

# INPLASY

## Oral zinc sulphate reduces recurrence rate and provides significant therapeutic effects for viral warts: a systematic review and meta-analysis of randomized controlled trials

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### ADMINISTRATIVE INFORMATION

**Support** - This research received no external funding.

**Review Stage at time of this submission** - Completed but not published.

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY202480037

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 07 August 2024 and was last updated on 07 August 2024.

### INTRODUCTION

**Review question / Objective** The population (P), intervention (I), comparison (C), and outcome (O) for this study were as follows: P, human participants with skin or external genital warts; I, either taking oral zinc sulphate alone or a combination of oral zinc sulphate with traditional treatments for viral wart; C, either taking a placebo or using traditional treatments for viral wart; and O, number of patients who achieved viral wart clearance and relapse after completing treatment.

**Rationale** Immunotherapies, such as zinc supplements, are among the treatment modalities for viral warts. However, the conclusion of the efficacy of oral zinc sulphate in treating viral warts is inconsistent.

**Condition being studied** Viral warts are common, benign, and self-limited disease, while the time required for them to disappear varies greatly, ranging from a few months to several years.

### METHODS

**Search strategy** Databases used include PubMed, Embase, Web of Science, Cochrane CENTRAL, and ClinicalTrials.gov, and the following keywords were used: (“wart” OR “viral wart” OR “verruca vulgaris” OR “condyloma acuminatum” OR “verruca plana”) AND (“zinc” OR “zinc sulphate” OR “zinc gluconate”).

**Participant or population** Human participants with skin or external genital warts.

**Intervention** Either taking oral zinc sulphate alone or a combination of oral zinc sulphate with traditional treatments for viral wart.

**Comparator** Either taking a placebo or using traditional treatments for viral wart.

**Study designs to be included** Randomized controlled trials.

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**Eligibility criteria** Inclusion criteria for this study is as follows: 1) randomized controlled trials (RCTs) with human participants, 2) RCTs providing the number of individuals who experienced viral wart clearance after treatment, 3) placebo controlled RCTs (without any age or treatment duration restrictions), 4) RCTs providing dosage of zinc sulphate.

**Information sources** We searched PubMed, Embase, Web of Science, Cochrane CENTRAL, and ClinicalTrials.gov.

**Main outcome(s)** Number of patients who achieved viral wart clearance and relapse after completing treatment.

**Additional outcome(s)** Recurrence rate; Treatment-related adverse events.

**Data management** We used EndNote 21 and Excel to manage records and data.

**Quality assessment / Risk of bias analysis** We used the Cochrane risk-of-bias tool for randomized trials (version 2, RoB 2, London, United Kingdom).

**Strategy of data synthesis** We applied a random-effects model and used Comprehensive Meta-Analysis software (Biostat, Englewood, NJ, USA) for analysis. Statistical significance was defined as a two-tailed p value < 0.05. Risk difference and its corresponding 95% confidence intervals were used to evaluate the primary outcome. Secondary outcomes, including relapse and treatment-related side effects, are presented as log risk ratios and risk differences with their associated 95% confidence intervals.

**Subgroup analysis** We conducted a subgroup analysis based on the patients' initial plasma zinc ion concentrations and whether traditional treatments for viral warts were combined.

**Sensitivity analysis** Sensitivity analyses were performed using the "one-study removal method".

**Language restriction** No restriction.

**Country(ies) involved** Republic of China, Taiwan.

**Keywords** verruca vulgaris, verruca plana, condyloma acuminatum, zinc sulphate, zinc sulfate, HPV, Immunotherapy, recurrence.

**Dissemination plans** Via open access.

### Contributions of each author

Author 1 - Chen-Chi Wang - Author 1 conducted the process of conceptualization, data curation, formal analysis, investigation, project administration, resources, software, and original draft preparation.

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Author 2 - Wei-Xiang Wang - Author 2 conducted the process of methodology and visualization.

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Author 3 - Po-Yuan Wu - Author 3 conducted the process of funding acquisition, supervision, validation, and Review & Editing.

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