



## PATIENT FACTSHEET: Obesity & Diet

### How to prevent and treat obesity with nutrition

### The world is in an obesity epidemic

As a species, humans are getting fatter with every passing year. In 2022, there were 2.6 billion people who were overweight and almost a billion of them were obese. By 2035, those figures are expected to double. This represents 51% of the world's population of people over five years old. Even more startling, is that 20% of children over five are expected to be obese by 2035 (1).

Excess body fat contributes to the development of other diseases of excess such as type 2 diabetes, heart disease, and certain cancers (2).

The global diet industry is worth over 250 billion US dollars per year (3), yet it costs next to nothing to lose weight if you have the correct information.

By reducing the calorie density of all meals, you can eat until satisfied, without over consuming calories. A whole food plant-based diet can allow you to lose weight without deprivation or hunger.

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### What's happening inside my body?



Diets high in fat, simple sugars, and processed foods are calorically dense and promote fat storage (4).



Too many dietary fats can create chronic inflammation (5).

Excess liver fat contributes to insulin resistance and non-alcoholic fatty liver disease.



Fat build-up in skeletal muscle fosters insulin resistance, and in cardiac muscle, it may induce heart disease.



Pancreatic fat accumulation leads to beta-cell failure and the initiation of type 2 diabetes (6).



Central obesity is associated with insulin resistance and an increased risk of metabolic disease (7).

### It's in my genes



Genetics can account for over 40% of obesity in your family (8). If you have an active FTO gene, in particular, you could be 1.7 times more susceptible to increased BMI (8). However, it is your lifestyle that either activates or suppresses genes that promote obesity.



#### Antibiotics and the microbiome

Antibiotic use and a carbohydrate-poor diet can lead to diminished gut bacteria diversity (10).



The diversity of gut microflora is one of the best determinants of health. A low-fibre diet reduces the production of short-chain fatty acids which play a role in the production of leptin - the hormone responsible for decreasing appetite and increasing energy expenditure (11).



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### What is calorie density?

Calorie density refers to the number of calories in a given weight of food. Processed foods, fried foods, candy and pastries have very **high-calorie** densities. **Whole plant foods have low-calorie densities.**

The benefit of eating low-calorie density foods is that you can eat a **greater volume** of food for **fewer calories**. So, eating low-calorie density foods assists in weight loss. It's true - you can **eat more and weigh less.**

#### Low calorie density foods



### What is BMI?

BMI stands for body mass index. It's a population measure to determine overweight or obesity status. A BMI of 18 - 24.9 is considered normal. Overweight BMI is 24.5 - 29.9 and an obese BMI is 30 and over.

To work out your BMI, **divide your weight in kilograms by your height in metres squared.**

Eg: If you weigh 65kg and are 1.7m tall, your BMI is  $65 \div (1.7 \times 1.7) = 22.5$

## The Science

### Epidemiological evidence

- You are more likely to have a healthier diet if you cook at home (12).
- A low calorie density diet increases eating time, leading to greater fullness with half the calories of a high calorie density diet (13).
- Participants on a low-fat vegan diet lost twice as much weight as those on the American Diabetes Association diet (14).

### Evidence from randomised controlled trials (RCT) and meta-analyses

- Plant-based diets are associated with a reduction in obesity related inflammation biomarkers (15).
- BMI reduced by 4.4 on a whole food plant-based diet compared to 0.4 on a normal obesity care diet (16).

## Recommendations

**Eliminate chronic excessive calorie intake.** This is best achieved by choosing plant foods with low-calorie density, such as green vegetables, starchy root vegetables, legumes, and fruit.

**Aim for optimal body weight,** which is best achieved by consuming predominately whole plant foods.

**Limit saturated fats** from both animal and plant sources as much as possible. Replace them with **monounsaturated and omega-3 polyunsaturated fats** from nuts and seeds or high-quality carbohydrates such as whole grains (17).

**Increase the fibre** content of meals by adding **non-starchy vegetables** such as leafy greens, broccoli, and Brussels sprouts.

**Pulses** such as chickpeas, beans, and lentils are **good sources of fibre,** protein, and carbohydrates.

**Pick whole food carbohydrates** such as fruits, vegetables, legumes, and minimally processed whole grains. Those will promote weight loss.

**Eliminate seed oils** and instead use water or vegetable stock for sautéing.

**Use fat-free cooking methods** such as steaming, boiling, baking and air frying.



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#### What to Eat



Maximise the intake of high-quality **whole plant foods** such as **vegetables, whole grains, legumes, fruits, nuts, seeds, herbs, and spices**; your health will benefit from every step towards more whole plant foods.



**Low-calorie density** foods such as leafy greens, non-starchy vegetables and fruit provide large volumes of food with very few calories.



Make it a habit to eat **beans, chickpeas, lentils, and split peas**. They are packed with fibre, protein, and carbohydrates. The added fibre fills you up.



Season food with abundant **herbs and spices** to increase flavour. Spices such as **turmeric and cinnamon** are also anti-inflammatory and high in antioxidants.



Drink abundant water or herbal tea.



Make sure to cover potentially critical nutrients with a wide variety of plant foods or enriched foods and drinks. Supplements, especially **vitamin B12, omega-3** and **vitamin D**, may be helpful. Please consult with your primary care physician before taking any supplements.



#### What to Avoid



Avoid refined carbohydrates such as bakery items and snack foods that can be high in saturated fat and added sugars. They also have high calorie densities.



Eliminate or limit all processed foods, and sugar-sweetened foods and beverages.

Eliminate red and processed meat products such as burgers, sausages, bacon, ham, salami, dried meat, canned meat, and pastrami (18).

Eliminate or limit other animal products such as poultry, fish, eggs, cheese, and dairy.



Limit saturated fats, from both animal and plant sources as much as possible (17).



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### References

1. World Obesity Federation, 2023. Available from: <https://www.worldobesity.org/resources/resource-library/world-obesity-atlas-2023>
2. WHO, 2023. Available from: <https://www.who.int/publications-detail-redirect/9789240073234>
3. Market Data Forecast, 2021. Available from: <https://www.prnewswire.com/news-releases/global-weight-loss-products-and-services-market-report-2021-the-business-of-weight-loss-in-the-20th-and-21st-centuries-301354957.html>
4. Richard et al., 2000. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK555602/>
5. Nguyen et al., 2009. Available from: <https://doi.org/10.1007/s11605-009-0904-9>
6. Ghaben & Scherer, 2019. Available from: <https://www.nature.com/articles/s41580-018-0093-z>
7. Kahn, et al., 2019. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6763230/>
8. Wardle et al., 2008. Available from: <https://www.sciencedirect.com/science/article/pii/S0002916523234887>
9. Frayling et al., 2007. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2646098/>
10. Tseng & Wu, 2019. Available from: <https://www.sciencedirect.com/science/article/pii/S0929664618304376>
11. Mahmoud et al., 2022. Available from: <https://www.mdpi.com/1422-0067/23/19/11005>
12. Wolfson et al., 2020. Available from: <https://doi.org/10.1017/S1368980019003549>
13. Duncan et al., 1983. Available from: [https://ajcn.nutrition.org/article/S0002-9165\(23\)15614-0/fulltext](https://ajcn.nutrition.org/article/S0002-9165(23)15614-0/fulltext)
14. Barnard et al., 2006. Available from: <https://doi.org/10.2337/dc06-0606>
15. Eichelmann et al., 2016. Available from: <https://onlinelibrary.wiley.com/doi/abs/10.1111/obr.12439>
16. Wright et al., 2017. Available from: <https://www.nature.com/articles/nutd20173>
17. Luukkonen et al., 2018. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7082640/>
18. IARC, 2018. Available from: <https://publications.iarc.fr/Book-And-Report-Series/Iarc-Monographs-On-The-Identification-Of-Carcinogenic-Hazards-To-Humans/Red-Meat-And-Processed-Meat-2018>