COCHRANE CAM REVIEW: SUMMARY OF FINDINGS

A Summary of a Cochrane Review: Probiotics to Prevent Acute Upper Respiratory Tract Infections

柯克伦评价 (Cochrane Review) 概要: 益生菌预防急性上呼吸道感染

Resumen de una revisión de Cochrane: Probióticos para prevenir las infecciones agudas de las vías respiratorias superiores

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INTRODUCTION

Review authors in the Cochrane Collaboration conducted a systematic review to evaluate the effects of probiotics to prevent acute upper respiratory tract infections (URTIs) such as the common cold and acute sinusitis in people at average risk of a URTI. After extensive searching for all relevant studies, the authors identified 12 randomized controlled trials that tested the effects of different types of probiotics on the development or duration of a URTI episode. Six studies were in children, 3 in adults, and 2 in older people. This summary presents the findings from this review.

PROBIOTICS AND ACUTE RESPIRATORY TRACT INFECTIONS

Probiotics are live microorganisms, primarily bacteria, that are believed to provide health benefits when ingested. There are several different types and strains of probiotics that are commonly used, such as

Lactobacillus, *Streptococcus*, and *Bifidobacterium*. Probiotics can be taken with milk products, as a powder, or in capsules and do not require a prescription. There has been some research into whether taking probiotics could prevent or reduce the duration of URTIs, possibly by supporting the immune system. Among people at average risk of URTI, the baseline risk of developing a URTI during a 3-month period is 30% (ie, 30 out of 100 people will have a URTI). URTIs generally last approximately 7 days and do not require antibiotic treatment.

WHAT DOES THE RESEARCH SAY?

Thirteen randomized studies were identified, but only 12 studies with 3720 participants provided data. Study participants were children, adults, and older people who were not at high risk of a URTI. The participants were randomized to take either probiotics or placebo, but it is not clear in many of the studies

Table Summary of Findings: Effects of Probiotics After Approximately 3 to 8 Months of Treatment

What Was Measured	Without Probiotics	With Probiotics ^a	Quality of the Evidence ^b	What Happens With Probiotics
Number of people who had at least 1 URTI (7 studies, 1927 people)	30 out of 100	19 out of 100 (from 14 to 25)	⊕⊕⊕⊖ moderate	Probiotics probably reduce the number of people with a URTI.
Number of URTI per person in 1 y (5 studies, 1608 people)	4 URTI per person per y	1 URTI fewer	⊕⊕⊕⊖ low	Probiotics may reduce the number of URTIs a person has per year.
Duration of URTI (3 studies, 831 people)	7 d	2 d fewer	⊕⊕⊕⊖ moderate	Probiotics probably reduce how long the URTI lasts.
Number of people needing time off from school or work (1 study, 80 people)	35 out of 100	5 out of 100 (from 1 to 20)	⊕⊖⊖⊖ very low	It is uncertain whether the number of people needing time off is reduced with probiotics.
Number of people prescribed antibiotics (4 studies, 1184 people)	20 out of 100	13 out of 100 (from 9 to 19)	⊕⊕⊕⊖ low	Probiotics may reduce the number of people prescribed antibiotics.
Side effects (4 studies, 1234 people)	10 out of 100	9 out of 100 (from 7 to 12)	⊕⊕⊕⊖ low	Probiotics may have little to no effect on side effects.

^a The numbers in parentheses show the range in which the actual effect could be using a 95% confidence interval.

^b The quality of the evidence was lowered because the random allocation of participants in most studies was unclear and lowered when there were very little data in the analyses.

Abbreviation: URTI, upper respiratory tract infection.

whether the allocation to the probiotics or placebo was appropriately concealed, which may bias the results. Most studies provided 10^9 or 10^{10} colony-forming units (CFUs) of probiotics per day for 3 to 8 months.

Moderate-quality evidence from the studies shows that the number of people who develop a URTI is probably reduced when taking probiotics (odds ratio [OR]: 0.57, 95% confidence interval [CI]: 0.37-0.76). In absolute terms, this translates into 11 fewer people out of 100 who may develop a URTI when taking probiotics for 3 to 8 months. There is also moderate quality evidence that taking probiotics probably reduces the duration of a URTI by approximately 2 days (mean difference: 1.89 fewer days from 2.03 to 1.75 fewer days).

Lower-quality evidence is available for other important outcomes because there was little data in these analyses. The number of URTI episodes per year may be reduced (rate ratio: 0.83, 95% CI: 0.66-1.05). This may mean 1 fewer episode per year for someone who typically has 4 URTI episodes per year. Probiotics may also reduce the number of people who are prescribed antibiotics by 7 per 100 (OR: 0.65, 95% CI: 0.45-0.94). There may also be little to no difference between probiotics and placebo in treatment side effects, such as gastrointestinal upset. However, it is uncertain whether probiotics would reduce the time off from school or work due to URTIs, as this evidence is very low quality due to little available data.

WHERE DOES THIS INFORMATION COME FROM?

This summary is based on a Cochrane systematic review: Hao Q, Dong BR, Wu T. Probiotics for preventing acute upper respiratory tract infections. Cochrane Database Syst Rev. 2015;2:CD006895. DOI: 10.1002/14651858.CD006895.pub3.

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