**e-Figure 1. Flow chart of analysis pipeline**

- **Run GAM model in overall measure and individual lobes**
  - If a group has a significant effect of age (FDR-corrected), calculate derivatives to find significant periods of developmental change.
  - If ANY of the respective groups have a significant effect of age (FDR-corrected), examine differences in smooths.
  - If there is a significant difference in smooths, investigate individual ROIs within that lobe (run GAM models and work through flow chart).
**eFigure 2.** Partial residual plots of neurodevelopmental cortical thickness trajectories of cortical lobes in 22qDel-ASD vs. 22qDel-no ASD. The partial residual plots reflect the relationship between age and the respective neuroimaging measures, given the other covariates in the model. Shaded regions are +/- standard errors. The bars underneath the age plots reflect the derivative of the slope, i.e., the rate of change taking place at a particular age. Darker blue indicates that there is a stronger decrease in CT taking place at that particular age, while brighter red indicates a stronger increase in CT. Control age effects and derivatives are shown for visualization purposes only.
**Figure 3.** Partial residual plots of neurodevelopmental surface area trajectories of cortical lobes in 22qDel-ASD vs. 22qDel-no ASD. The partial residual plots reflect the relationship between age and the respective neuroimaging measures, given the other covariates in the model. Shaded regions are +/- standard errors. The bars underneath the age plots reflect the derivative of the slope, i.e., the rate of change taking place at a particular age. Darker blue indicates that there is a stronger decrease in SA taking place at that particular age, while brighter red indicates a stronger increase in SA. Control age effects and derivatives are shown for visualization purposes only.
**eFigure 4.** Partial residual plots of neurodevelopmental cortical thickness trajectories of cortical lobes in 22qDup-ASD vs. 22qDup-no ASD. The partial residual plots reflect the relationship between age and the respective neuroimaging measures, given the other covariates in the model. Shaded regions are +/- standard errors. The bars underneath the age plots reflect the derivative of the slope, i.e., the rate of change taking place at a particular age. Darker blue indicates that there is a stronger decrease in CT taking place at that particular age, while brighter red indicates a stronger increase in CT. Control age effects and derivatives are shown for visualization purposes only.
**eFigure 5.** Partial residual plots of neurodevelopmental surface area trajectories of cortical lobes in 22qDupASD vs. 22qDup-no ASD. The partial residual plots reflect the relationship between age and the respective neuroimaging measures, given the other covariates in the model. Shaded regions are +/- standard errors. The bars underneath the age plots reflect the derivative of the slope, i.e., the rate of change taking place at a particular age. Darker blue indicates that there is a stronger decrease in SA taking place at that particular age, while brighter red indicates a stronger increase in SA. Control age effects and derivatives are shown for visualization purposes only.