

Nutrition Intervention and Complications: Clinical Reference List

Reference	Population	Study Design	Sample Size	Intervention	Duration	Results
Lawson RM et al. The effect of unselected post-operative nutritional supplementation on nutritional status and clinical outcomes of orthopaedic patients. <i>Clin Nutr</i> 2003; 22: 39-46.	Elderly orthopedic patients	Prospective controlled trial	181	Intervention Group: Oral nutritional supplements Control Group: Standard hospital care	Until hospital discharge	Fewer patients in the intervention group developed major complications compared with the control group (14 vs. 34 patients) ($P=0.005$). There was no significant difference in the number of minor complications between the two groups ($P=0.2$).
Espauella J et al. Nutritional supplementation of elderly hip fracture patients. A randomized, double-blind, placebo-controlled trial. <i>Age Ageing</i> 2000; 29: 425-431.	Elderly patients age 70+ with hip fracture	Randomized Controlled Trial	171	Intervention Group: Oral nutritional supplements Control Group: Standard hospital care	60 days	Intervention group had fewer total complications than the control group [OR 1.94 995% CI 1.02-3.7), $p=0.04$]
Tkatch L et al. Benefits of oral protein supplementation in elderly patients with fracture of the proximal femur. <i>Am J Clin Nutr</i> 1992; 11: 519-525.	Elderly patients with hip fracture (mean age = 82 years)	Randomized Controlled Trial	62	Intervention Group: Oral nutritional supplements with protein Control Group: Oral nutritional supplements without protein	38 days	Rate of complications was significantly lower in the intervention group compared to the control group (52 vs. 80%, $p<0.05$)
Rana SK et al. Short term benefits of post-operative oral dietary supplements in surgical patients. <i>Clin Nutr</i> 1992; 11: 337-344.	Patients undergoing moderate to severe GI surgery	Randomized Controlled Trial	54	Intervention Group: Oral nutritional supplements + diet Control Group: Diet alone	Until hospital discharge	The incidence of serious infections (pneumonia, wound infection) was significantly higher in the control group than in the intervention group (10 vs. 3, $p<0.02$).
Delmi M et al. Dietary supplementation in elderly patients with fractured neck of the femur. <i>Lancet</i> 1990; 335: 1013-1016.	Elderly patients with femoral neck fracture	Randomized Controlled Trial	59	Intervention Group: Oral nutritional supplements Control Group: Standard hospital care	32 days	Rates of complications were significantly lower in the intervention group (16% vs. 37%)

This table of studies is not a comprehensive list of all studies done on nutrition intervention and complications.

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Cawood AL, et al. Systematic review of meta-analysis of the effects of high protein oral nutritional supplements. <i>Ageing Res Rev</i> 2012; 11: 278-296	Populations included elderly patients with hip fracture, leg and pressure ulcers, and those with acute illness	Meta-analysis	36 Randomized controlled trials (n=3790) 11 Randomized controlled trials (n=1892) reported data on complications	Intervention Group: High-protein oral nutritional supplements Control Group: Standard of care	0.5-6 months	High-protein oral nutritional supplements reduced the incidence of complications compared with control (OR 0.68, 95% CI 0.55-0.38, p<0.001) Average of 19% absolute reduction in complications in the intervention group.
Avenell A, Handoll HH. Nutritional supplementation for hip fracture aftercare in older people. <i>Cochrane Database Syst Rev</i> 2010;(1):CD001880.	Older hip fracture patients	Meta-analysis	24 Randomized controlled trials N=1940	Varies	Varies	Protein-enriched oral nutritional supplements (> 20% total energy from protein) reduced the number of long-term medical complications (RR 0.78; 95% CI 0.65–0.95)
Milne AC, Potter J, Vivanti A, Avenell A. Protein and energy supplementation in elderly people at risk from malnutrition. <i>Cochrane Database Syst Rev</i> 2009;(2):CD003288.	Older adults; older adults with hip fracture	Meta-analysis	24 Randomized controlled trials N=6225	Protein and energy oral nutritional supplements	Varies	Reduction in complications in older people treated with oral nutritional supplements compared to routine care (24 trials, n = 6225, relative risk 0.86; 95% CI 0.75 - 0.99). In a sub-group analysis of patients with hip fracture (6 trials, n = 298, relative risk 0.60; 95% CI 0.40 - 0.91) but not in other patient sub-groups (variety of hospital and community settings)

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Stratton RJ, Elia M. Who benefits from nutritional support: what is the evidence? <i>Eur J Gastroenterol Hepatol</i> 2007; 19:353-358.	Gastrointestinal surgical patients	Meta-analysis	18 Randomized controlled trials (n=907)	Enteral nutrition (oral nutritional supplements and tube feeding)	Varies	Enteral nutrition (supplements, tube feeding) significantly reduced postoperative complications (wound, respiratory and other infections, postoperative ileus, wound dehiscence, respiratory complications, unresolved peritonitis with relaparotomy) with an OR of 0.37 (95% CI 0.26–0.53) , corresponding to a 63% reduction in complications.
National Institute for Health and Clinical Excellence (NICE). Nutrition support in adults: oral nutrition support, enteral tube feeding and parenteral nutrition (clinical guidelines 32). London, <i>National Institute for Health and Clinical Excellence (NICE)</i> . 2006.	Hospital patients	Meta-analyses	9 Randomized controlled trials	Various nutrition intervention	Varies	Significant reduction in complications in hospital patients given oral nutritional supplements versus standard care (9 trials, relative risk 0.75 CI 0.64 - 0.88). Fewer complications in patients who started on oral nutritional supplements in the hospital setting and then continued in the community (2 trials, relative risk 0.44, CI 0.32 - 0.61)75.

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