Additional figures
Prediction intervals for future BMI values of individual children – a non-parametric approach by quantile boosting

Figure S1

Figure A1: Resulting estimates for the the non-linear partial effect of the BMI at the age of two on the PI for childhood BMI around the age of four. The lines represent the partial effect on \( q_{0.025} \) and \( q_{0.975} \) respectively as the borders of a 95% PI in the cross-sectional analysis.
Figure A3: Goodness-of-fit diagnostic plots according to [28] for the underlying models from the cross-sectional analysis (BMI of children at the age of four). Test observations were simulated from the conditional model distribution and compared to the empirical distribution of the response observations (left plot). The right plot shows the standardized deviation of quantiles from the simulated conditional distribution to the real ones. Blue points and bars refer to the results of quantile boosting whereas red points and bars refer to those from quantile regression forest.
**Figure S3**

**Figure A2:** Resulting estimates for the non-linear partial effect of the BMI at the age of two (left) and the age of the child (right) on the PIs for childhood BMI patterns. The lines represent the partial effect on $q_{0.025}$ and $q_{0.975}$ respectively as the borders of a 95% PI in the longitudinal analysis.
Figure S4

Figure A4: Goodness-of-fit diagnostic plots according to [28] for the underlying models from the longitudinal analysis (BMI of children at the ages of four, six and ten). Separately for the three different time points, test observations were simulated from the conditional model distribution and compared to the empirical distribution of the response observations in QQ-plots (first row). Barplots (second row) show the standardized deviation of quantiles from the simulated conditional distribution to the real ones.