

Casein phosphopeptide-amorphous calcium phosphate (CPP-ACP): Where are we now?

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Purpose: To assess the potential of casein phosphopeptide-amorphous calcium phosphate (CPP-ACP) as a long-term alternative to topical fluorides for caries prevention in children (<16 years).

Methods: A literature review with systematic elements. Key databases were systematically searched using specific inclusion and exclusion criteria to identify relevant literature from 2007 to 2018 in the English language. Systematic reviews, randomised and quasi-randomised clinical trials were considered. Systematic reviews were appraised using the ‘Critical Appraisal Skills Programme’ checklist, and clinical trials were appraised using the Cochrane Collaboration’s Risk of Bias Assessment tool by two reviewers.

Results: From a total of 112 articles, thirteen clinical trials and seven systematic reviews met the inclusion criteria; ten trials considered participants of high caries risk (including orthodontic patients); three considered low risk groups. Eight trials investigated the effect on permanent teeth; the remainder studied primary teeth. Exclusively, the comparators were topical fluoride and/or a placebo. Required duration of trials was at least three months. Primary outcomes included prevention and regression of non-cavitated carious lesions recorded with visual/tactile detection, Decayed Missing Filled Surfaces index, International Caries Detection and Assessment System, laser fluorescence, quantitative light-induced fluorescence, radiography or clinical photography.

One trial had a low risk of bias, the remainder being medium or high risk. Heterogeneity and high risk of bias of included trials rendered meta-analysis inappropriate.

Conclusions: There is currently insufficient evidence to recommend CPP-ACP as an alternative to topical fluoride for caries prevention in children. Further high-quality research comparing different forms and doses of CPP-ACP is required.