

Best Evidence from the Cochrane Library

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The Cochrane Library contains high quality health care information, including Systematic Reviews from The Cochrane Collaboration.

These reviews bring together research on the effects of health care and are considered the gold standard for determining the relative effectiveness of different interventions. The Cochrane Collaboration (<http://www.cochrane.org>) is a UK registered international charity and the world's leading producer of systematic Reviews. It has been demonstrated that Cochrane Systematic Reviews are of comparable or better quality and are updated more often than the Reviews published in print journals.

The following synopses highlight some of the key health care conclusions and their implications for practice as published in The Cochrane Library, 2008, Issue 3.

Regular Salmeterol for Asthma: More Evidence of Long-Term Problems

People with asthma who regularly use salmeterol are at a greater risk of non-fatal serious adverse events than those using placebos. This conclusion was arrived at by a team of Cochrane Researchers who drew together data from 26 trials involving 62,630 patients.

The researchers found that over a four to six month period, for every thousand people treated for asthma there were 45 who suffered a serious adverse event on regular salmeterol, compared to only 40 if a placebo inhaler was given.

Salmeterol is a long-acting beta2-agonist. It is inhaled by people with asthma twice daily; it relieves symptoms for up to 12 hours. It is generally recommended for use along with corticosteroid inhalers (also known as preventer inhalers).

Over the last decade, some researchers and practitioners have expressed anxieties that although salmeterol can relieve asthma symptoms, it could cause long-term problems.

“We found that the biggest increase in risk was seen in people with asthma who were not taking inhaled corticosteroids; however, there is no guarantee that inhaled corticosteroids abolish the risk all together”, says lead researcher Christopher Cates who works in Community Health Sciences at St George's, London, UK.

The authors recommend that people should follow the manufacturer's advice not to increase the dose of salmeterol during an exacerbation. Furthermore, regular salmeterol should not be used as an alternative to inhaled corticosteroids. Benefits and risks both need to be considered before embarking on long term treatment with regular salmeterol.

Cates CJ, Cates MJ. Regular Treatment with Salmeterol for Chronic Asthma: Serious Adverse Events. *Cochrane Database of Systematic Reviews* 2008; 3: Art No: CD006363. DOI: 10.1002/14651858.CD006363.pub2.

Childhood Diarrhea: Treat With Zinc Over Six Months of Age

Zinc supplementation benefits children suffering from diarrhea in developing countries, but only in infants over six months old, Cochrane Researchers have found. Their study supports World Health Organization (WHO) guidelines for the treatment of diarrhea with zinc, although not in the very young.

Diarrhea is a common cause of death for children in the developing world, occurring most often in children aged between six months and five years. It is estimated that two million children die every year because of the disease. Zinc is a micronutrient that plays a critical role in physical growth as well as in gastrointestinal and immune function. Its main dietary sources are red meat, fish and dairy products, but these are costly and in short supply in many developing countries. Currently the WHO advises treating a child with zinc for 10 and 14 days, as well as giving oral rehydration salts to reduce the risk of death due to dehydration.

The Cochrane Researchers identified 18 trials of zinc treatment that together involved 6,165 people from Asia, South America and Africa. Collectively the trials show that zinc is effective in reducing the duration of diarrhea in children aged between six months and five years. Below six months, two large trials involving 1,334 children, in three continents found no effect.

“These studies support previous research that shows zinc can play an important role in restoring children with diarrhea to full health. No conclusions regarding zinc's impact on hospitalization or death could be drawn from the trials, but given these results it's expected that a policy of zinc supplementation during diarrhea in the community could also reduce hospitalization rate and mortality”, says Lazzarini.

Lazzarini M, Ronfani L. Oral Zinc for Treating Diarrhoea in Children. *Cochrane Database of Systematic Reviews* 2008; 3: Art No: CD005436. DOI: 10.1002/14651858.CD005436.pub2.

Type 2 Diabetes: Culturally Tailored Education Can Improve Blood Sugar Control

Using community-based health advocates, delivering information within same-gender groups or adapting dietary and lifestyle advice to fit a particular community's likely diet can help people with type 2 diabetes control their blood sugar levels, certainly for up to six months, following health education. This conclusion was reached by a team of

Cochrane Researchers after they considered the data in 11 trials that involved 1,603 people.

Type 2 diabetes is a particular problem for minority ethnic groups who originate from developing countries, but live in upper-middle income or high income countries. These people tend to have low socio-economic status and find that they are faced with many physical, communication and cultural barriers that make it difficult to access healthcare effectively.

The Cochrane Researchers found 11 trials where people had deliberately tried to overcome cultural barriers. In short-term studies, culturally appropriate health education programs led to improved blood-sugar control within 3 months. This benefit was still seen when the 6-month trial periods ended. Knowledge about diabetes and healthy lifestyles also improved over this time. One-year later, however, the benefits had not been sustained.

"These are important and encouraging results. They show that providing culturally tailored information can help people control their diabetes", says Kamila Hawthorne, who works at the Department of Primary Care and Public Health at the University of Cardiff, UK.

Hawthorne K, Robles Y, Cannings-John R, et al. Culturally Appropriate Health Education for Type 2 Diabetes Mellitus in Ethnic Minority Groups. Cochrane Database of Systematic Reviews 2008; 3: Art No. CD006424. DOI: 10.1002/14651858.CD006424.pub2.

Can Diet Alone Control Type 2 Diabetes? No Evidence Yet

Despite strong evidence that type 2 diabetes can be prevented or at least delayed by a combination of lifestyle changes and good dietary advice, a team of Cochrane Researchers found that there is no indication whether dietary advice alone can prevent the disease.

Type 2 diabetes is very common and the number of people affected is increasing. The disease is linked to obesity, with 80% of individuals who develop the disease being obese. Therefore, as the incidence of obesity rises around the world, so too does the incidence of type 2 diabetes. The World Health Organization (WHO) estimates that more than 180 million people worldwide have diabetes. It claims that this number is likely to more than double by 2030.

When a team of Cochrane Researchers set out to see if dietary advice alone could help a person with type 2 diabetes, they were only able to identify two trials that together involved just 358 people.

“Considering the importance of this disorder, we were disappointed to find such a small amount of relevant data”, says lead researcher Lucie Nield, who works in Centre for Food, Physical Activity and Obesity, University of Teesside, Middlesbrough.

The two studies did, however, indicate that dietary advice alone could play an important role. One study randomly assigned people to either a control group or a dietary advice group. After six years, 67.7% of people in the control group had diabetes, compared with only 43.8% in the advice group. This was a 33% reduction. In another study, 12 months of dietary advice led to significant reductions in many diabetes related factors, such as insulin resistance, fasting C-peptide, fasting proinsulin, fasting blood glucose, fasting triglycerides, and fasting cholesterol and PAI-1.

“These two studies give grounds for believing that dietary advice alone could play an important role in reducing type 2 diabetes, but we do need more well-designed, long-term studies before we can work out the best advice to give”, says Nield.

Nield L, Summerbell CD, Hooper L, et al. Dietary Advice for the Prevention of Type 2 Diabetes Mellitus in Adults. Cochrane Database of Systematic Reviews 2008, Issue 3. Art. No. CD005102. DOI: 10.1002/14651858.CD005102.pub2.

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