

Weight loss and positive ageing

Initial findings from the 1958 National Child Development Study at Age 62

As life expectancy increases and people live longer, population ageing continues to place growing pressure on health and social care systems. Ageing is often framed in terms of inevitable health decline, yet this need not be the case. Identifying modifiable factors that can improve health later in life – often perceived as a stage when meaningful health change is no longer possible – has the potential to improve quality of life and reduce the potential strain of population ageing on the NHS.

Rates of overweight and obesity have been rising and are risk factors for poor cardiometabolic health outcomes, like heart attacks. The recent rollout and expanded availability of ‘weight loss’ medications, such as Mounjaro or Ozempic, has the potential to support effective weight loss at scale. The development of these drugs may create new opportunities to influence people’s health outcomes as they age.

Existing research has largely focused on the extent to which obesity poses a risk for cardiometabolic health. Less attention has been given to whether weight loss later in adulthood can meaningfully improve ageing-related outcomes and cardiometabolic risk profiles. This study addresses this gap by examining whether modest weight loss in people’s early to mid-50s is linked to improved cardiometabolic outcomes in their early 60s, using data from 6,309 participants in the 1958 National Child Development Study.

ABOUT THE DATA

1958 National Child Development Study at age 62

The 1958 National Child Development Study (NCDS) is following the lives of around 17,000 people born in England, Scotland and Wales in a single week of 1958. The Age 62 Sweep took place between 2020 and 2024. Data from this and previous sweeps of NCDS are available to download from the UK Data Service.

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Key findings

- People who lost weight in their early to mid-50s had lower blood pressure, and healthier cholesterol levels and levels of fat relative to muscle in their early 60s compared to those who were living with obesity and continued to gain weight or stayed the same weight.
- People who lost more than 5% of their body weight from an overweight Body Mass Index (BMI; 25–30 kg/m²) were in similar health in their early 60s as those who had maintained a healthy BMI (<25kg/m²) throughout adulthood.
- People who lost more than 5% of body weight from a BMI in the obesity range (>30 kg/m²) had better health at age 62 than other individuals with obesity who maintained, gained, or fluctuated in their weight.
- Although people who lost weight from obesity were still less healthy at age 62 than people who had always maintained a healthy BMI, they experienced no faster deterioration in their health between age 44 and 62 than those in the healthy weight group.
- In contrast, continued weight gain into overweight or obesity, and weight fluctuations within the obesity range (known as weight cycling), were associated with the poorest health profiles at age 62 and the fastest rates of worsening health between age 44 and 62.

Results

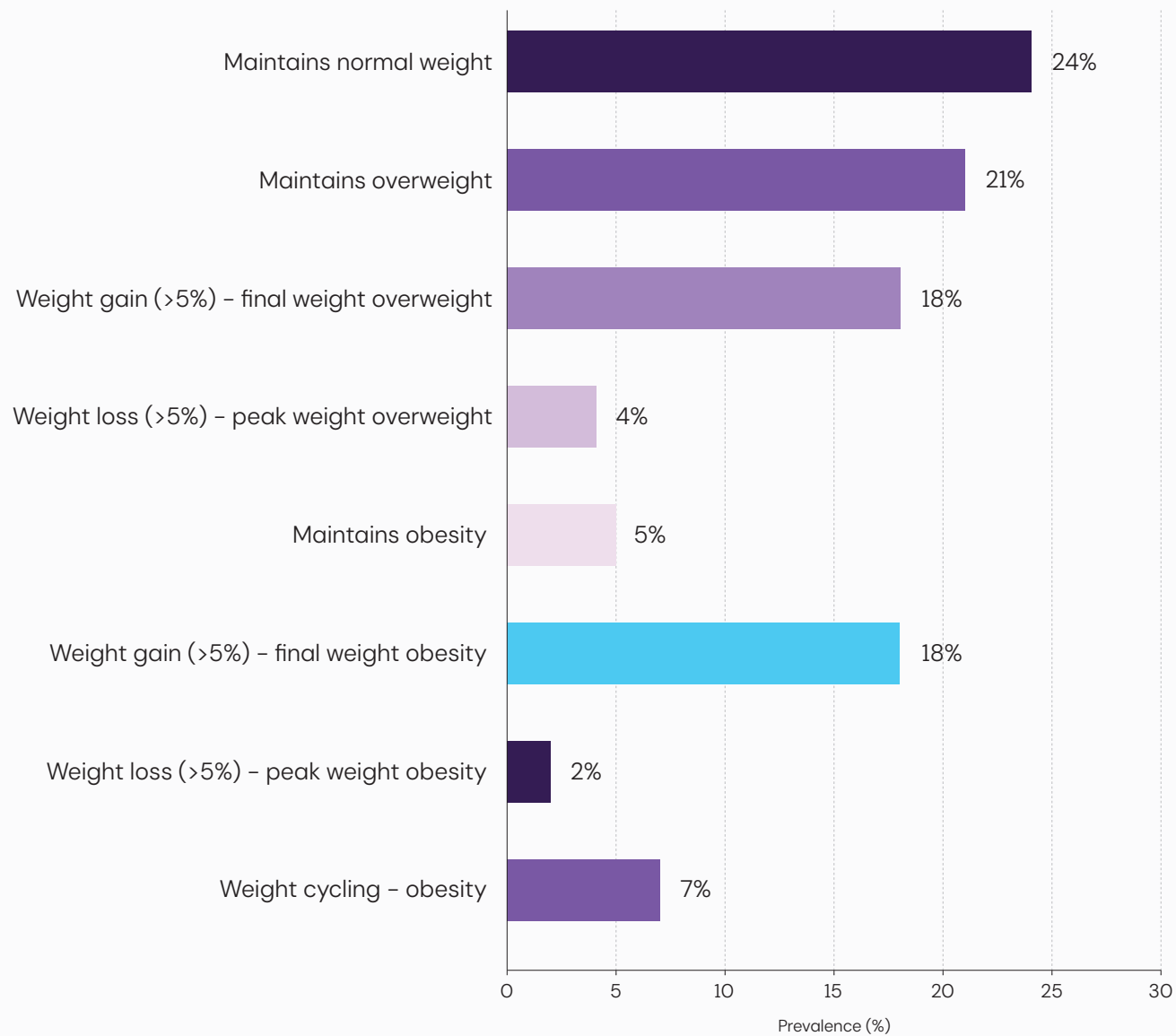
Measures

We used BMI measurements collected repeatedly from age 23 onwards to identify the highest weight each person reached by age 42. We then looked at whether they had lost more than 5% of their body weight by age 50 compared with this highest weight, and whether they had kept this weight off by age 55. People who lost weight were grouped according to whether their highest BMI had been in the

overweight range (25–30 kg/m²) or the obesity range (over 30 kg/m²).

We also identified people who gained more than 5% above their previous highest weight, those whose weight went up and down substantially over time (referred to here as ‘weight cyclers’), and those who consistently maintained a healthy weight (BMI <25 kg/m²), overweight, or obesity.

WEIGHT CHANGE GROUP (AGE 50–55)



Among participants who took part in the health assessment at age 62, around 4% had previously been overweight and had lost weight by their early 50s, while 2% had previously had obesity and then lost weight between the ages of 50 and 55. The largest

group were those who maintained a healthy weight into their 50s (24%), followed by those who maintained overweight (21%), and those who gained weight in or into overweight or obesity (around 18% each).

Health measures

We looked at different measures of cardiometabolic health and body composition at age 62. These were:

- **Blood pressure.**
- **Cholesterol and triglycerides** – markers of fat levels in the blood.
- **Signs of inflammation** – measured by a blood marker called C-Reactive Protein, that is associated with greater cardiovascular risk.

- **Body composition** – measured using levels of fat tissue in the body, and amount of fat tissue relative to non-fat tissue, such as bone and muscle.

We also examined these indicators when participants were age 44, before the weight changes occurred, to assess how these biomarkers changed over time following weight change. Body composition was the only measure not available at age 44.

Poor cardiometabolic health

is linked to conditions such as heart disease and heart attacks.



Weight change and cardiometabolic health

Cardiometabolic health describes how healthy your heart and metabolism are. Poor cardiometabolic health is linked to conditions such as heart disease, and heart attacks. It can be assessed using measures such as blood pressure, the levels of fat and muscle in the body, and blood tests that examine cholesterol and inflammation.

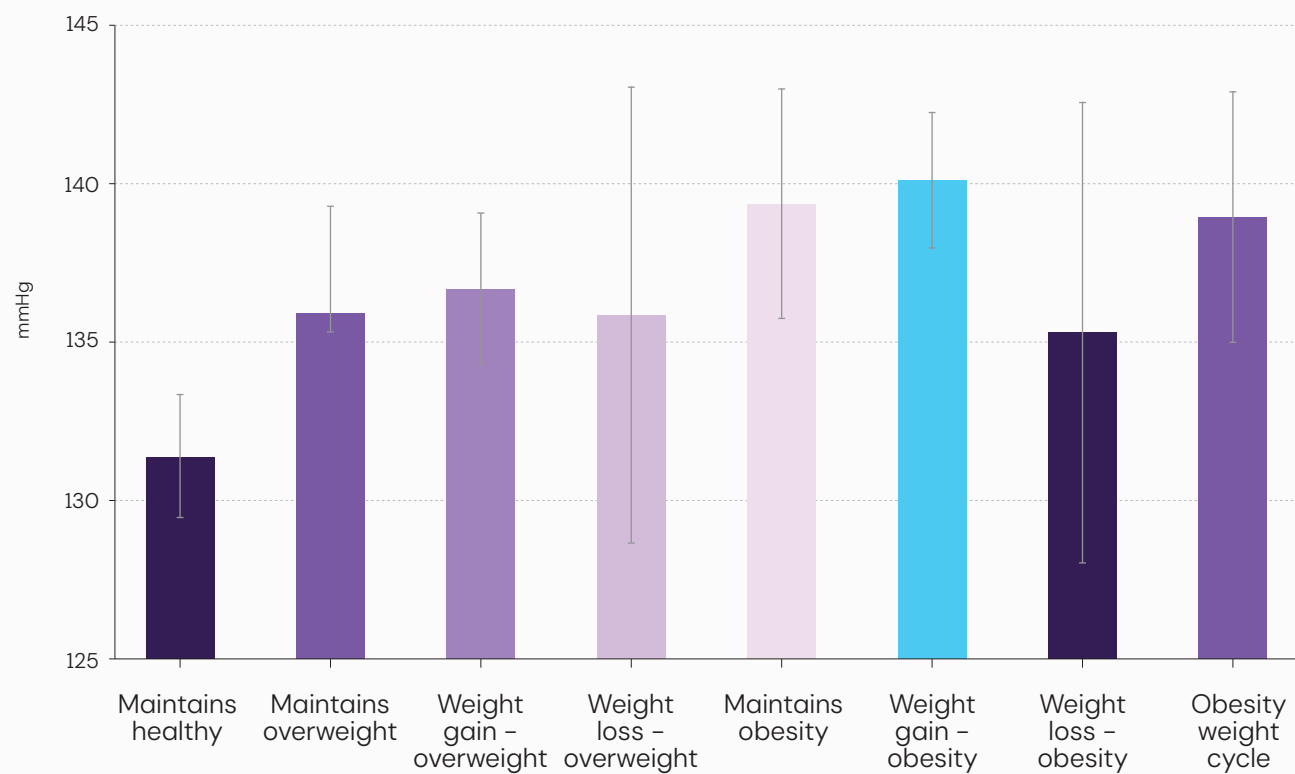
At age 62, those who had maintained a healthy weight throughout adulthood had the best cardiometabolic health, based on these indicators.

Participants who stayed overweight, or gained weight to end in the overweight range, typically formed an intermediate group, with worse cardiometabolic health than the healthy weight group. Those who continued experiencing obesity, gained weight into or within

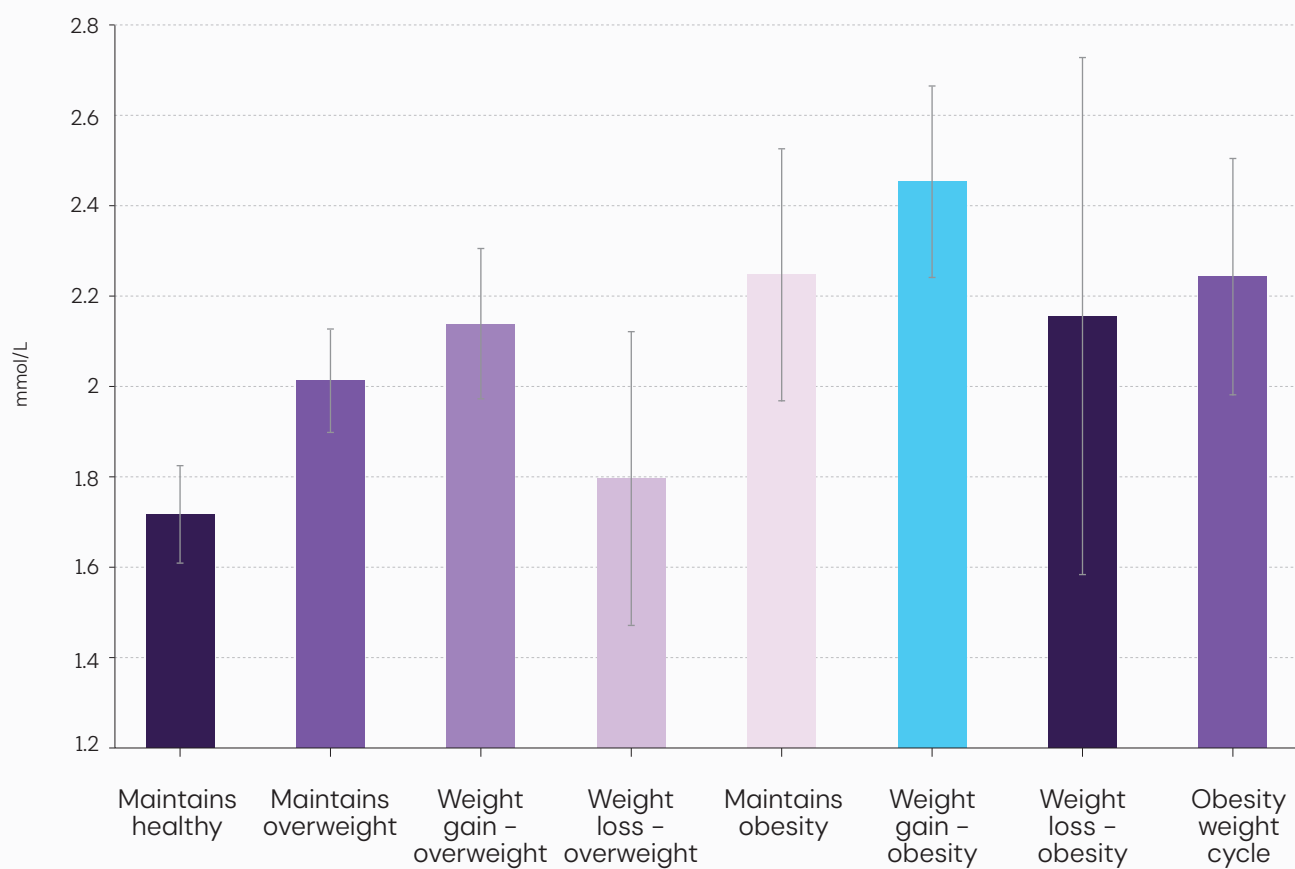
obesity, or who experienced obesity and saw their weight go up and down, consistently had the worst cardiometabolic health. These groups had the highest blood pressure and inflammation, worse cholesterol and triglyceride levels, and had higher levels of fat tissue relative to muscle and bone at age 62.

In contrast, individuals who lost weight from overweight had cardiometabolic health at age 62 that more closely resembled those of the consistently healthy weight group. Those who lost weight from obesity had better cardiometabolic health than individuals with obesity who maintained, gained, or fluctuated in their weight, but their health indicators were still worse than those who had always been a healthy weight.

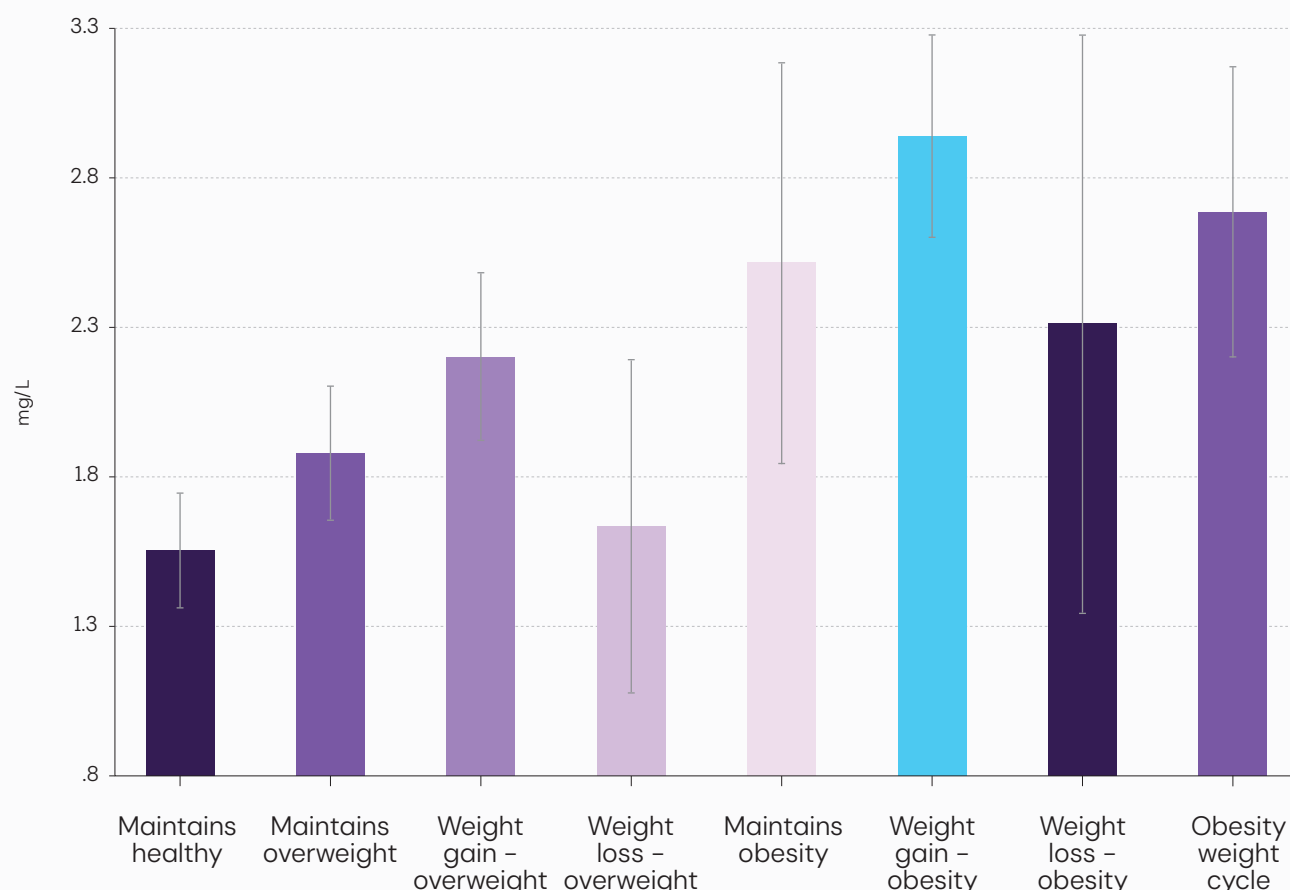
MEAN SYSTOLIC BLOOD PRESSURE AGE 62



MEAN TRIGLYCERIDES AGE 62 (FAT LEVELS IN BLOOD)



MEAN C-REACTIVE PROTEIN AGE 62 (MARKER OF INFLAMMATION)



Change in biomarker profiles

A key strength of the NCDS is the rich information collected across participants' lives, allowing us to account for a wide range of factors when examining the link between weight loss and changes in cardiometabolic health. Because health markers were also measured at age 44, before the period of weight change, we were able to examine how weight loss affects the rate of *change* in cardiometabolic health as people age. While indicators of health typically deteriorate as people age, a slower rate of change may indicate more favourable ageing patterns.

After accounting for early life characteristics and earlier health, individuals who lost weight from either overweight or obesity showed a similar rate of change in their cardiometabolic health to those who maintained a healthy weight. In other words, their cardiometabolic health did not worsen more quickly

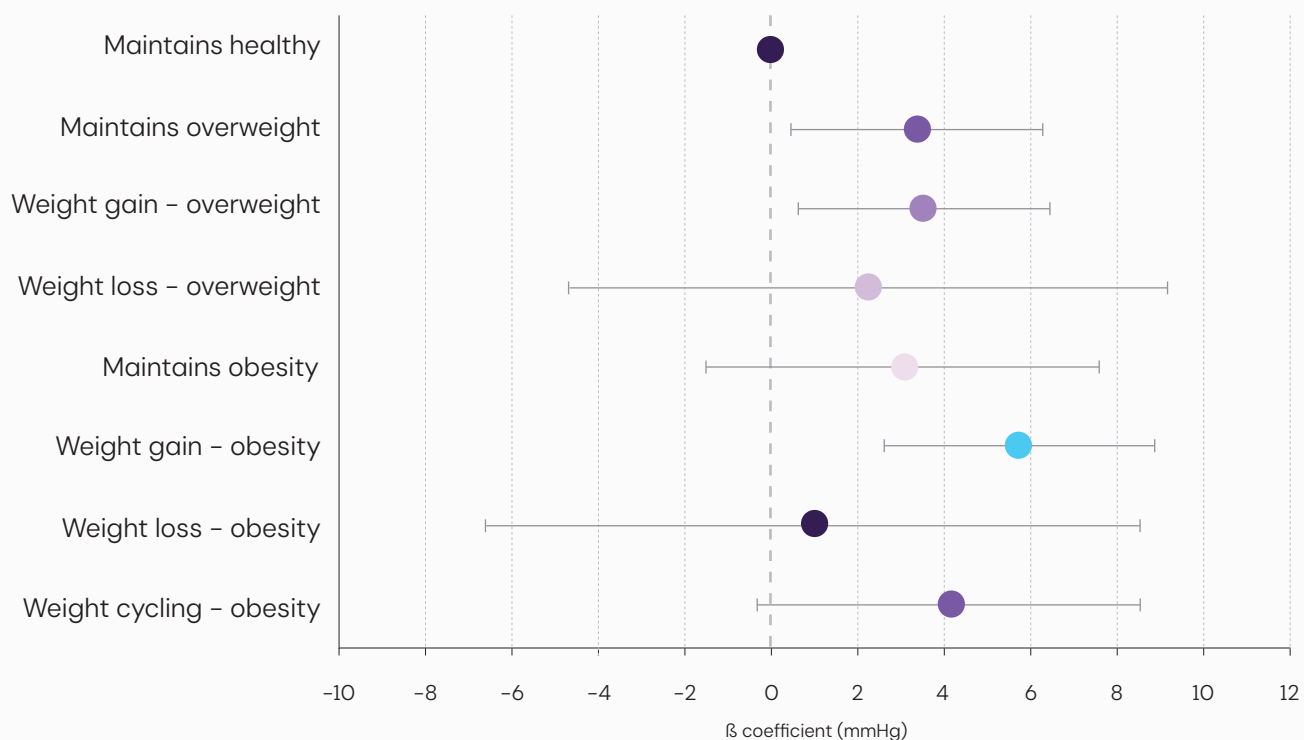
than those in the healthy weight group. In contrast, those who gained weight in their early 50s experienced a more rapid deterioration of cardiometabolic health between ages 44 and 62.

For example, people who gained weight into obesity in their early 50s saw their blood pressure worsen much faster between ages 44 and 62 than the healthy weight group. In contrast, those who lost weight from either overweight or obesity had increases in blood pressure that were similar to the increases seen in the healthy weight group between ages 44 and 62.

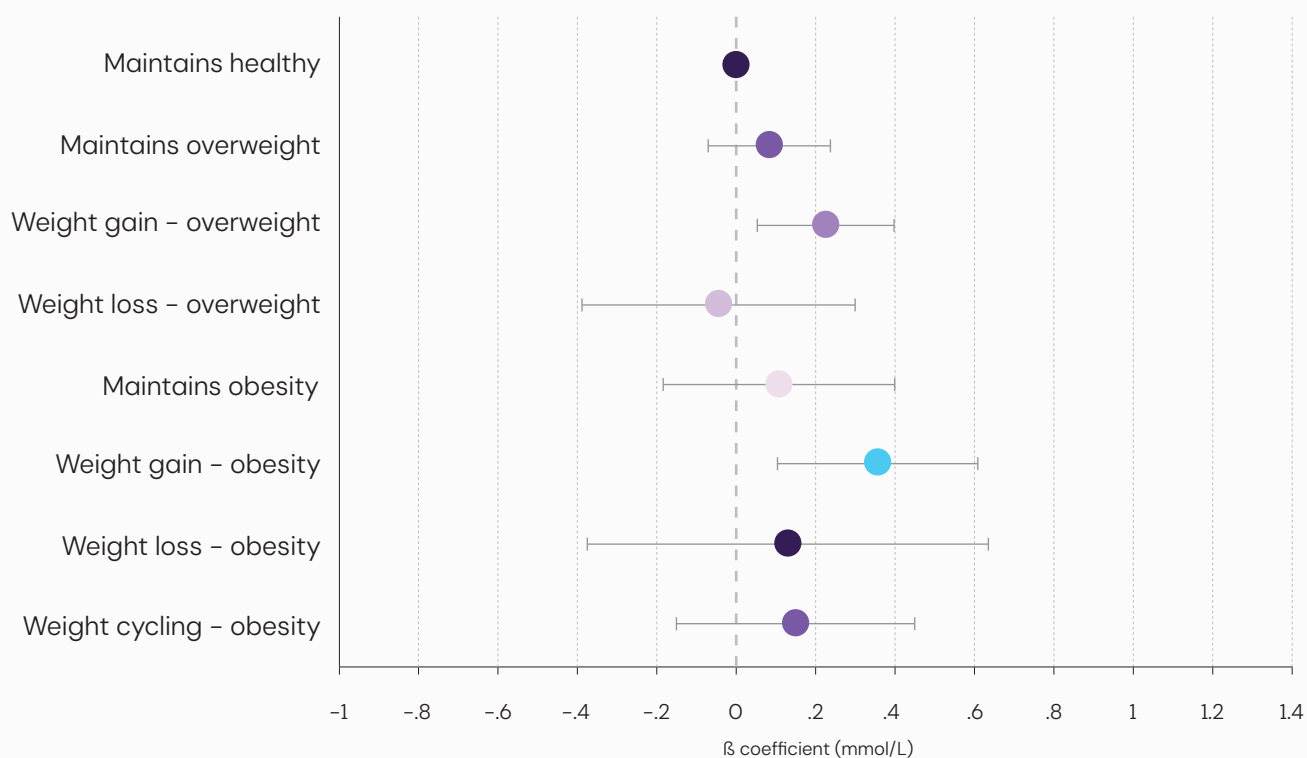
Overall, those who gained weight showed the fastest deterioration of cardiometabolic health indicators between ages 44 and 62, while those who lost weight experienced much slower rates of change.

This is an **observational study**. This means that researchers did not control what the participants were exposed to, instead they observed what happened to the different groups of people without intervening. The authors were able to use very detailed data to account for a wide range of factors that may have influenced the links between weight change patterns and biomarkers. However, it would be impossible to rule out every influence with absolute certainty.

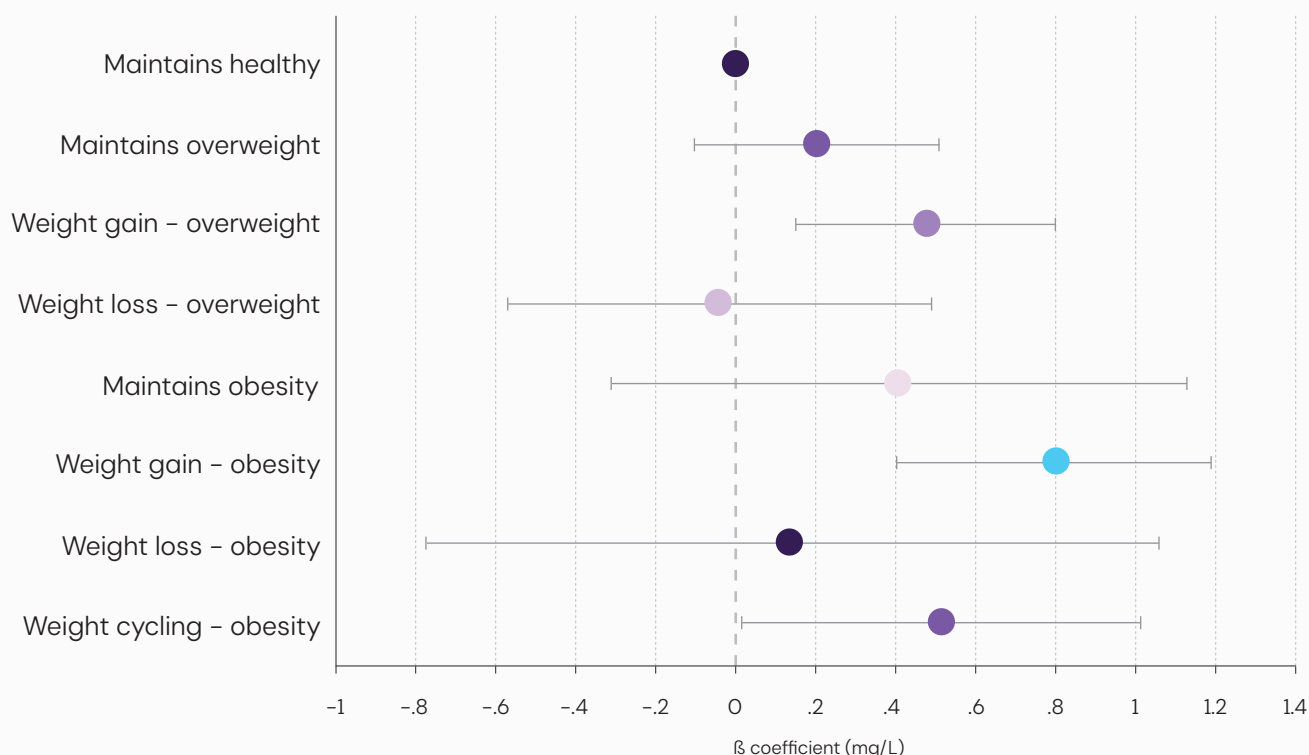
PANEL A: SYSTOLIC BP



PANEL B: TRIGLYCERIDES



PANEL C: C-REACTIVE PROTEIN



Points to the right of the dashed line indicate that the biomarker increased faster, between the ages of 44 and 62, than was seen in the healthy weight group. Points to the left of the line indicate a slower change than for the healthy weight group whereas points on, or almost on, the line suggest a rate of change in biomarker levels similar to the healthy weight group. Panel A shows that for individuals who lost weight from overweight or obesity, systolic

blood pressure did not worsen any faster than the healthy weight group, while those who gained weight within obesity saw their blood pressure deteriorate more quickly. Patterns are similar for triglycerides (Panel B) and for C-Reactive Protein (Panel C; though with faster deterioration also observed for the obesity weight cycling group).

Considerations for policymaking

As people live longer and the number of older people in the UK population rises, finding ways to improve health later in life is increasingly important to support wellbeing, quality of life, and to ease pressure on the National Health Service (NHS). Assuming that all preexisting differences between weight change groups were fully accounted for, these findings suggest that even losing a modest amount of weight in people's early to mid-50s could slow the extent to which cardiometabolic health deteriorates as people age, which could reduce the risk of future cardiovascular disease.

The results support current interest in expanding access to effective weight loss support, including GLP-1-based medications, by showing that benefits may extend beyond short-term weight reduction to longer-term cardiometabolic outcomes. They also highlight the importance of preventing further weight gain in midlife, since weight gain in people's early 50s was consistently linked to the fastest deterioration in cardiometabolic health.

While obesity prevention strategies rightly place strong emphasis on children and young people, these findings indicate that prevention efforts should also extend to people in their 50s, where avoiding further weight gain may still yield meaningful health benefits.

At the same time, the findings underline the need for a life course approach to obesity prevention, with those who maintained a healthy weight across adulthood having the best cardiometabolic health in early old age.

Policymakers may wish to consider how weight management support can be offered before older age, while also ensuring that efforts to promote weight loss in midlife do not inadvertently contribute to sarcopenic obesity – a condition characterised by high levels of fat and low levels of muscle and muscle strength. This combination can make everyday activities more difficult, and is linked to a higher risk of falls, disability, and poorer physical function. Further research is needed to establish whether slower cardiometabolic ageing translates into reduced health service need and to model the potential long-term economic benefits of wider access to weight loss interventions.

Opportunities for future research

The NCDS age 62 survey provides a valuable opportunity to study how experiences across life shape early ageing. The biomedical data collection at age 62 captures measured indicators of cardiovascular health, inflammation, body composition, and physical capability at an age when rapid age-related changes in health begin to become apparent. When linked to the earlier biomedical data at age 44, this creates a rare opportunity to examine rates of change across a critical period from midlife into early older age.

These data could be used to explore wider determinants of healthy ageing, including the roles of behaviour, social factors, and health trajectories across adulthood. Future research could also investigate how patterns of weight interact with physical function, frailty risk, and longer-term health service use, helping to build a more complete picture of how midlife health influences ageing outcomes.

About the 1958 National Child Development Study

The 1958 National Child Development Study (NCDS) is following the lives of around 17,000 people born in England, Scotland and Wales in a single week of 1958. Over the course of participants' lives, NCDS has collected information on health, physical, educational and social development, and economic circumstances among other factors. The study is managed by the UCL Centre for Longitudinal Studies and funded by the Economic and Social Research Council.

How to cite this briefing paper

Bridger Staatz, C, Gimeno, L, Ploubidis, G. (2026)
Weight loss and positive ageing: Initial findings from the 1958 National Child Development Study at Age 62.

Acknowledgements

The Economic and Social Research Council funds the UCL Centre for Longitudinal Studies (CLS) Resource Centre (ES/W013142/1), which provides core support for the 1958 National Child Development Study (NCDS). These initial findings, and the future research these data will enable, would not be possible without the invaluable contributions of the NCDS cohort members over many years. We are very grateful for their ongoing commitment to the study. This research was also supported by the Economic and Social Research Council under grant ES/S012583/1.

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Published in October 2026