

# Tips for Minimizing Head Motion during fMRI and DTI Scans

## BEFORE A SCAN:

### *Outside the scanner:*

- practice all fMRI tasks – we recommend using the simulator for this because performance can be different when lying on your back and viewing through a mirror
- if your participant is nodding their head during casual conversation, point it out to them, then show them how to talk without moving their head
- make sure your participant understands that they must not move, even their toes, throughout the entire session, and that they should breathe normally but try not to swallow too often

### *In the scanner:*

- use leg rest, sandbags, head and neck padding; make sure your participant is completely comfortable; let them wiggle to the most comfortable position then relax
- remind your participant that they must not nod their head or move even their toes; they should breathe normally and not hold their breath
- make sure stimuli on the screen are centered and clearly visible with their head in a comfortable and stable position once inside the scanner
- for some participants it may be helpful to provide some somatosensory feedback by placing a piece of tape from the chin to the head coil as a reminder not to nod

## DURING A SCAN:

- don't try to talk to your participant through the microphone during any type of scan
- talking between runs should be kept to a minimum; participants should already be familiar with all tasks before they are placed in the scanner
- watch your participant through the control room window throughout a run; if you see them moving (legs and feet will be obvious) remind them at the end of that run that they need to keep everything still, including their feet
- ask the technologist to watch the slices for motion as they are acquired; stop and repeat a scan if necessary (not all motion is visible at this stage)

*The technologist's job is to help to position your participant in the scanner, ensure the safety of everyone involved and acquire the images you need. They have not been trained in functional MRI techniques and should not be expected to troubleshoot fMRI equipment or give task instructions to your participant.*