Table 1. Dose and physiological effects of dietary MCFAs/MCTs in clinical studies (adapted from Nagao & Yanagita 2010).

Sample	Dose (period)	Subject	Effect	Reference
MCT	48 g Single administration	Healthy men (*n* = 7)	vs corn oil: a greater rise in postprandial oxygen consumption from the basal level	Seaton et al. (1986)
MCT	40% 1 week	Healthy men (*n* = 10)	vs corn oil: a greater increase in energy expenditure	Hill et al. (1989)
MCT	30 g Single administration	Lean men (*n* = 6) Obese men (*n* = 6)	vs corn oil: a greater postprandial thermogenesis in both lean and obese subjects	Scalfi et al. (1991)
MCT	5-30 g Singe administration	Healthy men (*n* = 8)	vs LCT: increased energy expenditure with low-to-moderate (15-30 g) MCT intake	Dulloo et al. (1996)
MCT	15 g Single administration	Normal women (*n* = 8) Obese women (*n* = 8)	vs LCT: higher total lipid oxidation in both normal and obese subjects	Binnert et al. (1998)
MCT	40% of energy as fat (80% of dietary fat as MCT) 2 weeks	Healthy women (*n* = 12)	vs beef tallow: increased endogenous long-chain saturated fat oxidation	Papamandjaris et al. (2000)
MCT	67% of treatment fat 27 days	Obese women (*n* = 17)	vs beef tallow: increased energy expenditure and fat oxidation	St-Onge et al. (2003)
MCT	64.7% 28 days	Overweight men (*n* = 24)	vs olive oil: increased energy expenditure and decreased adiposity	St-Onge et al. (2003)
MCT	Two thirds of 75% added fat 28 days	Overweight men (*n* = 19)	vs olive oil: increased energy expenditure and fat oxidation	St-Onge and Jones (2003)
MCT	10 g 12 weeks	Healthy men and women MCT (*n* = 41), LCT (*n* = 37)	vs blended rapeseed oil and soybean oil: decreased body fat accumulation in subjects with BMI ≥ 23 kg/m^2	Tsuji et al. (2001)
MCT	5 g 12 weeks	Healthy men (*n* = 55) Healthy women (*n* = 18)	vs blended rapeseed oil and soybean oil: decreased body fat weights	Nosaka et al. (2003)
MCT	5-10 g Single administration	Healthy men (*n* = 8) Healthy women (*n*= 8)	vs blended rapeseed oil and soybean oil: greater diet-induced thermogenesis	Kasai et al. (2002)
MCT	18-24 g 16 weeks	Overweight men (*n* = 3) Overweight women (*n* = 28)	vs olive oil: lower endpoint body weight and fat mass	St-Onge et al. (2008)
MCT	6 g 2 weeks	Recreational athletes (1 man and 7 women)	vs LCT: lowered blood lactate and RPE during MIE, extended duration of subsequent HIE	Nosaka et al. (2009)
MLCT	14 g (1.7 g MCFAs) 12 weeks	Healthy human MCLT (36 men and 4 women) LCT (39 men and 3 women)	vs blended rapeseed oil and soybean oil: decreased body weight and body fat, lowered serum cholesterol level	Kasai et al. (2003)
MLCT	20 g 12 weeks	Healthy male MCLT (*n* = 7), LCT (*n* = 6)	vs soybean oil: lowered rate of variation of body fat%	Matsuo et al. (2001)
MLCT	20 g 3 weeks	College athletes (male, *n* = 6)	vs soybean oil: lowered rate of variation of serum TG, lowered rate of variation of body fat mass	Takeuchi et al. (2002)
MLCT	25-30 g (3.25-3.9 g MCFAs) 8 weeks	Hypertriglyceridemic Subjects (MLCT, *n* = 51; LCT, *n* = 50)	vs LCT: greater decreases in BW, BMI, WC, body fat; lowered serum TG	Xue et al. (2009)
MLCT	25-30 g (3.25-3.9 g MCFAs) 8 weeks	Hypertriglyceridemic Subjects (MLCT, *n* = 51; LCT, *n* = 50)	vs LCT: (in subjects age under 60 years) greater decreases in BW, BMI, WC, HC, WHR, body fat, TG, LDL-C, apolipoproteins; lowered ApoB, ApoA2, ApoC2 and ApoC3	Xue et al. (2009)
MLCT	1680 kJ (39 kJ/g) Single administration	Healthy women (*n* = 15)	vs soybean oil: higher PTEE and greater thermic effects	Matsuo et al. (2001)
MLCT	14 g Single administration	Healthy subjects (9 male and 11 female)	vs canola oil: a greater increase in DIT	Ogawa et al. (2007)
FctO	40% of energy as fat (19.5% of energy as MCT oil) 4 weeks	Overweight men (*n* = 24)	vs olive oil: lowered endpoint TC and LDL-C; greater LDL particle size	St-Onge et al. (2003)
FctO	40% of energy as fat (MCT oil, 50% of fat) 27 days	Overweight women (*n* = 17)	vs beef tallow: lowered TC and LDL-C Higher ratios of HDL:LDL and HDL:total cholesterol	Bourque et al. (2003)
MCT	40% fat diet (77.5% of the fat Calories as MCT) 4 days	NIDDM patients (*n* = 10) non-diabetic subjects (*n* = 10, 4 hypertriglyceridemic, 6 normotriglyceridemic)	vs house hold shortening: increased insulin-mediated glucose metabolism in both diabetic and non-diabetic subjects	Eckel et al. (1992)
MCT	18 g 90 days	Type 2 diabetic patients MCT (*n* = 20), LCT (*n* = 20)	vs corn oil: reduced body weight, WC, and HOMA-IR	Han et al. (2007)
MCT	40 g divided into three times at 25-min intervals	Intensively treated type 1 diabetic patients (*n* = 11, 5 men, 6 women)	vs sucralose: reversed impaired cognitive performance	Page et al. (2009)

Apo, apolipoprotein; BMI, body mass index; BW, body weight; DIT, diet-induced thermogenesis; FctO, functional oil; HC, hip circumference; HDL, high-density lipoprotein; HIT, high-intensity exercise; HOMA-IR, homeostasis model assessment of insulin resistance; LCSFA, long-chain saturated fatty acid; LCT, long-chain triacylglycerol; LDLC, low-density lipoprotein cholesterol; MCT, medium-chain triacylglycerol; MIT, moderate-intensity exercise; MLCT, medium- and long-chain triacylglycerol; NIDDM, non-insulin-dependent diabetes mellitus, PTEE, post-ingestive total energy expenditure; RPE, rating of perceived exertion; TC, total cholesterol; TG, triglyceride; WC, waist circumference; WHR, waist–hip ratio.