

Nadine Kloth, University of Jena

Visual adaptation in face perception

Some of the most fascinating visual illusions result from visual adaptation. For low-level stimulus characteristics (e.g. luminance, colour, and orientation) adaptation effects have been known for a long time. Adaptation to motion in one direction, for example, leads to the visual aftereffect of perceived motion into the opposite direction. Neural habituation is discussed as the central mechanism underlying these adaptation effects. That is, selectively responsive neural populations temporarily seem to lose sensitivity after long durations of exposure. The visual aftereffects observed after adaptation can therefore provide valuable insight into the neural fine tuning to special stimulus attributes in visual perception.

Recently, perceptual aftereffects have also been reported in high-level vision. Especially in the field of face perception high-level aftereffects have been shown on several stimulus dimensions. It was found, for example, that exposure to faces with expanded internal features makes normal faces appear contracted. Further, adaptation to male faces has been found to bias the classification of androgynous faces towards female gender. Similar adaptation effects have been observed for one of the most important visual social signals: Human eye gaze. Jenkins et al. (2006) found that adaptation to gaze into one direction virtually eliminated participants' ability to perceive smaller gaze deviations into the same direction. In an ERP-study on eye gaze adaptation we found relevant direction-specific neural correlates of adaptation ~250 to 300ms and we gained interesting insight into the stability of gaze adaptation processes. In an additional study, we systematically investigated the time course of adaptation revealing that gaze adaptation processes are very long lasting (i.e. in the time range of several minutes) depending of the degree of ambiguity of the test stimulus. Two additional studies on the neural correlates of eye gaze and gender adaptation are planned for the near future. Their design will be presented and discussed as well.