Supplementary File for Techniques for Modifying Impulsive Processes Associated with Unhealthy Eating: A Systematic Review

van Beurden, S.B., Greaves, C.J., Smith, J.R., & Abraham, C.

The main paper systematically reviews the research evidence on techniques for modifying impulsive processes in relation to unhealthy eating. This supplement contains further detailed information illustrating our searching and screening methods (Tables S1 & S2), tables providing included study characteristics and definitions of study designs and non-standard outcomes (S3-5) as well as detailed evidence data extracted from included studies (S6-8), the synthesis of the strength of evidence in relation to weight loss, food consumption, and cravings (S9) and the narrative synthesis for the techniques with unclear mechanisms. *Press Ctrl+Home to get back to this page.*

Table of contents

Searching and Screening

Table S1 presents our exact search strategy. It provides the key terms and combinations we used during our electronic database searches.

Table S1: Search Strategy

No.	Search Term
1.	IMPULS$.TI,AB,KW.
2.	(SELF ADJ CONTROL).TI,AB,KW.
3.	WILLPOWER.TI,AB,KW.
4.	(AUTOMAT$ ADJ AFFECT$ ADJ REACT$).TI,AB,KW.
5.	(AUTOMAT$ ADJ BEHAV$).TI,AB,KW.
6.	CRAV$.TI,AB,KW.
7.	URGE.TI,AB,KW.
8.	URGES.TI,AB,KW.
9.	TEMPT$.TI,AB,KW.
10.	**1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9**
11.	TRAIN$.TI,AB,KW.
12.	PROGRAM$.TI,AB,KW.
13.	TREAT$.TI,AB,KW.
14.	STRATEG$.TI,AB,KW.
15.	TECHNIQUE$.TI,AB,KW.
16.	INTERVENTION$.TI,AB,KW.
17.	TASK$.TI,AB,KW.
18.	EXPOSURE.TI,AB,KW.
19.	EXPERIMENT$.TI,AB,KW.
20.	**11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19**
21.	CONSUM$.TI,AB,KW.
22.	EAT$.TI,AB,KW.
23.	SNACK$.TI,AB,KW.
24.	FOOD$.TI,AB,KW.
25.	(ENERGY ADJ INTAKE).TI,AB,KW.

26.	WEIGHT.TI,AB,KW.
27.	BMI.TI,AB,KW.
28.	(BODY ADJ MASS ADJ INDEX).TI,AB,KW.
29.	(WAIST ADJ CIRCUMFERENCE).TI,AB,KW.
30.	(WAIST ADJ5 HIP).TI,AB,KW.
31.	(BEHAV$ ADJ3 CHANG$).TI,AB,KW.
32.	(LIFESTYLE ADJ3 CHANG$).TI,AB,KW.
33.	DIET$.TI,AB,KW.
34.	CALORIES.TI,AB,KW.
35.	NUTRITION.TI,AB,KW.
36.	**21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35**
37.	**10 AND 20 AND 36**

N.B. Unless otherwise stated, search terms were free text terms; MeSH terms: Medical subject heading (MEDLINE medical index term); the dollar sign (*) stands for any character and a number directly after a star sign denotes the maximum number of additional letters after the word-stem. The strategy for MEDLINE using the appropriate truncation and wildcards is presented. This strategy was adapted for each database used.

Table S2 presents the articles excluded at full text screening for each article the full reference and justification code for exclusion is provided.

Table S2: Excluded Papers

References	Reason(s) for exclusion*
Ackerman, J.M., Goldstein, N.J., Shapiro, J.R., & Bargh, J.A. (2009). You wear me out: the vicarious depletion of self-control. *Psychological Science, 20*(3), 326-332	A
Agras, W.S., Crow, S.J., Halmi, K.A., Mitchell, J.E., Wilson, G.T., & Kraemer, H.C. (2000). Outcome predictors for the cognitive behavior treatment of bulimia nervosa: Data from a multisite study. *The American Journal of Psychiatry, 157*(8), 1302-1308.	D
Agrawal, N., & Wan, E.W. (2009). Regulating risk or risking regulation? Construal levels and depletion effects in the processing of health messages. *Journal of Consumer Research, 36*(3), 448-462.	A
Alberts, H.J.E.M, Martijn, C., Greb, J., Merckelbach, H., & de Vries, N.K. (2007). Carrying on or giving in: The role of automatic processes in overcoming ego depletion. *British Journal of Social Psychology, 46*, 383-399.	A
Alberts, H.J.E.M., Martijn, C., Nievelstein, F., Jansen, A., & De Vries, N.K. (2008). Distracting the self: Shifting attention prevents ego depletion. *Self and Identity, 7*(3), 322-334.	A
Allen, H.N., & Craighead, L.W. (1999). Appetite Monitoring in the Treatment of Binge Eating Disorder. *Behavior Therapy, 30*(2), 253-272.	B
Andrade, J., May, J., & Kavanagh, D. (2012). Sensory imagery in craving: From cognitive psychology to new treatments for addiction. *Journal of Experimental Psychopathology, 3*(2), 127-145.	F
Anton, S.D., Gallagher, J., Carey, V.J., Laranjo, N., Cheng, J., Champagne, C.M., . . . Williamson, D.A. (2012). Diet type and changes in food cravings following weight loss: findings from the POUNDS LOST Trial. *Eating & Weight Disorders: EWD, 17*(2), e101-108.	B
Appelhans, B.M., Waring, M.E., Schneider, K.L., Pagoto, S.L., DeBiasse, M.A., Whited, M.C., & Lynch, E.B. (2012). Delay discounting and intake of ready-to-eat and away-from-home foods in overweight and obese women. *Appetite, 59*(2), 576-584.	B
Appelhans, B.M., Woolf, K., Pagoto, S.L., Schneider, K.L., Whited, M.C., & Liebman, R. (2011). Inhibiting Food Reward: Delay Discounting, Food Reward Sensitivity, and Palatable Food Intake in Overweight and Obese Women. *Obesity, 19*(11), 2175-2182.	B
Batra, P., Das, S.K., Salinardi, T., Robinson, L., Saltzman, E., Scott, T., . . . Roberts, S.B. (2013). Relationship of cravings with weight loss and hunger. Results from a 6 month worksite weight loss intervention. *Appetite, 69*, 1-7.	B
Beintner, I., & Jacobi, C. (2011). Internet-based follow-up care for bulimia nervosa. *Psychotherapeut, 56*(6), 516-521.	D

Table S2: Excluded Papers

References	Reason(s) for exclusion*
Boehm, G., Bracharz, N., & Schoberberger, R. (2011). Evaluation of the sustainability of the Public Health Program "Slim without Diet (Schlank ohne Diat)". *Wiener Klinische Wochenschrift, 123*(13-14), 415-421.	C
Brown, A.J., Smith, L.T., & Craighead, L.W. (2010). Appetite awareness as a mediator in an eating disorders prevention program. *Eating Disorders, 18*(4), 286-301.	D
Bulik, C.M., Sullivan, P.F., Joyce, P.R., Carter, F.A., & McIntosh, V.V. (1998). Predictors of 1-year treatment outcome in bulimia nervosa. *Comprehensive Psychiatry, 39*(4), 206-214.	B
Cameron, M.J., Maguire, R.W., & McCormack, J. (2011). Stress-Induced Binge Eating: A Behavior Analytic Approach to Assessment and Intervention. *Journal of Adult Development, 18*(2), 81-84.	E
Chang, K.T., Lampe, J.W., Schwarz, Y., Breymeyer, K.L., Noar, K.A., Song, X., & Neuhouser, M.L. (2012). Low glycemic load experimental diet more satiating than high glycemic load diet. *Nutrition & Cancer, 64*(5), 666-673.	B
Courbasson, C., Nishikawa, Y., & Dixon, L. (2012). Outcome of dialectical behaviour therapy for concurrent eating and substance use disorders. *Clinical Psychology & Psychotherapy, 19*(5), 434-449.	A
De Ridder, D.T.D., Ouwehand, C., Stok, F.M., & Aarts, F.J. (2011). Hot or not: Visceral influences on coping planning for weight loss attempts. *Psychology &Health, 26*(5), 501-516.	B
Fagundo, A.B., Santamaria, J.J., Forcano, L., Giner-Bartolome, C., Jimenez-Murcia, S., Sanchez, I., . . . Fernandez-Aranda, F. (2013). Video game therapy for emotional regulation and impulsivity control in a series of treated cases with bulimia nervosa. *European Eating Disorders Review, 21*(6), 493-499.	D
Forzano, L., & Corry, R. (1998). Self-control and impulsiveness in adult human females: Effects of visual food cues. *Learning and Motivation, 29*(2), 184-199.	B
Forzano, L.B., Chelonis, J.J., Casey, C., Forward, M., Stachowiak, J.A., & Wood, J.. (2010). Self-control and impulsiveness in non-dieting adult human females: Effects of visual food cues and food deprivation. *The Psychological Record, 60*(4), 587-608.	B
Gailliot, M.T., Baumeister, R.F., DeWall, C.N., Maner, J.K., Plant, E.A., Tice, D.M., . . . Schmeichel, B.J. (2007). Self-control relies on glucose as a limited energy source: willpower is more than a metaphor. *Journal of Personality & Social Psychology, 92*(2), 325-336.	A
Gailliot, M.T. (2013). Hunger and reduced self-control in the laboratory and across the world: Reducing hunger as a self-control panacea. *Psychology, 4*(1), 59-66.	A

Table S2: Excluded Papers

References	Reason(s) for exclusion*
Giesen, J.C., Havermans, R.C., Nederkoorn, C., & Jansen, A. (2012). Impulsivity in the supermarket. Responses to calorie taxes and subsidies in healthy weight undergraduates. *Appetite, 58(1),* 6-10.	B
Goodrick, G. (1999). Inability to control eating: Addiction to food or normal response to abnormal environment? *Drugs & Society, 15*(1-2), 123-140.	F
Gorin, A.A., Raynor, H.A., Niemeier, H.M., & Wing, R.R. (2007). Home grocery delivery improves the household food environments of behavioral weight loss participants: Results of an 8-week pilot study. International Journal of *Behavioral Nutrition and Physical Activity*, 4:58	B
Harvey, J., Wing, R.R., & Mullen, M. (1993). Effects on food cravings of a very low calorie diet or a balanced, low calorie diet. *Appetite, 21*(2), 105-115.	B
Hassan, L.M., Shiu, E.M., & Michaelidou, N. (2010). The influence of nutrition information on choice: The roles of temptation, conflict and self-control. *Journal of Consumer Affairs, 44*(3), 499-515.	B
Hetherington, M.M., & Boyland, E. (2007). Short-term effects of chewing gum on snack intake and appetite. *Appetite, 48*(3), 397-401.	B
Hetherington, M.M., & Regan, M.F. (2011). Effects of chewing gum on short-term appetite regulation in moderately restrained eaters. *Appetite, 57*(2), 475-482.	B
Hopkinson, J.B. (2007). How people with advanced cancer manage changing eating habits. *Journal of Advanced Nursing, 59*(5), 454-462.	B
Houben, K., Nederkoorn, C., Wiers, R.W., & Jansen, A. (2011). Resisting temptation: decreasing alcohol-related affect and drinking behavior by training response inhibition. *Drug & Alcohol Dependence, 116*(1-3), 132-136.	A
Houben, K., Schoenmakers, T.M., & Wiers, R.W. (2010). I didn't feel like drinking but I don't know why: the effects of evaluative conditioning on alcohol-related attitudes, craving and behavior. *Addictive Behaviors, 35*(12), 1161-1163.	A
Houben, K., Wiers, R.W., & Jansen, A. (2011). Getting a grip on drinking behavior: training working memory to reduce alcohol abuse. *Psychological Science, 22*(7), 968-975.	A
Hsu, L.K.G., Rand, W., Sullivan, S., Liu, D.W., Mulliken, B., McDonagh, B., & Kaye, W. H. (2001). Cognitive therapy, nutritional therapy and their combination in the treatment of bulimia nervosa. *Psychological Medicine, 31*(5), 871-879.	D
Jansen, A. (1998). A learning model of binge eating: cue reactivity and cue exposure. *Behaviour Research & Therapy, 36*(3), 257-272.	F

Table S2: Excluded Papers

References	Reason(s) for exclusion*
Kemps, Eva, & Tiggemann, Marika. (2010). A cognitive experimental approach to understanding and reducing food cravings. *Current Directions in Psychological Science, 19*(2), 86-90.	F
Kristeller, J.L., & Wolever, R.Q. (2011). Mindfulness-based eating awareness training for treating binge eating disorder: the conceptual foundation. *Brunner-Mazel Eating Disorders Monograph Series, 19*(1), 49-61.	F
Kroese, F.M., Adriaanse, M.A., & De Ridder, D.T. (2013). Are self-management interventions suitable for all? Comparing obese versus nonobese type 2 diabetes patients. *Health Education & Behavior, 40*(5), 552-558.	B
Lally, P., Wardle, J., & Gardner, Bn. (2011). Experiences of habit formation: A qualitative study. *Psychology, Health & Medicine, 16*(4), 484-489.	B
Maas, J., de Ridder, D.T., de Vet, E., & de Wit, J.B. (2012). Do distant foods decrease intake? The effect of food accessibility on consumption. *Psychology & Health, 27* Suppl 2, 59-73.	B
Martijn, C., Alberts, H.J., Merckelbach, H., Havermans, R., Huijts, A., & De Vries, N.K. (2007). Overcoming ego depletion: The influence of exemplar priming on self-control performance. *European Journal of Social Psychology, 37*(2), 231-238.	A
Martijn, C., Tenbult, P., Merckelbach, H., Dreezens, E., & de Vries, N.K. (2002). Getting a grip on ourselves: Challenging expectancies about loss of energy after self-control. *Social Cognition, 20*(6), 441-460.	A
Martin, C.K., O'Neil, P.M., & Pawlow, L. (2006). Changes in food cravings during low-calorie and very-low-calorie diets. *Obesity, 14*(1), 115-121.	B
Masicampo, E., & Baumeister, R.F. (2008). Toward a physiology of dual-process reasoning and judgment: Lemonade, willpower, and expensive rule-based analysis. *Psychological Science, 19*(3), 255-260.	B
May, J., Andrade, J., Kavanagh, D., & Penfound, L.. (2008). Imagery and strength of craving for eating, drinking, and playing sport. *Cognition and Emotion, 22(*4), 633-650.	B
Meule, A., Lukito, S., Vogele, C., & Kubler, A. (2011). Enhanced behavioral inhibition in restrained eaters. Eating *Behaviors, 12*(2), 152-155.	B
Muraven, M., Baumeister, R.F., & Tice, D.M. (1999). Longitudinal improvement of self-regulation through practice: building self-control strength through repeated exercise. *Journal of Social Psychology, 139*(4), 446-457.	A

Table S2: Excluded Papers

References	Reason(s) for exclusion*
Muraven, M., Gagne, M., & Rosman, H. (2008). Helpful self-control: Autonomy support, vitality, and depletion. *Journal of Experimental Social Psychology, 44*(3), 573-585.	A
Muraven, M., & Shmueli, D. (2006). The self-control costs of fighting the temptation to drink. *Psychology of Addictive Behaviors, 20*(2), 154-160.	B
Myrseth, K.O.R., Fishbach, A., & Trope, Y. (2009). Counteractive Self-Control. *Psychological Science, 20*(2), 159-163.	B
Oakes, M.E., & Slotterback, C.S. (2000). Nutritional habits and motivations to eat after a palatable pre-load. Current *Psychology, 19*(4), 329-337.	B
Oaten, M., & Cheng, K. (2006). Improved self-control: The benefits of a regular program of academic study. *Basic and Applied Social Psychology, 28*(1), 1-16.	A
Oza, N., Eguchi, Y., Mizuta, T., Ishibashi, E., Kitajima, Y., Horie, H., . . . Fujimoto, K. (2009). A pilot trial of body weight reduction for nonalcoholic fatty liver disease with a home-based lifestyle modification intervention delivered in collaboration with interdisciplinary medical staff. *Journal of Gastroenterology, 44*(12), 1203-1208.	B
Papies, E. K., & Hamstra, P. (2010). Goal priming and eating behavior: enhancing self-regulation by environmental cues. *Health Psychology, 29*(4), 384-388. http://dx.doi.org/10.1037/a0019877	G
Papies, E. K., & Veling, H. (2013). Healthy dining. Subtle diet reminders at the point of purchase increase low-calorie food choices among both chronic and current dieters. *Appetite, 61*(1), 1–7.	G
Pearson, M.R., Kite, B.A., & Henson, J.M. (2013). Predictive effects of good self-control and poor regulation on alcohol-related outcomes: Do protective behavioral strategies mediate? *Psychology of Addictive Behaviors, 27(*1), 81-89.	B
Quinn, J.M., Pascoe, A., Wood, W., & Neal, D.T. (2010). Can't control yourself? Monitor those bad habits. *Personality & Social Psychology Bulletin, 36*(4), 499-511.	B
Radu, P.T., Yi, R., Bickel, W K., Gross, J.J., & McClure, S.M. (2011). A medchanism for reducing delay discounting by altering temporal attention. *Journal of the Experimental Analysis of Behavior, 96*(3), 363-385.	A
Reuter, T., Ziegelmann, J.P., Wiedemann, A.U., & Lippke, S. (2008). Dietary planning as a mediator of the intention-behavior relation: An experimental-causal-chain design. Applied Psychology-an *International Review-Psychologie Appliquee-Revue Internationale*, 57, 194-207.	B

Table S2: Excluded Papers

References	Reason(s) for exclusion*
Riebe, D., Blissmer, B., Greene, G., Caldwell, M., Ruggiero, L., Stillwell, K. M., & Nigg, C. R. (2005). Long-term maintenance of exercise and healthy eating behaviors in overweight adults. *Preventive Medicine, 40*(6), 769-778.	B
Rieger, E., Dean, H.Y., Steinbeck, K.S., Caterson, I.D., & Manson, E. (2009). The use of motivational enhancement strategies for the maintenance of weight loss among obese individuals: a preliminary investigation. *Diabetes, Obesity & Metabolism, 11*(6), 637-640.	B
Sanders, M.A., Shirk, S.D., Burgin, C.J., & Martin, L.L. (2012). The gargle effect: Rinsing the mouth with glucose enhances self-control. Psychological Science, 23(12), 1470-1472.	A
Schwarzer, R., & Luszczynska, A. (2008). How to overcome health-compromising behaviors - The health action process approach. *European Psychologist, 13*(2), 141-151.	B
Shapiro, J.R., Bauer, S., Andrews, E., Pisetsky, E., Bulik-Sullivan, B., Hamer, R.M., & Bulik, C.M. (2010). Mobile therapy: Use of text-messaging in the treatment of bulimia nervosa. *International Journal of Eating Disorders, 43*(6), 513-519.	D
Singh, N.N., Lancioni, G.E., Singh, A.N., Winton, A.S., Singh, A.D., & Singh, J. (2011). A mindfulness-based health wellness program for individuals with Prader-Willi syndrome. *Journal of Mental Health Research in Intellectual Disabilities, 4*(2), 90-106.	A
Singh, N.N., Lancioni, G.E., Singh, A.N., Winton, A.S., Singh, J., McAleavey, K.M., . . . Joy, S.D. (2008). A mindfulness-based health wellness program for managing morbid obesity. *Clinical Case Studies, 7*(4), 327-339.	E
Steel, Z.P., Farag, P.A., & Blaszczynski, A.P. (1995). INTERRUPTING THE BINGE-PURGE CYCLE IN BULIMIA - THE USE OF PLANNED BINGES. *International Journal of Eating Disorders, 18*(3), 199-208.	D
Turner, S.A., Luszczynska, A., Warner, L., & Schwarzer, R. (2010). Emotional and uncontrolled eating styles and chocolate chip cookie consumption. A controlled trial of the effects of positive mood enhancement. *Appetite, 54*(1), 143-149.	C
Udo, T., Grilo, C.M., Brownell, K.D., Weinberger, A.H., Dileone, R.J., & McKee, S.A. (2013). Modeling the effects of positive and negative mood on the ability to resist eating in obese and non-obese individuals. *Eating Behaviors, 14*(1), 40-46.	B
Van Gucht, D., Baeyens, F., Hermans, D., & Beckers, T. (2013). The inertia of conditioned craving. Does context modulate the effect of counterconditioning? *Appetite, 65*, 51-57.	C
Van Gucht, D., Vansteenwegen, D., Beckers, T., & Van den Bergh, O. (2008). Return of experimentally induced chocolate craving after extinction in a different context: divergence between craving for and expecting to eat chocolate. *Behaviour Research & Therapy, 46*(3), 375-391.	C

Table S2: Excluded Papers

References	Reason(s) for exclusion*
van Kleef, E., Kavvouris, C., & van Trijp, H. C. (2014). The unit size effect of indulgent food: how eating smaller sized items signals impulsivity and makes consumers eat less. *Psychology & Health, 29*(9), 1081-1103	B
van Koningsbruggen, G.M., Stroebe, W., & Aarts, H. (2013). The rise and fall of self-control: Temptation-elicited goal activation and effortful goal-directed behavior. *Social Psychological and Personality Science, 4*(5), 546-554.	B
Coelho, J.S., Polivy, J., Herman, C.P., & Pliner, P. (2009). Wake up and smell the cookies. Effects of olfactory food-cue exposure in restrained and unrestrained eaters. *Appetite, 52*(2), 517-520	B
Coelho, J.S., Polivy, J., Herman, C.P., & Pliner, P. (2008). Effects of food-cue exposure on dieting-related goals: A limitation to counteractive-control theory. *Appetite, 51*(2), 347-349.	B
Papachristou, H., Nederkoorn, C., Beunen, S., & Jansen, A. (2013). Dissection of appetitive conditioning. Does impulsivity play a role? *Appetite, 69*, 46-53.	B
Van Gucht, D., Baeyens, F., Vansteenwegen, D., Hermans, D., & Beckers, T. (2010). Counterconditioning reduces cue-induced craving and actual cue-elicited consumption. *Emotion, 10*(5), 688-695.	C
Baumeister, R.F., Vohs, K.D., & Tice, D.M. (2007). The strength model of self-control. Current *Directions in Psychological Science, 16*(6), 351-355.	F
Veling, H. van Koningsbruggen, G.M., Aarts, H., & Stroebe, W. (2014) Targeting impulsive processes of eating behaviour via the internet. Effects on body weight. *Appetite, 78,* 102-109	C
Durkin, K., Hendry, A., & Stritzke, W.G. (2013). Mixed selection. Effects of body images, dietary restraint, and persuasive messages on females' orientations towards chocolate. *Appetite, 60*(1), 95-102.	C
Durkin, K., Rae, K., & Stritzke, W.G. (2012). The effect of images of thin and overweight body shapes on women's ambivalence towards chocolate. *Appetite, 58*(1), 222-226.	C
Halford, W.K., Goodall, T.A., & Nicholson, J.M. (1997). Diet and diabetes .2. A controlled trial of problem solving to improve dietary self-management in patients with insulin dependent diabetes. *Psychology & Health, 12*(2), 231-238.	C
McClelland, A., Kemps, E., & Tiggemann, M. (2006). Reduction of vividness and associated craving in personalized food imagery. *Journal of Clinical Psychology, 62*(3), 355-365	C

Table S2: Excluded Papers

References	Reason(s) for exclusion*
Olstad, D.L., Goonewardene, L.A., McCargar, L.J., & Raine, K.D. (2014). Choosing healthier foods in recreational sports settings: A mixed methods investigation of the impact of nudging and an economic incentive. *The International Journal of Behavioral Nutrition and Physical Activity*, *11*, 6.	C
Veling, H., & Aarts, H.. (2009). Putting behavior on hold decreases reward value of need-instrumental objects outside of awareness. *Journal of Experimental Social Psychology, 45*(4), 1020-1023.	A
Wei, W.& Miao, L. (2013). Effects of calorie information disclosure on consumers' food choices at restaurants. *International Journal of Hospitality Management, 33*, 106-117.	B
Yokum, S., & Stice, E. (2013). Cognitive regulation of food craving: effects of three cognitive reappraisal strategies on neural response to palatable foods. *International Journal of Obesity, 37*(12), 1565-1570.	C
Maas, J., Hietbrink, L., Rink, M., & Keijsers, G.P.J. (2013) Changing automatic behaviour through self-monitoring: Does overt change also imply implicit change? *Journal of Behavior Therapy & Experimental Psychiatry, 44*, 279-284	B

*A: Not eating behaviour (18); B: No evaluation of an Impulse Modification Technique (42); C: Includes under 18s (12); D: Focus on eating disorders (7); E: Case studies (2); F: Review/ Theoretical overview (6); G: Not an Individual Level Technique.

Study characteristics and definitions

Table S3 provides the study and participant characteristics of each included study.

Table S3: Study characteristics of included studies

Study	Origin	Study Aim	Setting	Population	% Female	Age range/ Statistic	Key Outcomes
Achtziger et al. (2008) Study 1	UK	To investigate whether specifying the negative inner state of craving for high-fat food in the if-component of an implementation intention and linking it to an ignore response can protect striving toward the goal of eating healthily	Lab	University students	80.4	M=19.5 SD=3.8	Self-reported food consumption
Alberts et al. (2010)	NL	To test whether food cravings can be reduced by training in acceptance-based regulation	Community	Participants of a community based weight loss program	89.5	M= 51.9 SD=12.8 28-74	Self-reported craving
Alberts et al. (2012)	NL	To explore the efficacy of a mindfulness-based intervention for problematic eating behavior.	Community	Patients with problematic eating	100	M=48.5 18-65	BMI & Self-reported craving & Eating Behavior
Alberts et al. (2013) Study 1	NL	To explore the short-term effect of acceptance-based coping on the intensity of food cravings	Lab	University students	80.0	M=21.4 SD=2.7 19-33	Self-reported craving
Andrade et al. (2012) Study 1A	UK	To investigate the effects of the clay-modelling task used by Stuart et al. (2006) to reduce trauma imagery, on craving and compare with other tasks that match the general resource loads of the clay-modelling task	Lab	University staff and students	69.8	M=30 18-70	Self-reported chocolate craving

Table S3: Study characteristics of included studies

Study	Origin	Study Aim	Setting	Population	% Female	Age range/ Statistic	Key Outcomes
Andrade et al. (2012) Study 2	UK	To investigate the effects of the clay-modelling task on craving and compare with other tasks that involve similar resource loads	Lab	University staff and students	85.1	M=22.7 18-49	Self-reported craving
Buckland et al. (2013)	UK	To examine the effect of a diet-congruent food cue on energy intake in restrained dieters who are also dieting to lose weight and unrestrained non-dieters, compared to exposure to a tempting food cue	Lab	University students with BMI between 18.5 and 40	100	Unrestrained non-dieters M= 27.7 SD=2.1 Restrained dieters M=24 SD= 2.5 18-55	Observed snack food consumption & Chocolate consumption
Coelho et al. (2009a)	Canada	To examine effects of exposure to a high-calorie food on eating behavior in restrained and unrestrained eaters	Lab	University Students	100	Not reported	Observed cookie & chocolate cookie consumption
Daniel et al. (2013)	US	To assess whether episodic future thinking, compared with engagement in a control imagery task, reduces impulsivity and energy intake in overweight and obese individuals	Lab	Overweight and obese women	N/A	M=26.4 SD=5.7	Delay-discounting & Observed snack food consumption
Erskine et al. (2010)	UK	To examine whether the effects of thought suppression on subsequent eating behavior would interact with participants' restrained eating status	Lab	University students	100	M=22.6 SD=6.4	Observed food consumption
Erskine et al. (2008)	UK	To investigate the effects of thought suppression, expression or verbalisation on subsequent chocolate eating behavior	Lab	University students	50.0	M=22.6 SD=5.2	Observed chocolate consumption

Table S3: Study characteristics of included studies

Study	Origin	Study Aim	Setting	Population	% Female	Age range/ Statistic	Key Outcomes
Forman et al. (2007)	US	To compare an acceptance-based strategy to a distraction-based strategy for coping with food cravings	Community	University students with a liking for chocolate	48.0	M=19.6 SD=1.7 18-60	Self-reported craving & Observed chocolate consumption
Forman et al. (2009)	US	To test the preliminary feasibility, acceptability, effectiveness, and possible mechanisms of action of a behavioral treatment that was modified to incorporate components that (a) bolster participants' commitment to behavior change, (b) build distress-tolerance skills, and (c) promote mindful awareness of eating behaviors and goals.	Community	University and Medical center staff with BMI +25 kg/m2	100	M=43.7 SD=9.8 23-58	Height and weight & Disinhibition, restraint, and emotional eating.
Forman et al. (2013a)	US	To evaluate the feasibility and acceptability of a full-scale trial of acceptance-based behavioral treatment (ABT) for obesity and its short- and moderate-term effectiveness relative to standard behavioural treatment	Community	Overweight and obese people	not reported	M=45.7 SD=12.8 21-65	Weight & Height
Forman et al. (2013b)	US	(1) To compare the efficacy of two cognitive-behavioral intervention strategies and (2) examine, in an overweight sample, the relationship between psychological traits, cravings and food consumption	Community	Overweight and obese women with a liking for sweets	100	M=32.5 SD=13.5 18-59	Self-reported Craving & Self-reported sweet consumption & Observed sweet consumption
Geyskens et al. (2008) Study 1	Belgium	To test whether prior exposure to non actionable as well as actionable food temptations results in the activation of food restriction goals, as compared to the absence of prior temptations	Lab	University students	100	18-25	Diet-goal activation

Table S3: Study characteristics of included studies

Study	Origin	Study Aim	Setting	Population	% Female	Age range/ Statistic	Key Outcomes
Geyskens et al. (2008) Study 2	Belgium	To explore the role of 'actionability' in the activation of eating goals in tempting situations	Lab	University students	100	18-26	Eating-goal activation
Geyskens et al. (2008) Study 3B	Belgium	To test the effects of food temptations, differing in 'actionability', on' subsequent food intake	Lab	University students	100	18-26	Observed snack consumption
Geyskens et al. (2010)	Belgium	To investigate whether exposure to tempting food subsequently directs attention towards or away from food cues, comparing the effects of exposure to non-actionable versus actionable food temptations.	Lab	University students	100	M=20.10 SD=1.92	Attention processing
Giuliani et al. (2013)	US	To investigate whether cognitive reappraisal decreases self-reported desire, and is meaningfully related to validated measures of daily self-regulation of eating	Lab	Not reported	65.9	M=19.8 SD=3.5	Self-reported specific food craving
Guerrieri et al. (2012)	NL	To examine their effects of inducing impulsivity and inhibition on subsequent food intake	Lab	University students: normal weight females	100	M=21.4 SD=2.1	Observed snack food consumption
Hamilton et al. (2013)	UK	To examine whether body scanning and guided imagery are able to reduce food cravings	Lab	University students	76.5	M=20 18-45	Self-reported craving
Hardman et al. (2013)	UK	To examine the effect of experimentally manipulated food-related attentional bias on hunger and food intake	Lab	University students	58.3	M=23.2 SD=8.8	Self-reported appetite & Observed calorie intake

Table S3: Study characteristics of included studies

Study	Origin	Study Aim	Setting	Population	% Female	Age range/ Statistic	Key Outcomes
Hare et al. (2011)	US	Assess whether attention manipulations could be used to improve decision-making where self-control lapses are pervasive, in particular to whether direct attention to the healthiness of foods could improve dietary choices	Lab	Healthy non-dieting individuals	69.7	M=24.8 SD=5.1	Dietary choices
Harvey et al. (2005)	Australia	To explore the imaginal basis of food craving. Predicting that performing a visual imagery task would reduce elicited food craving	Lab	University students	100	M=21 SD=3.9 18-35	Self-reported craving
Hendrickson & Rasmussen (2013) Study 2	US	To test whether a mindful eating strategy changes impulsive discounting patterns for food	Lab	University students	71.6	M=25.5 SD=8.6	Delay-discounting
Hofmann et al. (2010) Study 1	Germany	To investigate the effects of cognitive transformation of a food object on its automatic evaluation	Lab	University students	79.0	M=23.8 SD=5.6	Implicit evaluations & Explicit attitudes
Hofmann et al. (2010) Study 2	Germany	(1) To investigate whether cognitive transformation works with the superordinate category of chocolate without any reference to specific brands (2) To investigate the effects of cognitive response control in the form of implementation intentions to refrain from consumption	Internet	People interested in their implicit attitudes	70.9	M=35.6 SD=11.5	Implicit evaluations & Explicit attitudes
Hong and Lee (2008) Study 2	US	To examine the effect of regulatory fit on willpower to resist temptation	Community	University students	70.3	not reported	Snack choice
Hong and Lee (2008) Study 3	US	To examine the effects of regulatory fit in a consumer-relevant context and examine how individuals choose goal pursuit strategies	Community	University students	32.4	not reported	Snack choice

Table S3: Study characteristics of included studies

Study	Origin	Study Aim	Setting	Population	% Female	Age range/ Statistic	Key Outcomes
Hooper et al. (2012)	Cyprus	To compare the effects of a short instruction in defusion versus suppression for food cravings on eating behavior.	Community	University students	59.3	M=21.4 SD=4.3	Self-reported chocolate consumption & Observed chocolate consumption
Houben (2011)	NL	To examine whether increasing or decreasing inhibitory control respectively decreases or increases food intake relative to a control condition	Lab	University students with a liking for the study foods	100	M=21.5 SD=1.8	Observed snack food consumption
Houben & Jansen (2011)	NL	To examine whether practicing inhibition of food related responses reduces food intake relative to a control condition	Lab	University students: chocolate cravers	100	M=20.1 SD= 2.3	Observed chocolate consumption
Jenkins & Tapper (2014)	UK	To examine the effect of two mindfulness based strategies, cognitive defusion and acceptance, on ability to resist chocolate over a 5 day period	Community	University students	71.5	M=20.5 SD=2.4	Observed chocolate consumption; self-reported chocolate consumption & behavioral rebound chocolate consumption
Johnston et al. (1999)	New Zealand	To investigate whether thought suppression results in a subsequent increase in the performance of behaviors related to those thoughts	Lab	Community sample	100	not reported	Task performance to receive chocolate
Jordan et al. (2014) Study 3	US	To examine the effect of induced state mindfulness on consumption behavior and food choices	Lab	University students	50.0	M=19.8	Observed calorie consumption
Kemps & Tiggemann (2007) Study 2	Australia	To assess the effects of visual and olfactory imagery on cravings for chocolate	Lab	University students with a liking for chocolate	100	M=21.2 SD=2.9 18-35	Self-reported craving

Table S3: Study characteristics of included studies

Study	Origin	Study Aim	Setting	Population	% Female	Age range/ Statistic	Key Outcomes
Kemps & Tiggemann (2007) Study 3	Australia	To assess the effects of a craving induction procedure that does not rely on imagery on chocolate cravings	Lab	University students with a liking for chocolate	100	M=20.8 SD=3.8 18-35	Self-reported craving
Kemps & Tiggemann (2013a)	Australia	To investigate the effect of dynamic visual noise on everyday food craving and consumption following craving	Community	University students with frequent food cravings	100	M=21.3 SD=2.4 18-29	Self-reported craving & Self-reported consumption
Kemps & Tiggemann (2013b) Experiment 1	Australia	To investigate the effect of smelling an odour on food craving reductions	Lab	University students	100	M=22.2 SD=3.6 18-34	Self-reported craving
Kemps & Tiggeman (2013b) Experiment 2	Australia	To replicate craving reduction effect of odour smelling, on cravings for chocolate	Lab	University students with a liking for chocolate	100	M=21.0 SD=3.2 18-30	Self-reported chocolate craving
Kemps et al. (2004) Experiment 1	Australia	To test whether concurrent visuospatial tasks can reduce the vividness of food related images by competing for processing capacity in the visuospatial sketch pad, and in so doing, reduce the intensity of the associated craving	Lab	University students: dieting and non-dieting	100	M=21.5 SD=0.6 18-35	Self-reported craving
Kemps et al. (2004) Experiment 2	Australia	To test whether concurrent visuospatial tasks can reduce the vividness of self-generated images by competing for processing capacity in the visuospatial sketch pad, and in so doing, reduce the intensity of the associated craving	Lab	University students: dieting and non-dieting	100	M=22.0 SD=3.7 18-33	Self-reported craving

Table S3: Study characteristics of included studies

Study	Origin	Study Aim	Setting	Population	% Female	Age range/ Statistic	Key Outcomes
Kemps et al. (2005)	Australia	To investigate whether frequent and intense cravings for highly palatable and potentially addictive foods (chocolate) would be responsive to concurrent visuo-spatial processing	Lab	University students with and without cravings for chocolate	100	M=20.9 SD=4.1 18-35	Self-reported chocolate craving
Kemps et al. (2008)	Australia	To investigate the relative effectiveness of thought suppression and the working memory-based method of dynamic visual noise as craving reduction techniques in a community sample of overweight women following a prescribed weight-loss diet	Lab	Dieters and non-dieters	100	not reported 20-57	Self-reported craving
Kemps et al. (2012)	Australia	To compare the relative effectiveness of simple, commercially available food and non-food olfactory tasks on chocolate cravings	Lab	University students with a liking for chocolate	100	M=21.1 SD=4.1 18-35	Self-reported chocolate craving
Kemps et al. (2013) Experiment 2	Australia	To assess the effects of a modified implicit association task on approach /avoidance associations with regard to a craved food	Lab	University students with a liking for chocolate	100	M=20.5 SD=1.8 18-25	Self-reported chocolate craving
Kemps et al. (2014) Experiment 1	Australia	To examine whether attentional bias modification in relation to chocolate is possible and whether this has an effect on chocolate consumption and craving	lab	University students	100	M=20.4 SD=2.2 18-26	Attentional bias & Observed chocolate consumption & Self-reported chocolate craving
Knauper et al. (2011)	Canada	To test whether competing imagery can reduce the intensity of naturally occurring cravings	Community	University students with frequent food cravings	75.8	M=21.8 SD=3.1 18-38	Self-reported craving & Self-reported craving induced eating episodes & Self-reported consumption

Table S3: Study characteristics of included studies

Study	Origin	Study Aim	Setting	Population	% Female	Age range/ Statistic	Key Outcomes
Kroese et al. (2009) Study 1	NL	To test the effect of food temptations on importance of weight watching goals.	Lab	University students	100	M=24.4 SD=7.0	Goal-importance
Kroese et al. (2009) Study 2	NL	To test whether the effect of temptation exposure translates into goal intentions and healthy eating behavior	Lab	University students	100	M=21.2 SD=2.6	Goal intention & Snack choice
Kroese et al. (2013) Study 1	NL	To test the indirect effect of temptation strength on consumption through perceived unhealthiness	Lab	University	100	M=22.6 SD=4.3	Observed food consumption
Laran (2010) Study 1	US	To investigate the influence of temporal distance on self-control decisions when primed with self-control of indulgence	lab	University students	48.1	not reported	Snack choice
Laran (2010) Study 2	US	To investigate the influence of temporal distance on self-control decisions when primed with self-control of indulgence	lab	University students	55.2	not reported	Snack choice & Information accessibility
Laurin et al. (2012) Study 3	Canada	To test whether reminding people of God increases temptation resistance	Lab	University students	74.0	M=20.3	Implicit evaluations
Laurin et al. (2012) Study 4	Canada	To test whether reminding people of God increases temptation resistance	Lab	University students	65.0	M=18.5	Observed cookie consumption
Magaraggia et al. (2013)	Australia	To determine the effects ofan autonomous choice learning condition on snacking on a glucose-rich food (jellybeans) compared with a controlled choice learning condition	Lab	University students	43.9	M=21.0 SD=2.9	Observed snack food consumption & Subsequent self-regulation task

Table S3: Study characteristics of included studies

Study	Origin	Study Aim	Setting	Population	% Female	Age range/ Statistic	Key Outcomes
May et al. (2010) Study 1	UK	To compare a mindfulness-based approach to unwanted food thoughts (Breath Focus) against two natural responses which either emphasise not having the thoughts at all (Thought Suppression) or diverting attention away from them when they do occur (Imagery Diversion)	Lab	University students	81.3	M=21.8	Self-reported craving
May et al. (2010) Study 2	UK	The test the effects of a Body Scan instruction against Guided Imagery and Control instructions, on intrusive thoughts.	Lab	University students	63.3	M=20.9	Self-reported craving
Moffitt et al. (2012)	Australia	To compare restructuring and defusion as cognitive strategies for resisting a craved food	Community	Chocolate cravers	85.5	M=46.2 SD=14.6 18-82	Self-reported craving & Observed chocolate consumption & Self-reported chocolate consumption
Oh & Taylor (2012)	UK	(1) To examine if a short bout of moderate intensity exercise could reduce ad libitum chocolate consumption during breaks in a computer-based cognitive task. (2)To explore if these effects would be different for a low vs. high demanding task. (3) To explore if these effects vary depending on participants' tendency to be emotional or restrained eaters. (4) to see if changes in affect from pre to post-exercise mediated the effects of exercise on chocolate consumption	Community	Chocolate cravers	57.7	M=24.9 SD=8.2	Observed chocolate consumption

Table S3: Study characteristics of included studies

Study	Origin	Study Aim	Setting	Population	% Female	Age range/ Statistic	Key Outcomes
Oh & Taylor (2013)	UK	(1) To assess whether a 15-min. brisk walk, compared with passive rest, decreased attentional bias towards chocolate images and craving for chocolate. (2) To examine if the effects of exercise were moderated by weight, duration of abstinence, emotional eating tendencies and trait chocolate cravings	Lab	Individuals with weight concerns and abstaining from chocolate for Lent	100	normal weight M=23.9 SD =6.9 overweight M=38.1 SD=11.6 lent abstainers M=25.9 SD= 9.7 18-45	Self-reported craving & Attentional Bias (dot probe task)
Oh and Taylor (2014)	UK	To assess if a 15-min bout of moderate or vigorous exercise, compared with rest, reduces attention bias to smoking and snack food video clips, and also cravings for cigarettes and snack food, a mong temporarily abstinent smokers	lab	Temporarily abstinent smokers	65.2	M=23.9 SD=4.8 18-45	Attentional bias & Self-reported craving
Papies et al. (2012) Study 1	NL	To assess a mindful attention procedure that aims to prevent participants' approach bias to attractive food	Lab	University students	N/A	not reported	Approach bias
Papies et al. (2012) Study 2a	NL	To assess whether a mindful attention procedure that aims to prevent participants' approach bias to attractive food only has a short-term effect, or one that persists over a distraction period	Lab	University students	N/A	not reported	Approach bias
Papies et al. (2012) Study 2b	NL	To assess whether a mindful attention procedure reduces existing impulses or prevents their development	Lab	University students	N/A	not reported	Approach bias

Table S3: Study characteristics of included studies

Study	Origin	Study Aim	Setting	Population	% Female	Age range/ Statistic	Key Outcomes
Papies et al. (2012) Study 3	NL	To examine whether mindful attention reduces reactions to novel food stimuli, on which participants had not directly applied mindful attention during the training phase	Lab	University students	N/A	not reported	Approach bias
Patrick and Hagtvedt (2012) Study 1	US	To investigate the influence of a linguistic element of self-talk, framing (I don't vs I can't) on resisting temptation and motivating goal-directed behavior	Lab	University students	N/A	not reported	Snack choice
Raska and Nichols (2012) Experiment 1	US	To examine whether exposure to images of people who represent companionate love would lead to greater likelihood for making a healthy snack choice than exposure to images of people who represent sexual love	Internet	University students	47.0	M=23.7	Snack choice
Raska and Nichols (2012) Experiment 2	US	To examine whether exposure to companionate love symbols would lead to greater likelihood for making a healthy snack choice than exposure to sexual love symbols	Internet	University students	61.0	M=25.0	Snack choice
Raska and Nichols (2012) Experiment 3	US	To replicate the finding that exposure to companionate love results in greater likelihood of choosing a healthy snack as compared to sexual love, with a snack choice made in a realistic setting	University classroom	University students	51.0	M=21.0	Snack choice
Rodriguez-Martin et al. (2013)	Cuba	To evaluate the effectiveness of a Self-help Manual for reducing: (a) food cravings trait; (b) the emotional and behavioral impact of food-related thoughts and (c) the use of food thoughts suppression in a sample of overweight and obese individuals	Community	Overweight and obese people with frequent strong food cravings	72.5	M=39.3 SD=13.6 19-72	Food cravings trait & the emotional and behavioral impact of food-related thoughts

Table S3: Study characteristics of included studies

Study	Origin	Study Aim	Setting	Population	% Female	Age range/ Statistic	Key Outcomes
Stapleton et al. (2011)	Australia	To explore whether the Emotional Freedom Technique reduces food cravings in participants compared to a waitlist (WL) group	Community	Overweight and obese people with frequent strong food cravings	88.5	67.7% over 40 18-60	Self-reported craving & Perceived power of food & Food cravings
Steel et al. (2006)	Australia	To extend previous research by testing, in a more naturalistic craving experience, the efficacy of concurrent dynamic visual noise for reducing food cravings that were hunger driven as well as those that were not	Lab	University students	100	Hungry M=22.0 SD =4.3 Not hungry M=21.5 SD =4.2 18-3	Self-reported craving
Stillman et al. (2009) Study 3	US	To test the effects of psychological family presence (thoughts about one's family) on self-control in the eating of tempting treats	Lab	University students	71.2	not reported	Observed cookie consumption
Taylor & Oliver (2009)	UK	(1) To determine if physical activity reduces chocolate cravings and affect, and attenuates increases in cravings associated with stress and chocolate cue-elicited urges and (2) to explore whether chocolate cravings were associated with affect, and if any changes in affect and cravings were associated	Lab	Regular chocolate consumers	80.0	M=25.3 SD=9.7	Self-reported craving
Thayer et al. (1993) Experiment 2	UK	To study the effect of moderate exercise on self-rated mood and snacking, behaviour. To test whether different means of modulating mood are interchangeable	Community	Frequent sugar snackers	64.7	18-52	Self-reported urge to snack

Table S3: Study characteristics of included studies

Study	Origin	Study Aim	Setting	Population	% Female	Age range/ Statistic	Key Outcomes
Townsend & Liu (2012) Study 2	US	To examine how planning one's food intake for the day might affect a subsequent snack choice and provide insights into the mechanism underlying the negative effect of planning for those in poor goal standing	Lab	University staff and students	62.0	M=21.2	Unhealthy snack choice
Townsend & Liu (2012) Study 3	US	To investigate whether implementation concreteness combined with poor goal standing is associated with demotivation from self-regulation of eating	Lab	University staff and students	45.0	M=21.6	Taste test choice
Townsend & Liu (2012) Study 5	US	To examine the effect of temporarily manipulated self-perception of goal standing on the impact of planning	lab	University staff and students	64.0	M=21.1	Unhealthy snack choice
Van Dillen et al. (2013) Study 1	NL	(1) To show that participants allocate more attention to pictures of attractive compared to neutral food, but that this effect disappears when under cognitive load. (2) To examine whether cognitive load can disrupt the development of cravings when participants have been repeatedly exposed to potentially tempting stimuli	Lab	University staff and students	60.6	M=21.0	Self-reported craving & Attentional Bias
Van Dillen et al (2013) Study 2	NL	To demonstrate more directly that cognitive load prevents the activation of hedonic thoughts in response to attractive food items, by using a lexical decision task that assesses spontaneous thoughts about eating enjoyment when exposed to tempting food cues	Lab	University staff and students	55.1	M=21.0	Hedonic response to food stimuli

Table S3: Study characteristics of included studies

Study	Origin	Study Aim	Setting	Population	% Female	Age range/ Statistic	Key Outcomes
Van Dillen et al (2013) Study 3	NL	(1) To test the effects of cognitive load on healthy eating behavior (food choice). (2) To examine whether cognitive load helps to reduce the hedonic effects of attractive food items for people who are particularly sensitive to the allure of food in their environment	Lab	University staff and students	73.5	M=21.0	Snack choice
van Gucht et al. (2008)	Belgium	To investigate the effects of repeated unreinforced exposure to chocolate cues in persons reporting chocolate craving	Lab	University students chocolate craving	100	M=20.7 SD=0.8 20-24	Self-reported craving & Saliva secretion
van Koningsbruggen et al. (2011) Study 1	NL	To test whether forming implementation intentions to ‘‘think of dieting’’ when tempted creates a strong association between temptation and dieting goals	Lab	Dieters and non-dieters	100	M=28.7 SD=14.0	Goal-activation
van Koningsbruggen (2011) Study 2	NL	To test whether think-of-dieting implementation intentions can reduce consumption of the targeted food items after 2 weeks	Community	Dieters and non-dieters	90.7	M=33.7 SD=14.7	Self-reported food consumption
van Koningsbruggen et al. (2014) Experiment1	NL	To test whether a) dieting implementation intentions or b) stop-signal training can influence portion size selection	lab	University students	53.9	M=21.8 SD=3.4 18-41	Ad libitum food-serving behavior
van Koningsbruggen et al. (2014) Experiment 2	NL	To test whether two interventions to reduce impulsive eating behavior (as above) can influence task performance that results in receiving sweets	Lab	University students	62.5	M=21.2 SD=2.2 18-30	Task performance to receive chocolate

Table S3: Study characteristics of included studies

Study	Origin	Study Aim	Setting	Population	% Female	Age range/ Statistic	Key Outcomes
Veling et al. (2011) Study 1	NL	To test whether presenting stop signals near palatable foods inhibits chronic dieters' subsequent unintentional impulses toward these foods	Lab	University students	100	M=21.2 SD=3.4	Slowed responses on Go/no-go task
Veling et al. (2011) Study 2	NL	To assess whether training with stop signals extends outside of the laboratory and affects palatable food consumption over a one day period.	Lab	University students	60.9	no-go M=21.3 SD=2.8 control M=21.0 SD=2.9	Observed sweets consumption
Veling et al. (2013) Study 1	NL	To examine the impact of stop signals on food choices among people with different levels of appetite (hunger)	Lab	Young adults	62.0	M=21.4 SD=2.9	Food choice
Veling et al. (2013) Study 2	NL	To test whether associating foods to stop signals, reduces choices for these foods among those with frequent past selections.	Lab	Young adults	61.4	M=21.5 SD=2.9	Food choice

Table S4 provides the definitions of study designs as well as non-standard outcomes assessed by the included studies and referred to in the main manuscript.

Table S4: Definitions of study designs and non-standard outcomes

Study designs	**Definition**
Randomized Controlled Trial	A study in which a number of similar people are randomly assigned to 2 (or more) groups to test a specific treatment. With one group receiving the experimental treatment and the comparison group (or control group) receiving an alternative treatment or no treatment at all.
Non-randomized Controlled Trial	A study in which a number of similar people are allocated (without the use of randomization) to 2 (or more) groups to test a specific treatment. With one group receiving the experimental treatment and the comparison group (or control group) receiving an alternative treatment or no treatment at all.
Factorial Experiment	A study with two (or more) factors (independent variables). These are used in all possible treatment combinations. Each separate condition consists of a different combination of factors.
Crossover Trial	A study in which participants receive all possible treatments. Randomisation may be used to determine the order in which the patient receives each treatment. In this type of design participants serve as their own control.
Uncontrolled study	A study without a comparison or control group. All participants are in the same condition.
Non-obvious outcomes definitions	
Hypothetical food choice	Participants are asked to choose which food they would like to have but are not actually given the food.
Attention Processing	The attention paid to stimuli consisting of attentional disengagement from a previously attended stimulus: and attentional engagement with a new stimulus.
Attentional Bias	Tendency to notice quicker, and pay more attention to, some stimuli in the environment than others.
Automatic evaluations	People continuously evaluate aspects of their environment in an automatic fashion. These evaluations can be positive or negative and are able to trigger behavioral responses away or toward the environment.
Goal activation	Refers to the automatic activation of non-conscious goals that guide attention, behaviour, and cognition without an individual's awareness.
Goal importance and intentions	Goal intentions specify what one wants to achieve. Goal importance is the perceived importance of achieving that particular goal.

Table S4: Definitions of study designs and non-standard outcomes

Study designs	Definition
Approach bias	A behavioral tendency to be faster at approaching rather than avoiding particular cues or stimuli.
(Delay) Discounting patterns	Depreciation of the value of a reward related to the time that it takes to be released. High rates of delay discounting refer to a preference to select a smaller more immediate reward over a larger future reward
Susceptibility to food	Psychological influence of the food environment.
Subsequent self-control (in other self-control task)	Self-control as measured after a previous task has required the person to exert self-control.

Table S5 presents for each category and each unique technique the identified number of studies, study designs, and potential areas of bias. It also provides the outcomes assessed within the studies evaluating a specific technique.

Table S5: Study designs, potential biases, and outcomes

	Total N Studies	Areas of potential bias	Outcomes	Study Designs				
				RCT	Non-randomized controlled trial	Factorial experiment	Crossover trial	Uncontrolled (pre-post) study
1. Impulse-focused technique	**35**			**13**	**5**	**10**	**7**	
1.1 Priming	**9**	5 No randomization 8 Student Samples 9 No a priori power calculation 2 Self-report	Food consumption Hypothetical food choice Automatic evaluations	**4**	**1**	**3**	**1**	
1.2 Cue-exposure	**9**	6 No randomization 9 Student Samples 9 No a priori power calculation 1 Self-report	Food consumption Craving Goal activation Goal importance and goal intentions Attention processing	**2**	**3**	**4**		
1.3 Inhibition Training	**9**	2 No randomization 7 Student Samples 7 No a priori power calculation	Food consumption Hypothetical food choice Go/No-go response times	**5**		**2**	**2**	
1.4 Physical Activity	**5**	3 No a priori power calculation 3 Self-report	Food consumption Craving Attentional bias			**1**	**4**	
1.5 Attentional Bias training	**2**	2 Student Samples 2 No a priori power calculation	Food consumption Craving Attentional bias	**1**	**1**			
1.6 Approach/Avoidance training	**1**	1 Student Samples 1 No a priori power calculation	Craving Approach bias	**1**				

Table S5: Study designs, potential biases, and outcomes

	Total N Studies	Areas of potential bias	Outcomes	Study Designs				
				RCT	Non-randomized controlled trial	Factorial experiment	Crossover trial	Uncontrolled (pre-post) study
2. Reflective technique	**55**			**28**	**10**	**8**	**9**	**1**
2.1 Mindfulness-based strategies	**19**	6 No randomization 14 Student Samples 19 No a priori power calculation 2 Self-report	Weight Food consumption Craving Discounting patterns Approach bias	**10**	**4**	**4**		**1**
2.2 Visuospatial Load	**16**	11 No randomization 17 Student Samples 16 No a priori power calculation 17 Self-report	Food consumption Craving	**6**	**1**	**1**	**8**	
2.3 Implementation Intentions	**9**	7 Student Samples 7 No a priori power calculation 2 Self-report	Food consumption Automatic evaluations Goal activation	**6**		**3**		
2.4 Cognitive loading	**3**	2 No randomization 3 Student Samples 3 No a priori power calculation	Craving Snack choice Accessibility of hedonic information	**1**	**2**			
2.5 Thought suppression	**3**	2 No randomization 2 Student Samples 3 No a priori power calculation	Food consumption Craving	**1**	**2**			
2.6 Cognitive restructuring	**3 (+2)***	1 No randomization 1 Student Samples 2 No a priori power calculation 1 Self-report	Weight * Craving Automatic evaluations	**2 (+2)***			**1**	

Table S5: Study designs, potential biases, and outcomes

	Total N Studies	Areas of potential bias	Outcomes	Study Designs				
				RCT	Non-randomized controlled trial	Factorial experiment	Crossover trial	Uncontrolled (pre-post) study
2.7 Emotional freedom technique	**1**	1 No a priori power calculation	Weight Craving Susceptibility to food	**1**				
2.8 "I don't" refusal framing	**1**	1 No randomization 1 Student Samples 1 No a priori power calculation	Food consumption		**1**			
2.9 Autonomous learning conditions	**1**	1 Student Sample 1 No a priori power calculation	Food consumption Subsequent self-control	**1**				
Unclear mechanism	**3**			**3**				
Manipulating Regulatory Fit	**2**	2 Student Samples 2 No a priori power calculation	Food consumption	**2**				
Episodic future thinking	**1**	1 No a priori power calculation	Food consumption Delay discounting	**1**				

*As part of the evaluation of mindfulness-based strategies.

Detailed Evidence Tables

Table S6 provides the detailed extracted evidence data for each separate unique study within the "Impulse-Focused" Technique Category. The studies are grouped by technique, then by outcome, and then study design.

Table S6. 1. Impulse-focused techniques evidence

Reference	Study design	Comparisons (n)	Sample Size	Outcome	Follow-up	Results	Potential Biases
1.1 Priming							
1.1.1 Effects on food consumption							
Raska and Nichols (2012) Study 3	2-arm RCT	-Companionate love reminder -Sexual love reminder	45	Observed Snack choice	Post-treatment	Participants exposed to Abraham Lincoln (companionate love) were more likely to choose a healthy snack (61.9%) than those exposed to Marilyn Monroe (29.2%), $\chi^2(1)=4.86$, $p< .05$	Student sample No sample size calculation Very small sample* Potential differential appeal of love symbols by gender (which was not accounted for)
Laurin et al. (2012) Study 4	Non randomized controlled trial	-God (speech) prime -Planet Pluto (speech) control	23	Observed number of cookies consumed	After (filler task) wash-out period	Participants who were primed with reminders of God, ate fewer cookies than controls (M Diff=4.85 cookies, SMD=-1.24, $p<.01$).	Student sample No sample size calculation No randomization Very small sample*

Table S6. 1. Impulse-focused techniques evidence

Reference	Study design	Comparisons (n)	Sample Size	Outcome	Follow-up	Results	Potential Biases
Stillman et al (2009) Study 3	Factorial design	2(Psychological presence of family (photo of loved ones), Control) x 2(depletion, no depletion)	66	Observed cookie consumption	Post-treatment	Participants in the psychological presence of family ate fewer cookie quarters than those in the control condition (M Diff= .23, SMD=-.09) however, this only reached significance when controlling for restrained eating (p=.05, partial η^2=.62) When controlling for restraint, cookie consumption of depleted participants was unaffected, but for participants in the non depletion condition, those who received the family prime ate fewer cookies than those who received no prime (M Diff= 1.36, SMD= -0.67, p=0.06.	Student sample No sample size calculation No randomization Small sample*
1.1.2 Effects of priming on food preferences /hypothetical food choice							
Raska and Nichols (2012) Study 1	3-arm RCT	-Companionate love symbol background (hearts) -Sexual love symbol background (kisses) -Simple white background control	97	Hypothetical Snack choice	Post-treatment	Participants exposed to subtle reminders of companionate love were more likely to choose a healthy snack (70.2%) compared to those exposed to reminders of sexual love (48.6%), $\chi^2(1)=3.95$, p = .04, SMD=0.41, and those in the control condition (40%) $\chi^2(1)=4.45$, p=.03, SMD=0.44.	Student sample No sample size calculation Self-report measures Small sample*
Raska and Nichols (2012) Study 2	2-arm RCT	-Companionate love reminder -Sexual love reminder	70	Hypothetical Snack choice	Post-treatment	Participants exposed to Abraham Lincoln (companionate love) were more likely to choose a healthy snack (60%) than those exposed to Marilyn Monroe (28.6%), $\chi^2(1)=7.01$, p< .01, SMD=0.67.	Student sample No sample size calculation Self-report measures Small sample*

Table S6. 1. Impulse-focused techniques evidence

Reference	Study design	Comparisons (n)	Sample Size	Outcome	Follow-up	Results	Potential Biases
Hare et al. (2011)	Non randomized crossover trial	-Health cue -Taste cue -Natural control	33	Hypothetical dietary choices	Post-treatment	The health cue group were significantly less likely to eat unhealthy-tasty ($p<.005$), unhealthy-untasty ($p<.005$), but significantly more likely to eat the healthy-untasty foods ($p<.05$), compared to controls. No difference between the conditions for healthy-tasty foods, nor any differences between the taste consideration condition, and natural condition were found.	No sample size calculation No randomization Self-report measures Very small sample*
Laran (2010) Study 1	Mixed factorial design	3 (construal-between: control, concrete, abstract) x 2 (information prime-between: neutral vs self-control) x 2 (time frame-within: present vs future)	400	Present and future Snack choice (choice shares healthy vs unhealthy)	Post-treatment	There was a significant construal x information prime x time frame interaction (Wald $\chi^2(7)=36.27$, $p<.01$). In the control condition, there was an interaction between information prime and time frame (Wald $\chi^2(1)=5.97$, $p<.05$). In the neutral prime, participants were equally likely to choose a healthy snack for the present as they were for the future. When primed with self-control, present snack choice was more likely to be healthy in either construal condition (no construal 61.2%; concrete construal 61.9%) than when the choice was made for a future snack (no construal 34.3%, $\chi^2(1)=9.69$, $p<.01$, SMD=0.32; concrete construal 41.3%, $\chi^2(1)= 5.37$, $p<.05$, SMD=0.23) For the abstract construal condition, similar patterns as above were found, but when primed with neutral information, the healthy snack choices were more likely $\chi^2(1)=8.12$, $p<.01$, SMD=0.29. There was no difference in choice shares between the two construal conditions for the self-control prime.	Student sample No sample size calculation (but large sample) Self-report measures

Table S6. 1. Impulse-focused techniques evidence

Reference	Study design	Comparisons (n)	Sample Size	Outcome	Follow-up	Results	Potential Biases
Laran (2010) Study 2	Mixed factorial design	2 (information prime-between: indulgence vs self-control) x 2 (time frame-between: present vs future) x 2 (word type: self-control vs neutral)	213	Self-reported present and future snack choice (healthy vs unhealthy) & information accessibility (reaction times)	Post-treatment	In the indulgence prime condition, participants in the present time frame condition were slower to recognize words related to self-control than neutral words (M Diff= 75ms p<.05) Participants in the future time frame condition were faster to recognize words related to self-control than neutral words (M Diff=81ms, p=.05). In addition, participants were less likely to list healthy snacks in the present time frame (35.5%) than in the future time frame (61.1%, p=.01) In the self-control prime condition, the present time frame participants were faster to recognize words related to self-control than neutral words (M Diff=60ms, p<.04), whereas the future time frame participants were slower to recognize self-control than neutral words (M Diff=73, p=.05). In addition, participants were more likely to list healthy snacks in the present time frame (80.6%), than in the future time frame (41.9%, p<.01).	Student sample No sample size calculation (but large sample) Self-report measures
1.1.3 Effects of priming on automatic evaluations							
Laurin et al. (2012) Study 3	3-arm RCT	-God prime -Positive prime -Neutral prime	37	Implicit evaluations (IAT)	Post treatment	Participants who were primed with God through forming grammatically correct sentences containing words related to the concept of God, had more negative automatic associations with junk food than did participants primed with neutral words (M Diff=.40, SMD= -1.03, p<.04) and those with positive words (M Diff=.42, SMD=-1.03, p<.03). No difference in automatic evaluations was found between the Positive and Neutral primed participants.	Student sample No sample size calculation Very small sample*

Table S6. 1. Impulse-focused techniques evidence

Reference	Study design	Comparisons (n)	Sample Size	Outcome	Follow-up	Results	Potential Biases
Laran (2010) Study 2	Mixed factorial design	2 (information prime-between: indulgence vs self-control) x 2 (time frame-between: present vs future) x 2 (word type: self-control vs neutral)	213	Self-reported present and future snack choice (healthy vs unhealthy) & information accessibility (reaction times)	Post-treatment	In the indulgence prime condition, participants in the present time frame condition were slower to recognize words related to self-control than neutral words (M Diff= 75ms p<.05) Participants in the future time frame condition were faster to recognize words related to self-control than neutral words (M Diff=81ms, p=.05). In addition, participants were less likely to list healthy snacks in the present time frame (35.5%) than in the future time frame (61.1%, p=.01) In the self-control prime condition, the present time frame participants were faster to recognize words related to self-control than neutral words (M Diff=60ms, p<.04), whereas the future time frame participants were slower to recognize self-control than neutral words (M Diff=73, p=.05). In addition, participants were more likely to list healthy snacks in the present time frame (80.6%), than in the future time frame (41.9%, p<.01).	Student sample No sample size calculation (but large sample) Self-report measures (snack choice only)
1.2 Cue exposure							
1.2.1 Effects on food consumption							
Kroese et al. (2013) Study 2	2-arm RCT	-Strong temptation (one large bowl of crisps) -Weak temptation (three small bowls of crisps)	39	Self-reported calorie estimates & Observed consumption	Post-treatment	With weight concern as a covariate, strong temptations yielded higher calorie estimates compared to weak temptations (β=.39, p=.01), which was associated with lower consumption (β=-.33, p=.05). Bootstrapping analyses suggest that there was a significant indirect effect of temptation strength on consumption through calorie estimates (95% CI[-4.44 to -.15])	Student sample No sample size calculation Very small sample* Self-report measures (calorie estimates only)

Table S6. 1. Impulse-focused techniques evidence

Reference	Study design	Comparisons (n)	Sample Size	Outcome	Follow-up	Results	Potential Biases
Kroese et al. (2009) Study 2	2-arm non randomized controlled trial	-Temptation exposure -Control (flower)	54	Actual Snack choice (healthy vs unhealthy) & Goal intention (2-item 7-point Likert scale)	Post-treatment	Participants who were exposed to temptation had stronger goal intentions than controls (M Diff=.8,SMD=.80). A marginally significant difference in snack choice was reported (p=.056) in which the temptation group more often chose a healthy snack than an unhealthy snack compared with controls.	Student sample No sample size calculation No randomization Self-report measures (goal intention only) Very small sample*
Coelho et al. (2009a)	Mixed factorial design	-Olfactory food cue present -Control (no cue)	104	Observed cookie and chocolate cookie consumption	Post-treatment	No between group differences were reported. There was a significant interaction of food cue and restraint on chocolate cookie consumption $F(1,99)=4.47$, $p<.05$, partial $\eta^2=.38$. Chocolate cookie consumption was reduced in restrained eaters in the cue compared to restrained controls, $t_{48}=2.34$, $p<.03$. Intake was reduced in unrestrained controls compared to restrained controls $t_{49}=2.36$, $p<.03$. No difference between groups was found for unrestrained eaters. For total cookie intake the pattern was the same, but did not reach significance.	Student sample No sample size calculation Baseline differences (controlled for) Small sample*
Buckland et al. (2013)	Mixed factorial design	-Prior diet-congruent cue exposure -Prior temptation cue exposure	58	Observed food consumption	Post-treatment	Total energy intake of snack food did not differ between conditions. Significant two-way interaction between diet-status and condition on total energy intake, $F(1,32)=6.45$, $p=.02$, partial $\eta^2=.17$. Restrained dieters consumed fewer total calories in the diet condition, compared to the tempting condition, $F(1,12)=7.46$, $p=.02$, partial $\eta^2=.38$, but for unrestrained non dieters total energy intake did not differ.	Student sample No sample size calculation No randomization Unequal diet-status group sizes Very small sample*

Table S6. 1. Impulse-focused techniques evidence

Reference	Study design	Comparisons (n)	Sample Size	Outcome	Follow-up	Results	Potential Biases
Geyskens et al. (2008) Study 3b	Mixed factorial design	3(temptation: Actionable Food Temptation, Non Actionable Food Temptation, control) x 2(convenience: high, low)	184	Observed snack consumption	Post-treatment	There was a significant main effect on observed snack consumption between the AFT, NAFT, and control groups, $F(2,177)=6.81$, $p<.01$) with liking for the used chocolates as a covariate, however, no contrasts were reported. No significant two-way interaction between convenience and temptation. However, post-hoc analyses were still conducted, as follows:- Participants in the control condition consumed more in the high convenience condition, than in the low convenience condition (M Diff=6.53grams, SMD=.55, $p<.05$). In the low convenience condition, consumption was lower in the control condition (M Diff=6.85, SMD=-.61, $p<.01$) and the AFT condition (M Diff=6.12, SMD=-.59, $p<.01$) than the NAFT condition. No differences between the control and AFT condition. In contrast, in the high convenience condition, consumption was higher in the control condition (M Diff=6.62, SMD=.61., $p<.05$) and the NAFT condition (M Diff=8.22 SMD=.79, $p<.01$) than the AFT condition. No differences between the control and NAFT condition.	Student sample No sample size calculation No randomization
1.2.2 Effects of cue exposure on craving							

Table S6. 1. Impulse-focused techniques evidence

Reference	Study design	Comparisons (n)	Sample Size	Outcome	Follow-up	Results	Potential Biases
van Gucht et al. (2008)	2-arm non randomized controlled trial	-Repeated cue exposure (40) -Control (18)	58	Self-reported craving strength (online 0-100 scale), saliva secretion	1-3 days.	Cravings reduced over time more for the cue exposure group than for controls (Group x Time interaction $F(1,56)= 11.91$, $p<.01$). No significant effect of cue exposure on salivation (Group x Time interaction n.s.)	Student sample No sample size calculation No randomization Self-report measures (cravings only) Very small sample*
1.2.3 Effects of cue exposure on goal activation							
Geyskens et al. (2008) Study 1	3-arm non randomized controlled trial	-Actionable food temptation (AFT) -Nonactionable food temptation (NAFT) -Control	70	Diet-goal activation (Response time for the word 'diet')	Post-treatment	Significant main effect of temptation $F(2,66)=5.87$, $p<.01$. Compared with controls, "diet" was recognized significantly faster in the non actionable condition (M Diff=89.35ms, SMD=-.88, $p<.01$), and in the actionable condition (M Diff=57.75ms, SMD=-..56, $p<.05$). No differences in activation among the two food temptation conditions were found, suggesting that both non actionable, as well as actionable food temptations activate the goal to restrict food intake.	Student sample No sample size calculation No randomization Very small sample*

Table S6. 1. Impulse-focused techniques evidence

Reference	Study design	Comparisons (n)	Sample Size	Outcome	Follow-up	Results	Potential Biases
Geyskens et al. (2008) Study 2	Mixed factorial design	3 (temptation: AFT,NAFT,Control) x 2 (food opportunity; subsequent eating opportunity, no eating opportunity)	129	Eating-goal activation (Response time for the word 'eating')	Post-treatment	Main effect of temptation only marginally significant $F(2,122)=2.8$, $p<.07$. The eating goal was activated more strongly in the NAFT condition than the AFT condition (M Diff=32.74, SMD=-.51, $p<.05$) but no difference compared to controls. There was a Subsequent eating opportunity x Temptation interaction $F(2,122)= 6.5$, $p<.01$, $\eta^2 = .10$. In controls, the presence of sweets in the subsequent eating opportunity condition activated the eating goal compared to the no subsequent eating opportunity condition (M Diff=61.31ms, SMD=-.66, $p<.01$). In the no subsequent eating opportunity the eating goal was activated in the NAFT condition (M Diff=55.42, SMD=-.56, $p<.01$) and the AFT (M Diff=51.03, SMD=-.53, $p<.05$) compared to controls. This implies that Non actionable as well as actionable temptations activate the desire to eat the cued food. In the subsequent eating opportunity group, the eating goal was activated in the controls (M Diff=60.63, SMD=-1.0, $p<.01$) and in the NAFT condition (M Diff=61.07, SMD=-.97, $p<.05$) compared to the AFT condition. The presence of the sweets induced a desire to eat in the control and NAFT condition but not after exposure to the AFT. Consistently, in the AFT condition, the SEO condition showed a suppressed eating goal activation in comparison with the NSEO condition (M Diff=50.35, SMD=.76, $p<.01$)	Student sample No sample size calculation No randomization Small sample*
1.2.4 Effects of cue exposure on goal importance and goal intentions							

Table S6. 1. Impulse-focused techniques evidence

Reference	Study design	Comparisons (n)	Sample Size	Outcome	Follow-up	Results	Potential Biases
Kroese et al. (2009) Study 1	2-arm non randomized controlled trial	-Temptation exposure -Control (flower)	73	Goal-importance (1-item 7-point likert scale)	Post-treatment	For participants in the temptation condition the weight watching goal was more important than for controls (M Diff=.8, SMD=.64, p<.05).	Student sample No sample size calculation No randomization Self-report measures Small sample*
Kroese et al. (2009) Study 2	2-arm non randomized controlled trial	-Temptation exposure -Control (flower)	54	Goal intention (2-item 7-pooint Likert scales) & Actual Snack choice (healthy vs unhealthy)	Post-treatment	Participants who were exposed to temptation had stronger goal intentions than controls (M Diff=.8,SMD=.80). A marginally significant difference in snack choice was reported (p=.056) in which the temptation group more often chose a healthy snack than an unhealthy snack compared with controls.	Student sample No sample size calculation No randomization Self-report measures (goal intentions only) Very small sample*
1.2.5 Effects of cue exposure on attention processing							

Table S6. 1. Impulse-focused techniques evidence

Reference	Study design	Comparisons (n)	Sample Size	Outcome	Follow-up	Results	Potential Biases
Geyskens et al. (2010)	3-arm RCT with additional 2 (Cue type: food/jewels; within-subjects) x 2 (Cue validity: valid/invalid; within-subjects) factors	-Actionable food temptation -Nonactionable food temptation -Control	59	Attention processing (using a pictorial exogenous cueing task)	Post-treatment	Main effect of treatment group not reported. When controlling for restraint, BMI, and disinhibition there was a significant cue type x cue validity x group interaction (F(1,52)=3.19, p=.05). In the NAFT condition, participants reacted more quickly to the invalid food trials compared to the valid food trials (M Diff=20ms, SMD=-.44, p=.01) and the valid jewel trials (M Diff=13ms, SDM=-.32, p=.0003), but no different from the invalid jewel trials (p=.07). The same pattern was found for the AFT condition, but here reactions were quicker than to invalid jewel trials as well (p=.05). No difference in reaction times between trial types was found in the control condition. These findings indicate that attention may have been drawn away from the food cues after exposure to non actionable and actionable food temptations in comparison to the control condition.	Student sample No sample size calculation Very small sample*
1.3 Inhibition Training							
1.3.1 Effects on food consumption							
Guerrieri et al. (2012)	3-arm RCT	-Inhibition (21) -Impulsivity (20) -Control (20)	61	Observed snack food consumption	Post-treatment	Inhibition training led to reduced consumption compared to impulsivity promotion ($p < 0.05$, $\eta_p^2 = 0.08$), but not compared to controls ($p > 0.30$)	Student Sample No sample size calculation Very small sample*
Houben & Jansen (2011)	3-arm RCT	-Chocolate/no-go condition (21) -Chocolate/go condition (20) -Control (22)	63	Observed chocolate consumption	Post-treatment	Inhibition training led to reduced chocolate intake compared to controls $t(60) = -3.07$, $p < .01$. Impulsivity promotion did not differ from the controls or inhibition training $p = .12$ and $p = 1.43$	Student Sample No sample size calculation Very small sample*

Table S6. 1. Impulse-focused techniques evidence

Reference	Study design	Comparisons (n)	Sample Size	Outcome	Follow-up	Results	Potential Biases
Veling et al. (2011) Study 2	2-arm RCT	-No-go -Control	46	Observed sweets consumption	1-day	No significant effect of no-go treatment compared with controls. There was a significant group x dieting interaction $F(1,42)=6.01$, $p<.02$, partial $\eta^2= .13$.Chronic dieters with inhibition training consumed less compared to chronic dieter controls, however non dieter 44ehaviour was unaffected by the training.	Student Sample No sample size calculation Very small sample*
Houben (2011)	Non randomized crossover trial	-Stop food -Go food -Control	29	Observed snack food consumption	Post-treatment	No significant effect of no-go treatment compared with controls. Increasing inhibition toward a 'stop food' decreased consumption compared to the control foods, but only in participants with weak baseline inhibitory control (interaction $F(2,26)=4.92$, $p= .02$, partial $\eta^2= .27$)	Student Sample No sample size calculation No randomization Very small sample*
van Konings-bruggen et al. (2014) Study 1	2x2 factorial experiment	-Only No-go (24) –Only II (20) -II and No-go (23) -Control (22)	87	Ad libitum food-serving behavior	Post-treatment	No main effects of the go/no-go or II tasks. However, the interaction effect between the two tasks was significant, $F(1, 85) = 4.32$, $p = .041$, $\eta_p^2 = .05$. The go-no go training only decreased food serving in those who received the control implementation intentions $F(1,85)= 8.12$, $p = .005$, $\eta_p^2= .09$. Implementation intentions only decreased food-serving for those receiving the control go/nogo $F(1,85)= 5.06$, $p=.027$, $\eta_p^2= .06$. Post-hoc pairwise comparisons showed that food-serving 44ehaviour in the control group was significantly higher than the other conditions ($p = .031$ to $.005$).	Student Sample Small sample*

Table S6. 1. Impulse-focused techniques evidence

Reference	Study design	Comparisons (n)	Sample Size	Outcome	Follow-up	Results	Potential Biases
van Koningsbruggen et al. (2014) Study 2	2x2 factorial experiment	-Only No-go (24) -Only II (23) -II and No-go (19) -Control (22)	88	Task performance (button holding) to receive chocolate	Post-treatment	No main effects of the go/no-go or II tasks. However, the interaction effect between the two tasks was significant ($F(1, 84) = 5.72$, $p = .019$, $\eta_p^2=.06$). The go-nogo task decreased button holding 45ehaviour compared to controls when control implementation intentions were used, as compared to the control condition, but not when diet implementation intentions were used. (Interaction $F(1, 84) = 8.20$, $p = .005$, $\eta_p^2=.09$). Implementation intention significantly decreased button-holding 45ehaviour vs controls, when control no-go was used (Interaction $F(1, 84) = 7.84$, $p = .006$, $\eta_p^2=.09$). Pairwise comparisons showed that controls held the button down significantly longer than either the no-go training, implementation intentions, or combined treatment groups (p=.039- to 005).	Student Sample Small sample*
1.3.2 Effects of inhibition training on food preferences/ hypothetical food choice							
Veling et al. (2013) Study 1	2-arm RCT	-No-go -Control	79	Food choices healthy & unhealthy	Post-treatment	Main effect of training condition $F(1,75)=4.35$, $p<.05$ partial $\eta^2= .06$ Inhibition training reduced palatable food choices in participants compared to controls in participants with high appetite $p<.01$, $\eta_p^2=.14$. but not those with low appetite (Interaction $F(1,75)=5.83$, $p<.05$, partial $\eta^2= .07$) Inhibition training increased healthy food choice compared to controls in participants with high appetite $p< .01$, $\eta_p^2=.12$, but not low appetite (Interaction $F(1,75(=4.40$, $p<.05$, partial $\eta^2= .06$).	Self-report measures No sample size calculation Small sample*

Table S6. 1. Impulse-focused techniques evidence

Reference	Study design	Comparisons (n)	Sample Size	Outcome	Follow-up	Results	Potential Biases
Veling et al. (2013) Study 2	2-arm RCT	-No-go -Control	44	Food choices healthy & unhealthy	Post-treatment	Main effect of training condition F(1, 40)=6.90, p<.05, partial η^2= .36 Inhibition training reduced the choice of palatable unhealthy foods compared to controls for those with relatively high frequency past behaviors towards those foods p <.01, η_p^2= .26 but not for those low frequency of past 46ehaviour. (Interaction F(1,40)=7.18, p<.05, p<.01, partial η^2=.15). People with high frequency of past 46ehaviour who received inhibition training chose more healthy foods compared to high frequency controls p<.05, partial η^2=.12 (Interaction only marginally significant F(1,40)=3.58, p=.07, partial η^2=.09).	Self-report measures No sample size calculation Very small sample*
1.3.3 Effects of Inhibition training on other outcomes							
Veling et al. (2011) Study 1	Non randomized crossover trial	2 (control objects vs food objects) x 2 (go vs no go) within	38	Slowed responses on Go/no go task	Post-treatment	Presentation of palatable foods with no-go cues caused slower responding to the action probes compared to presentation of control objects with no-go cues p< .05, η_p^2= .10 . This effect of stop signals was particularly strong for chronic dieters as opposed to non dieters (Interaction F(1,36)=4.15, p<.05, partial η^2=.10)	Student Sample No sample size calculation No randomization Very small sample*
1.4 Physical Activity							
1.4.1 Effects on Food consumption							

Table S6. 1. Impulse-focused techniques evidence

Reference	Study design	Comparisons (n)	Sample Size	Outcome	Follow-up	Results	Potential Biases
Oh & Taylor (2012)	Factorial experiment	-15min Exercise +high cognitive demand (20) -Exercise +low (19) -Rest +high (20) -Rest +low (19)	78	Observed chocolate consumption	Post-treatment	Those in the exercise conditions ate less chocolate compared to the passive control conditions (M Diff=13.2g, SMD=-.61). Load task had no effect on chocolate consumption and did not influence the effect of exercise on chocolate.	No sample size calculation Very small sample*
Thayer et al. (1993) Study 2	Randomized crossover trial	-Five min brisk walk -Sedentary control	18	Time until next snack	Post-treatment	The time until eating the next snack was significantly extended by walking by almost 50% (M Diff=5min, p<.01).	No sample size calculation Very small sample*
1.4.2 Effects of physical activity on craving							
Oh & Taylor (2013)	Randomized crossover trial	-Two-min warm-up + 15min brisk walk -Passive control	58	Self-reported craving	Mid-treatment Post-treatment, 5-min, 10-min	Time x Group interaction for craving F(2.34,133.9)=14.44 (no p-value reported). Craving was significantly reduced after exercise, compared with rest: In the exercise condition chocolate craving dropped from baseline during exercise (p<.001), post-treatment (p<.001), at 5-min (p=.001), and 10-min (p<.001).	Small sample* (close to 60 however and based on a sample size calculation) Self-report measures

Table S6. 1. Impulse-focused techniques evidence

Reference	Study design	Comparisons (n)	Sample Size	Outcome	Follow-up	Results	Potential Biases
Oh and Taylor (2014)	Randomized crossover trial	-Low-moderate intensity exercise -Vigorous intensity exercise -Passive control	23	Self-reported craving (3-item 5-point scale adapted from the FCQ-S)	Mid-treatment, Post-treatment, 5-min, and 10-min	Immediately after treatment desire to snack was significantly lower after vigorous (MDiff=4.04, 95% CI[2.16, 5.93], d=1.11), and moderate exercise (M Diff=1.56, 95% CI[0.24, 2.89], d=.42). Mid-treatment, desire to snack was significantly lower in the vigorous (M Diff=4.08, 95% CI[2.43, 5.38], d=1.16), and moderate exercise (MDiff=2.22, 95% CI[0.31, 3.60], d=.53) than in the control condition. Ten minutes after treatment, desire to snack was only lower after vigorous exercise (M Diff=2.56, 95% CI[1.01, 4.12], d=.78).	Very small sample* (sample size calculation assumed a high effect size (SMD =0.88)) Self-report measures
Taylor & Oliver (2009)	Randomized crossover trial	-Two-min warm-up + 15min brisk walk -Passive control	25	Self-reported craving (FCQ-S adapted for chocolate)	Mid-treatment Post-treatment, 10-min	Time x Group interaction for chocolate craving F(2,48)=21.5, p<.001. Compared with controls, cravings were significantly lower in the exercise condition both immediately and 10min after treatment.	No sample size calculation. Self-report measures Very small sample*
Thayer et al. (1993) Study 2	Randomized crossover trial	-Five min brisk walk -Sedentary control	18	Self-reported urge to snack	Post-treatment	Interaction effect indicated that walking significantly decreased urges to snack compared to not walking F(1,17)=12.32, p<.01.	No sample size calculation Self-report measures Very small sample*
1.4.3 Effects of physical activity on attentional bias							

Table S6. 1. Impulse-focused techniques evidence

Reference	Study design	Comparisons (n)	Sample Size	Outcome	Follow-up	Results	Potential Biases
Oh & Taylor (2013)	Randomized crossover trial	-Two-min warm-up + 15min brisk walk -Passive control	58	Attentional Bias (IAB and MAB)	Mid-treatment Post-treatment, 5-min, 10-min	Initial Attentional Bias (IAB) was significantly greater in the passive control, compared with the exercise condition at post-treatment , t(57)= 2.78, p<.01, 95% CI[5.53,34.21], d= 0.42. Time x Group Interaction for IAB F(1,57)=6.39, p<.05. IAB in the passive condition was significantly increased as compared with baseline, [M Diff=20.78ms, p<.01, 95% CI[-35.43, -6.14], d=0.42. There was no difference in IAB from baseline to post-treatment for the exercise treatment condition.	Small sample* (close to 60 however and based on a sample size calculation)
Oh and Taylor (2014)	Randomized crossover trial	-Low to moderate intensity exercise -Vigorous intensity exercise -Passive control	23	Attentional bias	Mid-treatment Post-treatment, 5-min, and 10-min	Attentional bias towards snacking video clips was lower in the moderate exercise (M Diff=27.35%; 95% CI[16.63, 38.08], d=1.04), and the vigorous exercise,(M Diff=27.14, 95% CI [18.20, 36.09], d=1.42), compared with the passive control condition. There were significant reductions in initial IAB from baseline to post- treatment for both the moderate (M Diff=21.01, 95% CI[6.67, 35.37], d=.77) and vigorous exercise (M Diff= 15.91, 95% CI[3.32, 28.49], d=.68). For maintained attentional bias, only vigorous exercise was significantly lower than controls (M Diff=12.67, 95% CI[4.79, 20.54], d=.63).	Very small sample* (sample size calculation assumed a high effect size (SMD =0.88))
1.5 Attentional bias training							
1.5.1 Effects on food consumption, craving, and attentional bias							

Table S6. 1. Impulse-focused techniques evidence

Reference	Study design	Comparisons (n)	Sample Size	Outcome	Follow-up	Results	Potential Biases
Kemps et al. (2014) Study 1	2-arm RCT	-Attend training (55) -Avoid training (55)	110	Attentional bias & self-reported chocolate craving (VAS) & observed consumption	Post-treatment	There was a significant time x group interaction F(1,108)=27.48, p<.001.Attend training significantly increased attentional bias scores from baseline to post-treatment t(54)=4.10,p<.001,d=.69, 95% CI[.15,1.23] and Avoid training significantly decrease in the avoid group, t(54)=3.31, p<.01, d=.64, 95%. There was no significant difference in craving scores (time x group) between the attend and avoid groups. In the taste test the avoid group ate significantly less of the chocolate muffin than those in the attend group, p < .01, d=0.67, 95%CI = [.28, 1.05]. In contrast, blueberry muffin consumption did not differ between the two training conditions.	Student sample No sample size calculation Small sample* Self-report measures (craving only)
Hardman et al. (2013)	3-arm non randomized controlled trial	-Attend training -Avoid training -No training	60	Self-reported appetite (VAS) & observed calories consumed	Post-treatment	No significant differences in attentional bias were found between groups. For food intake there was no evidence for a main effect of group [F(2,54) = 0.89, p = .42] indicating no overall effect of training group on food intake.	Student sample Very small sample* No sample size calculation No randomization (alternate allocation) Self-report measures (appetite only)
1.6 Approach/Avoidance training							
1.6.1 Effects on craving and approach bias							

Table S6. 1. Impulse-focused techniques evidence

Reference	Study design	Comparisons (n)	Sample Size	Outcome	Follow-up	Results	Potential Biases
Kemps et al. (2013) Study 2	2-arm RCT	-Approach Training (48) -Avoidance Training (48)	96	Self-reported chocolate craving (VAS) & Approach Bias	Post-treatment	Significant time x group interaction $F(1,94)=8.32$, $p<.01$, partial $\eta^2 = .08$. Approach training significantly increased approach bias scores from baseline to post-treatment, $t(47)=2.08$, $p<.05$, $d=.43$, whereas avoidance training significantly decreased approach bias score from baseline to post-treatment, $t(47)=2.03$, $p<.05$, $d=.45$. Significant group x time interaction for cravings $F(1,94)=4.41$, $p<.05$, partial $\eta^2 = .05$, with cravings increasing after approach training relative to baseline and decreasing after avoidance training.	Student sample No sample size calculation Self-report measures (craving only) Small sample*

Abbreviations: RCT = Randomized Controlled Trial. SMD= Standardized Mean Difference. BMI= Body Mass Index (kg/m^2). SD= Standard Deviation. PA= Physical Activity. FCQ-S= Food Craving Questionnaire-State. FCQ-T= Food Craving Questionnaire Trait. PFS= Power of Food Scale. IAB= Initial Attentional Bias. MAB= Maintained Attentional Bias. AFT = Actionable Food Temptation. NAFT = Non Actionable Food Temptation. VAS= Visual Analogue Scale.

* A small sample is defined here as less than 64 people per group (the number needed to have an 80% chance of detecting a SMD of 0.5, i.e. a medium effect size, with $p<0.05$). A very small sample is defined here as less than 30 per group. For factorial designs the smallest factor-group size was used (e.g., in a 2x3 factor design, the total sample size was divided by 3).

Table S7 provides the detailed extracted evidence data for each separate unique study within the Reflective Technique category. The studies are grouped by technique, then by outcome, and then study design.

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
2.1 Mindfulness-based strategies							
2.1.1 Effects on weight							
Forman et al. (2013a)	2-arm RCT	-Acceptance-based treatment (74) -Standard behavioral treatment (54)	128	Weight (%body weight)	Treatment period, Post-treatment, 6-month follow-up.	No significant difference in weight loss between treatments. Subgroup analyses: those treated by experts in the ABT condition (n=28) lost significantly more weight than the SBT participants at post-treatment (M Diff=5.63%, SMD=.65, p= .01), and follow-up (M Diff=6.15%, SMD= 0.74, p<.01).	Completers only analysis (and 32% drop out at 6 months)
Alberts et al. (2010)	2-arm RCT	- Acceptance-based treatment (10) -Standard treatment (9)	19	Weight &)	Post-treatment	No significant difference in weight loss between the treatment groups.	No sample size calculation Very small sample*
Alberts et al. (2012)	2-arm RCT	-Mindfulness (12) -Waitlist control (14)	26	BMI	Post-treatment	No significant difference in weight loss between groups.	No sample size calculation. Very small sample*
Forman et al. (2009)	Uncontrolled study	- Acceptance-based treatment	14	Weight	Post-treatment (19) 6-month (14)	Participants lost an average of 6.6% of their body weight between baseline and post-treatment (SMD= .42) and an average of 9.6% of their baseline body weight by 6-month follow-up (SMD= .58).	No sample size calculation. Drop-out rate 31%, lost to follow-up 51%. No control group. Very small sample*
2.1.2 Effects of Mindfulness-based strategies on food consumption							

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
Jordan et al. (2014) Study 3	2-arm RCT	-Mindfulness (incl. body scan) -Control	56	Observed calorie consumption	Post-treatment	The mindfulness induction group ate 24% fewer calories than controls (M Diff= 48.41, SMD=.60, p =.029).	Student Sample. No sample size calculation. Very small sample*
Hooper et al. (2012)	3-arm non randomized controlled trial	-Defusion (16) -Thought suppression (17) -Control (14)	47	Observed chocolate consumption & Self-reported consumption	Post-treatment	The defusion group ate significantly fewer chocolates than the thought suppression group (M Diff=11.28, SMD= -1.69, p<.05), and controls (M Diff=7.62, SMD= -.99, p<.05). The thought suppression group ate significantly more than controls (M Diff=3.66, SMD=.37, p<.05). No significant difference between the groups for self-reported chocolate consumption.	Student sample No sample size calculation No randomization Very small sample*
Jenkins & Tapper (2014)	3-arm non randomized controlled trial	-Cognitive Defusion (45) -Acceptance (44) -Control relaxation (45)	134	Observed 'marked' chocolate consumption (returned bag) & Observed chocolate consumption taste test & Self-reported consumption	Experimental period, Post-treatment	The defusion group ate significantly fewer chocolates compared to controls (M Diff= .67, SMD= -0.45, p=.046. There was no significant difference between the acceptance group and controls. No significant differences in self-reported consumption.	Student sample No sample size calculation Small sample*
Moffitt et al. (2012)	3-arm RCT	-Cognitive Defusion (38) -Cognitive restructuring (36) -Waitlist Control (36)	110	Combined self-reported and observed chocolate consumption	7-day	The odds of abstinence from eating chocolate (combined self-report and observation) was 3.26 times higher for Cognitive Defusion, than for Cognitive restructuring (Wald=4.67, 95% CI [1.12-9.53]), and 4.61 times higher for Cognitive Defusion than for controls (Wald=7.55, 95% CI[1.55-13.71]). The odds of abstinence did not differ between cognitive restructuring and controls.	No sample size calculation Small sample*

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
Forman et al. (2013b)	2-arm RCT	-Acceptance-based coping (22) -Control-based coping (26)	48	Observed & Self-reported sweet consumption	Treatment period, Post-treatment	No significant differences were found between groups on self-reported consumption, or observed (taste-test) consumption and returned sweets.	No sample size calculation Very small sample*
Forman et al. (2007)	3-arm RCT	-Acceptance-based coping (30) –Control-based coping (36) -Control (32)	98	Observed chocolate consumption (box of marked chocolates)	Post-treatment	No significant difference between groups (group x time interaction) on chocolate abstinence.	Student sample No sample size calculation Small sample*
2.1.3 Effects of Mindfulness-based strategies on craving							
Forman et al. (2013b)	2-arm RCT	-Acceptance-based coping (22) -Control-based coping (26)	48	Self-reported Craving (FCQ-S)	Treatment period, Post-treatment	No significant differences were found at either time point between groups on state-based cravings.	No sample size calculation Self-report measures Very small sample*
Moffitt et al. (2012)	3-arm RCT	-Cognitive Defusion (38) -Cognitive restructuring (36) -Waitlist Control (36)	110	Self-reported craving (FCQ-S and FCQ-T)	7-day	Changes in craving state: Temptation, intensity, and difficulty resisting did not differ significantly between the groups.	No sample size calculation Self-report measures Small sample*

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
Alberts et al. (2013)	3-arm RCT	-Acceptance (20) -Thought suppression (20) -Control (21)	61	Self-reported craving levels (G-FCQ-S)	Post-treatment, 20 – minutes	At post-treatment, there were increased craving levels in the acceptance (M Diff=.91; SMD= 1.32, p<.001), and thought suppression groups (M Diff= .7, SMD=.90, p<.01) compared with controls. No difference between acceptance and thought suppression. At 20 minutes, there were increased craving levels in the acceptance group (M Diff=1.06, SMD=1.18, p<.001), and thought suppression groups (M Diff=.74, SMD= .79, p <.01) compared with controls**.** No significant difference between acceptance and thought suppression.	Student Sample No sample size calculation Self-report measures Very small sample*
Alberts et al. (2010)	2-arm RCT	- Acceptance-based treatment (10) -Standard treatment (9)	19	Food Cravings (G-FCQ-T)	Post-treatment	There was a decline in cravings from baseline to post-treatment for the intervention group compared with controls (M Diff $_{\text{Change score}}$ =.58, group x time interaction F(1,17)=8.02, p= .012, η^2=.32).	No sample size calculation Self-report measures Very small sample*
Alberts et al. (2012)	2-arm RCT	- Acceptance based mindfulness (12) -Waitlist control (14)	26	Food Cravings	Post-treatment	Significant craving scores reduction (group x time interaction) after mindfulness compared to controls (F(1,24)=7.09, p=.01, η^2= .29)	No sample size calculation Self-report measures Very small sample*
Hamilton et al. (2013)	3-arm RCT	-Body Scan (34) -Guided Imagery (29) -Control (31)	94	Self-reported craving (CEQ-S, CEQ-F)	Experimental period Post-treatment	There was a significant group x time interaction for craving F(18,189)=1.90, p=.013, η^2=.04. Craving levels remained constant during mindfulness-based strategies, compared to increases in controls.	Student sample No sample size calculation Self-report measures Small sample*

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
Forman et al. (2007)	3-arm RCT	-Acceptance-based coping (30) –Control-based coping (36) -Control (32)	98	Self-reported craving (FCQ-S)	Post-treatment	No significant difference between groups (group x time interaction) for cravings. There was a significant susceptibility to food x group interaction ($F(12,176)=2.35$, $p = .01$, partial $\eta^2=.14$) for craving scores. The acceptance-based coping group showed significantly lower craving scores relative to the control-based coping and control groups at the higher PFS levels, but not for the lower PFS levels (no data provided).	Student sample No sample size calculation Self-report measures Small sample*
Hooper et al. (2012)	3-arm non randomized controlled trial	-Defusion (16) -Thought suppression (17) -Control (14)	47	Self-reported chocolate craving	Post-treatment	No significant difference between the groups for chocolate craving	Student sample No sample size calculation No randomization Self-report measures Very small sample*
May et al. (2010) Study 1	4-arm non randomized controlled trial	-Breath-focus (12) -Thought suppression (12) -Imagery Diversion (13) -Control (11)	48	Self-reported craving intensity (100mm VAS scale)	Experimental period Post-treatment period	There was a significant group x time interaction $F(2,88)= 2.57$, $p=0.24$, $\eta^2=.15$ Breath focus elevated post-task cravings compared to controls.	Student sample No sample size calculation No randomization Self-report measures Very small sample*

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
May et al. (2010) Study 2	3-arm non randomized controlled trial	-Body Scan (17) -Guided Imagery (16) -Control (16)	49	Craving intensity (100mm VAS) & Intrusive thoughts	Experimental period Post-treatment period	Taking into account baseline levels of food thoughts there was a significant interaction effect of group x time F(1,45)= 9.13, p=.004. There was a significant effect of condition during experimental period F(2,25)=3.25, p=.048, η2=.13 with Body scan significantly reducing intrusive thoughts as compared to controls (p=.015) but no difference between Guided Imagery and controls. There was no significant difference in intrusive thoughts between the groups at post-treatment. No significant between group (or group x time) differences for craving intensity.	Student sample No sample size calculation No randomization Self-report measures Differences in baseline characteristics Very small sample*
2.1.4 Effects of Mindfulness-based strategies on other outcomes							
Hendrickson & Rasmussen (2013) Study 2	2-arm RCT	-Mindful eating (47) -Control (education video)(48)	95	Discounting patterns	Post-treatment	There was a significant time x group interaction for delay discounting for food F(1,93)=5.71,p=.02, partial η^2=.06, and for probability discounting for food F(1,93)=5.10, p<.05, η^2=.05. The mindful eating group showed more self-controlled (less impulsive) (p=.003) and less risk-averse discounting patterns (p<.001) for food compared to baseline, whereas controls did not differ in discounting from baseline to post-treatment.	Student sample No sample size calculation Self-report measures Small sample*

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
Papies et al. (2012) Study 1	Mixed factorial design	2 (Control vs Mindful attention) x 2 (attractive vs neutral) x 2 (approach vs avoidance)	40	Approach bias (difference in response latencies)	Post-treatment	Significant interaction of condition, food type, and response $F(1,38)=13.12$, $p=.001$, partial $\eta^2= .26$. Although control participants show an approach bias towards attractive foods (approach responses were faster than avoidance responses with regard to attractive foods $F(1,19)= 14.99$, $p =.001$, partial $\eta^2= .44$, but not with regard to neutral food, $p=.75$). Participants in the mindful attention group did not show this approach bias. These effects of mindful attention occurred independent of dieting goals.	Student sample No sample size calculation Very small sample*
Papies et al. (2012) Study 2a	Mixed factorial design	2 (condition-between: Control vs Mindful attention) x 2 (food type-within: attractive vs neutral) x 2 (response-within: approach vs avoidance)	55	Approach bias (difference in response latencies)	5-mins	As in study 1, significant interaction between condition, food type, and response $F(1,53)=3.91$, $p=0.05$, partial $\eta^2= 0.07$. Mindful attention group showed no approach bias toward attractive food after the 5 minute distraction task, in contrast to controls who showed faster approach responses than avoidance responses with regard to attractive foods $F(1,24)= 7.05$, $p =.01$, partial $\eta^2= .23$, but not with regard to neutral food, $p=.97$.	Student sample No sample size calculation Very small sample*
Papies et al. (2012) Study 2b	Mixed factorial design	2 (condition-between: Control vs Mindful attention) x 2 (food type-within: attractive vs neutral) x 2 (response-within: approach vs avoidance)	55	Approach bias (difference in response latencies)	Post-treatment	Using novel stimuli, no significant interaction was found. Approach and avoidance reactions to attractive and neutral food were equally fast in both conditions. Combining Study 2a and b suggests that participants develop an approach bias toward attractive food during exposure to the food items.	No sample size calculation Very small sample*

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
Papies et al. (2012) Study 3	Mixed factorial design	2 (food type: attractive vs neutral) x 2(condition: mindful attention vs control) x 2(set of pictures: trained vs novel) x 2(Response: approach vs avoidance)	50	Approach bias (difference in response latencies)	Post-treatment	Significant interaction of Condition x food type x response F(1,48)= 6.22, p= 0.02, partial η^2= 0.12 Controls showed an approach bias toward pictures of attractive food F(1,23)= 5.49, p =.03, partial η^2= .19, which seemed to be less pronounced for novel pictures (trend only p=.09). Mindful attention participants did not show an approach bias for either the trained attractive food images or the novel attractive food images (all p >.53).	Student sample No sample size calculation No randomization Very small sample*
2.2 Visuospatial Loading							
2.2.1 Effects of visuospatial loading on consumption							
Kemps & Tiggemann (2013a)	2-arm RCT	-Dynamic visual noise (24) -Control (24)	48	Self-reported craving related consumption (for 2 week pre-baseline; 2 week post-intervention)	Post-treatment 2 weeks post baseline	There was a significant group x time interaction for craving related consumption F(1,46)=4.47, p=.04, partial η^2= .08. The dynamic visual noise group were 39% less likely to eat following a craving compared to their baseline measures, t(23)=3.15, d= .50, p=.005. No difference from baseline for controls. This resulted in a reduction of 31% in calorie-intake in the dynamic visual noise condition, t(23)=3.25, SMD=.49, p=.004, but not for controls (no difference between the groups at baseline).	Student Sample No sample size calculation Self-report measures Very small sample*
Knauper et al. (2011)	4-arm RCT	-II plus activity imagery(25) -Goal intention (27) -II (18) -II plus cognitive task (21).	91	Self-reported amount consumed	Post-treatment	No significant differences in craved food consumption between the groups.	Student Sample. No sample size calculation. Self-report measures Very small sample*

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
2.2.2 Effects of visuospatial loading on craving							
Rodriguez-Martin et al. (2013)	2-arm RCT	-Self-help manual of imagery and non imagery tasks targeting craving components in working memory (40) -Intention to control food cravings (40)	80	Food cravings trait & Emotional and behavioral impact of food-related thoughts	1-month 3-month	Significant reduction at follow-up in scores for food cravings trait, F(1,78)=13.175, p<.001, partial η^2>.310, feelings of hunger F(1,78)=32.98, p<.001, partial η^2>.297, intentions to eat, F(1,78)=21.185, p<.001, partial η^2>.214, cue-dependent eating F(1,78)=11.083, p<.01, partial η^2>.124, and lack of control F(1,78)=5.519, p<.05, partial η^2>.066, in the self-help manual group compared to the control group.	No sample size calculation Self-report measures Small sample*
Andrade et al. (2012) Study 2	2-arm RCT	-Clay-modelling (45) -Control (42)	87	Self-reported craving (CEQ-Snow) & Food-thought frequency	Experimental period Post-treatment	Mean craving scores post intervention were reduced during clay-modelling compared to controls t(85)=2.68, p=.009, 95% CI[.41-2.75] and less frequent t(85)=2.62, p=.01, 95% CI[.34-2.50] Both craving strength and imagery CEQ sub-scales showed an interaction between time and condition, F(1,85)= 4.24, p =.043, partial η^2= .05 and F(1,85)=5.13, p=.026, η^2= .06, respectively, reflecting a greater reduction in strength and imagery over time in the clay modelling condition compared to controls. During the experimental period there were fewer chocolate thoughts in the clay modelling condition, compared to the control group (M Diff=1.91, SMD= -.47, 95% CI[.16-3.66]	Student sample No sample size calculation Self-report measures Small sample*
Kemps & Tiggemann (2007) Study 2	3-arm RCT	-Visual imagery (30) -Olfactory imagery (30) -Auditory imagery (30)	90	Self-reported craving (VAS)	Post-treatment	Significantly greater decrease in craving ratings following the visual and olfactory imagery tasks than the auditory task (Time by Task interaction F(2,87)=5.38, p< .01, Cohen's f^2=.35, with medium to large effect size for visual vs auditory, f^2=.41, and olfactory vs auditory tasks, f^2=.29, but not for visual vs olfactory tasks, f^2=.07)	Student Sample No sample size calculation Self-report measures Small sample*

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
Kemps & Tiggemann (2007) Study 3	3-arm RCT	-Visual imagery (32) -Olfactory imagery (32) -Auditory imagery (32)	96	Self-reported craving (VAS)	Post-treatment	Significantly greater decrease in craving following the visual and olfactory imagery tasks, compared to the auditory task. (Time by Task interaction, F(2,93)=4.79, p< .01, f^2=.32, with moderate effect size for visual vs auditory, f^2=.31, and olfactory vs auditory tasks, f^2=.36, but not for visual vs olfactory tasks, f^2=.11).	Student Sample No sample size calculation Self-report measures Small sample*
Kemps & Tiggemann (2013a)	2-arm RCT	-Dynamic visual noise (24) -Control (24)	48	Self-reported craving (VAS) & Self-reported craving related consumption (for 2 week pre-baseline; 2 week post-intervention)	Post-treatment 2 weeks post baseline	Craving intensity was significantly reduced from baseline to post-treatment by 23%, M Diff=13.56, SMD=1.09, p<.001in the dynamic visual noise condition. Initial craving intensity scores (Before using Dynamic visual noise) did not differ from the control scores p=.07. There was a significant group x time interaction for craving related consumption F(1,46)=4.47, p=.04, partial η^2= .08. The dynamic visual noise group were 39% less likely to eat following a craving compared to their baseline measures, t(23)=3.15, d= .50, p=.005. No difference from baseline for controls. This resulted in a reduction of 31% in calorie-intake in the dynamic visual noise condition, t(23)=3.25, SMD=.49, p=.004, but not for controls (no difference between the groups at baseline).	Student Sample No sample size calculation Self-report measures Very small sample* Possible analysis bias (between group comparison not reported for craving intensity)
Knauper et al. (2011)	4-arm RCT	-II plus activity imagery(25) -Goal intention (27) -II (18) -II plus cognitive task (21).	91	Self-reported craving & self-reported craving induced eating episodes	Post-treatment	There was a significant interaction of time x group (F(3,87)=2.77, p<.046, partial η^2= .09) such that the Implementation intentions + activity imagery group showed a significant reduction in craving intensity ratings from baseline to post-treatment, F(1,87)=9.90, p<.002, partial η^2= .10 and the other groups showed no differences.	Student Sample No sample size calculation Very small sample* Self-report measures

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
Harvey et al. (2005)	Factorial experiment	2(induction scenario: food, holiday) x 2(imagery task:visual, auditory)	120	Self-reported craving intensity (VAS)	Post-treatment	Mean craving ratings decreased more following the visual imagery task than the auditory imagery task, (significant time by task interaction F(1,112)=10.08, p < .01. Cravings were significantly lower after both the imagery tasks than before (M Diff=8.81, SMD= -.31)	Student sample No sample size calculation Self-report measures
Kemps & Tiggemann (2013b) Study 1	Non randomized crossover trial	-Olfactory interference -Auditory interference -Control	56	Self-reported craving	Post-treatment	There was a significant difference in averaged craving scores between the tasks F(2,110)=14.41, p < .001, f^2=.51, with significantly lower craving ratings after olfactory than after auditory interference, (M Diff=7.88, SMD= -.36 p<.01, and control, (M Diff= 12.67, SMD= - .61, p <.001, but no difference between the auditory and control tasks. Separate analyses for sweet and savoury food categories showed the same pattern of differences between tasks F(2,110)=8.73, p<.001, *f*=.40 (sweet) and F(2,110)=17.40, p<.001, *f*=.56 (savoury), with again lower cravings after olfactory interference as compared to the auditory interference (p<.01) and control (p<.01).	Student sample No sample size calculation No randomization Self-report measures Small sample*
Kemps & Tiggeman (2013b) Study 2	Non randomized crossover trial	-Olfactory interference -Auditory interference -Control	57	Self-reported chocolate craving (VAS)	Post-treatment	Averaged chocolate craving ratings were significantly lower after olfactory interference than auditory interference (M Diff= 8.27, SMD= -.36, p <.01), and controls (M Diff= 14.31, SMD= -.64, p< .001). The auditory interference also lead to significantly lower chocolate craving intensity ratings than the control (M Diff= 6.04, SMD= -.26, p<.05).	Student sample No sample size calculation No randomization Self-report measures Small sample*

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
Kemps et al. (2004) Study 1	Non randomized crossover trial	-Dynamic Visual noise -Eye movements -Spatial tapping -Control	48	Self-reported craving (VAS)	Post-treatment	There was a significant main effect of condition, $F(3,44)=3.09$, $p<.05$, and interaction between task and stimulus type $F(3,44)=4.93$, $p<.01$, where visuospatial task condition had an effect on craving intensity ratings when presented with food-related images $F(3,45)=5.56$, $p<.01$, but not when presented with neutral images. Lower craving intensity ratings in the dynamic visual noise (M Diff= 3.97, SMD= -.15, p <.01) and eye movement conditions (M Diff= 5.4, SMD= -.21, p< .001) as compared to the control condition. No significant difference between the spatial tapping and control condition.	Student sample No sample size calculation No randomization Self-report measures Small sample*
Kemps et al. (2004) Study 2	Non randomized crossover trial	-Dynamic visual noise -Eye movements -Spatial tapping -Control	56	Self-reported craving (VAS)	Post-treatment	There was a significant group x stimulus type interaction $F(3,52)= 3.25$, $p<.05$. For food-related verbal cues, craving intensity ratings were significantly lower for dynamic visual noise (M Diff=4.47, SMD=-.19, p < .01), eye movements (M Diff=2.4, SMD=-.13, p <.025), and spatial tapping (M Diff= 5.26, SMD= -.22, p< .01) compared to the control condition. No other significant differences found.	Student sample No sample size calculation No randomization Self-report measures Small sample*
Kemps et al. (2005)	Non randomized crossover trial	-Dynamic visual noise -Auditory interference -Control	48	Self-reported chocolate craving (VAS)	Post-treatment	Craving ratings were lowest in the dynamic visual noise compared to controls (M Diff=12.12, SMD=-.49, p <.001) and to the auditory interference condition (M Diff= 5.72, SMD= -.22, p<.05). The ratings were also lower in the auditory interference condition compared to control (M Diff= 6.4, SMD= -.23, p < .001) There was no significant interaction between craving status (craver vs non craver) and task condition.	Student sample No sample size calculation No randomization Self-report measures Small sample*,

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
Kemps et al. (2008)	Non randomized crossover trial	-Dynamic visual noise -Thought suppression -No task	40	Self-reported craving (VAS)	Post-treatment	Craving intensity scores were lower in the dynamic visual noise (M Diff=17.06, SMD= -.79, p <.001), and thought suppression conditions (M Diff=13.77, SMD=-.62, p <.001) compared to controls. Dieting status and task interaction was significant F(2,76)=2.85, p<.05, d=.55, with dynamic visual noise resulting in less intense cravings for weight watchers (p<.01), but not for non dieters.	Student sample No sample size calculation No randomization Self-report measures Small sample*
Kemps et al. (2012)	Non randomized crossover trial	-Food-odour -Non food odour -Neutral (non) odour	67	Self-reported chocolate craving (VAS)	Post-treatment	There was a significant effect of odour on craving ratings F(2,130)=3.35, p<.05, d=.45. Ratings were lower after the jasmine (non food) odour as compared to the green apple (food) odour (M Diff=4.03, SMD= -.16, p<.01) and the neutral (water) condition (M Diff=6.31, SMD= -.26, p<.05). There was no difference between the green apple and neutral conditions.	Student sample No sample size calculation No randomization Self-report measures
Steel et al. (2006)	Non randomized crossover trial	-Dynamic visual noise -Control	42	Self-reported craving (VAS)	Post-treatment	Craving intensity ratings were lower for the dynamic visual noise condition (estimated SMD =0.88, p<.001). No interaction between hunger status and task.	Student sample No sample size calculation No randomization Self-report measures Small sample*
Andrade et al. (2012) Study 1a	Non randomized controlled trial	-Clay modelling -Counting backwards by threes -Control	63	Self-reported chocolate craving (3xVAS)	Post-treatment	There was a significant group x time interaction F(2,60)=3.19, p=.048, partial η^2= .096. There was a greater reduction in craving scores in the clay modelling than the control condition (M Diff=7.7, t(40)=2.14, p=.04) and a greater reduction in craving when counting backwards compared to controls (M Diff=6.9, t(40)=2.44, p=.02), but no difference in change scores between the clay modelling task and counting backwards conditions.	Student sample No sample size calculation No randomization Self-report measures Very small sample*

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
2.3 Cognitive Loading							
2.3.1 Effects of cognitive loading on craving							
Van Dillen et al. (2013) Study 1	Non randomized controlled trial with 2 (food type: attractive vs. neutral; within participants) x_ 2 (cognitive load tasks)	-High cognitive load (digit span of number retained) -Low cognitive load	94	Self-reported craving (4-item 9-point Likert-type scale) & Attentional Bias (response latencies)	AB During experimental period Cravings post-treatment	Participants reported less intense cravings post treatment in the high load compared to the low load condition (SMD=-.41, p=.052). There was a significant interaction group x food type interaction for response latencies F(1,92)=4.68, p=.033, η^2= .05 Under low load participants showed attentional bias towards attractive food stimuli (slower responses towards attractive food than to neutral food pictures M Diff=57msec, SMD=0.24, p=.033). Under high cognitive load, no such attentional bias was found, participants were equally fast in responding to both types of stimuli.	No sample size calculation No randomization Self-report measures (craving only) Small sample*
2.3.2 Effects of cognitive loading on other outcomes							
Van Dillen et al. (2013) Study 2	3-arm RCT	-High cognitive load -Moderate cognitive load -Control (no load)	107	Activation of hedonic responses to food stimuli	Post-treatment	Significant effect of cognitive load, F(1, 64) = 64. 53, p < .001, η^2=.506. There was also a significant prime x target x load interaction F(2,104)=3.33, p=.04, η^2= .06. Participants were faster to recognize hedonic target words when they were preceded by attractive food pictures compared to neutral food pictures under no load (M Diff= 37ms, SMD= -.32, p=.008), or moderate load (M Diff= 72ms, SMD=-0.35, p=.001). Under high cognitive load this priming effect of attractive food pictures on the accessibility of hedonic words was eliminated.	No sample size calculation Small sample*

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
Van Dillen et al. (2013) Study 3	2-arm non randomized controlled trial with 2 (food type: attractive vs. neutral; within participants) x_ 2 (cognitive load tasks)	-High cognitive load -No cognitive load	46	Observed Snack Choice & Response times on food categorization task.	Post-treatment	High load significantly increased response time compared to controls. (M Diff=308ms, SMD=2.29, p<.002) There was a significant group x food type interaction on response times F(1,45)=10.68, p=.002, η^2=.20. In the absence of cognitive load participants were faster to categorize attractive food items than neutral food items (M Diff= 23ms, SMD=-0.18, p=.003), no such difference in response latencies was found for under high cognitive load. This pattern is particularly seen in participants who are susceptible to food, categorizing attractive food faster than neutral food under no load F(1,45)=28.55, p < .001 , η^2=.405, but not under high cognitive load. (Interaction F(1,45)=6.71, p=.01, η^2=.14. There was no significant difference in snack choice between groups. There was a significant group x PFS interaction for snack choice B=2.68, SE=0.97, Wald(1)=7.63, p=.006. There was no effect of cognitive load on snack choice (healthy vs unhealthy) for participants who are less susceptible to food. Those who score high on the PFS, suggesting more susceptible to food, were more likely to select an unhealthy snack after performing the categorization task without cognitive load, rather than with high cognitive load B = 4.08, SE=1.39, Wald(1)=8.65, p=.003.	No sample size calculation No randomization Very small sample*
2.5 Implementation Intentions (if-then planning)							
2.5.1 Effects on food consumption							

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
Achtziger et al. (2008) Study 1	2-arm RCT	-II to ignore thoughts about food -Control	92	Self-reported specified study food consumption	1-week	Significant group x time interaction effect , treatment ($F(1,90)= 3..86$, $p=0.05$, $\eta^2= .04$). Greater reduction in snack food consumption among implementation intention participants as compared to control participants (estimated SMD= .41, p< .001).	Student sample No sample size calculation Self-report measures Small sample*
van Konings-bruggen et al. (2014) Study 1	2x2 factorial experiment	-Only No-go (24) –Only II (20) -II and No-go (23) -Control (22)	87	Ad libitum food-serving behavior	Post-treatment	No main effects of the go/no-go or II tasks. However, the interaction effect between the two tasks was significant, $F(1, 85) = 4.32$, $p = .041$, $\eta_p^2 = .05$. The go-no go training only decreased food serving in those who received the control implementation intentions $F(1,85)= 8.12$, $p = .005$, $\eta_p^2= .09$. Implementation intentions only decreased food-serving for those receiving the control go/nogo $F(1,85)= 5.06$, $p=.027$, $\eta_p^2= .06$. Post-hoc pairwise comparisons showed that food-serving 67ehaviour in the control group was significantly higher than the other conditions (p = .031 to .005).	Student Sample Small sample*

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
van Koningsbruggen et al. (2014) Study 2	2x2 factorial experiment	-Only No-go (24) -Only II (23) -II and No-go (19) -Control (22)	88	Task performance (button holding) to receive chocolate	Post-treatment	No main effects of the go/no-go or II tasks. However, the interaction effect between the two tasks was significant ($F(1, 84) = 5.72$, $p = .019$, $\eta_p^2=.06$). The go-nogo task decreased button holding 68ehaviour compared to controls when control implementation intentions were used, as compared to the control condition, but not when diet implementation intentions were used. (Interaction $F(1, 84) = 8.20$, $p = .005$, $\eta_p^2=.09$). Implementation intention significantly decreased button-holding 68ehaviour vs controls, when control no-go was used (Interaction $F(1, 84) = 7.84$, $p = .006$, $\eta_p^2=.09$). Pairwise comparisons showed that controls held the button down significantly longer than either the no-go training, implementation intentions, or combined treatment groups (p=.039- to 005).	Student Sample Small sample*
van Koningsbruggen et al. (2011) Study 2	3-arm RCT with dieting and dietary success as additional between-subject factors	-"Think of dieting" II -Won't eat implementation -Control	236	Self-reported food consumption frequency and amount analysed as a single measure of consumption	2-week	Significant condition x dieting x success interaction, $F(2,224)=4.37$, $p<.05$, partial $\eta^2= .05$. For dieters there was a condition x success interaction $F(2,224)=3.55$, $p<.05$, partial $\eta^2= .05$. Condition only affected consumption for unsuccessful dieters $F(2,224)= 5.60$, $p <.01$, $\eta^2= .05$. Unsuccessful dieters who formed the think-of-dieting implementation intentions consumed less than those in the no treatment control ($B=-.71$, $t=-3.14$, $p<.01$), and the won't eat control ($B=-.64$, $t=-2.64$, $p<.01$). For successful dieters, no differences were found. Consumption did not differ between the 'won't eat' and control conditions.	Student sample No sample size calculation (but relatively large sample) Self-report measures Possible analysis bias (between group comparison not reported, only interactions)

2.2 Effects of if-then planning on other outcomes

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
Hofmann et al. (2010) Study 2	4-arm RCT	-Consummatory transformation (110) -Non consummatory (128) -II (128) -Control (140)	506	Automatic evaluations (Implicit Association Task) & Explicit Attitudes (7-point semantic differentials)	Post-treatment	There was a significant main effect of condition on automatic evaluations F(3,476)=13,38, p<.001. All groups differed significantly from each other (p<.05). Automatic evaluations were highest in the consummatory transformation condition which was higher than the control condition (M Diff=.13s, p<.05). Automatic evaluations in both the Non consummatory (M Diff=-.14, p<.05) and Implementation Intentions (M Diff=-.16, p<.01) were lower than the control condition. A significant main effect of condition for explicit attitudes was also found (F(3,476)=3.34, p=.02. Controls (M Diff= .67, SMD= .38) and the non consummatory transformation group (M Diff=.51, SMD=.29) had significantly more positive attitudes towards chocolate, than the Implementation Intentions group.	No sample size calculation (but relatively large sample)
van Koningsbruggen et al. (2011) Study 1	2-arm RCT with dieting (or not) and dieting success (or not) as additional between-subject factors	-"Think of dieting" II -Control	119	Goal-activation (diet-related word completions)	Post-treatment (after filler questions)	No main effects of condition on goal-activation reported. Significant condition x dieting x success interaction F(1,111)=4.96, p<.05, partial η^2= .04. For dieters there was a condition x success interaction F(1,111)=5.38, p<.05, partial η2=.05. The unsuccessful dieters who formed the think-of-dieting implementation intentions completed more word fragments as diet-related than those in the no-treatment control condition, F(1,111)=7.67, p< .01, partial η^2=.07. No differences between conditions were found for successful dieters or normal eaters.	No sample size calculation Possible analysis bias (between group comparison not reported, only interactions)

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
2.5.3 Effects of other planning on food choice							
Townsend & Liu (2012) Study 2	3-arm RCT with analysis of sub-groups of perceived weight	-Planning daily food intake -Irrelevant planning -Control	309	Observed unhealthy snack choice vs healthy snack choice (healthy option, or not having any snacks at all	Post-treatment (after filler tasks)	No significant between group differences on unhealthy snack choice were found. There was a significant interaction between planning and weight perception β=.24, Wald=2.76, p <.001. In participants of average perceived weight, planning food intake had a significant positive impact on the likelihood of selecting the unhealthy option (N=138) (no planning= 71%, planning daily intake= 61%, $\chi^2(1)=10.48$, p =.001. For those rating themselves as overweight (N=59) planning increased the likelihood of choosing an unhealthy snack (85% vs 41% in control) $\chi^2(1)=12.22$, p<.001. Amongst those who rated themselves very overweight (N=10), only 20% selected the unhealthy choice in the no-planning control condition, but all (100%) of the participants in the planning daily intake condition did so, $\chi^2(1)=6.67$, p=.01.	Student Sample No sample size calculation
Townsend & Liu (2012) Study 3	3-arm RCT with additional analysis of body fat sub-groups	-Concrete planning -Abstract planning -Control	161	Observed choice between a decision making task vs a biscuit taste test	Post-treatment (after filler tasks)	No significant effect of concrete planning, or abstract planning, compared to control. There was a significant interaction of concrete planning and calculated body fat percentage (BFP) β=1.61, Wald=8.93, p=.003. For those with a higher BFP (1SD above the mean), concrete planning significantly increased the likelihood of selecting the unhealthy snack taste test(β= 1.85, Wald = 6.56, p =.01). In contrast, for those with a lower BFP (1SD below the mean), concrete planning significantly reduced the unhealthy snack taste test (β= -1.37, Wald=4.51, p=.03). No interaction between BFP and abstract planning was found.	Student sample No sample size calculation Small sample*

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
Townsend & Liu (2012) Study 5	Mixed factorial design	3 (Positive, negative, no self-weight perception manipulation) x 2 (Planning vs no planning)	378	Observed snack choice (Unhealthy snack choice vs healthy snack choice)	Post-treatment	No main effects of planning or manipulated self-weight perception were found. No significant planning x weight perception interaction (p=.08). However, in sub group analyses, those who were made to feel negative about their weight (N=126), planning increased the propensity to choose the unhealthy option (no planning= 16%; planning =40% $\chi^2(1)=8.60$, p=.003). In contrast, planning decreased the unhealthy choice among those made to feel positive about their weight (no planning= 44%, planning =22%; $\chi^2(1)=7.05$, N=131, p=.01) There was no difference between the planning and no planning conditions among the control participants.	Student sample No sample size calculation
2.6 Thought suppression							
2.6.1 Effects of food consumption							
Johnston et al. (1999)	2-arm RCT with sub-groups of cravers (vs non-cravers)	-Thought suppression -Control	42	Task performance (apple picker task) to receive chocolate	Post-treatment	Participants in the suppression condition picked significantly more apples (to receive chocolates) than did participants in the control condition (F(1,38)=4.43, p<.05, SMD=0.67). No differences in effortful behaviour to receive chocolates was found between cravers and non cravers.	No sample size calculation Very small sample*

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
Erskine et al. (2008)	3-arm non randomized controlled trial. Gender was also analysed as a further between-subjects factor	-Suppression (43) -Expression (44) -Control (47)	134	Number of chocolates consumed (bogus taste test)	Post-treatment	There was a significant intervention effect $F(2,125)=8.49$, $p<.0001$, $\eta^2=.12$, and a group x gender interaction $F(2,125)=9.19$, $p<.001$, $\eta^2=.13$. Both males (M Diff= 2.64, SMD=.92, p=.03) and females (p=.01) ate a larger number of chocolates after suppression than controls with no differences between males and females. After expression, males ate more than females (p=.001).	Student sample No sample size calculation No randomization Small sample*
Erskine et al. (2010)	3-arm non randomized controlled trial with eating restraint as an additional between-subjects factor	-Suppression (41) -Expression (39) -Control (36)	116 (127 before exclusion for noncompliance or outliers)	Observed chocolate consumption (Bogus taste test)	Post-treatment	There was a main effect of condition $F(2,110)=4.86$, $p=0.01$, $\eta^2=.08$ and significant interaction of group and dietary restraint ($F(2,110)=3.04$, $p=.05$, $\eta^2=.05$ Restrained eaters in the suppression group consumed significantly more than the expression (p=.0001) and control groups (p=.02). However, non restrainers did not differ in consumption between the suppression, expression and control groups (p>.44 in all cases). Within the suppression group, the restrainers consumed significantly more than the non restrainers (p=.007) but there was no difference between restrainers and non restrainers in the control and expression groups.	Student sample No sample size calculation No randomization Small sample*
2.7 Cognitive Restructuring							
2.7.1 Effects on craving							

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
Giuliani et al. (2013)	Non randomized crossover trial	-Look and regulate (thinking about the food in a way that reduces their desire to eat the depicted food). -Look at the food stimuli and imagine consuming it	82	Self-reported food craving/ desirability ratings (1-to-5 Likert scale)	Post-treatment	Main effect of Instruction on self-reported desire to consume the food, reduced desire after restructuring as compared to imagining consumption (M Diff=1.01, SMD= -1.81, p< .001. The magnitude of regulation success (percent reduction in self-reported craving) differed between craved and non craved foods (F(1,81)=81.12, p<.001). Regulation successfully reduced self-reported desire to consume both the craved and not craved foods as compared to the Look cue (Craved M Diff= 1.35, SMD=-1.93, p-<.001; Not craved M Diff=.67, SMD=-1.07, p<.001). Overall, percent reduction in self-reported craving was higher for the craved foods than not craved foods (M Diff=.09%, SMD=.49, p<.001)	No sample size calculation No randomization Self-report measures
2.7.2 Effects of cognitive restructuring on automatic evaluations							
Hofmann et al. (2010) Study 1	3-arm RCT	-Non consummatory transformation (23) -Consummatory transformation (26) -Control unrelated task (22)	71	Automatic evaluations (IAT) & Explicit attitudes (Two 5-point semantic differentials)	Post-treatment	Automatic evaluations were significantly less positive for those who were instructed to transform the food item in an odd or novel manner as compared to those instructed to think about the consumption of the food item (M Diff= 0.19, SMD= -0.71, p=.013) as well as those in controls (M Diff=.15 SMD=-0.52, p=.046). No difference was found between the consummatory and control group. Similarly, explicit attitudes were significantly lower for the nonconsummatory group as compared to the consummatory group (M Diff= .82, SMD=-1.23, p< .01) and the control condition (M Diff= .63, SMD= -.99, p=.02). No difference was found between the control and consummatory groups.	Student sample No sample size calculation Very small sample*

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
Hofmann et al. (2010) Study 2	4-arm RCT	-Consummatory transformation (110) -Non consummatory (128) -II (128) -Control (140)	506	Automatic evaluations (Implicit Association Task) & Explicit Attitudes (7-point semantic differentials)	Post-treatment	There was a significant main effect of condition on automatic evaluations F(3,476)=13,38, p<.001. All groups differed significantly from each other (p<.05). Automatic evaluations were highest in the consummatory transformation condition which was higher than the control condition (M Diff=.13s, p<.05). Automatic evaluations in both the Non consummatory (M Diff=-.14, p<.05) and Implementation Intentions (M Diff=-.16, p<.01) were lower than the control condition. A significant main effect of condition for explicit attitudes was also found (F(3,476)=3.34, p=.02. Controls (M Diff= .67, SMD= .38) and the nonconsummatory transformation group (M Diff=.51, SMD=.29) had significantly more positive attitudes towards chocolate, than the Implementation Intentions group.	No sample size calculation
2.8 Emotional Freedom Technique							
2.8.1 Effects on weight, craving, and susceptibility to food							

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
Stapleton et al. (2011)	2-arm RCT	-Emotional Freedom Technique(49) -Wait list control (47)	96	Weight & Self-reported craving (FCI) & Perceived power of food	Post-treatment 6-month	There were no significant differences in weight loss between groups. There were significant group x time interactions for craving F(1,84)=17.13, p<.001, and PFS F(1,83)=9.67, p=.003 With greater reductions at post-treatment in craving and (M $Diff_{change\ scores}$=11.15; SMD= 0.90, p<.001) and PFS scores (M $Diff_{change\ scores}$ = 11.24, SMD=0.68, p=.003) in EFT than in control. At 6-month follow-up these reductions were maintained (from baseline for craving p< .05 and PFS p<.001) but no further reductions. However this 6-month analysis was performed on collapsed data including both the EFT and WL groups.	No sample size calculation 52% lost to 6-month follow-up Small sample* Self-report measures (craving and PFS only) Possible analysis bias (collapsing of groups at 6 months)
2.9 "I don't" Refusal Framing							
2.9.1 Effects on food consumption							
Patrick and Hagtvedt (2012) Study 1	2-arm Non randomized controlled trial	-I don't -I can't	111	Actual snack choice (healthy vs unhealthy)	Post-treatment	Significant main effect of refusal frame F(1,117)=11.34, p<.01. Participants in the "don't" refusal framing were more likely to choose the healthy snack as compared to "can't" refusal, $\chi^2(1) = 6.59$, p<.05. There was a refusal frame x goal relevance interaction β= -.71, $\chi^2(1) = 5.60$, p<.05. People using "don't" were more likely to choose healthy snacks when goal relevance was high rather than low β=-2.04, $\chi^2(1) = 11.35$, p<.01.	Student sample No sample size calculation No randomization Small sample*
2.10 Autonomous learning conditions							
2.10.1 Effects on food consumption and subsequent self-control							

Table S7. 2. Reflective techniques evidence

Reference	Study design	Comparisons (n)	Sample size	Outcome	Follow-up	Results	Potential Biases
Magaraggia et al. (2013)	3-arm RCT	-Autonomous choice learning -Controlled choice learning with food provided -Controlled choice learning without food	60	Observed snack consumption & subsequent self-regulation task ('e'-hunt task).	Post-treatment	Participants in the autonomous choice group consumed significantly fewer jellybeans than those in a controlled-choice-and-food group (M Diff=7.76, SMD=-.68, p=.041). When controlling for food consumption, the autonomous choice group out-performed the controlled-choice-and-food group on the self-control task (F1,38= 5.34, p = .027, partial η^2= .13) with no difference between the two controlled-choice groups.	Student sample No sample size calculation Very small sample*

Abbreviations: RCT = Randomized Controlled Trial. SMD= Standardized Mean Difference. BMI= Body Mass Index (kg/m^2). SD= Standard Deviation. PA= Physical Activity. FCQ-S= Food Craving Questionnaire-State. FCQ-T= Food Craving Questionnaire Trait. PFS= Power of Food Scale. IAB= Initial Attentional Bias. MAB= Maintained Attentional Bias. AFT = Actionable Food Temptation. NAFT = Non Actionable Food Temptation. VAS= Visual Analogue Scale.

* A small sample is defined here as less than 64 people per group (the number needed to have an 80% chance of detecting a SMD of 0.5, i.e. a medium effect size, with $p<0.05$). A very small sample is defined here as less than 30 per group. For factorial designs the smallest factor-group size was used (e.g., in a 2x3 factor design, the total sample size was divided by 3).

Table S8 provides the detailed extracted evidence data for each separate unique study within the Unclear Mechanism category. The studies are grouped by technique, then by outcome, and then study design.

Table S8: Unclear mechanism evidence

Reference	Study design	Comparisons (n)	Sample Size	Outcome	Follow-up	Results	Potential Biases
3.2 Manipulating Regulatory Fit							
3.2.2 Effects on food consumption							
Hong and Lee (2008) Study 2	3-arm RCT	-Regulatory fit -Regulatory non fit -Control filler task	63	Actual Snack choice (healthy vs unhealthy	Post-treatment	Individuals in the regulatory fit condition were more likely to choose the apple over the chocolate bar (83.3%) as compared to those in the control condition (52.6%; $\chi^2(1)=4.43$, $p<.05$), who were in turn more likely to choose the apple as compared to those in the regulatory unfit condition (20.0%; $\chi^2(1)=4.25$, $p<.05$).	Student sample No sample size calculation No manipulation check Very small sample*
Hong and Lee (2008) Study 3	4-arm RCT	-Feelings-based advertisement evaluation -Reasons-based advertisement evaluation -Choice between feelings and reasons -Control task	182	Actual Snack choice (healthy vs unhealthy)	Post-treatment	Participants who experienced regulatory fit (i.e. promotion-focused participants who wrote a feeling-based review and prevention-focused participants who wrote a reason based review) were more likely to choose the apple (65.2%) over the chocolate bar, relative to those in the control condition (45.5%; $\chi^2(1)= 4.66$, $p <.05$, who in turn were more likely to choose the apple than those in the non fit condition (27.9%; $\chi^2(1)=3.81$, $p = .05$	Student sample No sample size calculation
3.1 Episodic Future Thinking							
3.1.1 Effects on food consumption and delay discounting							

Table S8: Unclear mechanism evidence

Reference	Study design	Comparisons (n)	Sample Size	Outcome	Follow-up	Results	Potential Biases
Daniel et al. (2013)	2-arm RCT	-Episodic future thinking (14) -Control episodic thinking (12)	26	Observed snack consumption & monetary delay discounting	Post-treatment	Controlling for baseline differences in degree of imagery, episodic future thinking led overweight and obese women tempted with the immediate gratification of unhealthy foods to reduce their calorie intake (M Diff=305, d=1.09, p=.011) and (monetary) delay-discounting as compared to the control condition (F(1,23)=6.57, p=.017, (10 dollars, d=1.44; 100 dollars, d=1.51).	No sample size calculation Baseline differences (controlled for in analyses) Very small sample* Self-report measures (delay discounting only)

Abbreviations: RCT = Randomized Controlled Trial. SMD= Standardized Mean Difference. BMI= Body Mass Index (kg/m^2). SD= Standard Deviation. PA= Physical Activity. FCQ-S= Food Craving Questionnaire-State. FCQ-T= Food Craving Questionnaire Trait. PFS= Power of Food Scale. IAB= Initial Attentional Bias. MAB= Maintained Attentional Bias. AFT = Actionable Food Temptation. NAFT = Non Actionable Food Temptation. VAS= Visual Analogue Scale.

* A small sample is defined here as less than 60 people per group (the number needed to have an 80% chance of detecting a SMD of 0.5, i.e. a medium effect size, with $p<0.05$). A very small sample is defined here as less than 30 per group. For factorial designs the smallest factor-group size was used (e.g., in a 2x3 factor design, the total sample size was divided by 3).

Evidence Synthesis

Table S9 illustrates the overall evidence synthesis taking into account quality of the evidence as defined by the following criteria as referred to in the main paper:

Promising findings (or 'evidence against' if evidence is negative) = at least one larger randomized study (>60 per group), OR 3 or more small (but not very small) randomized studies. Plus, the majority (80%) of the studies showing significant differences in the same direction.

Mixed evidence = at least one larger randomized study (>60 per group), OR 3 or more small (but not very small) randomized studies showing evidence in either direction. However, no majority (80%) in one direction.

Insufficient evidence = all small (less than 3) or very small studies OR no randomized studies.

Table S9

Evidence	Future research
1. Impulse-focused Techniques (6 techniques)	
1.1 Priming. *Use of cues to (re)direct behaviors. Primes automatically activate mental representations of personal concerns and goals and help to activate associated (healthy) behavioral schemas*	
Insufficient evidence (One very small RCT and 1 very small non-randomised controlled trial for, one small factorial experiment against). Priming with love, family, or health focus cues may be able to reduce food consumption immediately post treatment for dieters and restrained eaters. There was no investigation of effects on cravings or weight.	More evidence from adequately powered RCTs in community based samples is needed to generate definite conclusions and to assess the longer-term effectiveness of priming techniques on food consumption, weight loss, and craving.
1.2 Cue-exposure. *Exposure to food cues to reduce future consumption.*	
Insufficient evidence One very small RCT, one very small non-randomized crossover trial, two small randomised factorial experiments and one non-randomised factorial experiment suggested that exposure to unhealthy food cues does not reduce food consumption post exposure and may increase it.	There was insufficient evidence of effects on cravings to draw any conclusions and no evidence of effects on weight. Cue exposure does not seem a promising approach for further research.
1.3 Inhibition Training. *Response inhibition following repeated cue association training.*	

Table S9

Evidence	Future research
Mixed evidence Inhibition training (e.g. go/no-go tasks) may be effective in reducing food consumption post treatment (one small RCT and two small randomized factorial experiments for; two very small RCTs and one very small non-randomized crossover trial against). All studies were limited to student samples, preventing any clear conclusions from being drawn. Sub-group analyses suggested that effects may be constrained to people with relatively low inhibitory control, chronic dieters and people with high appetite. There were no investigations of the effects on weight or cravings.	More evidence from adequately powered, community based RCTs on the short- and longer-term effectiveness on food consumption of inhibition training is needed, as well as evidence of the effects on weight and craving.
1.3 Physical Activity. *Undertaking active tasks such as exercise or walking.*	
Insufficient evidence One very small randomized crossover trial and one very small randomized factorial experiment that physical activity may reduce food consumption post activity. *Promising evidence* Two randomized crossover trials with a priori power calculations and two very small randomized crossover trials suggest that physical activity may reduce cravings for up to 10 minutes following the activity.	More evidence from adequately powered RCTs in community based samples is needed to generate definite conclusions and to assess the longer-term effectiveness of physical activity targeting impulsive behaviors on food consumption and cravings.
1.4 Attentional Bias Training. *Modifying impulses by changing existing attentional biases towards environmental stimuli such as highly palatable, energy dense foods.*	
Insufficient evidence One small RCT (for) and one very small (against) RCT provide insufficient evidence to suggest that attentional bias training may reduce food consumption immediately post training. There was no evidence of effects on cravings. There was no investigation of effects on weight.	More evidence from adequately powered RCTs in community based samples is needed to generate definite conclusions and to assess the longer-term effectiveness of attentional bias training on food consumption, weight loss and cravings.
1.5 Approach/Avoidance training. *Following the automatic capturing of attention (as above), reward stimuli trigger a motivational response that directs behavior toward target acquisition and consumption (an 'approach' tendency). Approach/Avoidance training aims to modify the implicit association to avoid (as opposed to approach), thereby reducing craving and consumption.*	
Insufficient evidence One small RCT suggests that cravings associated with chocolate may be reduced post treatment for people receiving 'avoid' training to modify approach-avoidance tendencies. There was no investigation of effects on food consumption or weight.	More evidence from adequately powered RCTs in community based samples is needed to generate definite conclusions and to assess the longer-term effectiveness of Implicit Association Modification on food consumption and weight loss.
2. Reflective Techniques (9 Techniques)	

Table S9

Evidence	Future research
2.1 Mindfulness-based strategies. *Aim to raise awareness of the present moment by purposefully paying attention, without judgment, to the current experience that is unfolding, and observing its path without acting.*	
Mixed evidence Sub-group analyses from one RCT and one uncontrolled study as well as within-group data from three RCTs suggested that acceptance-based mindfulness techniques, when delivered by expert practitioners might produce weight loss at up to 6-months follow-up. NB: In categorising this evidence we chose to ignore comparisons between mindfulness and other active treatments (as comparison with a non-active control group is needed to establish effectiveness). *Mixed evidence* Distraction-based mindfulness techniques might reduce food consumption at up to 7-days follow-up (two small and two very small RCTs for, one small and one very small RCT with active control groups against) and cravings post treatment (one small RCT and two very small RCTs for, 6 against (3 with active control groups) of which two small one very small RCTs and three very small non-randomized controlled trials).	More evidence from adequately powered RCTs with non-active control conditions on the short- and longer-term effectiveness of mindfulness strategies on weight, food consumption, and cravings, is needed, as well as evidence on the relative effectiveness of acceptance-based versus distraction-based mindfulness strategies.
2.2 Visuospatial Loading. *Use of tasks that occupy the sensory modalities associated with craving (i.e., sight or smell) and reduce the resources available.*	
Insufficient evidence One very small RCT suggests that visuospatial load may reduce food consumption post treatment, but another very small RCT showed no differences in consumption between groups. There was no evidence of effects on weight. *Promising evidence* Six RCTs (four small and two very small), one factorial experiment, eight non-randomized crossover studies (seven small and one very small) and one very small non-randomized controlled trial all show that visuospatial loading or olfactory interference may reduce cravings for unhealthy foods immediately post treatment, and possibly for up to 3-months follow-up (one small RCT).	More evidence from larger, statistically powered RCTs is needed to draw any definitive conclusions about the effects on food consumption and to investigate longer-term effectiveness as well as evidence of the effects on weight.
2.3 Implementation Intentions *(if-then plans). Involves identification of a cue that will be encountered in daily activities and consciously resolving to take a particular action when it is encountered.*	

Table S9

Evidence	Future research
Promising evidence One small RCT and two small randomized factorial experiments and sub-group analyses in a larger RCT shows that forming impulse related implementation intentions (if-then planning) is effective in reducing food consumption post treatment and for up to one-week follow-up. There was no investigation of the effects on weight or cravings.	More evidence from adequately powered RCTs in community based samples is needed to replicate these findings and assess the longer-term effectiveness of impulse related if-then planning on food consumption, as well as evidence of effects on weight and cravings.
2.4 Cognitive Loading. *Use of tasks that occupy working memory.*	
Insufficient evidence One small non-randomized controlled trial suggests that cognitive loading may reduce cravings post treatment. Sub-group analyses in another small non-randomized controlled trial suggest that effects on food consumption may be limited to people who are more susceptible to food cues. There was no investigation of the effects on weight.	More evidence from larger, statistically powered RCTs is needed to draw any definitive conclusions and to investigate longer-term effectiveness on food consumption, craving and weight.
2.5 Thought Suppression. *Actively avoiding thinking about something to prevent engaging in associated undesirable behaviors*	
Insufficient evidence One very small RCT and two small non-randomized controlled trials (and an additional very small RCT using thought suppression as a comparison group in the evaluation of mindfulness-based strategies) suggest that thought suppression significantly increases food consumption and cravings post treatment. There was no investigation of the effects on weight.	Thought suppression does not seem a promising approach for further research.
2.6 Cognitive Restructuring. *A form of cognitive stimulus control which involves altering the meaning of a situation or object so that the response to it is changed.*	
Insufficient evidence Due to a lack of studies comparing cognitive restructuring with control groups (the two, small and very small, RCTs in this field only used active treatments for comparison), no conclusions can be drawn regarding the role of these techniques in weight reduction. However, within-group data from three RCTs suggested that cognitive restructuring might produce weight loss at up to 6-months follow-up. *Insufficient evidence* One non-randomized crossover trial suggested that cognitive restructuring may reduce food cravings post treatment.	More evidence from RCTs with non-active control conditions on the short and longer-term effectiveness of cognitive restructuring on food consumption and cravings is needed, as well as evidence of the effects on weight.
2.7 Emotional Freedom Technique. *An acupuncture, meridian-based intervention employing stimulation of acupressure points through a tapping motion whilst keeping the mind focused on the negative emotion.*	

Table S9

Evidence	Future research
Insufficient evidence One small RCT found no effect of EFT on weight loss post treatment or at 6-months follow-up. However, EFT significantly reduced cravings post treatment. There was no investigation of the effects on food consumption.	More evidence from adequately powered adequately powered RCTs on the short and longer-term effectiveness of EFT on weight loss and cravings, as well as food consumption is needed, although it seems unlikely that this is a promising approach for further research.
2.8 "I don't" refusal framing. *Use of self-talk to increase the salience of temptation resistance schemas.*	
Insufficient evidence In one, small non-randomized controlled trial that using "I don't" refusal framing reduces unhealthy snack choice post treatment. There was no investigation on weight or cravings.	More evidence from adequately powered RCTs in community based samples is needed to replicate these findings and assess the longer-term effectiveness of "I don't" refusal framing.
2.9 Autonomous Learning Conditions. *Facilitating the setting of goals reflecting one's own values (rather than external rewards, approval, or punishments).*	
Insufficient evidence One very small student sample RCT suggests that autonomous learning conditions reduces food consumption and improves performance on a self-control task (e-hunt) compared with controlled learning at post treatment. There was no investigation of the effects on weight or cravings.	More evidence from adequately powered RCTs in community based samples is needed to replicate these findings and assess the longer-term effectiveness of autonomous learning conditions on food consumption, as well as evidence of the effects on weight and craving.
Unclear Mechanisms (2 Techniques)	
3.1 Manipulating Regulatory Fit. *Engaging in goal pursuit strategies that correspond (vs conflict) with the orientation of one's self-regulation focus.*	
Insufficient evidence Two RCTs (one small and one very small) suggest that manipulation of regulatory fit may reduce unhealthy food consumption post treatment. There was no investigation of effects on cravings or weight.	More evidence from adequately powered RCTs in community based samples is needed to generate definite conclusions and to assess the longer-term effectiveness of manipulation of regulatory fit on food consumption and weight loss.
3.2 Episodic Future Thinking. *Imagining future events.*	
Insufficient evidence One very small RCT suggests that episodic future thinking may reduce unhealthy food consumption post treatment. There was no investigation of effects on cravings or weight.	More evidence from adequately powered RCTs in community based samples is needed to generate definite conclusions and to assess the longer-term effectiveness of episodic future thinking on food consumption and weight loss.

BOX S1. Narrative synthesis for: 3. techniques with unclear mechanisms of action

Three studies investigated the use of two techniques (episodic future thinking and manipulating regulatory fit) which targeted impulsive eating, but did not describe or imply any proposed mechanism for how impulsive processes would be changed.

3.1 Manipulation of regulatory fit (N=2) involves engaging in goal pursuit strategies that correspond (vs conflict) with the orientation of one's self-regulation focus. It is thought that eagerness strategies fit a promotion focus and that vigilance strategies fit a prevention focus (Hong & Lee, 2008). The mechanism by which this might impact on impulsive processes is not clear, but may perhaps involve a reduction in self-regulatory resources required when regulatory fit is achieved.

Effects of manipulating regulatory fit on food consumption. In two RCTs Hong & Lee (2008) manipulated regulatory fit, through completion of regulatory fit questionnaires, following an ego-depletion task. In the regulatory fit conditions participants were asked to list current aspirations (to induce promotion focus) and "eagerness methods" (ways to ensure those aspirations are achieved), followed by a prevention questionnaire asking them to list any obligations (to induce prevention focus) and "vigilance methods" (ways of avoiding things that might prevent fulfilment of those obligations). In the regulatory non-fit induction condition participants were asked to list aspirations and vigilance means followed by obligations and eagerness means. They reported that increased regulatory fit significantly increased the likelihood of choosing the healthy snack over the unhealthy snack choice post-treatment, relative to the control group, who in turn, were significantly more likely to choose the healthy snack option than the regulatory non-fit group. However, these two studies used very small student samples, and provided no sample size calculations.

3.2 Episodic future thinking (N=1) involves imagining future events. The mechanism of action of this technique is unclear.

Effects of episodic future thinking on food consumption and delay discounting. One RCT involving overweight and obese women examined the effects of future event imagery (Daniel et al., 2013). The control group imagined recently experienced events. Episodic future thinking significantly reduced snack consumption post-treatment by 304.8 calories compared with controls (d=1.09), and reduced delay discounting (d=1.5). However, this study was small (group size 12-14), provided no sample size calculation, and reported differences between groups at baseline (which were controlled for in analyses).