The Leeds Centre for Reproductive Medicine

WEIGHT MANAGEMENT & SUBFERTILITY

Welcome

This booklet has been written to help fully inform you of the reasons why we consider weight management to be an important part of your sub-fertility treatment. Please ask for clarification and let us have your comments and suggestions for future editions. We hope that it will help you to achieve your objectives.

HOW TO CONTACT US!!

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Ethnic Minority Languages: We will be pleased to organise a session (with prior notice) for an official translator / interpreter (if available) to translate the contents of this booklet.

Please remember that you are not alone with this problem.

Recent evidence suggests that obesity is not limited to UK and US but is also progressively increasing across Europe and South Asia. In England, almost 1 in 2 women is either in the obese or overweight category. The likelihood of becoming overweight increases with age. Only a quarter of 16 to 24 years is in this group but more than two thirds of 55 to 64 year olds are obese. Childhood obesity is increasing too and nearly 1 in 8, 8 year olds and 1 in 6, 7 year olds have a problem with weight now a days.

Certain types of obesity are easier to manage than others. It is classified by the size, number and regional distribution of fat cells in the body. Generally the fat cells increase in number during the first year of life, adolescence and in the last trimester of pregnancy. Exposure to more than the required amount of food at these times increases the number of fat cells in the body. As the amount of fat stored per cell increases, the cells gradually become larger. Generally in adult life only the fat cells get larger but with excessive food intake both their number and size may increase. Generally it is easier to shrink the fat cells but not as easy to get rid of the excess number of cells.

What are general health risks?

The pattern of fat distribution also is important. When the fat distribution is mainly around the abdominal area (central obesity or apple shape), your risk of heart disease, diabetes, cancer of the womb, high blood pressure, diseases of the blood vessels, gall bladder, arthritis, cancer and respiratory problems increases.

Waist circumference correlates with health risk. Measuring simply when the waist is more than 85 cms, the health risks are increased.

Waist-to-Hip ratio is another useful measure. You may calculate this using a tape measure as follows :

1. Measure your girth at you navel in a relaxed, standing position without changing the shape of your stomach.
2. Measure your girth over the most prominent part of your buttocks.
3. Divide your girth at the navel with your girth at your buttocks.

The answer should be less than 0.80 for women and 0.95 for men. If it is higher, the long term health risks are increased and you need to loose weight.

How do we assess?

We measure weight in relation to height with a measure called 'body mass index' or BMI for short. You would have noted that our clinic nurses measures your weight on the scales and your height on wall mounted ruler and then look at a chart.

Crudely the BMI is calculated by dividing your weight in kilograms by your height in meters. The result is divided by your height in meters again. The answer is usually between 18-40 except in extreme cases of being over or underweight.

The results are interpreted as shown in the table overleaf.

BMI	RESULT
Less than 20	underweight
20 - 24.9	Normal
25 - 29.9	Overweight
30 - 34.9	Obese (Grade 1)
35 - 40	Obese (Grade 2)
Above 40	Obese (Grade 3)

What is the relation ship between Weight and Fertility?

Fertility and body weight are inter-related and both under weight as well as over weight women experience difficulties in conceiving. Furthermore, the risk of miscarriage, premature birth, restriction in baby's growth, diabetes in pregnancy, hypertension and several other pregnancy complications are more likely.

Why is it important to normalise your weight before treatment?

Whilst undergoing fertility treatment, you may experience additional difficulties and some of these are as follows:

1. Risk of not responding to simpler, less expensive and less risky treatments is increased for a variety of reasons. You are more likely to end up requiring complex, invasive and expensive treatments with greater side effects and risks to your health.
2. Changes in your metabolism when you are over or under weight reduce the capability of eggs to become babies. In IVF, the risk of forming few and poor quality embryos that will not have a good chance of implanting is increased.
3. Risk of miscarriage and extreme prematurity is increased. Premature babies have increased risk of complications some of which can have long term effects on their quality of life and health, for example, cerebral palsy, long term chest and bowel problems are more likely in premature babies. The earlier the birth, the smaller the baby, the greater will be the risk to the child, for example those born before 34 weeks and/or are less than 1500 gms at birth.

4. The risk of complications to you with all surgical procedures is increased. These include the risk of sedation, anaesthesia, and clot in leg veins, clots in the lungs, brain and other major organs. Many of these risks can endanger your life or your long term well being.
5. There is good medical evidence now that children that are born to both underweight and overweight/obese women have long term health risks in their own life especially the risk of heart disease, obesity and diabetes.
6. In view of the above, our 'Good Medical Practice' (NICE) guidelines dictate that we start treatment by normalising the BMI when ever necessary.
7. Now the Primary Care Trusts that fund your treatment have also decided to limit funding to only those couples where the BMI is normal and not low or high.

As you see it is very important that we start assisting and treating you by examining the body mass index along with other lifestyle issues that could affect the likelihood of your success naturally and with treatment.

How does one get overweight?

Common reasons are as follows:

1. Taking in more energy (food) than what is needed for your day to day activity.
2. Choosing foods that are high in fats and refined sugars (commonly referred to as 'junk foods').
3. Inadequate physical exercise.

It is easy to get used to all or some of the above without realisation. Fat content and excess carbohydrate of the food will be stored in the fat cells if the daily intake is in excess of the daily bodily needs.

What are junk foods and how do they affect weight?

Normally a hormone called 'leptin' makes us loose appetite when the level of body fat and hence stored calories exceeds a certain threshold. After a regular high fat diet, unfortunately the human body and the appetite centre in the brain become used to, in other words resistant, to this hormone. As a result, the threshold for appetite becomes higher, we feel more hungry and hence eat more.

Additionally regular use of refined sugary foods leads to a rapid rise in the level of glucose after the meal. This leads to excess production and release of another hormone called 'insulin'. This hormone keeps the blood sugar in the normal range. When a lot of insulin is needed persistently to keep this balance, the human body develops resistance and that changes the way in which we metabolize sugars and fat. Excess insulin increases the storage of fat in the body.

What is the relationship of weight to physical activity?

The body needs a regular supply of energy for the maintenance of its normal functions. If the food supplies more energy than is needed, there is a net surplus which is stored as fat. As a result the fat cells increase both in number and size and as a result we become obese. Modern amenities at home, at work, in travel, an increasingly rich variety of food and cold weather mean that energy surplus is easily reached unless we take extra exercise. Unfortunately at present less than 1 in 5 people in the UK take extra exercise.

Am I genetically at an increased risk of obesity?

We can inherit a predisposition to obesity, but these genes do not make one obese. Anybody with a family history of obesity is likely to be obese themselves only if she/he follows the same lifestyle as other family members. In other words even if you are born into a family where many members are overweight, your weight will be determined by your own lifestyle.

If your life style is similar to other overweight people in your family, then that combined with your genetic susceptibility would mean that you will also gain weight like them. On the other hand, by adopting a different life style, you can avoid becoming overweight or obese.

Why is weight loss difficult to maintain?

1. It is often difficult to break the habit of excess food intake.
2. As explained above, excess caloric intake over a long term
    a. raises the threshold at which 'leptin' is released
    b. the body becomes unresponsive to leptin
    c. the hormone is not transported to the appetite centre in the brain.

    Under these circumstances the body loses it ability to control appetite and as a result the weight.
3. Paradoxically, a decrease in calorie intake often lowers the metabolic rate i.e. the number of calories that you use per day for the routine functions. As a result the surplus is reached easily and more calories are stored as fat.
4. Wrong type of exercise / diet: Some diets for weight reduction restrict carbohydrate or fat intake. Long-term use of such unbalanced diets results in malnutrition.
5. Lack of emotional support.

Key for Successful Weight Management:

1. A commitment to long-term changes in life style.
2. Balanced dieting with restriction of caloric intake.
3. Increased energy expenditure i.e. regular exercise.

You should note that:

1. Starvation diets are dangerous. Weight gain occurs over a period of time. Weight loss will equally take time.
2. Treatment with drugs but without dietary changes and exercise does not work.
3. Surgery is reserved for severe obesity.

Tips for exercise regimen:

1. Overall energy expenditure must be greater than the energy intake.
2. Aerobic weight bearing exercise helps with weight loss and helps to build stronger bones.
3. The intensity of exercise should not be too low or too high. High intensity exercise needs carbohydrates but moderate intensity exercises use up fat preferentially. Thus the amount of stored fat is reduced.
    a. Exercise intensity is moderate range when the heart or pulse rate is 60% of the maximum heart rate (HR_{max}) allowed for age. The maximum heart rate for age can be calculated as below.
    HR_{max}= 220- Age
    Calculate 60% of the result or multiply the result by 0.6 on the calculator.
4. The aerobic exercise must last at least 30mins per day.
5. For weight loss exercise 3-5 TIMES A WEEK
6. It takes an energy expenditure of 3500 calories to burn one lb of fat.

Tips for the dietary programme:

1. Set a reasonable goal, for example 20-30lbs (9-14kg) in 4-5 months or I lb per week.
2. Total Calorie intake:900-1200/day
3. Balanced Diet (50-55% Carbohydrates, 15%Protein,<30% Fat)

Important for success:

1. Determination & long-term lifestyle changes are essential for sustainable results.
2. Active involvement in designing your program for dieting and exercise makes sure that it suits you and that you can stick to it.
3. Note both the type and the amount of food that you eat. It will improve general awareness of your caloric consumption.
4. Record exercise (type, intensity and frequency).
5. Your life partner's active involvement in diet, motivation, support and training (e.g. personal trainers) would be very useful. We encourage them to join in with you.

Next you have summary guidelines which you may put where they would be easily accessible to you for daily reference, for example bedside, kitchen, work diary etc.

General Guidelines for Dietary Therapy for Weight Management

1. Restriction of caloric intake is the important principle
2. A reduction in calories of 500-1000kcal/day results in 1-2 lb wt loss /week
3. Alcohol provides unneeded calories and displaces more nutritious foods.
4. Semi-starvation diets can be dangerous and do not guarantee long term weight maintenance
5. 'Low-Fat' foods are helpful only if they are low in calories and not taken in large quantities.
6. Food must be balanced (55% Carbohydrate, 15% Protein, 20-30g of fibre/day

    30% FAT: saturated fats 8-10%, polyunsaturated fats up to 10%, monounsaturated fats; up to 15%; cholesterol; less than 300mg/day)
7. Protein should be derived from plant sources and lean animal protein
8. Pay attention to adequate intake of vitamins and minerals (Calcium intake should be 1000-1500 mg/day)
9. Complex carbohydrates from vegetables, fruits and whole grains are recommended as they contain good sources of vitamins, minerals and fibre.
10. Avoid eating heavy meals at any time especially at night (reduce portion sizes)
11. Spread food across the length of day if possible and do not eat anything for at least 3 to 4 hours before you go to bed.
12. Drinks lots of water
13. Remember that dieting without increased physical activity is not helpful

General Guidelines for Physical Activity in Weight Management

1. The best time to exercise is either before meals or 2 hour after eating.
2. Increased physical activity is key to success must become part of routine lifestyle.

3. Moderate intensity exercise preferentially utilises stored body fat whilst high intensity exercise utilises mainly carbohydrates.

4. Exercise type must be aerobic (e.g. Running, cycling etc), started slowly, with gradual increase in intensity and duration.

5. Exercise that increases your heart rate to 60-70% of your heart rate maximum (calculated as 220-Age) is moderate intensity exercise. For example, a 25 year old has a maximum heart rate of 195 and 60% of this maximum is 117. Therefore a 25 year old should reach and maintain a heart rate of 117 during exercise.

6. Examples of moderate intensity exercise

   Gardening for 30-45 mins.

   Walking 2 miles in 30 mins (15 min/mile)

   Stair walking for 15 mins

   Running 1½ miles in 15 mins (10 min/mile)

   Jumping rope for 15 mins

   Playing a game of basketball for 15-20 mins

   Swimming laps for 20 mins or

   Water aerobics for 30 mins

   Cycling 5 miles in 30 mins

7. Every exercise programme must be start with a 'warm up' before and end with a 'cool down' after the exercise.

8. Duration of exercise: 30 minutes cumulative

9. Frequency of exercise: 5 days a week but preferably all days.

10. Overall, achieving energy expenditure greater than 1000-1500 calories of food intake daily will guarantee sustainable weight loss.

11. Effective weight loss is achievable when appropriate exercise is combined with appropriate dietary therapy.

Best wishes

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