

## Introduction

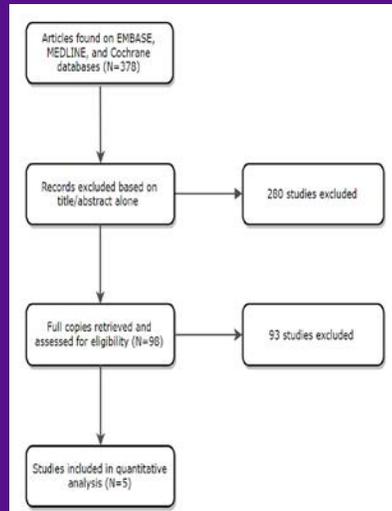
- It is common teaching that index finger alone is a relative contra-indication for PIPJ arthroplasty
- Still, limited data exist reporting digit specific complication rates of PIPJ arthroplasty
- In fact, evaluation of reoperations after 76 PIPJ arthroplasties found no relationship between reoperation rate and digit, suggesting non-index digits are not protected (*Pritsch, J Hand Surg Am 2011*)

## Purpose

- To perform a systematic review and meta-analysis of the literature to describe the reported complication rate of non-index digits PIPJ arthroplasty
- To compare to complication rate of index fingers in selected studies

## Methods

- Systematic computerized searches of EMBASE, MEDLINE, and Cochrane databases from 1976 to 2017
- Inclusion criteria: radiographic or clinical instability-related outcomes of PIPJ arthroplasty of non-index digits for OA or post-traumatic arthritis, N>10, adults, English language
- PRISMA guidelines adhered to where applicable



## Results of Review

- Literature search yielded 378 original articles
- Only 5 met ultimate inclusion criteria
- No study's primary purpose was to detail results of non-index digits
- Studies were selected after full text analysis revealing digit-specific outcomes reported in text, tables, or appendices
- Although non-randomized, MINORS (methodological index for non-randomized studies) scores were good for included studies
- Collectively, these studies include 1.6 to 3 year follow up of 185 digits
- Silicone was most common implant type (N=99), followed by metal surface (N=40) and pyrocarbon (N=38)
- Included studies reported heterogeneously upon instability-related outcomes, including static or dynamic deformity, dislocations requiring splinting, or loosening and or coronal instability requiring surgery

## Included Studies

Author	Journal	Year	Design	Implant	Total digits	Index	Long	Ring	Small	Follow up	Approach	MINORS*
Pellegrini and Burton <sup>1</sup>	J Hand Surg Am	1990	Retrospective Case Series	Silicone, Biomec	33	5	16	11	1	2.25 years	Dorsal	11
Branam et al <sup>22</sup>	J Hand Surg Am	2007	Retrospective Case Series	Silicone, Pyrocarbon	41	14	15	8	4	1.6 years	Dorsal, Volar	10
Merle et al <sup>20</sup>	J Hand Surg Euro	2011	Retrospective Case Series	Silicone	51	9	15	20	7	3 years	Dorsolateral	9
Ono et al <sup>23</sup>	Plast Reconstr Surg	2012	Prospective Case Series	Pyrocarbon	19	5	8	5	1	2 years	Not reported	12
Jennings and Livingstone <sup>19</sup>	J Hand Surg Am	2015	Retrospective Case Series	Metal	40	14	13	9	4	3 years	Dorsal, Volar	10

\*Methodological Index for Non-Randomized Studies scores

## Results of Analysis

Finger	N	Instability	Rate
Index	42	14	33%
Long	65	19	29%
Ring	53	3	6%
Small	17	1	6%

- Higher instability rates for index and long digits compared to ring and small digits (p<0.0005)
- No difference between index and long (p=0.65) nor between ring and small (p=0.1)

## Conclusions

- This report performs a novel aggregate analysis of non-index digit arthroplasty for treatment of PIPJ osteoarthritis or post-traumatic arthritis
- The main finding – that the long finger may be prone to instability and complications similar to that of the index finger – calls into question whether the index finger alone is a relative contraindication
- This claim highlights the need for further biomechanical and clinical studies assessing the impact of pinch and arthroplasty on this digit
- At the very least, future reports should delineate digit specific results