

## Supplementary Table 1 Search Syntax

The following search strategy was utilized in PubMed, CINAHL, Embase, and PsycInfo.

PubMed	<p>("intermittent fasting" OR "intermittent fast" OR "intermittent energy restriction" OR "intermittent calorie restriction" OR "time restricted feeding" OR "time restricted feedings" OR "alternate day fasting" OR "alternate fasting" OR "modified alternate day fasting" OR "5:2 diet" OR "periodic fasting" OR "periodic fast")  AND  (("Obesity"[Mesh] or obesity) OR ("Overweight"[Mesh] OR overweight))  AND  ("Weight Loss"[Mesh] OR weight loss OR weight reduction OR weight reductions)</p>
CINAHL	<p>(fasting OR intermittent fasting OR intermittent fast OR intermittent energy restriction OR intermittent calorie restriction OR time restricted feeding OR time restricted feedings OR alternate day fasting OR alternate fasting OR modified alternate day fasting OR 5:2 diet OR periodic fasting OR periodic fast)  AND  (obesity OR overweight)  AND  (weightloss OR weight reduction)</p>
Embase	<p>('fasting'/exp OR fasting OR 'intermittent fasting'/exp OR 'intermittent fasting' OR 'intermittent fast' OR 'intermittent energy restriction'/exp OR 'intermittent energy restriction' OR 'intermittent calorie restriction' OR 'time restricted feeding'/exp OR 'time restricted feeding' OR 'time restricted feedings' OR 'alternate day fasting'/exp OR 'alternate day fasting' OR 'alternate fasting' OR 'modified alternate day fasting' OR '5:2 diet' OR 'periodic fasting' OR 'periodic fast')  AND  ('obesity'/exp OR obesity OR 'overweight'/exp OR overweight)  AND  ('weightloss' OR 'weight reduction'/exp)</p>
PsycInfo	<p>(fasting OR "intermittent fasting" OR "intermittent fast" OR "intermittent energy restriction" OR "intermittent calorie restriction" OR "time restricted feeding" OR "time restricted feedings" OR "alternate day fasting" OR "alternate fasting" OR "modified alternate day fasting" OR "5:2 diet" OR "periodic fasting" OR "periodic fast")  AND  (obesity OR overweight)  AND  (weight loss OR weight reduction)</p>

**Supplementary Table 2** Characteristics of Randomized Controlled Trials

Author (year)	Country	Duration (follow-up)	Regimen	Matched Diets? (yes/no)	Protocol			N <sup>1</sup>	Attrition <sup>2</sup> , %	Baseline Characteristics			
					Exercise	Food Provided? (yes/no)	Behavioral Support			Age, years	Sex, % female	BMI, kg/m <sup>2</sup>	Weight, kg
#1. Parvaresh et al. (2019) <sup>*, CA</sup>	Iran	8 weeks	ADF Sat, Mon, Wed -75% energy restriction Sun, Tues, Thurs - 100% calorie needs Fri – Ad libitum	No	Maintain regular PA levels	No	None specified	35 <sup>a</sup>	0.0	44.6 (9.08) <sup>SD</sup>	40.0	31.1 (3.35) <sup>SD</sup>	86.7 (10.65) <sup>SD</sup>
			CER Consume 75% energy needs daily		Maintain regular PA levels	No	None specified	35 <sup>a</sup>	2.9	46.4 (7.94) <sup>SD</sup>	41.2	31.6 (3.82) <sup>SD</sup>	84.2 (12.21) <sup>SD</sup>
#2. Beaulieu et al. (2020) <sup>ITT</sup>	United Kingdom	12 weeks	ADF Consume 25% energy needs on fast days through total diet replacements with alternating days of ad libitum	No	Maintain regular PA levels	Yes	Weekly meetings with dietitian	24	25.0	35 (11) <sup>SD</sup>	100.0	29.4 (2.5) <sup>SD</sup>	81.2 (13.0) <sup>SD</sup>
			CER Consume 75% energy needs daily		Maintain regular PA levels	Yes	Weekly meetings with dietitian	22	9.1	34 (9) <sup>SD</sup>	100.0	28.9 (2.3) <sup>SD</sup>	78.6 (10.0) <sup>SD</sup>
#3. Catenacci et al. (2016) <sup>CA</sup>	United States	8 weeks (24 weeks)	ADF Consume only water, calorie-free beverages, and stock cube soup on fast days with alternating days of provided diet that meet energy requirements and ad libitum access to 200kcal food modules	No	Maintain regular PA levels	Provided during 8 weeks intervention only	received standardized weight maintenance advice after intervention	15 <sup>a</sup>	6.7	39.6 (9.5) <sup>SD</sup>	76.9	35.8 (3.7) <sup>SD</sup>	94.7 (10.6) <sup>SD</sup>
			CER 400 kcal/day deficit from estimated energy requirements		Maintain regular PA levels	Provided during 8 weeks intervention only	received standardized weight maintenance advice after intervention	14 <sup>a</sup>	0.0	42.7 (7.9) <sup>SD</sup>	75.0	39.5 (6.0) <sup>SD</sup>	114.0 (20.0) <sup>SD</sup>
#4. Coutinho et al. (2018) <sup>CA</sup>	Norway	12 weeks	ADF three nonconsecutive days of VLCD (550/660 kcal/day for women/men) and diet that meets energy needs on alternating days feed days	Yes	Maintain regular PA levels	No	Weekly diet counseling with a trained dietitian	18 <sup>a</sup>	22.2	39.4 (11.0) <sup>SD</sup>	71.4	35.6 (3.2) <sup>SD</sup>	107.2 (13.6) <sup>SD</sup>
			CER		Maintain	No	Weekly diet	17 <sup>a</sup>	17.6	39.1	85.7	35.1	97.5

			low calorie diet daily		regular PA levels		counseling with a trained dietitian			(9.0) <sup>SD</sup>		(4.2) <sup>SD</sup>	(12.8) <sup>SD</sup>
#5 a. Hutchison et al. (2019) <sup>CA</sup>  #5 b. Liu et al. (2019) <sup>2nd, CA</sup>	Australia	8 weeks	ADF with 100% energy requirements per week three nonconsecutive days of fasting with alternating fed days providing ~145% energy requirements		Maintain regular PA levels	Yes	Weekly individual counseling	25	12.0	51.0 (2) <sup>SE</sup>	100.0	31.2 (0.9) <sup>SE</sup>	84.1 (2.8) <sup>SE</sup>
			ADF with 70% energy requirements per week three nonconsecutive days of fasting with alternating fed days providing ~100% energy requirements	Yes	Maintain regular PA levels	Yes	Weekly individual counseling	25	12.0	49.0 (2.0) <sup>SE</sup>	100.0	32.4 (0.8) <sup>SE</sup>	89.4 (2.8) <sup>SE</sup>
			CER70 70% energy requirements daily		Maintain regular PA levels	Yes	Weekly individual counseling	26	7.7	51.0 (2.0) <sup>SE</sup>	100.0	32.6 (1.0) <sup>SE</sup>	88.4 (2.8) <sup>SE</sup>
			Control 100% energy requirements daily		Maintain regular PA levels	Yes	Weekly individual counseling	12	8.3	49.0 (3.0) <sup>SE</sup>	100.0	30.9 (1.5) <sup>SE</sup>	83.8 (4.8) <sup>SE</sup>
#6. Bowen et al. (2018) <sup>CA</sup>	Australia	16 weeks (8 weeks)	ADF Tues, Thurs, Sun: 2400kJ+55g protein, a modified fasting meal replacement program Mon, Wed, Fri: 5000kJ+102 protein Sat: ad libitum	Unclear	Maintain regular PA levels	Provided meal replacements only	Biweekly individual meeting with dietitian	82	18.3	40.0 (8.3) <sup>SD</sup>	81.7	35.7 (5.8) <sup>SD</sup>	100.6 (19.6) <sup>SD</sup>
			CER daily energy restriction meal replacement program		Maintain regular PA levels	Provided meal replacements only	Biweekly individual meeting with dietitian	81	16.0	40.6 (8.8) <sup>SD</sup>	80.2	35.5 (5.5) <sup>SD</sup>	99.6 (15.6) <sup>SD</sup>
#7. Razavi et al. (2020) <sup>*, CA</sup>	Iran	16 weeks	ADF Sat, Mon, Wed: VLCD of 75% energy restriction Sun, Tues, Thurs, Fri: ad libitum	No	Maintain regular PA levels	Provided fast day meals only	Phone interviews during the week	40 <sup>a</sup>	5	41.3 (8.65) <sup>SD</sup>	40.0	31.3 (3.12) <sup>SD</sup>	89.4 (7.72) <sup>SD</sup>
			CER Consume 75% energy needs daily		Maintain regular PA levels	No	Phone interviews during the week	40 <sup>a</sup>	7.5	43.1 (9.26) <sup>SD</sup>	41.2	31.2 (3.95) <sup>SD</sup>	87.1 (8.17) <sup>SD</sup>
#8 a. Trepanowski et al.	United States	52 weeks	ADF Consume 25% energy requirements at lunch time on fast days and 125% energy	Yes	Maintain regular PA levels	Provided for 12	Met individually with dietitian	34	38.2	44.0 (10.0) <sup>SD</sup>	88.2	34.0 (4.0) <sup>SD</sup>	95.0 (13.0) <sup>SD</sup>

(2017) <sup>111</sup> #8 b. Trepanowski et al. (2018) <sup>2nd</sup> , CA #8 c. Barnosky et al. (2017) <sup>X</sup> , 2nd, CA #8 d. Gabel et al. (2019) <sup>#, X</sup> , 2nd, CA #8 e. Miranda et al. (2018) <sup>X</sup> , 2nd, CA			requirements on alternating feed days			wks only	or nutritionist weekly after 12 wks													
			CER consume 75% energy requirements daily			Maintain regular PA levels	Provided for 12 wks only							Met individually with dietitian or nutritionist weekly after 12 wks	35	28.6	43.0 (12.0) <sup>SD</sup>	82.9	35.0 (4.0) <sup>SD</sup>	101.0 (16.0) <sup>SD</sup>
			Control Maintain regular diet			Maintain regular PA levels	No							No	35	22.9	44.0 (11.0) <sup>SD</sup>	77.1	34.0 (4.0) <sup>SD</sup>	92.0 (16.0) <sup>SD</sup>
#9. Varady et al. (2011) <sup>CA</sup>	United States	12 weeks	ADF 75% energy restriction on fast days consumed at lunch with alternating days of ad libitum	No	Maintain regular PA habits	Provided fast day meals only	None specified	15 <sup>a</sup>	13.3	47.0 (2.0) <sup>SE</sup>	76.9	32.0 (2.0) <sup>SE</sup>	NR							
			CER 25% energy restriction daily			Maintain regular PA habits	Yes	None specified	15 <sup>a</sup>	20.0	47.0 (3.0) <sup>SE</sup>	83.3	32.0 (2.0) <sup>SE</sup>	NR						
			Exercise Ad libitum diet			Moderate intensity exercise 3 times a week	No	None specified	15 <sup>a</sup>	20.0	46.0 (3.0) <sup>SE</sup>	83.3	33.0 (1.0) <sup>SE</sup>	NR						
			Control Ad libitum diet			Maintain regular PA habits	No	None specified	15 <sup>a</sup>	20.0	46.0 (3.0) <sup>SE</sup>	83.3	32.0 (2.0) <sup>SE</sup>	NR						
#10 a. Bhutani et	United States	12 weeks	ADF Consumed 25% of energy needs from 12:00-14:00 on	Yes	Maintain regular	Provided	Met with dietician	25	36.0	42.0 (2.0) <sup>SE</sup>	96.0	35.0 (1.0) <sup>SE</sup>	94.0 (3.0) <sup>SE</sup>							

al. (2013) <sup>ITT</sup>  #10 b. Bhutani et al. (2013) <sup>2nd, ITT</sup>  #10 c. Bhutani et al. (2013) <sup>2nd, ITT</sup>			fast days and ad libitum on fast days		PA habits	fast day meals only for 4wks	weekly													
			ADF with exercise Consume 25% of energy needs from 12:00-14:00 on fast days and ad libitum on fast days		Moderate intensity exercise 3 times a week	Provided fast day meals only for 4wks	Met with dietician weekly							18	11.1	45.0 (5.0) <sup>SE</sup>	100.0	35.0 (1.0) <sup>SE</sup>	91.0 (6.0) <sup>SE</sup>	
			Exercise Maintain regular diet			Moderate intensity exercise 3 times a week	No							No	24	33.3	42.0 (2.0) <sup>SE</sup>	95.8	35.0 (1.0) <sup>SE</sup>	93.0 (2.0) <sup>SE</sup>
			Control Maintain regular diet			Maintain regular PA habits	No							No	16	0.0	49.0 (2.0) <sup>SE</sup>	93.8	35.0 (1.0) <sup>SE</sup>	93.0 (5.0) <sup>SE</sup>
#11. Cho et al. (2019) <sup>CA, ^</sup>	Korea	8 weeks	ADF Consumed 25% of energy needs (~500kcal) consumed from 12:00-14:00 on fast days and ad libitum on feed days	Yes	Maintain regular PA habits	No	24 hour dietary recall method was implemented	26 <sup>a</sup>	26.9	33.5 (5.0) <sup>SD</sup>	75.0	27.8 (3.4) <sup>SD</sup>	74.6 (13.7) <sup>SD</sup>							
			ADF with exercise Consumed 25% of energy needs (~500kcal) consumed from 12:00-14:00 on fast days and ad libitum on feed days		Moderate intensity exercise 3 times a week	No	24 hour dietary recall method was implemented	28 <sup>a</sup>	25	34.5 (5.7) <sup>SD</sup>	44.4	28.0 (2.6) <sup>SD</sup>	78.2 (14.5) <sup>SD</sup>							
			Exercise NR			Moderate intensity exercise 3 times a week	No	24 hour dietary recall method was implemented	24 <sup>a</sup>	29.2	38.6 (8.2) <sup>SD</sup>	44.4	26.9 (3.9) <sup>SD</sup>	74.2 (13.2) <sup>SD</sup>						
			Control Maintain regular diet			Maintain regular PA habits	No	24 hour dietary recall method was implemented	22 <sup>a</sup>	27.3	42.6 (10.6) <sup>SD</sup>	66.6	25.8 (3.4) <sup>SD</sup>	71.1 (11.7) <sup>SD</sup>						
#12. Hoddy et al. (2014) <sup>CA</sup>	United States	8 weeks	ADF with small meal at lunch Consumed 25% of energy needs from 12:00-14:00 on	Yes	Maintain regular PA habits	Provided fast day	None specified	24 <sup>a</sup>	16.7	46.0 (3.0) <sup>SE</sup>	85.0	35.0 (1.0) <sup>SE</sup>	94.0 (2.0) <sup>SE</sup>							

			fast days and ad libitum on feed days			meals only							
			ADF with small meal at dinner Consumed 25% of energy needs from 12:00-14:00 on fast days and ad libitum on feed days		Maintain regular PA habits	Provided fast day meals only	None specified	25 <sup>a</sup>	24.0	45.0 (3.0) <sup>SE</sup>	78.9	34.0 (1.0) <sup>SE</sup>	97.0 (3.0) <sup>SE</sup>
			ADF with small meals throughout the day Consumed 25% of energy needs from 6:00-8:00, 12:00-14:00, and 18:00-20:00 on fast days and ad libitum on feed days		Maintain regular PA habits	Provided fast day meals only	None specified	25 <sup>a</sup>	20.0	46.0 (2.0) <sup>SE</sup>	90.0	34.0 (1.0) <sup>SE</sup>	90.0 (2.0) <sup>SE</sup>
#13 a. Klempel et al. (2013) <sup>CA</sup>	United States	8 weeks	ADF with high fat diet Consumed 25% of energy needs from 12:00-14:00 on fast day and 125% of energy needs with 45% fat on feed days	Yes	Maintain regular PA habits	Yes	None specified	17 <sup>a</sup>	11.8	42.4 (3.0) <sup>SE</sup>	100.0	35.3 (0.7) <sup>SE</sup>	91.5 (2.6) <sup>SE</sup>
#13 b. Klempel et al. (2013) <sup>CA</sup>			ADF with low fat diet Consumed 25% of energy needs from 12:00-14:00 on fast day and 125% of energy needs with 25% fat on feed days		Maintain regular PA habits	Yes	None specified	18 <sup>a</sup>	5.6	43.2 (2.3) <sup>SE</sup>	100.0	35.5 (0.7) <sup>SE</sup>	91.5 (2.9) <sup>SE</sup>
#13 c. Klempel et al. (2013) <sup>2nd, CA</sup>													
#13 d. Varady et al. (2015) <sup>X, 2nd, CA</sup>													
#14. Antoni et al. (2018) <sup>CA</sup>	United Kingdom	Max duration of 36 weeks	5:2 consume 25% energy needs through food packs on two consecutive fast days and healthy diet on five feed days	Yes	Maintain regular PA habits	Provided fast day food packs only	fortnightly motivational phone, email, texts from study investigators and monthly face-to-face	24 <sup>a</sup>	37.5	42.0 (4.0) <sup>SE</sup>	53.3	29.8 (0.9) <sup>SE</sup>	88.8 (3.4) <sup>SE</sup>

							clinic appointments						
			CER consume 2510kJ below energy needs		Maintain regular PA habits	No	fortnightly motivational phone, email, texts from study investigators and monthly face-to-face clinic appointments	24 <sup>a</sup>	50.0	48.0 (3.0) <sup>SE</sup>	50.0	30.8 (1.1) <sup>SE</sup>	89.3 (4.5) <sup>SE</sup>
#15 a. Carter et al. (2018) <sup>+</sup> ITT	Australia	52 weeks (52 weeks)	5:2 consume 500-600 kcal for two nonconsecutive fast days and usual diet for remaining five days	Yes	Encourage to increase step count by 2000	No	Met with dietitian every two wks for the first 12 wks, then every 2-3 months	70	27.1	61.0 (9.0) <sup>SD</sup>	55.7	35.0 (5.8) <sup>SD</sup>	100.0 (19) <sup>SD</sup>
#15 b. Carter et al. (2019) <sup>+</sup> 2nd, ITT			CER consume 1200-1500 kcal daily		Encourage to increase step count by 2000	No	Met with dietitian every two wks for the first 12 wks, then every 2-3 months	67	31.3	61.0 (9.2) <sup>SD</sup>	56.7	37.0 (5.7) <sup>SD</sup>	102.0 (17) <sup>SD</sup>
#16. Carter et al. (2016) <sup>+</sup> ITT (weight and HbA1c only) + CA	Australia	12 weeks	5:2 1670-2500kJ for two days with usual diet for remaining five days	No	Maintain regular PA habits	No	fortnightly appointments (12wks); if appointment missed, participants were contacted through phone or email)	31	16.1	61.0 (7.5) <sup>SD</sup>	54.8	35.0 (4.8) <sup>SD</sup>	99.0 (16.0) <sup>SD</sup>
			CER 5000-6500kJ daily		Maintain regular PA habits	No	fortnightly appointments (12wks); if appointment missed, participants were contacted through	32	21.9	62.0 (9.1) <sup>SD</sup>	50.0	36.0 (5.2) <sup>SD</sup>	99.0 (15.0) <sup>SD</sup>

							phone or email)						
#17. Conley et al. (2018) <sup>CA</sup>	Australia	24 weeks	5:2 600 calories on two nonconsecutive fast days and ad libitum on remaining five days	No	Maintain regular PA habits	No	Received five individual counseling on specific dietary interventions for first 12 wks	12 <sup>a</sup>	8.3	68.0 (2.7) <sup>SE</sup>	0.0	33.4 (1.8) <sup>SE</sup>	99.1 (7.9) <sup>SE</sup>
			CER 500 calorie reduction from average daily energy needs daily		Maintain regular PA habits	No	Received five individual counseling on specific dietary interventions for first 12 wks	12 <sup>a</sup>	0.0	67.1 (3.9) <sup>SE</sup>	0.0	36.2 (4.3) <sup>SE</sup>	107.3 (17.1) <sup>SE</sup>
#18. Schübel et al. (2018) <sup>ITT</sup>	Germany	24 weeks (26 weeks)	5:2 25% energy restriction on two nonconsecutive days and eucaloric diet on remaining five days	Yes	Maintain regular PA habits	No	Biweekly phone calls by dietitians during intervention phase; received longer and more comprehensive counseling	49	4.1	49.4 (9.0) <sup>SD</sup>	49.0	32.0 (3.8) <sup>SD</sup>	96.4 (15.8) <sup>SD</sup>
			CER Consume ~80% energy needs daily		Maintain regular PA habits	No	Biweekly phone calls by dietitians during intervention phase; received longer and more comprehensive counseling	49	8.2	50.5 (8.0) <sup>SD</sup>	49.0	31.2 (4.0) <sup>SD</sup>	92.5 (15.7) <sup>SD</sup>
			Control Maintain regular diet		Maintain regular PA habits	No	Biweekly phone calls by dietitians during intervention phase;	52	1.9	50.7 (7.1) <sup>SD</sup>	52.0	31.1 (3.6) <sup>SD</sup>	93.3 (13.3) <sup>SD</sup>



							received longer and more comprehensive counseling						
#19 a. Sundfør et al. (2018) <sup>ITT</sup>	Norway	52 weeks	5:2 400/600 (female/male) kcal on two nonconsecutive days and usual diet on remaining five days	Yes	Maintain regular PA habits	No	Received dietary counseling and advised on weight loss maintenance	54	7.4	49.9 (10.1) <sup>SD</sup>	48.1	35.1 (3.9) <sup>SD</sup>	108.6 (16.3) <sup>SD</sup>
			CER reduced energy intake evenly for total weekly energy reduction equivalent in both groups		Maintain regular PA habits	No	Received dietary counseling and advised on weight loss maintenance	58	5.2	47.5 (11.6) <sup>SD</sup>	51.7	35.3 (3.5) <sup>SD</sup>	107.5 (16.1) <sup>SD</sup>
#20. Hirsh et al. (2019)	United States	7.5 weeks	5:2 Mon and Tues: consume 730kcal of prepared shake four times a day Wed, Thurs, Fri, Sat, Sun: maintain regular diet	No	Maintain regular PA habits	Provided fast day prepared shakes only	Provided regular telephone interviews/emails	10	0.0	43.4 (13.0) <sup>SD</sup>	80.0	26.7 (1.9) <sup>SD</sup>	76.3 (9.8) <sup>SD</sup>
			Control Maintain regular diet		Maintain regular PA habits	No	Provided regular telephone interviews/emails	12	0.0	39.0 (10.7) <sup>SD</sup>	41.7	27.7 (3.1) <sup>SD</sup>	79.4 (8.9) <sup>SD</sup>
#21. Hottenrott et al. (2020) <sup>CA</sup>	Germany	12 weeks	5:2 with placebo (5:2) Consume 400/600 (female/male) kcal on two fasting days and five days of diet that meets energy requirements with placebo	Yes	Personalized endurance training based on heart rate three to four times a week	No	None specified	20	10.0	NR	NR	NR	NR

			5:2 with alkaline supplementation Consume 400/600 (female/male) kcal on two fasting days and five days of diet that meets energy requirements with alkaline supplementation		Personalized endurance training based on heart rate three to four times a week	No	None specified	20	15.0	NR	NR	NR	NR
			Control with placebo NR	Yes	Personalized endurance training based on heart rate three to four times a week	No	None specified	20	15.0	NR	NR	NR	NR
			Control with alkaline supplementation NR		Personalized endurance training based on heart rate three to four times a week	No	None specified	20	20.0	NR	NR	NR	NR
#22. Corley et al. (2018) <sup>+, CA</sup>	New Zealand	12 weeks	5:2 with consecutive fasting days Consume ~2092-2510kJ on consecutive fast days two days per week	Yes	NR	No	Contacted weekly by phone or email	19 <sup>a</sup>	5.3	62 (44 to 77)	38.9	36.6 (5.3) <sup>SD</sup>	108.7 (20.4) <sup>SD</sup>
			5:2 with nonconsecutive fasting days Consume ~2092-2510kJ on nonconsecutive fast days two days per week		NR	No	Contacted weekly by phone or email	22 <sup>a</sup>	13.6	58 (42 to 74)	42.1	36.8 (5.2) <sup>SD</sup>	109.8 (20.3) <sup>SD</sup>
#23. Byrne et al. (2018) <sup>ITT</sup>	Australia	30/16 weeks (WOWO /CER) (24 weeks)	WOWO Eight weeks of 67% energy restriction with alternating weeks of energy balance with 100% energy needs	Yes	NR	Yes	None specified	26	26.9	39.9 (9.2) <sup>SD</sup>	0.0	34.6 (4.2) <sup>SD</sup>	109.8 (14.1) <sup>SD</sup>
			CER Consume 67% energy needs		NR	Yes	None	25	12.0	39.3	0.0	34.4	111.6

			daily				specified			(6.6) <sup>SD</sup>		(3.3) <sup>SD</sup>	(10.0) <sup>SD</sup>
#24. Keogh et al. (2014) <sup>CA</sup>	Australia	52 weeks	WOWO 5500kJ energy restriction for 1 week followed by 1 week of usual diet	No	Maintain regular PA habits	No	None specified	39 <sup>a</sup>	51.3	59.5 (8.7) <sup>SD</sup>	100.0	33.1 (3.8) <sup>SD</sup>	86.9 (14.1) <sup>SD</sup>
			CER 5500kJ energy restriction every week		Maintain regular PA habits	No	None specified	36 <sup>a</sup>	52.8	60.8 (12.5) <sup>SD</sup>	100.0	33.0 (7.5) <sup>SD</sup>	90.2 (18.8) <sup>SD</sup>
#25 a. Headland et al. (2019) <sup>ITT</sup> (weight only)+CA	Australia	52 weeks (52 weeks)	5:2 2100kJ/2520kJ (women/men) per day for two consecutive or nonconsecutive days and five days of habitual eating	Yes	Advised to increase number of steps per day to 10,000	No	None specified	118	58.5	47.5 (14.5) <sup>SD</sup>	77.1	32.7 (5.1) <sup>SD</sup>	88.8 (14.9) <sup>SD</sup>
			WOWO 4200kJ/5040kJ (women/men) per day for one week followed by one week of habitual eating		Advised to increase number of steps per day to 10,000	No	None specified	110	60.0	49.0 (13.2) <sup>SD</sup>	85.5	33.3 (5.1) <sup>SD</sup>	92.6 (17.1) <sup>SD</sup>
			CER 30% energy restriction from requirements		Advised to increase number of steps per day to 10,000	No	None specified	104	49.0	51.7 (13.0) <sup>SD</sup>	81.7	32.2 (4.0) <sup>SD</sup>	88.2 (13.7) <sup>SD</sup>
#25 b. Headland et al. (2020) <sup>2nd, CA</sup>													
#25 c. Headland et al. (2019) <sup>X, 2nd, CA</sup>													
#26 a. Klempel et al. (2012) <sup>CA</sup>	United States	8 weeks	6:1 with liquid meal replacements Six days of calorie-restricted liquid meal replacements for breakfast and lunch (240kcal) and dinner meal (400-600kcal) with one fast day per week	Yes	NR	Provided liquid meal replacements only	Met with dietitian weekly	28 <sup>a</sup>	7.1	47.0 (2.0) <sup>SE</sup>	100.0	35.0 (1.0) <sup>SE</sup>	95.0 (3.0) <sup>SE</sup>
			6:1 with food-based diet Six days of calorie-restricted food-based diet and one fast day per week		NR	No	Met with dietitian weekly	26 <sup>a</sup>	15.4	48.0 (2.0) <sup>SE</sup>	100.0	35.0 (1.0) <sup>SE</sup>	94.0 (3.0) <sup>SE</sup>
#26 b. Kroegar et al. (2012) <sup>CA</sup>													
#27. Chow et	United States	12 weeks	TRF Self-selected 8 hour eating period with ad libitum intake	No	NR	No	Notified by phone call,	13 <sup>a</sup>	15.4	46.5 (12.4) <sup>SD</sup>	81.8	33.8 (7.6) <sup>SD</sup>	95.2 (22.6) <sup>SD</sup>

al. (2020) <sup>CA</sup>							email, text of compliance						
			Control ad libitum per usual habits		NR	No	Notified by phone call, email, text of logging adherence	9 <sup>a</sup>	0.0	44.2 (12.3) <sup>SD</sup>	88.9	34.4 (7.8) <sup>SD</sup>	100.9 (28.1) <sup>SD</sup>

<sup>1</sup> = randomized; <sup>2</sup> = from randomized population to end of weight loss and/or weight maintenance phase, attrition for follow-up not included

<sup>X</sup> = sub sample from parent study; <sup>2nd</sup> = secondary analysis; <sup>ITT</sup> = intention-to-treat analysis; <sup>CA</sup> = completer's analysis; <sup>+</sup> = participants with type 2 DM; <sup>\*</sup> = participants with metabolic syndrome; <sup>#</sup> = participants characterized as insulin resistant; <sup>^</sup> = inclusion criteria BMI >23

<sup>a</sup> = baseline data of completers only, baseline data of all randomized participants are not available; <sup>SD</sup> = standard deviation; <sup>SE</sup> = standard error; NR = not reported; PA = physical activity

ADF = participants randomized into a form of the alternate day fasting eating pattern; 5:2 = participants randomized into a form of the 5:2 eating pattern; WOWO = participants randomized into a form of the week on and week off eating pattern; Control = participants with no prescribed diet interventions, participants were informed to maintain their usual diet; 6:1 = six days of restricted or ad libitum intake with one day of fasting; TRF = time restricted fasting eating pattern

## References

- #1. Pavaresh, A., Razavi, R., Abbasi, B., Yaghoobloo, K., Hassanzadeh, A., Mohammadifard, N., Safavi, S. M., Hadi, A., & Clark, C. C. (2019). Modified alternate-day fasting vs. calorie restriction in the treatment of patients with metabolic syndrome: A randomized clinical trial. *Complementary therapies in medicine*, 47, 102187.
- #2. Beaulieu, K., Casanova, N., Oustric, P., Turicchi, J., Gibbons, C., Hopkins, M., Varady, K., Blundell, J., & Finlayson, G. (2020). Matched weight loss through intermittent or continuous energy restriction does not lead to compensatory increases in appetite and eating behavior in a randomized controlled trial in women with overweight and obesity. *The Journal of nutrition*, 150(3), 623-633.
- #3. Catenacci, V. A., Pan, Z., Ostendorf, D., Brannon, S., Gozansky, W. S., Mattson, M. P., Martin, B., MacLean, P. S., Melanson, E. L., & Troy Donahoo, W. (2016). A randomized pilot study comparing zero- calorie alternate- day fasting to daily caloric restriction in adults with obesity. *Obesity*, 24(9), 1874-1883.
- #4. Coutinho, S. R., Halset, E. H., Gåsbakk, S., Rehfeld, J. F., Kulseng, B., Truby, H., & Martins, C. (2018). Compensatory mechanisms activated with intermittent energy restriction: a randomized control trial. *Clinical Nutrition*, 37(3), 815-823.
- #5 a. Hutchison, A. T., Liu, B., Wood, R. E., Vincent, A. D., Thompson, C. H., O'Callaghan, N. J., Wittert, G. A., & Heilbronn, L. K. (2019). Effects of intermittent versus continuous energy intakes on insulin sensitivity and metabolic risk in women with overweight. *Obesity*, 27(1), 50-58.
- #5 b. Liu, B., Hutchison, A. T., Thompson, C. H., Lange, K., & Heilbronn, L. K. (2019). Markers of adipose tissue inflammation are transiently elevated during intermittent fasting in women who are overweight or obese. *Obesity research & clinical practice*, 13(4), 408-415.
- #6. Bowen, J., Brindal, E., James-Martin, G., & Noakes, M. (2018). Randomized trial of a high protein, partial meal replacement program with or without alternate day fasting: similar effects on weight loss, retention status, nutritional, metabolic, and behavioral outcomes. *Nutrients*, 10(9), 1145.
- #7. Razavi, R., Parvaresh, A., Abbasi, B., Yaghoobloo, K., Hassanzadeh, A., Mohammadifard, N., Clark, C. C., & Safavi, S. M. (2020). The alternate-day fasting diet is a more effective approach than a calorie restriction diet on weight loss and hs-CRP levels. *International Journal for Vitamin and Nutrition Research*.
- #8 a. Trepanowski, J. F., Kroeger, C. M., Barnosky, A., Klempel, M. C., Bhutani, S., Hoddy, K., Gabel, K., Freels, S., Rigdon, J., & Rood, J. (2017). Effect of alternate-day fasting on weight loss, weight maintenance, and cardioprotection among metabolically healthy obese adults: a randomized clinical trial. *JAMA internal medicine*, 177(7), 930-938.

- #8 b. Trepanowski, J. F., Kroeger, C. M., Barnosky, A., Klempel, M., Bhutani, S., Hoddy, K. K., Rood, J., Ravussin, E., & Varady, K. A. (2018). Effects of alternate-day fasting or daily calorie restriction on body composition, fat distribution, and circulating adipokines: secondary analysis of a randomized controlled trial. *Clinical Nutrition*, 37(6), 1871-1878.
- #8 c. Barnosky, A., Kroeger, C. M., Trepanowski, J. F., Klempel, M. C., Bhutani, S., Hoddy, K. K., Gabel, K., Shapses, S. A., & Varady, K. A. (2017). Effect of alternate day fasting on markers of bone metabolism: an exploratory analysis of a 6-month randomized controlled trial. *Nutrition and healthy aging*, 4(3), 255-263.
- #8 d. Gabel, K., Kroeger, C. M., Trepanowski, J. F., Hoddy, K. K., Cienfuegos, S., Kalam, F., & Varady, K. A. (2019). Differential Effects of Alternate-Day Fasting Versus Daily Calorie Restriction on Insulin Resistance. *Obesity (Silver Spring, Md.)*, 27(9), 1443-1450.
- #8 e. Miranda, E. R., Fuller, K. N., Perkins, R. K., Kroeger, C. M., Trepanowski, J. F., Varady, K. A., & Haus, J. M. (2018). Endogenous secretory RAGE increases with improvements in body composition and is associated with markers of adipocyte health. *Nutrition, metabolism and cardiovascular diseases*, 28(11), 1155-1165.
- #9. Varady, K. A., Bhutani, S., Klempel, M. C., & Kroeger, C. M. (2011). Comparison of effects of diet versus exercise weight loss regimens on LDL and HDL particle size in obese adults. *Lipids in Health and Disease*, 10(1), 1-5.
- #10 a. Bhutani, S., Klempel, M. C., Kroeger, C. M., Trepanowski, J. F., & Varady, K. A. (2013). Alternate day fasting and endurance exercise combine to reduce body weight and favorably alter plasma lipids in obese humans. *Obesity*, 21(7), 1370-1379.
- #10 b. Bhutani, S., Klempel, M. C., Kroeger, C. M., Aggour, E., Calvo, Y., Trepanowski, J. F., Hoddy, K. K., & Varady, K. A. (2013). Effect of exercising while fasting on eating behaviors and food intake. *Journal of the International Society of Sports Nutrition*, 10(1), 1-8.
- #10 c. Bhutani, S., Klempel, M. C., Kroeger, C. M., Trepanowski, J., Phillips, S. A., Norkeviciute, E., & Varady, K. A. (2013). Alternate day fasting with or without exercise: effects on endothelial function and adipokines in obese humans. *e-SPEN Journal*, 8(5), e205-e209.
- #11. Cho, A.-R., Moon, J.-Y., Kim, S., An, K.-Y., Oh, M., Jeon, J. Y., Jung, D.-H., Choi, M. H., & Lee, J.-W. (2019). Effects of alternate day fasting and exercise on cholesterol metabolism in overweight or obese adults: a pilot randomized controlled trial. *Metabolism*, 93, 52-60.
- #12. Hoddy, K. K., Kroeger, C. M., Trepanowski, J. F., Barnosky, A., Bhutani, S., & Varady, K. A. (2014). Meal timing during alternate day fasting: Impact on body weight and cardiovascular disease risk in obese adults. *Obesity*, 22(12), 2524-2531.

- #13 a. Klempel, M. C., Kroeger, C. M., & Varady, K. A. (2013). Alternate day fasting (ADF) with a high-fat diet produces similar weight loss and cardio-protection as ADF with a low-fat diet. *Metabolism*, 62(1), 137-143.
- #13 b. Klempel, M., Kroeger, C., & Varady, K. (2013). Alternate day fasting increases LDL particle size independently of dietary fat content in obese humans. *European journal of clinical nutrition*, 67(7), 783-785.
- #13 c. Klempel, M., Kroeger, C., Norkeviciute, E., Goslawski, M., Phillips, S., & Varady, K. (2013). Benefit of a low-fat over high-fat diet on vascular health during alternate day fasting. *Nutrition & diabetes*, 3(5), e71-e71.
- #13 d. Varady, K. A., Dam, V. T., Klempel, M. C., Horne, M., Cruz, R., Kroeger, C. M., & Santosa, S. (2015). Effects of weight loss via high fat vs. low fat alternate day fasting diets on free fatty acid profiles. *Scientific Reports*, 5(1), 1-7.
- #14. Antoni, R., Johnston, K. L., Collins, A. L., & Robertson, M. D. (2018). Intermittent v. continuous energy restriction: differential effects on postprandial glucose and lipid metabolism following matched weight loss in overweight/obese participants. *British Journal of Nutrition*, 119(5), 507-516.
- #15 a. Carter, S., Clifton, P. M., & Keogh, J. B. (2018). Effect of intermittent compared with continuous energy restricted diet on glycemic control in patients with type 2 diabetes: a randomized noninferiority trial. *JAMA network open*, 1(3), e180756-e180756.
- #15 b. Carter, S., Clifton, P., & Keogh, J. (2019). The effect of intermittent compared with continuous energy restriction on glycaemic control in patients with type 2 diabetes: 24-month follow-up of a randomised noninferiority trial. *Diabetes Research and Clinical Practice*, 151, 11-19.
- #16. Carter, S., Clifton, P., & Keogh, J. (2016). The effects of intermittent compared to continuous energy restriction on glycaemic control in type 2 diabetes; a pragmatic pilot trial. *Diabetes Research and Clinical Practice*, 122, 106-112.
- #17. Conley, M., Le Fevre, L., Haywood, C., & Proietto, J. (2018). Is two days of intermittent energy restriction per week a feasible weight loss approach in obese males? A randomised pilot study. *Nutrition & Dietetics*, 75(1), 65-72.
- #18. Schübel, R., Nattenmüller, J., Sookthai, D., Nonnenmacher, T., Graf, M. E., Riedl, L., Schlett, C. L., Von Stackelberg, O., Johnson, T., & Nabers, D. (2018). Effects of intermittent and continuous calorie restriction on body weight and metabolism over 50 wk: a randomized controlled trial. *The American journal of clinical nutrition*, 108(5), 933-945.
- #19 a. Sundfør, T., Svendsen, M., & Tonstad, S. (2018). Effect of intermittent versus continuous energy restriction on weight loss, maintenance and cardiometabolic risk: a randomized 1-year trial. *Nutrition, metabolism and cardiovascular diseases*, 28(7), 698-706.

- #19 b. Sundfør, T., Tonstad, S., & Svendsen, M. (2019). Effects of intermittent versus continuous energy restriction for weight loss on diet quality and eating behavior. A randomized trial. *European journal of clinical nutrition*, 73(7), 1006-1014.
- #20. Hirsh, S. P., Pons, M., Joyal, S. V., & Swick, A. G. (2019). Avoiding holiday seasonal weight gain with nutrient-supported intermittent energy restriction: a pilot study. *Journal of nutritional science*, 8.
- #21. Hottenrott, K., Werner, T., Hottenrott, L., Meyer, T. P., & Vormann, J. (2020). Exercise Training, Intermittent Fasting and Alkaline Supplementation as an Effective Strategy for Body Weight Loss: A 12-Week Placebo-Controlled Double-Blind Intervention with Overweight Subjects. *Life*, 10(5), 74.
- #22. Corley, B., Carroll, R., Hall, R., Weatherall, M., Parry- Strong, A., & Krebs, J. (2018). Intermittent fasting in type 2 diabetes mellitus and the risk of hypoglycaemia: a randomized controlled trial. *Diabetic Medicine*, 35(5), 588-594.
- #23. Byrne, N. M., Sainsbury, A., King, N., Hills, A., & Wood, R. (2018). Intermittent energy restriction improves weight loss efficiency in obese men: the MATADOR study. *International journal of obesity*, 42(2), 129-138.
- #24. Keogh, J., Pedersen, E., Petersen, K., & Clifton, P. (2014). Effects of intermittent compared to continuous energy restriction on short- term weight loss and long- term weight loss maintenance. *Clinical obesity*, 4(3), 150-156.
- #25 a. Headland, M. L., Clifton, P. M., & Keogh, J. B. (2019). Effect of intermittent compared to continuous energy restriction on weight loss and weight maintenance after 12 months in healthy overweight or obese adults. *International Journal of Obesity*, 43(10), 2028-2036.
- #25 b. Headland, M. L., Clifton, P. M., & Keogh, J. B. (2020). Impact of intermittent vs. continuous energy restriction on weight and cardiometabolic factors: a 12-month follow-up. *International Journal of Obesity*, 44(6), 1236-1242.
- #25 c. Headland, M. L., Clifton, P. M., & Keogh, J. B. (2019). Effects of Weight Loss on FGF-21 in Human Subjects: An Exploratory Study. *International journal of environmental research and public health*, 16(23), 4877.
- #26 a. Klempel, M. C., Kroeger, C. M., Bhutani, S., Trepanowski, J. F., & Varady, K. A. (2012). Intermittent fasting combined with calorie restriction is effective for weight loss and cardio-protection in obese women. *Nutrition journal*, 11(1), 1-9.
- #26 b. Kroeger, C. M., Klempel, M. C., Bhutani, S., Trepanowski, J. F., Tangney, C. C., & Varady, K. A. (2012). Improvement in coronary heart disease risk factors during an intermittent fasting/calorie restriction regimen: Relationship to adipokine modulations. *Nutrition & Metabolism*, 9(1), 1-8.
- #27. Chow, L. S., Manoogian, E. N., Alvear, A., Fleischer, J. G., Thor, H., Dietsche, K., Wang, Q., Hodges, J. S., Esch, N., & Malaeb, S. (2020). Time- restricted eating effects on body



composition and metabolic measures in humans who are overweight: a feasibility study.  
*Obesity*, 28(5), 860-869.