



# Outcomes of Concomitant Hip Arthroscopy and Periacetabular Osteotomy: A Systematic Review

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## INTRODUCTION

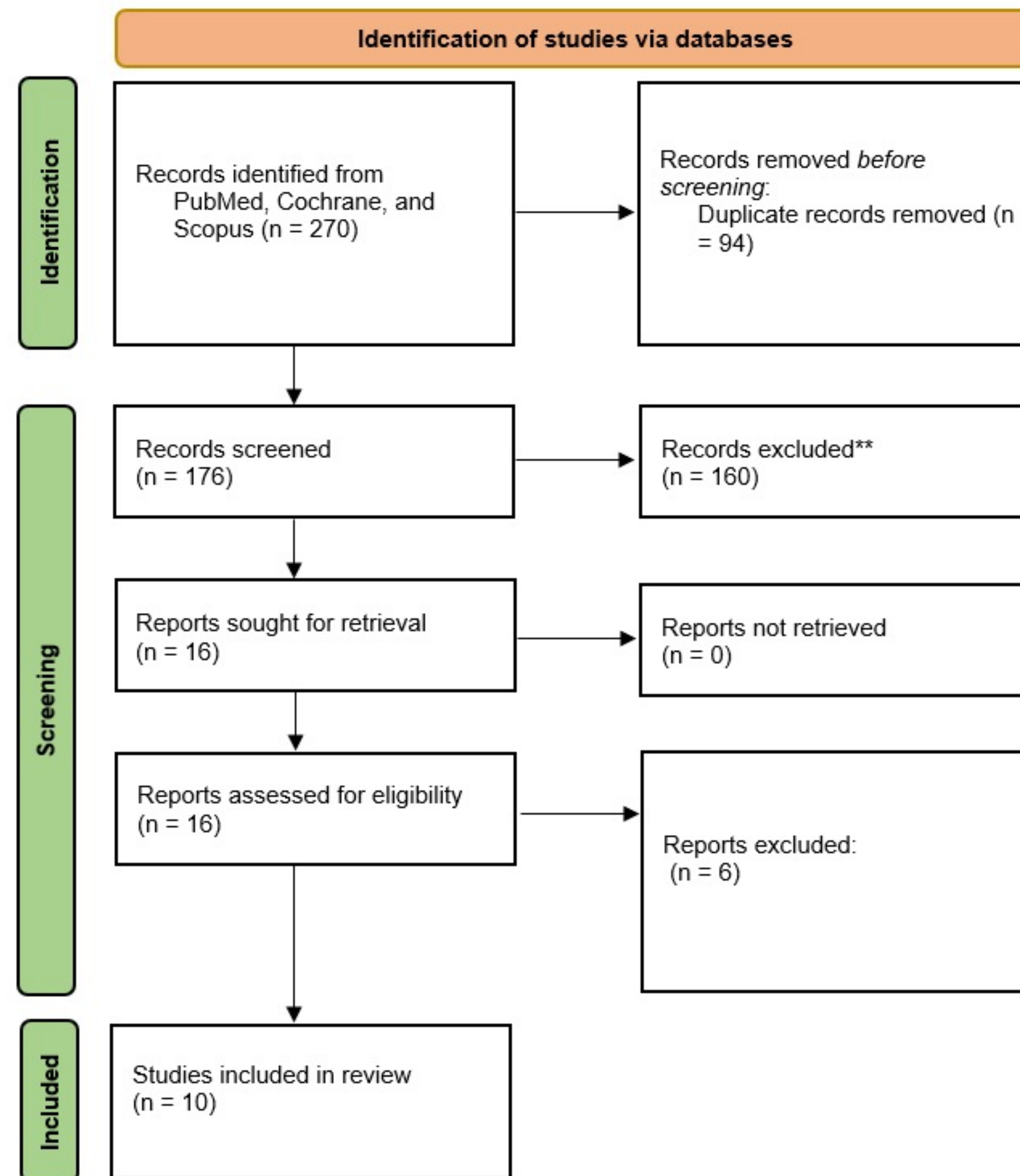
Acetabular dysplasia has been established as a common diagnosis for hip pain. Hip dysplasia has been associated with micro-instability and poor outcomes when treated arthroscopically alone. The PAO (periacetabular osteotomy) has demonstrated reliability and durability in treating patients with hip dysplasia at short, mid, and long-term follow-up. Despite the success of the isolated PAO for the treatment of hip dysplasia, some question the method of treating the high frequency of intra-articular pathology often accompanying hip dysplasia

## AIM

To perform a systematic review to evaluate outcomes and survivorship of patients undergoing concomitant hip arthroscopy and PAO. It was hypothesized that patients undergoing concomitant hip arthroscopy and PAO would demonstrate significant improvement after surgery and low rates of secondary surgeries.

## METHOD

A systematic review was performed on the current literature with the following keywords: "periacetabular osteotomy," "hip arthroscopy," "combined," "concomitant," "concurrent," "femoroacetabular impingement," and "outcomes." PubMed, Cochrane, and Scopus were queried in April 2022 using the criteria established in the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA). The following information was recorded for each study if available: title, author, publication date, study design, demographic, number of hips, follow-up time, study period, indications for hip arthroscopy, patient-reported outcomes (PROs), rates of secondary hip preservation surgeries, and rates of conversion to total hip arthroplasty (THA).



## RESULTS

- Ten articles were included in the systematic review. Three studies were level III evidence, and seven studies were level IV evidence.
- This review included 553 hips with average follow-up that ranged from 1 to 12.8 years. The average age at time of surgery ranged from 20.4 to 40 years.
- Nine studies reported outcomes in the general population and one study reported on outcomes in the athletic population.
- All ten studies listed dysplasia as the surgical indication.
- Nine studies reported PROs and 7 studies reported significant improvements after surgery. Four studies reported additional clinical benefit thresholds and every study reported an 80% achievement of at least one psychometric threshold.
- Seven out of 10 studies reported surgery rates on either hip preservation or conversion to THA. Secondary hip preservation procedure rates ranged from 0% to 7% and conversion to THA rates ranged from 0% to 3.4%. Overall secondary surgery rates varied from 0% to 10.3%

## CONCLUSIONS

- Patients who underwent concomitant hip arthroscopy and PAO reported favorable outcomes and high rates of clinical benefit.
- However, there were variable rates of secondary hip preservation procedures and conversion to THA with higher revision rates demonstrated in athletes.

Author and Year	Study Period	Hips(n)	Follow-up (Range or SD), year	Clinical Benefit	Achievement Rate (% or n(%))
Maldonado et al. 2019	2010-2012	16	5.5 ± 0.56 years (range, 5.05-7.04)	MCID	N(%)
				mHHS	13(81.3)
				HOS-SSS	11(78.6)
Jimenez et al. 2022	2010-2018	29	2.44 ± 0.42 years	PASS	N(%)
				mHHS	12(75)
				HOS-SSS	7(50)
Ricciardi et al. 2016	2010-2014	24	1.92 years	MCID	N(%)
				mHHS	24(92.3)
				NAHS	24(92.3)
Cho et al. 2020	2002 – 2005	39	12.8 ± 1.7 years	HOS-SSS	23(88.5)
				VAS for pain	19(73.1)
				PASS	N(%)
Panos et al. 2021	2009 – 2016	17	3.2 years	mHHS	22(84.6)
				NAHS	19(73.1)
				HOS-SSS	20(76.9)
Ricciardi et al. 2016	2010-2014	24	1.92 years	MIC	N(%)
				mHHS	100%
				HOS-ADL	79%
				HOS-SSS	79%
Cho et al. 2020	2002 – 2005	39	12.8 ± 1.7 years	iHOT-12	100%
				Clinical Success (HHS > 80)	33 (84.6)
Panos et al. 2021	2009 – 2016	17	3.2 years	NR*	NR