

Title: The factors associated with the development, progression and outcome of Dupuytren's disease treatment: a systematic review.

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Background: Dupuytren's disease is a common multifactorial hand condition in which scar-like tissue forms under palmar skin, giving rise to nodules and cords that pull the fingers into the palm and affect function. It accounts for over 10,000 inpatient surgeries a year in the English NHS, but tends to recur. Factors associated with recurrence have been termed the "Dupuytren's diathesis", but these may differ from the factors associated with poor functional outcome from surgery, which is also affected by the treatment itself. This systematic review aims to identify factors associated with the development, progression or outcome of surgery for Dupuytren's disease, to identify candidate factors for further study in relation to the functional outcome of treatment.

Methods: A PRISMA-compliant protocol for the systematic review was prospectively-registered in PROSPERO. Multiple databases spanning indexed, non-indexed and grey literature (MEDLINE & in process, EMBASE and CENTRAL) were searched in parallel using a bespoke, sensitive search strategy, comprising index and free text terms, designed with an information scientist. Abstracts were screened by two researchers against pre-specified stepwise inclusion criteria. Discrepancies were resolved by a third researcher. Factors studied for association with the development, recurrence, or progression of Dupuytren's disease, or with the outcome of surgery, were extracted and categorised. The methodologies used to study the association, the outcome measures employed, study designs were also

extracted, and the methodological quality of studies was appraised using tools appropriate for the study design.

Results: A total of 2210 records were identified through database searching, with 1673 records after de-duplication. Preliminary screening has identified factors associated with different endpoints. These include studies of diathesis, demonstrating association between patient factors and different endpoints ranging from the development of palpable Dupuytren's disease in the palm, recurrent angular deformity of finger joints, and genetic alleles linked to the condition. One study has been identified so far investigating association of factors with functional outcome, and the factors associated with functional outcome in that study differ from the diathesis factors.

Conclusion: Preliminary results suggest that the factors predisposing to poor functional outcome are distinct from those associated with Dupuytren's disease progression.