Long term weight loss: a systematic review

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Background

- Global obesity epidemic is a major public health challenge.
- Health policy drivers for tackling obesity are frequently ignored (NICE guidelines).
- Studies & clinical trials point to benefits of commercial weight loss programmes (Truby et al. 2006).
- 8 arm RCT (Jolly et al. 2011) reported that weight watchers, slimming world are more powerful, effective & cheaper than healthcare programmes.

Maintaining weight loss: Obesity Reviews

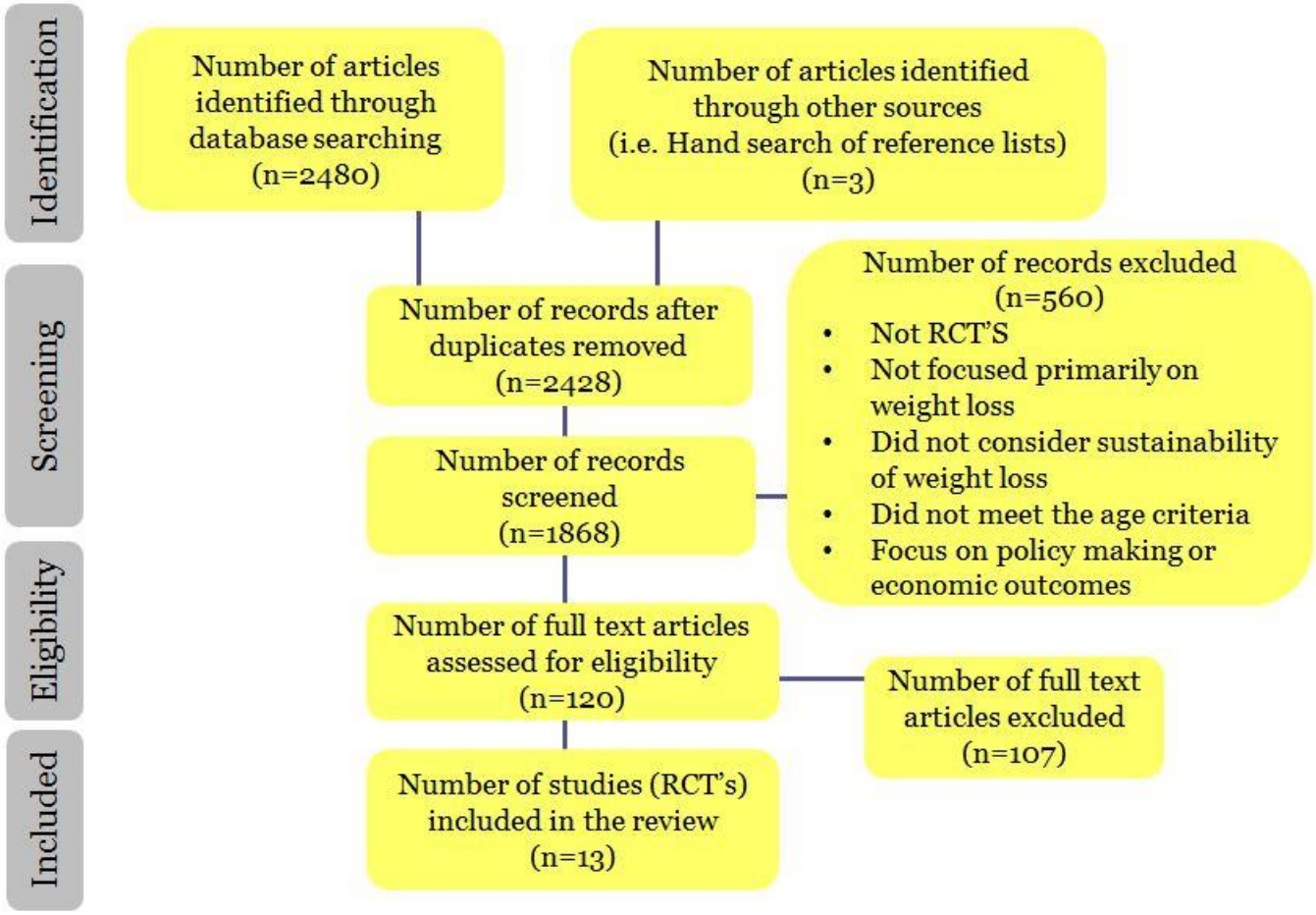
- Evidence to suggest that behavioural change in relation to eating, physical activity & lifestyle is empowering (Avenell et al 2004; Dombrowski et al. 2010).
- A review of 13 RCT's reported the impact of extended care (3.2kg difference in weight loss over 17.6 months)(Middleton et al. 2012).
- Another review reported the benefits of Orlistat additional to behavioural change (Dombrowski et al. 2014)
- Dearth of substantive evidence regarding long term weight loss maintenance.

Methods

- PICO formulated Question:

  'How effective are behavioural interventions in maintaining long term weight loss?'
- Systematic Review in line with PRISMA checklist (Moher et al. 2009)
- Followed a pre-specified protocol
- Search strategy was applied to 6 data bases
- Quality assessment/ data extraction by JG & MM
- Statistical analysis were performed using Revman 5.2 (2014)

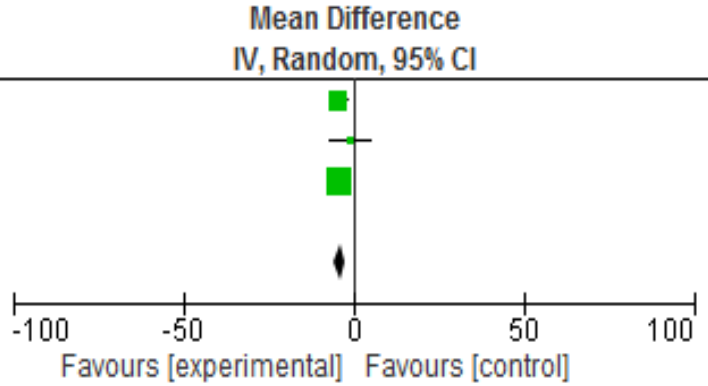
Results: Flow Diagram



Forest Plots: % Change of body weight

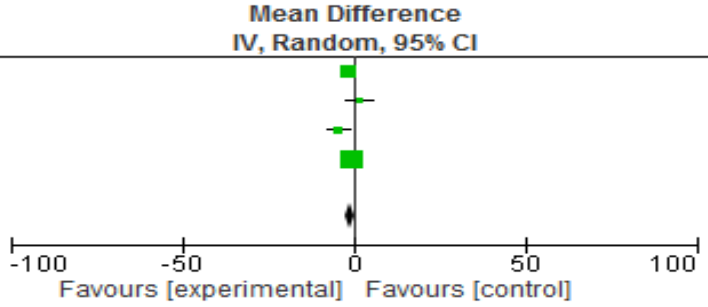
Study or Subgroup	Experimental Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Gagnon et al. 2011	-4.9	4.6	17	-0.6	3.3	24	37.3%	-4.30 [-6.85, -1.75]
Latner et al. 2013	-10.5	14.46	52	-9.6	13.3	38	7.3%	-0.90 [-6.67, 4.87]
West et al. 2011	-5.28	9.11	201	-1.38	8.02	88	55.4%	-3.90 [-6.00, -1.80]
Total (95% CI)			**270**			**150**	**100.0%**	**-3.83 [-5.39, -2.27]**

Heterogeneity: Tau² = 0.00; Chi² = 1.12, df = 2 (P = 0.57); I² = 0%
Test for overall effect: Z = 4.81 (P < 0.00001)



Study or Subgroup	Experimental Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Cooper et al. 2010	-1.36	7.99	82	0.04	0.05	47	28.6%	-1.40 [-3.13, 0.33]
Merlin et al. 2003	-6.8	5.77	17	-8.6	6.2	15	9.2%	1.80 [-2.37, 5.97]
Perri et al. 2001	-8.5	8	43	-4.14	4.85	15	12.5%	-4.36 [-7.79, -0.93]
Wadden et al. 2011	-1.25	1.53	226	-0.6	1.48	110	49.7%	-0.65 [-0.99, -0.31]
Total (95% CI)			**368**			**187**	**100.0%**	**-1.10 [-2.50, 0.29]**

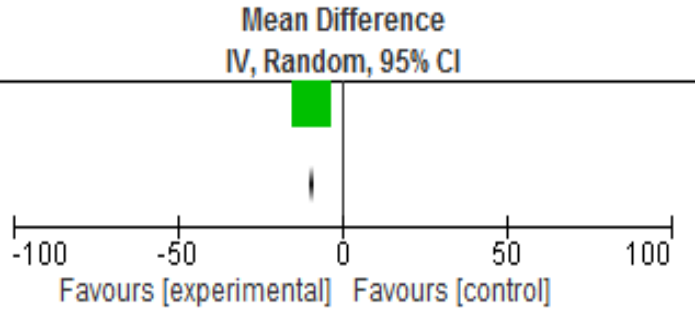
Heterogeneity: Tau² = 0.99; Chi² = 6.48, df = 3 (P = 0.09); I² = 54%
Test for overall effect: Z = 1.55 (P = 0.12)



Single studies: % change of body weight

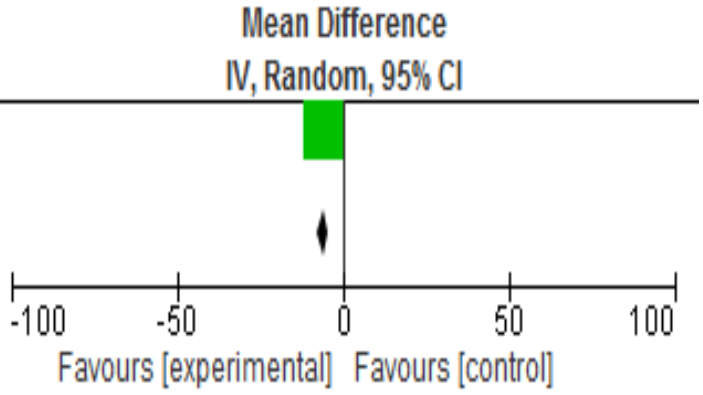
Study or Subgroup	Experimental Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Svetkey et al. 2008	-3.75	5.39	644	5.5	5.36	320	100.0%	-9.25 [-9.97, -8.53]
Total (95% CI)			**644**			**320**	**100.0%**	**-9.25 [-9.97, -8.53]**

Heterogeneity: Not applicable
Test for overall effect: Z = 25.19 (P < 0.00001)



Study or Subgroup	Experimental Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Wadden et al. 2013	-6.2	7.3	212	-0.2	7	210	100.0%	-6.00 [-7.36, -4.64]
Total (95% CI)			**212**			**210**	**100.0%**	**-6.00 [-7.36, -4.64]**

Heterogeneity: Not applicable
Test for overall effect: Z = 8.62 (P < 0.00001)



Study Limitation

- High heterogeneity among the studies.
- ITT principles and methods to handle missing data are not clearly reported across some studies.
- Blinding of participants and outcome assessors is very limited.
- Reasons for dropouts were only reported across 9 studies.

Implications

- Current evidence suggests that extended care & diverse modes of delivery are effective for long term weight loss.
- Short term use of drugs can kick start weight loss but sustained change is subject to multiple influence & tailored support.
- Regular contact time is shown to enhance motivation which could be levered up through existing ehealth & mobile technology.

References

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