4.2b Composition of Enteral Nutrition: (Carbohydrate/fat): Low fat/high CHO

There were no new randomized controlled trials since the 2015 update and hence there are no changes to the following summary of evidence.

Question: Does a low fat/high CHO enteral formula affect outcomes in the critically ill adult patient?

Summary of evidence: There was only one study that compared the outcomes of a low fat enteral diet, with and without omega 3 fatty acids, to a standard diet.

Mortality: There was no difference in the incidence of mortality between the groups receiving the low fat formula or standard (RR = 0.54, 95 % confidence intervals 0.13-2.31).

Infections: Low fat formula compared to standard was associated with a significant reduction in the incidence of pneumonia ($p<0.05$).

LOS: Low fat formula was associated with a trend towards a reduction in LOS ($p =0.08$).

Ventilator days: Not reported.

Other complications: No differences reported.

Conclusion:
1) Low fat enteral feeding may be associated with lower incidences of pneumonia and a reduction in LOS in burn patients.

Level 1 study: if all of the following are fulfilled: concealed randomization, blinded outcome adjudication and an intention to treat analysis.
Level 2 study: If any one of the above characteristics are unfulfilled

Table 1. Randomized studies evaluating low fat/high CHO enteral nutrition in critically ill patients

Study	Population	Methods (score)	Intervention	Mortality # (%)†		RR (CI)**	Infections # (%)		RR (CI)**
1) Garrel 1995	Thermal injury patients > 20 % TSBA N = 43	C.Random: yes ITT: no Blinding: double (9)	(A) low fat (15 % fat) (B) low fat + fish oils vs (C) 35 % fat	(A) + (B) 3/24 (12.5)	(C) 3/13 (23)	0.54 (0.13-2.31)	(A) + (B) 3/24 (12.5)	(C) 7/13 (54)	0.23 (0.07-0.75)

Table 1. Randomized studies evaluating low fat/high CHO enteral nutrition in critically ill patients (continued)

Study	LOS days			Ventilator days		Cost		Other
1) Garrel 1995	(A) 45 ± 23	(B) 46 ± 23	(C) 67 ± 28	NR	NR	NR	NR	NR

C.Random: concealed randomization
ITT: intent to treat
NR: not reported
TSBA: total surface burn area
† presumed ICU mortality unless otherwise specified
± : mean ± standard deviation
** RR= relative risk, CI= Confidence intervals
LOS: length of stay

Table 2. Excluded Articles

#	Reason excluded	Reference
1	No clinical outcomes	Schneeweiss B, Graninger W, Ferenci P, Druml W, Ratheiser K, Steger G, Grimm G, Schurz B, Laggner AN, Siostrzonek, et al. Short-term energy balance in patients with infections: carbohydrate-based versus fat-based diets. Metabolism. 1992 Feb; 41(2): 125-30.
2	Not RCT, no significant outcomes	Tappy L, Berger M, Schwarz JM, McCamish M, Revelly JP, Schneiter P, Jequier E, Chiolero R. Hepatic and peripheral glucose metabolism in intensive care patients receiving continuous high- or low-carbohydrate enteral nutrition. JPEN J Parenter Enteral Nutr1999 Sep-Oct; 23(5): 260-7; discussion 267-8.
3	Not ICU pts	Pohl M, Mayr P, Mertl-Roetzer et al. Glycaemic control in type II diabetic tube-fed patients with a new enteral formula low in carbohydrates and high in monounsaturated fatty acids: a randomised controlled trial. Eur J Clin Nutr 2005;59:1221-1232.