*Cochrane Database of Systematic Reviews - - Cochrane Review*

# Vitamin A and beta (Î²)â€•carotene supplementation for cystic fibrosis

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## Study design (if review, criteria of inclusion for studies)

All randomised or quasi-randomised controlled trials comparing all preparations of oral vitamin A used as a supplement compared to either no supplementation (or placebo) at any dose and for any duration, in children or adults with cystic fibrosis (defined by sweat tests or genetic testing) with and without pancreatic insufficiency.

## Participants

Children or adults with CF (defined by sweat tests or genetic testing) with and without pancreatic insufficiency.

## Interventions

Vitamin A supplementation

## Outcome measures

Primary outcomes 1. Vitamin A deficiency disorders (visual impairment and other ocular dysfunction; skin manifestations, e.g. phrynoderma) 2. Growth and nutritional status (e.g. weight, height, body mass index, z score for weight, etc.) 3. Mortality

## Main results

No studies of vitamin A or other retinoid supplementation were eligible for inclusion. However, one randomised study of beta (Î²)â€•carotene supplementation involving 24 people with CF who were receiving pancreatic enzyme substitution was included. The study compared successive Î²â€•carotene supplementation periods (high dose followed by low dose) compared to placebo. The results for the lowâ€•dose supplementation period should be interpreted with caution, due to the lack of a washâ€•out period after the highâ€•dose supplementation. The included study did not report on two of the review's primary outcomes (vitamin A deficiency disorders and mortality); results for our third primary outcome of growth and nutritional status (reported as z score for height) showed no difference between supplementation and placebo, mean difference (MD) â€•0.23 (95% confidence interval (CI) â€•0.89 to 0.43) (lowâ€•quality evidence). With regards to secondary outcomes, supplementation with highâ€•dose Î²â€•carotene for three months led to significantly fewer days of systemic antibiotics required to treat pulmonary exacerbations, compared to controls, MD â€•15 days (95% CI â€•27.60 to â€•2.40); however, this was not maintained in the second threeâ€•month section of the study when the level of Î²â€•carotene supplementation was reduced, MD â€•8 days (95% CI â€•18.80 to 2.80) (lowâ€•quality evidence). There were no statistically significant effects between groups in lung function (lowâ€•quality evidence) and no adverse events were observed (lowâ€•quality evidence). Supplementation affected levels of Î²â€•carotene in plasma, but not vitamin A levels. The study did not report on quality of life or toxicity.

## Authors' conclusions

Since no randomised or quasiâ€•randomised controlled studies on retinoid supplementation were identified, no conclusion on the supplementation of vitamin A in people with CF can be drawn. Additionally, due to methodological limitations in the included study, also reflected in the lowâ€•quality evidence judged following the specific evidence grading system (GRADE), no clear conclusions on Î²â€•carotene supplementation can be drawn. Until further data are available, countryâ€• or regionâ€•specific guidelines regarding these practices should be followed.

http://dx.doi.org/10.1002/14651858.CD006751.pub5

## See also

Bonifant CM, Shevill E, Chang AB. Vitamin A supplementation for cystic fibrosis. Cochrane Database of Systematic Reviews 2014, Issue 5. Art. No.: CD006751. DOI: 10.1002/14651858.CD006751.pub4

## Keywords

non pharmacological intervention - diet; Nutrition Disorders; Supplementation; vitamins; Vitamin A; Vitamin A Deficiency; Vitamin deficiencies; Vitamins; pharmacological_intervention;