RUNNING HEAD: Experience of IER for weight loss

"For me it's about not feeling like I'm on a diet": A thematic analysis of women's experiences of an intermittent energy restricted diet to reduce breast cancer risk

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FUNDING: This study was funded by Prevent Breast Cancer Ltd (Grant GA10-005).

AUTHOR CONTRIBUTIONS: LD and MH designed the study. LD conducted the interviews and led the analysis. RS, MP, CA and MH refined the themes and analytic narrative. All authors were involved in the development of the manuscript.

KEYWORDS: Intermittent diet, Qualitative, Interviews, Experience, Thematic Analysis

ABSTRACT

Background: Weight loss programmes that require intermittent energy restriction offer an alternative to continuous energy restriction programmes which typically have low adherence. We reported greater weight loss, better adherence and spontaneous reduced energy intake on healthy eating days with intermittent as opposed to continuous energy restriction. The present study aims to explore why intermittent energy restriction diets exert these positive effects.

Methods: Semi-structured interviews were carried out with 13 women aged 39-62, who followed a four month intermittent energy restriction (two days of low energy/low carbohydrate, five days of healthy eating). Nine of the 13 women successfully lost >5% of their total body weight. Data were analysed using thematic analysis.

Results: The intermittent regimen redefined the meaning of dieting and normal eating. Women reconceptualised dieting as only two low energy days per week even though this often differed from their pre-diet eating patterns. Women reported that they could adhere more closely to the rules of the intermittent diet compared to previously attempted continuous diets. They found that the intermittent diet was less cognitively demanding, as the restrictive and clear rules of the intermittent diet were easier to understand and easier to follow than with continuous dieting.

Conclusions: Many participants found intermittent dieting preferable to previous experiences of continuous dieting. The findings give some insight into the ways in which intermittent dieting is successful, and why it could be considered a viable alternative to continuous energy restriction for weight loss.

J Hum Nutr Diet. 2018 Jun 21. https://onlinelibrary.wiley.com/doi/abs/10.1111/jhn.12571

INTRODUCTION

Excess energy intakes and adiposity are consistently linked to risk of breast cancer, twelve other cancers[1], diabetes[2], cardiovascular disease[3], and Alzheimer's[4]. Weight reduction of 5-10% is linked to reduction in risk of these diseases[5,6]. However, even modest weight loss is notoriously difficult to achieve and maintain[7]. Weight loss programmes typically involve participants engaging in continuous energy restriction (CER) until the desired weight is achieved. However, such regimens are associated with low adherence rates (30-40%) and result in successful weight loss of >5% total body weight in only 25–50% of participants[8,9] including among women at increased risk of diseases such as breast cancer[10].

An alternative and increasingly popular method of dieting in the general population is intermittent energy restriction (IER) most commonly known as "intermittent fasting" that involves short periods of marked energy restriction and periods of normal intake[11]. The most common version of IER is the 5:2 diet, which involves two days of a low energy intake (termed restricted days) and five days of healthy eating each week. Previously, we assessed whether IER was superior to CER in a randomised trial, where IER comprised two days of low energy intake (50% to 70% energy restriction, carbohydrate restriction of <50g/day), and five days of healthy Mediterranean style diet per week (overall 25% energy restriction with CER using a 25% energy restricted Mediterranean diet only on 7 days/week). IER was superior to CER with respect to reduction in adiposity and serum insulin[12]. The success of IER in this trial was linked to better overall adherence. An intention to treat analysis at 3 months found 68% of the group randomized to IER were completing their two restricted days per week whereas 55% of the group randomized to CER were achieving their daily 25% CER. However there was a spontaneous unplanned carry over effect whereby the IER group reduced energy intake by 25% on healthy eating days[12]. The greater adherence and carry over effect with IER in the randomised trial is potentially valuable and deserves further study.

Previous qualitative work amongst those attempting to adhere to standard continuous diets have described CER "as a state in which one was constantly watching what one ate, that is monitoring and moderating one's calorie intake"[13]. There is a paucity of behavioural research into intermittent dieting that has been restricted to questionnaire studies. The present study uses a qualitative approach to examine the experience of following an IER diet for weight loss amongst successful (defined as ≥5% weight loss and unsuccessful dieters (< 5% weight loss) during a trial of IER versus CER. We aimed to identify the features of IER that lead to better outcomes for patients in order to inform and enhance future weight loss programmes involving IER..

Women in the present study were allocated to IER in a randomized trial and had been instructed to include two consecutive low energy, low carbohydrate days (50-70% energy restriction) per week and to follow an isocaloric healthy eating diet based on the Mediterranean diet for the remaining five days per week in order to lose weight over a period of three months. This was followed by a one month weight maintenance period which involved one energy-restricted day and six isocaloric healthy eating days per week.

Restricted days were low in energy (600–1000 kcal day) and carbohydrate (<50g/day). On these days women were advised to include specified numbers of defined portions from different key food groups: one portion of low carbohydrate fruit, five portions of low carbohydrate vegetables, three portions of low fat dairy and ad libitum amounts of lean protein and healthy fats. On non-restricted days, participants were advised to follow a healthy eating Mediterranean type diet consisting of lean protein, healthy fats, high fibre, low glycaemic index carbohydrates, fruit, vegetables and low fat dairy foods[14]. Participants were advised on the amount they could consume to be consistent with their daily energy requirements. However we reported an unplanned, spontaneous and self-limited reduction in energy intake of approximately 25% on these days[12]. Foods eaten during the restricted and healthy eating days were self-selected by participants from a comprehensive food portion list. Participants were also provided with suggested meal plans and recipes. They received individual dietary advice

from a designated study dietitian, whilst adherence was encouraged by monthly clinic visits and fortnightly motivational phone calls. Participants were counselled by their dietitian to include a range of behaviour change techniques including realistic goal setting, self-monitoring, action planning, relapse prevention, and were provided with feedback on their progress[15].

METHODS

Data collection and participants

An opportunity sample of women who had more recently completed the intervention were selected from the IER group of a randomised trial comparing the effects of IER or CER on weight loss and metabolic disease risk markers[12] (REC reference number: 09/H1006/34). All women were at increased risk of breast cancer (≥1:6 lifetime risk) compared with the population risk of 1 in 8-10[16]. Women were recruited at the end of the 4 month weight loss trial. We purposefully sampled women who were successful and unsuccessful in achieving the 5% weight loss that has been associated with reduced breast cancer risk[17]. We approached 17 women and 13 were successfully recruited into the present study. Table one shows participant characteristics; 9/13 interviewees achieved >5% weight loss and 4/13 had minimal weight loss. Of the four that declined, three were successful and one was unsuccessful at achieving >5% weight loss. All women had previously attempted to lose weight using CER.

Semi-structured interviews were undertaken in order to understand the experience of dieting with IER. A topic guide was developed with the IER trial dietitians (MP & MH) to explore reported feedback from IER trial participants. Topics included: previous experience of dieting, current experience of IER, difficulties and easier aspects of the IER diet, and satisfaction with IER. Participants were considered to be experts of their own experience and any new topics raised by them were explored within the interview. Interviews were carried out in a location of the participant's choosing (12 in the

participants' home and one in a quiet coffee shop). Written consent was obtained at the time of interview. Interviews lasted between 45 and 120 minutes, were audio recorded and transcribed verbatim.

Analysis

The overall aim of this study was to explore women's experiences of following IER for weight loss. An idiographic approach was considered to be best suited to meet this objective. Thematic analysis was employed to make sense of and build the story that the data told[18]. Each transcript was analysed in isolation from the other transcripts before thematic categorization across the entire data set, in order to maintain the richness of each individual's experience and to ensure that the analysis was grounded in the participant's own language.

Primary data analysis was conducted by a qualitative research fellow (LD), who then met with the study's research dietitians (MP and MH) and qualitative health psychologist (RS) to discuss emergent themes and the best resulting narrative to represent the participants' accounts. The analytic narrative is presented with the richest verbatim quotes from the data. The analysis explores the meaning of IER to participants, and identifies barriers and facilitators to behaviour change.

RESULTS

Participants were aged between 39 and 62 years, with a mean age of 48.76. Baseline BMI ranged from 24.7 to 42, with a mean of 30.51 for the whole sample. Comparing those who successfully lost 5% of their total body weight to those who were unsuccessful in achieving this goal, the mean age was 49.44 for successful women compared to 47.25 respectively. Average baseline BMI was 30.87 for the successful women compared to 29.7 for the unsuccessful women, with an average weight loss of -9.055 compared to -3.075 for the unsuccessful women.

Three themes are presented: (a) *redefining dieting,* (b) *the impact of intermittent dieting on normal eating behaviour and diet adherence,* and (c) *reduced cognitive complexity with the intermittent diet*.

Theme 1: Redefining dieting

Participants discussed their ideas of what defines a diet, leading to the concept of 'a diet' being distinctly separate from 'normal' eating behaviour. Prior to the intermittent diet, participants viewed dieting as an experience of continuous restriction for a fixed amount of time where one is expected to remove themselves from their normal pattern of eating behaviour until they reach their weight loss goal. Thus dieting, for our participants, normally sits in juxtaposition to their relaxed normal eating behaviour that is not consciously and continuously monitored.

> *Diet has really negative connotations about not allowing yourself to do things (K33, successful)*

Our participants constructed the removal from normal eating behaviour that occurs with standard daily dieting as a difficult process. The shorter period of IER (two days/week) was viewed favourably compared to CER regimens of seven days per week, heightening the attractiveness of IER as an alternative option for weight management.

> *Well, diet for two days? That's a gift isn't it? Anybody can do that because you can choose the two days (K93, unsuccessful)*

The intermittent diet involves two days of energy restriction with a low carbohydrate diet and also requires women to follow unrestricted healthy eating for the remaining days per week. The contrasting diet regimens during the week led women to consider the two days of restriction as diet days and the five healthy eating days as normal eating. This helped women to reconceptualise dieting from a continuous process into a shorter and more manageable time frame, even though intake on the healthy eating days was often reduced in calories and healthier compared to their normal pre-dieting intake.

> *For me it's about not feeling like I'm on a diet… I just think, this is for 48 hours, the cake will be around after 48 hours, I can do this. So instead of thinking "oh, I'm on a diet, I'm doing Weight Watchers" it's a slow, it's continuous. For me, it's just thinking "get a grip, it's 48 hours, you can do 48 hours. Anybody can do 48 hours and have those other treats at some other time" (K71, successful)*

The intermittent diet was perceived as being a more manageable amount of time to adhere to a dietary restriction each week as opposed to the standard approach for weight management that involves daily continuous dieting.

Theme 2: the impact of intermittent dieting on normal eating behaviour and diet adherence.

Increased adherence to IER route to weight loss

Some women perceived IER as more manageable than CER, reporting that successful completion of two days of controlled eating each week worked to reinforce participant's self-efficacy in adhering to further restricted days for the length of time needed to reach their goal weight. This was crucial to successful women maintaining dieting behaviour throughout the four month trial.

Successful women also reported that following two days of restriction, they were less likely to want to overeat and often ate less than their usual intakes on the five 'unrestricted' healthy eating days:

> *I felt on the Wednesday that I didn't want to eat a lot of carbs because I felt so good, I associated the good feeling with the limited carbohydrate. I reduced my portions as well throughout the rest of the week. So generally what I was taking on board was less than it had been in the past (K33, successful)*

Physical benefits and feelings of weight loss

Many of the women following the intermittent diet during the trial reported feeling "cleansed", less bloated, and energised after the two days of restriction. IER days made them feel as though they had lost weight. This feeling of being "cleansed" was explored further in the interviews, and women stated that the positive physical feedback from the diet prompted stricter eating behaviour on the five healthy eating days in an attempt to maintain the feeling of weight loss.

> *it's better for me because on those two days, you're not having any carbs, so you actually do feel thinner after those two days. And then that gives you the incentive thinking, 'Oh my trousers are loose now, I'm not going to go mad tomorrow now!' (K101, successful)*

Restrictions on carbohydrate foods present a barrier to IER adherence

For the four unsuccessful women , the restricted food choice on the intermittent diet days was stated to be the main barrier to their adherence. For these women the high protein low carbohydrate foods approved for the intermittent diet days were too far removed from their usual repertoire of meals. The intermittent diet requires women to change their normal diet and eating patterns and be actively engaged with their meals. Adherence was poorer for the women whose normal eating pattern is out of the range of approved foods on the restricted days such as those who normally follow low protein, high carbohydrate vegetarian or vegan diets.

> *you're used to preparing meals and putting in ingredients that you eat, and think oh, I can't put that in. What can I have? Just the thought process of trying to come up with a menu is part of it; it pushes you to think grr. And even things like the vegetables, being vegetarian I do eat a lot of veg, and to suddenly have that taken away as well is quite [difficult] (K92, unsuccessful)*

Women considered the two days of IER to be manageable, this served to increase their belief that they could continue to repeat two days of restriction on an ongoing basis, which is consistent with our hypothesis. The two days of restriction made women feel as though they had lost weight. This

reinforced short-term adherence to the five days following IER, however, some women experienced difficulty with the limited range of foods permitted during the restricted days.

Theme 3: Reduced cognitive complexity with the intermittent diet.

Women received comprehensive food lists and portion sizes at the outset of the diet trial detailing the types and amounts of foods that should be eaten on their two restricted days and brief information about healthy eating and the types of food to eat for the remaining five days. Many of our participants spoke of how they found the two restricted days of IER easier to follow than the five healthy eating days as, for some the unrestricted nature of the healthy eating days allowed too much flexibility with the diet through increased choice.

> *I don't know why, maybe it was because it was really rigid so I had to do portions and everything, exactly. Whereas I think the Mediterranean one kind of allowed me to be a bit too…not too flexible, but allowed me to be a little bit naughty at times, because I didn't have to be quite so strict on the calories, it was more eating just the right foods and things, but certain amounts. But I found it [Mediterranean diet] more difficult to follow somehow (K43, unsuccessful)*

The rigid rules of IER, to include specified amounts of certain food groups on i.e. protein and vegetables on predefined days of the week, may have worked to decrease cognitive complexity by removing the likelihood of rule error. This contributed to greater adherence through the reduction in cognitive load. Women had been provided a number of alternative suggested options for meals on their restricted days. However most reported eating the same meals for the two days of restriction each week which increased habit formation.

> *you don't have to be remembering the points for this or the points for that. It's just about the proteins and the carbohydrates.it's just so much easier to just remember when I was in the*

> *shop. I didn't have to pick a label up and think "oh, how much is this?" I just look at it now and I look at the fat and I look at the carbohydrates (K30, successful)*

The strict rules of the intermittent diet made learning and subsequently determining portion sizes easier as women became more actively engaged with their food. Some women found the unstructured nature of the other five healthy eating days each week challenging, as they had become accustomed to the definitive nature of the restricted days.

> *the two days I saw as treat days where I didn't have to weigh anything. I didn't have to think about what I was having because it was either on the list or you didn't have it… but then as time went on because I had left prawns for the [intermittent] days and all my treat things I'd almost think it would be a relief to get to an [intermittent] day because I wouldn't have to think about it (K18, successful).*

Women reported that the prescriptive nature of the restricted days made the diet easier to follow. The focus on macronutrients and portion sizes kept the rules of the diet simple was key to helping women adhere to the energy requirements of the intervention.

DISCUSSION

All participants found that the experience of IER was novel and different compared to previous, often negative experiences with CER. Many women reported a sense of increased adherence with the intermittent diet, as they found it to be less cognitively demanding, with simpler rules, and therefore felt it was easier to follow and focus on two days than maintain their focus across the week. Some women also reported additional benefits with IER which evoked a sense of weight loss and positive biofeedback each week that motivated women, and the redefining of diet so the healthy days are viewed as non-diet days even though they are reduced in calories and healthier than their pre-dieting

eating pattern. However the four unsuccessful women, particularly those with a naturally low intake of animal protein, found the food lists too restrictive on restricted days.

Women reported a shift in their definition of dieting from experiencing IER. Green et al[13] previously reported dieting to be a continuous monitoring of intake which contrasts with the principles of the IER intervention where energy intake is reduced on the two restricted days and not during five unrestricted healthy eating days. Indeed, dichotomous thinking, or an 'all or nothing' approach to dieting where individuals need to adhere to a low calorie diet 100% of the time has been reported to be a barrier to adherence[19], which the variability of the intermittent diet may challenge. Over the course of the intervention, many women reconceptualised dieting as being the two low energy, low carbohydrate days each week with the greatest energy restriction (50 – 70%) isocaloric normal healthy eating diet. This redefinition of dieting enabled those women to view the two IER days as a more manageable time frame of restriction that was flexible enough to fit in with the external demands in their lives. Women reported that two consecutive restricted low carbohydrate days made them feel as though they had lost weight and therefore increased their adherence to the following five day diet regime. This supports research from Baldwin et al (2009) that satisfaction with weight loss is related to tangible changes, such as improvements in the fit of clothes or feelings of weight loss[20]. The clear and rigid rules of the two days' restriction enabled women to follow the diet more easily than the relatively flexible healthy eating days.

The shorter time frame of the intermittent diet each week and subsequent perception of increased manageability may have worked to increase women's self-efficacy to successfully complete the two days of energy restriction[21]. Many of our participants felt this was an important motivator to adherence during the four month weight loss intervention. Self-efficacy is likely to be crucial to the maintenance of the dieting behaviour throughout the length of the trial, as successful performance of the behaviour led to greater self-efficacy to produce that behaviour again. Self-efficacy, a key

construct of social cognitive theory[21] has been cited as effective means of changing health behaviour[22], yet there is mixed evidence regarding the link of self-efficacy to weight loss[24].

The perceived manageability of the intermittent diet was reinforced by the simple concise guidelines to follow the diet on the restricted days. Research has shown that diets with a higher perceived complexity increase non-adherence[25]. Simplifying the central tenants of a weight loss intervention has been suggested as a key to helping overweight and obese individuals maintain their motivation and adherence for longer[25,26]. However, the restricted food choice of the intermittent diet days led some women to experience food monotony which decreased adherence to the diet over time . The monotony effect is likely to be important for adherence. Previous research suggests that less palatable (arguably lower energy) foods have been found to amplify the monotony effect[27,28], but monotony and reduced consumption has also been seen when limiting the choice of high energy palatable snacks[29].

There is a paucity of research trials and behavioural research related to intermittent dieting, although given the recent scientific and media interest in this regimen of weight loss, we expect that to change. We encourage researchers to examine how perceptions of dieting, life context and food knowledge may contribute to increased self-efficacy and confidence in IER as compared to CER dieting and the role of these in behaviour change when conducting future research. Future studies should aim to explore the impact of self-efficacy on diet adherence using multiple item measures as previously suggested by Armitage et al[24].

Employing qualitative methods to examine the experience of intermittent dieting has enabled us to gain insights into why IER could be a successful regimen for weight loss. Qualitative research does not aim to generalise findings across a wider population, but to add depth to understanding by utilising in-depth interviews with smaller samples. However, we acknowledge that our sample is a small opportunity sample aimed at early exploration of the behavioural aspects of IER, thus we intend the research presented here to be a starting point for those conducting behavioural research in novel

methods of weight loss, to explore these issues in larger samples and across other disease populations, clinical settings, and over longer term weight management interventions. The data from the present study were collected from women following an intermittent diet for a short period (four months). It is possible that the positive behavioural changes and physical feedback herein reported with IER may be a general phenomena linked to IER being a novel dietary approach which is different from their previous attempts at dieting, rather than a specific attribute of IER itself [30]. This was a short-term study thus our findings relate to short term intermittent dieting. Whether these effects would be sustained in people trying to maintain longer term IER needs to be explored in longer term studies.

The findings relate to this specific IER diet which includes two restricted days and five days of normal but healthy eating. Aspects of adherence and biofeedback may not be seen with an IER regimen which just restricts dieters on two days per week and allows participants to feast and eat ad lib high calorie and unhealthy food choices on normal eating days .

Our participants were women at increased risk of breast cancer, but our own and other evidence suggests that their motivation for weight loss and adherence to diets tends not to differ from dieters in the general population[10,31].

Conclusions

These data highlight psychological aspects of following IER that may increase its efficacy for weight management. The popularity of intermittent dieting and some positive findings of IER vs. CER means[11] IER deserves further rigorous study. Further longer-term studies are needed to ascertain the effectiveness of this weight loss strategy over the longer term and in different populations.

ACKNOWLEDGMENTS: This study was funded by Prevent Breast Cancer Ltd (Grant GA10-005). Dr Harvie and Professor Howell have written three self-help books for the public to follow intermittent

diets. All author proceeds are paid directly to the charity Prevent Breast Cancer Ltd (Registered Charity Number: 1109839) to fund breast cancer research.

TRANSPARENCY DECLARATION: The lead author affirms that this manuscript is an honest, accurate, and transparent account of the study being reported. The reporting of this work is compliant with STROBE guidelines. The lead author affirms that no important aspects of the study have been omitted and that any discrepancies from the study as planned (protocol – Manchester University NHS Foundation Trust) have been explained.

REFERENCES

1. Renehan AG, Tyson M, Egger M, Heller RF, Zwahlen M. Body-mass index and incidence of cancer: a systematic review and meta-analysis of prospective observational studies. *Lancet* 2008; 371/9612: 569-578

2. Paulweber B, Valensi P, Lindstrom J, Lalic NM, Greaves CJ, McKee M et al. A European evidence-based guideline for the prevention of type 2 diabetes. *Horm Metab Res* 2010; 42 Suppl 1:S3-36
3. The Global Burden of Metabolic Risk Factors for Chronic Diseases Collaboration (MI Mediated Effects), Lu Y, Hajifathalian K, Ezzati M, Woodward M, Rimm EB, Danaei G. Metabolic mediators of the effects of body-mass index, overweight, and obesity on coronary heart disease and stroke: a pooled analysis of 97 prospective cohorts with 1·8 million participants. *Lancet* 2014; 383 (9921): 970-983
4. Barnes DE, Yaffe K. The projected effect of risk factor reduction on Alzheimer's disease prevalence. Lancet Neurol 2011; 10(9):819-828.
5. Blackburn G. Effect of degree of weight loss on health benefits. Obesity Research 1995, 3: 211S-216S

6. NIH, NHLBI Obesity Education Initiative. Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults. Available online: http://www.nhlbi.nih.gov/guidelines/obesity/ob_gdlns.pdf

7. Anastasiou CA, Karfopoulou E, Yannakoulia M. Weight regaining: From statistics and behaviors to physiology and metabolism. *Metabolism* 2015; 64(11):1395-407.

8. Dansinger ML, Gleason JA, Griffith JL, Selker HP, Schaefer EJ. Comparison of the Atkins, Ornish, Weight Watchers, and Zone diets for weight loss and heart disease risk reduction: a randomised trial. *JAMA* 2005*;* 293 (1): 44-53

9. James WPT, Astrup A, Finer N, Hilsted J, Kopelman P, Rössner S, *et al.* Effect of sibutramine on weight maintenance after weight loss: a randomised trial. STORM study group. Sibutramine trial of obesity reduction and maintenance. *Lancet.* 2000; 356 (9248): 2119-25.

10. Harvie M, Cohen H, Mason C, Mercer T, Malik R, Adams J et al. Adherence to a diet and exercise weight loss intervention amongst women at increased risk of breast cancer. *The Open Obesity Journal* 2010; 2, 71-80

11. Johnstone, A. Fasting for weight loss: an effective strategy or latest dieting trend? *Int J Obes* 2015; 39 (5): 727-33

12. Harvie M, Wright C, Pegington M, McMullan D, Mitchell E, Martin B, et al. The effect of intermittent energy and carbohydrate restriction v. daily energy restriction on weight loss and metabolic disease risk markers in overweight women. Br J Nutr 2013; 110 (8): 1534-47.

13. Green AR, Larkin M, Sullivan V. Oh stuff it! The experience and explanation of diet failure: an exploration using interpretative phenomenological analysis. *J Health Psychol* 2009; 14(7):997-1008.

14. Buckland G, Bach A, Serr-Majem L. Obesity and the Mediterranean diet: a systematic review of observational and intervention studies. *Obesity Review* 2008; 9 (6): 582-593

15. Michie S, Richardson M, Johnston M, Abraham C, Francis J, Hardeman W. The behavior change technique taxonomy (v1) of 93 hierarchically clustered techniques: building an international consensus for the reporting of behavior change interventions. *Ann Behav Med* 201; 46(1):81-95.
16. Tyrer J, Duffy S W., Cuzick J. A breast cancer prediction model incorporating familial and personal risk factors. *Statistics in medicine* 2004;23:1111-1130.
17. Harvie M, Howell A, Vierkant RA, Kumar N, Cerhan JR, Kelemen LE, et al. Association of gain and loss of weight before and after menopause with risk of postmenopausal breast cancer in the Iowa women's health study. *Cancer Epidemiol Biomarkers Prev* 2005;14(3):656-61.
18. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol 2006*; 3: 77-101
19. Rogerson D, Sottani H, Copeland R. The weight-loss experience: a qualitative exploration. *BMC Public Health* 2016; 16: 371
20. Baldwin AS, Rothman AJ, Jeffery RW. Satisfaction with Weight Loss: Examining the Longitudinal Covariation Between People's Weight-loss-related Outcomes and Experiences and Their Satisfaction. *Ann Behav Med* 2009; 38 (3): 213-24
21. Schwarzer R, Fuchs R. Changing risk behaviors and adopting health behaviors: The role of self-efficacy beliefs. In A. Bandura (Ed.), *Self-efficacy in changing societies*. New York: Cambridge University Press, 1995, pp. 259–288.
22. Williams SL, French DP. What are the most effective intervention techniques for changing physical activity self-efficacy and physical activity behaviour – and are they the same? *Health Educ Res* 2011; 26 (2): 308-322
23. Bandura A. Self-efficacy: Toward a unifying theory of behavioral change. *Psychol Rev 1977;* 84: 191–215.
24. Armitage CJ, Wright CL, Pegington M, Donnelly LS, Harvie MN. Self-efficacy for temptations is a better predictor of weight loss than motivation and global self-efficacy: Evidence from two prospective studies among overweight/obese women at high risk of breast cancer. *Patient Educ Couns* 2014, 95 (2): 254-8

25. Mata J, Todd PM, Lippke S. When weight management lasts. Lower perceived rule complexity increases adherence. *Appetite* 2010; 54(1):37-43.
26. Rutledge T, Groesz LM, Linke SE, Woods G and Herbst KL. Behavioural weight management for the primary care provider. *Obesity Reviews* 2011, 12(5):e290-7.
27. Hetherington MM, Pirie LM, Nabb S. Stimulus satiation: effects of repeated exposure to foods on pleasantness and intake. *Appetite* 2002; 38(1):19-28
28. Meiselman HL, deGraaf C, Lesher LL. The effects of variety and monotony on food acceptance and intake at a midday meal. *Physiol Behav* 2000;70(1-2):119-25.
29. Raynor HA, Niemeier HM, Wing RR. Effect of limiting snack food variety on long-term sensory-specific satiety and monotony during obesity treatment. *Eat Behav* 2006;7(1):1-14.
30. Summerbell CD, Watts C, Higgins JP, Garrow JS. Randomised controlled trial of novel, simple, and well supervised weight reducing diets in outpatients. *BMJ* 1998; 317: 1487–1489.
31. Wright CE, Harvie MN, Howell A, Evans DGR, Hulbert-Williams N, Donnelly LS. Beliefs about weight and breast cancer: an interview study with high risk women following a 12 month weight loss intervention. *Hered Cancer Clin Pract* 2015; 13(1):1

Table one: Participant characteristics

Transcript	**ID**	**Age** (Years)	**Baseline BMI** (Kg /m2)	**Percentage weight loss** (%)	**Weight loss > 5%**	**Compliance to IER days % of potential days during the trial**	**Dietary pattern**	**Previous reported attempts at dieting**
1	K01	40	31.84	-6.7	Yes	69	Omnivore	1
2	K18	41	42.00	-12.6	Yes	100	Omnivore	2
3	K30	46	30.90	-5.3	Yes	100	Omnivore	2
4	K33	45	25.30	-8.7	Yes	100	Omnivore	1
5	K42	44	40.40	-4.2	No	100	Omnivore	2
6	K43	39	24.70	-3.8	No	93	Omnivore	1
7	K52	59	34.90	-13.6	Yes	77	Omnivore	6
8	K71	52	32.50	-6.4	Yes	100	Omnivore	3

9	K85	52	24.70	-10.9	Yes	93	Omnivore	5
10	K87	61	27.50	-10.8	Yes	99	Omnivore	3
11	K92	44	25.70	-2.0	No	80	Vegetarian	5
12	K93	62	28.00	-2.3	No	81	Omnivore	3
13	K101	49	28.20	-6.5	Yes		Pescetarian	6