tear as a risk factor for sustaining a graft rupture