Figure 4.1 Hypothalamus activation for the interaction effect of the factors group and androstadienone concentration.

$F$ contrast, testing for group (men and women) differences in hypothalamus activation, dependent on androstadienone concentration condition. The color bar depicts the $F$ statistic and image coordinates ($x=2$; $y=-6$; $z=0$) are in Montreal Neurological Institute brain atlas space.

Figure 4.2 Sex differences in hypothalamus activation

A Hypothalamus activation in women, compared with men (directional $t$ contrast), who were exposed to the high concentration of androstadienone.

B Hypothalamus activation in men, compared with women (directional $t$ contrast), who were exposed to the medium concentration of androstadienone. The color bar depicts the $t$ statistic and image coordinates ($x=2$; $y=-6$; $z=0$) are in Montreal Neurological Institute brain atlas space.
5.2a
Ctrl girls > Ctrl boys

5.2b
Ctrl girls > Boys w. GD

5.3a
Ctrl girls > Ctrl boys

5.3b
Ctrl girls > Girls w. GD

5.3c
Boys w. GD > Ctrl boys
Figures 5.2a - 5.2b (for the prepubertal groups) and Figure 5.3a - 5.3c (for the adolescent groups) show the anatomic locations of the significant hypothalamic activations, indicated in red, in response to the chemo-signal androstadiene. The numbers above each sagittal plane represent the x-axis coordinates in Montreal Neurological Institute space. All voxels within the hypothalamic region of interest, surviving the statistical threshold of $p < 0.05$ (FWE-corrected) are shown. Figures 5.2c - 5.2e and 5.3d - 5.3e show the bar graphs of the corresponding group contrasts for the first-order time modulation regressor, indicating group differences in sensitization to the steroid odor. Figure 5.3f shows the non-significant sex-typical (female-like) response of the adolescent girls with Gender Dysphoria. Figure 5.3g displays the significant female-typical response of the adolescent boys with Gender Dysphoria for the contrast of the condition ON > OFF, irrespective of any effects of time; figure 5.3h shows the non-significant male-typical response of the adolescent boys with Gender Dysphoria.
Figure 6.1 Sex differences in fractional anisotropy (FA) indicated in blue and radial diffusivity (RD) indicated in red; purple color indicates overlapping effects of FA and RD; all effects are located in the left hemisphere in white matter tracts such as the corticospinal tract (CST), the superior longitudinal fasciculus (SLF), the anterior thalamic radiation (ATR), and an overlapping area of the uncinate fasciculus (UF) and inferior fronto-occipital fasciculus (IFOF).
Figure 7.1 Brain activation pattern during mental rotation at session 1 in A control (Ctrl) boys, B girls with Gender Dysphoria (GD), and C control girls. Statistical parametric maps were rendered on a SPM8 template image showing the left and right hemisphere in sagittal view. For illustrative purposes results are displayed at an uncorrected threshold of $p < .005$ over the whole brain.

Figure 7.2 Clusters of significant differences in brain activation during mental rotation at session 1 for the normative sex difference (control girls > control boys) indicated in red, and for the comparison control girls > girls with GD indicated in blue. For illustrative purposes results are displayed at an uncorrected threshold of $p < .005$ over the whole brain. Numbers indicate x-axis coordinates in Montreal Neurological Institute space, displayed in sagittal view. See text and Table 3 for further details.

Figure 7.3 Clusters of significant increases in brain activation during mental rotation for session 2 compared with session 1. Left parietal and left frontal regions are shown. The testosterone treatment effect on brain activation for the girls with GD is indicated in yellow; clusters of increased brain activation in control boys (session 2 > session 1) are indicated in purple. See text and Table 4 for further details.