Nutritional treatment of wasting in COPD

Individuals with chronic obstructive pulmonary disease (COPD) and low body weight have impaired pulmonary status, reduced diaphragmatic mass, lower exercise capacity and higher mortality rate than those who are adequately nourished. Nutritional support may therefore be a useful component of their comprehensive care.

Objectives:

To present the evidence from recent systematic reviews on the impact of nutritional supplementation on anthropometric measures, pulmonary function tests, respiratory and peripheral muscles strength, functional exercise capacity and health-related quality of life for patients with stable COPD.

Methods:

We updated the literature search to April 2012. Updated Cochrane methodology was used.

In our previous review, we used both end-of-intervention results and change scores to calculate the estimate of effect. Since the results were similar, we just used end-of-intervention results in this update.

We used mean difference to pool data from studies that measured outcomes with the same measurement tool and standardised mean difference when the constructs were similar but the measurement tools different. We established clinical homogeneity prior to pooling and then calculated statistical heterogeneity, using the Chi² test. We presented the results with 95% confidence intervals and incorporated factors from GRADE to give an overall quality of the evidence for our findings.

Other systematic reviews were identified by searching for reviews published in the past five years.

Results

We included 16 RCTs (541 participants) that lasted at least two weeks. Thirteen studies included only malnourished patients; three, malnourished and nourished patients. Twelve included outpatients; four had inpatient component. Four trials included an exercise component. Fourteen trials used an oral supplement; one used a nocturnal NE tube feeding; another, a fortified diet.

Pooled analyses showed a statistically significant improvement in TKS and HRQOL; however, there were non-statistically significant differences for all other outcomes, including weight, six-minute walk test, and FEV₁. Most results were supported by poor
quality evidence; moderate quality evidence supported the results on weight, lean body mass, and the six-minute walk test.

When we pooled the results from trials that included only malnourished patients, the results were statistically significant, showing that malnourished patients (as defined in the trials) did gain weight on supplementation.

Collins and colleagues used different methods for their systematic review recently published and showed significant improvement in weight, anthropometric measures and hand grip.

Zhu and colleagues followed what appeared to be Cochrane methodology and concluded that nutritional supplementation did not result in statistically significance effects for weight, mid-arm circumference, triceps skinfold thickness, FEV1 or forced vital capacity (only abstract available in English).

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Nutritional supplementation in COPD References

Included studies

Ali 2007


DeLetter 1991

Efthimiou 1988

Fuenzalida 1990

Goris 2003

Knowles 1988

Lewis 1987

Otte 1989
Rogers 1992

Schols 1995

Steiner 2003

Steiner 2002

Sugawara 2010

Teramoto 2004

van Wetering 2010


Weekes 2009


Whittaker 1990

Whittaker JS, Ryan CF, Buckley PA, Road JD. The effects of refeeding on peripheral and respiratory muscle function in malnourished chronic obstructive disease patients. American Review of Respiratory Disease 1990;142(2):283-8.

Other relevant papers


Ferreira IM, Brooks D, Lacasse Y, Goldstein R  Nutritional support for individuals with COPD – A meta-analysis Chest 2000, 117 (3) 672 -8.
