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# Systematic Review of Measurement Instruments for Patients with Juvenile Idiopathic Arthritis in the Foot and Ankle

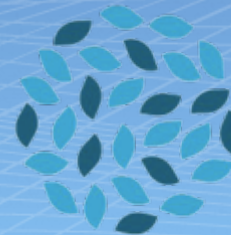
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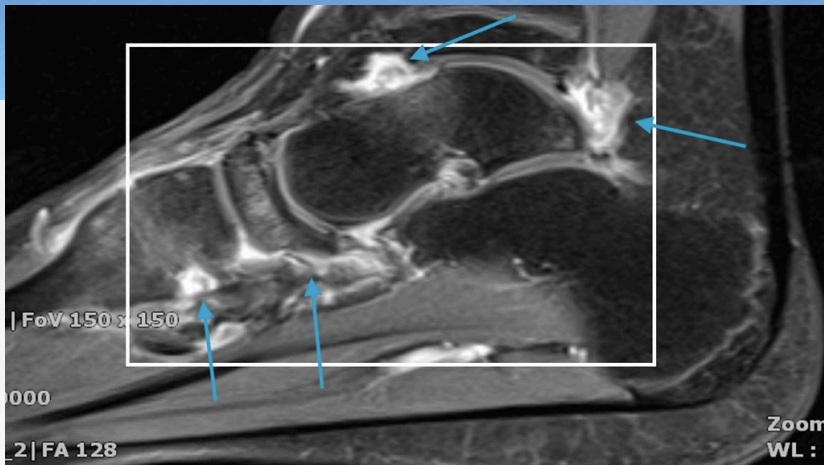
# Juvenile idiopathic arthritis(JIA)

- Juvenile idiopathic arthritis(JIA) is the most common rheumatic disease in childhood.
- The part of the body most commonly affected, and where cysts are most likely to form, is in the small joints of the foot





# Juvenile idiopathic arthritis(JIA)



- The most common abnormal alignments are valgus foot, cavovarus foot and varus heel position <sup>1</sup>. Children with JIA may also present with enthesitis in the plantar fascia or Achilles tendon, flexion contractures, synovitis or muscle atrophy <sup>2</sup>

1. Truckenbrodt H, Hafner R, Von Altenbockum C. Functional joint analysis of the foot in juvenile chronic arthritis. In: Clinical and Experimental Rheumatology. 1994.
2. Ravelli A, Martini A. Remission in juvenile idiopathic arthritis. Clin Exp Rheumatol. 2006;



# Patient-reported outcome measures (PROMs)

**Appendix 1. Juvenile Arthritis Multidimensional Assessment Report (JAMAR) Parent's version.**

Patient's name and surname (or initials): \_\_\_\_\_ Date: \_\_\_\_\_

Parent filling in the questionnaire: Mother  Father

The aim of this questionnaire is to gather information on the current state of your child's illness. Your answers will help us improve our clinical evaluation. Please read the questions below carefully and choose the **options** that best apply to your child. If you have doubts or need any clarification, please ask for our help. **There are no right or wrong answers.** We simply ask that you answer exactly as you feel.

**1. Evaluation of functional ability**  
Please choose the answer that best describes your child's ability to carry out the activities listed below with particular reference to the **past few weeks**. Please indicate only the difficulties or limitations **caused by the illness**. If your child has difficulty carrying out any of these activities because he/she is too young and **not because of the illness**, indicate "Not applicable".

	Not at all difficult	With some difficulty	With much difficulty	Unable to do	Not applicable
1. Run on flat ground for at least 30 metres	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Walk up 5 steps	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Jump forward	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Squat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Bend down to pick up an object off the floor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Carry out activities that require the use of his/her fingers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Open and close his/her fists	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Squeeze an object with his/her hands	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Open a door by lowering the handle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Open and close a tap or open a previously opened jar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Stretch out his/her arms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Put his/her hands behind his/her neck	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Turn his/her head and look over his/her shoulder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Bend his/her head back and look at the ceiling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Bite into a sandwich or an apple	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**2. How much pain has your child had because of the illness over the past month?**  
(Choose the most accurate score)

NO PAIN											EXTREME PAIN	
	0	1	2	3	4	5	6	7	8	9	10	



**OXFORD  
Ankle Foot  
Questionnaire  
for Children  
(OxAFQ-C)**



# Objetives

- 1) To identify specific PROMs for children and adolescents with JIA in the foot and ankle;
- 2) To assess the methodological quality and psychometric properties of these instruments



## Search strategy

- PubMed, Scopus, CINAHL, PEDro and Google Scholar
- Juvenile idiopathic arthritis, patient-reported outcomes, foot, feet, ankle

## Quality appraisal

COSMIN checklist was used to evaluate the methodological quality of the studies undertaken to investigate the measurement properties of one or more PROMs

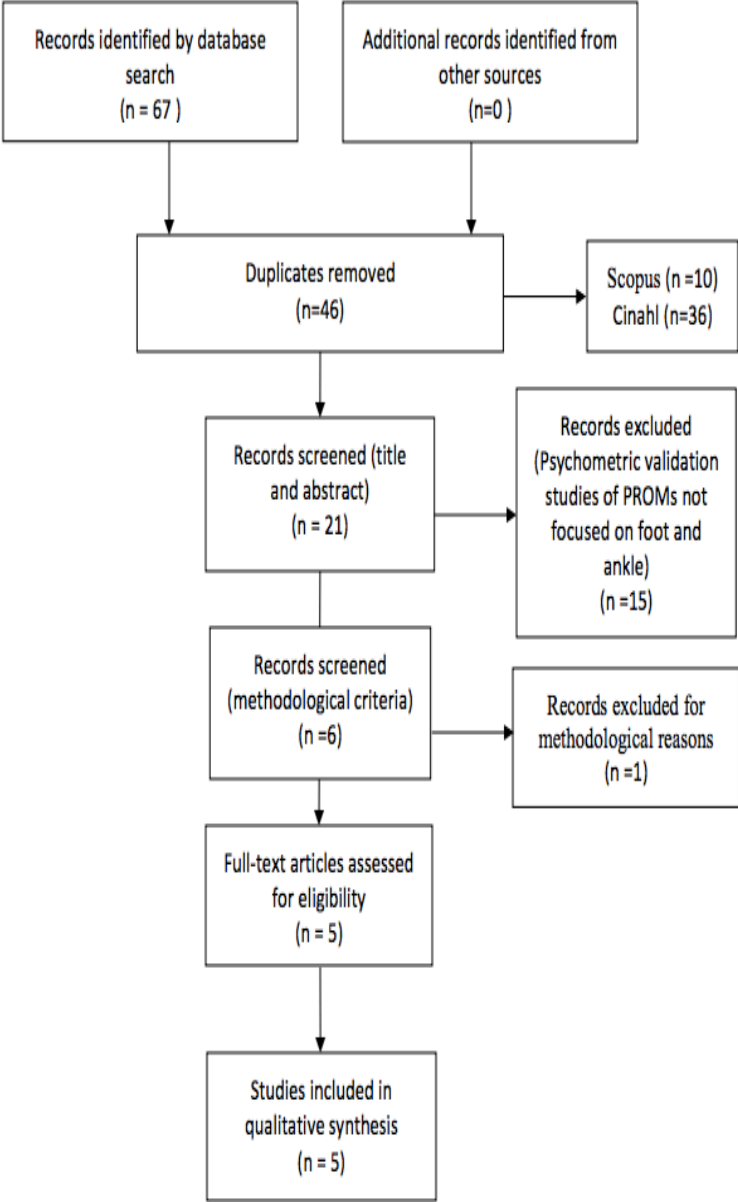


Identification

Screening

Eligibility

Included







<b>Acronym</b>	<b>Full title</b>	<b>Author</b>	<b>Country</b>	<b>Year of Publication</b>
JAFI	Juvenile Arthritis Foot Disability Index	Marie André et al	Sweden	2014
OAFQ	Oxford ankle foot questionnaire	C. Morris et al	UK	2008
OAFQ Danish	Oxford ankle foot questionnaire in Danish	P. Martinkevich et al	Denmark	2015
OAFQ Italian	Oxford ankle foot questionnaire in Italian	Nicolò Martinelli et al	Italy	2016
OAFQ Dutch	Oxford ankle foot questionnaire in Dutch	Elise Burguer	Netherland	2017

Characteristic of included studies





	Content validity	Internal consistency	Criterion validity	Construct validity	Reproducibility Agreement	Reproducibility Reliability	Responsiveness	Floor and ceiling effects	Interpretability
<b>JAFI</b>	+	0	?	?	0	-	?	+	?
<b>OAFQ</b>	+	?	-	-	?	?	?	0	?
<b>OAFQ Danish</b>	+	-	-	?	-	-	-	-	?
<b>OAFQ Italian</b>	+	+	-	?	?	+	?	-	?
<b>OAFQ Dutch</b>	+	-	-	?	-	-	+	0	?

Rating: + Positive; ? Indeterminate; - Negative; 0 No information available.

Assessment of the measurement properties of the questionnaires



	Structural validity	Internal consistency	Reliability	Measurement error	Hypotheses testing for construct validity	Cross-cultural validity	Criterion validity	Responsiveness
JAFI	-	?	-	?	+	+	?	+
OAFQ	?	?	?	?	-	?	-	-
OAFQ Danish	-	-	-	?	+	+	-	+
OAFQ Italian	-	+	+	?	+	-	-	+
OAFQ Dutch	-	-	-	?	+	+	-	+



# Discussion





# Conclusion

- Within the generally low methodological quality of the studies examined in this review, the Italian-language version of the Oxford Ankle Foot Questionnaire for children provides acceptable psychometric properties and methodological quality, according to the COSMIN criteria.