

primary studies - published RCT

## **Benefits of neuromuscular electrical stimulation prior to endurance training in patients with cystic fibrosis and severe pulmonary dysfunction.**

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

Double-blind, randomized controlled, Parallel-Group, Comparative Effectiveness trial

### **Participants**

15 hospitalized adults with CF. The median (interquartile range) age, body mass index, and forced expiratory volume in 1 second were 23.7 (19.9-33.2) years, 19.9 (18.6-22.6) kg/m<sup>2</sup>, and 63% (37%-80%), respectively.

### **Interventions**

Patients were given a one-time bolus dose of 100,000 IU of cholecalciferol (D3) in a powder-based or oil-based vehicle.

### **Outcome measures**

Serum D3, 25-hydroxyvitamin D, and parathyroid hormone concentrations were analyzed at 0, 12, 24, and 48 hours posttreatment. The area under the curve for serum D3 and the 12-hour time point were also assessed as indicators of D3 absorption.

### **Main results**

The increase in serum D3 and the area under the curve was greater in the powder group ( $P = .002$  and  $P = .036$ , respectively). Serum D3 was higher at 12 hours in the powder group compared with the oil group ( $P = .002$ ), although levels were similar between groups by 48 hours.

### **Authors' conclusions**

In adults with CF, cholecalciferol is more efficiently absorbed in a powder compared with an oil vehicle. Physicians should consider prescribing vitamin D in a powder vehicle in patients with CF to improve the absorption of vitamin D from supplements.

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### **See also**

Chest. 2013 Feb 1;143(2):485-93.

### **Keywords**

Bone Density Conservation Agents; Bone Diseases; Gastrointestinal Diseases; Pancreas insufficiency; Pancreatic Diseases; pharmacological\_intervention; Supplementation; vitamins; Vitamin D; Vitamin D Deficiency; Vitamin deficiencies; Malabsorption; Powders;