P739 | BEDSIDE
Age at first detection of overweight and adult life course BMI are associated with future increased left ventricular mass index
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Background: Elevated body mass index (BMI) is associated with elevated left ventricular mass index (LVMI) in cross-sectional studies. However, the consequence of elevated BMI over the adult life course on future LVMI is unknown.

Methods: Participants in our birth cohort study, the longest running birth cohort study in the UK, underwent investigations including echocardiography and BMI measurement at 60-64y. BMI had previously been measured at 20, 26, 36, 43 and 53y. The relationships between BMI and LVMI indexed to both body surface area (LVMI/BSA) and height raised to the power 2.7 (LVMI-h².7) and relative wall thickness (RWT) were evaluated using adjusted regression models. Analyses were also carried out replacing BMI with overweight and then with age at first detection of overweight.

Results: Increased BMI and overweight from 20y onwards were associated with increased LVMI. On including BMI at 60-64y, the associations remained for BMI/overweight measured at 26y and 43y. Increased BMI and overweight from 43y onwards were associated with increased RWT. Earlier age at first detection of overweight was associated with increased LVMI and RWT.

Conclusions: Adult life course BMI is positively associated with LVMI and RWT with earlier age of first overweight associated with greater subsequent LVMI and RWT. This makes early intervention imperative to prevent future increases in LVMI and RWT associated with weight gain and obesity.

P740 | BEDSIDE
Age at first detection of overweight and adult life course BMI are associated with future diastolic dysfunction
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Background: Elevated body mass index (BMI) is associated with poorer diastolic function. Earlier age at first detection of overweight was associated with worse diastolic function.

Methods: Participants in the longest-running birth-cohort in the UK, the Medical Research Council National Survey of Health and Development (MRC NSHD), (n=1653) underwent investigations including echocardiography and BMI measurement at 60-64y. BMI had previously been measured at 20, 26, 36, 43 and 53y. The relationship between BMI at different ages and diastolic function ([E/e’, E/A, e’, e’/a’ and left atrial volume indexed to body surface area (LAVI)]) was evaluated using adjusted regression models. Analyses were also carried out replacing BMI at different ages with overweight and then with age at first detection of overweight.

Results: Increased BMI and overweight from 20y onwards were associated with poorer diastolic function. On including BMI/overweight at 60-64y, the associations remained for BMI/overweight from 36y onwards (for E/e’). Earlier age at first detection of overweight was associated with worse diastolic function.

Conclusions: Increased adult life course BMI is associated with deterioration in diastolic function. Earlier age of first overweight is associated with greater future diastolic dysfunction. This makes early intervention imperative to prevent future diastolic dysfunction associated with weight gain and obesity.