The imaging session consisted of a 3 plane-localizing scan to determine slice volumes (10 sec), seven whole brain blood oxygenation-level dependent (BOLD) scans (5 min each), and a whole brain high-resolution anatomical scan (5 min), for a total of approximately 1 hour. Functional (BOLD) scans were started with a 12-sec at-rest baseline, followed by 64 randomized stimuli presented for 2 seconds each (with variable inter-stimuli intervals of 2-6 seconds).

Imaging was conducted in a Seimens Magnetom Trio 3T whole body MRI. All images were collected on a 32-channel phased-array head coil. The field of view of 220 × 220 mm. An in-plane resolution of 128 × 128 pixels, and 35 axial slices of 3.4 mm thickness per volume, produced voxels that were 1.7 × 1.7 × 3.4 mm. A gradient echo BOLD echo-planar imaging (EPI) sequence was used for capturing functional images, including the following parameters: TE = 24 ms, TR = 2,000 ms, flip angle = 70°. We used parallel imaging with an iPAT factor of 2. For anatomical volumes, we used high-resolution T1-weighted images, acquired with a Turbo-flash 3-D sequence, including the following parameters: TI = 900 ms, TE = 2.67 ms, TR = 1800 ms, flip angle = 9°, with 192 sagittal slices of 1 mm thickness, a field of view of 224 × 256 mm, and an isometric voxel size of 1 mm3.

We used BrainVoyager™ QX 2.2 to prepare imaging data for statistical analysis. Each participants’ anatomical volumes were stereotaxically transformed using the Talaraich atlas with an eight-parameter affine transformation. Using an intensity-based motion correction algorithm, functional volumes were realigned to the volume closest in time to the anatomic volume. We also corrected functional volumes using slice scan-time correction, 3-D spatial Gaussian filtering (FWHM 6 mm), and linear trend removal. These corrected functional volumes were co-registered to the relevant anatomical volume using an intensity-based matching algorithm, and normalized to the common stereotactic space with an eight-parameter affine transformation. Functional data were re-sampled to 3 mm3 isometric voxels. Beta weights of a random-effects general linear model (based on timing protocol of the blocked stimulus presentation, convolved with a two-gamma hemodynamic response function) were extracted from group ROIs using the VOI/ROI ANCOVA data table tool in BrainVoyager’s volume of interest module.