Supplementary Materials

Musical experience survey questions

The following questions were adapted from the Goldsmiths MSI (Mullensiefen et al 2014):

- Which title best describes you?
    1. Non-musician
    2. Music-loving non-musician
    3. Amateur musician
    4. Serious amateur musician
    5. Semiprofessional musician
    6. Professional musician

- At some point in my life, I performed or deliberately practiced music-making or dance frequently (around once a week or more).

    Yes/No

- How many years of frequent performance or practice?
    1. 1 or less
    2. 2
    3. 3
    4. 4 - 5
    5. 6 - 9
    6. 10 or more

- At the peak of my music/dance performance or practice, I dedicated approximately ___ to making music / dancing.
    1. 1 hour or less per week
    2. 2-3 hours per week
    3. 4-6 hours per week (30min - 1hr per day)
    4. 1-2 hours per day
    5. 3 or more hours per day

"Rhythm instrument" is defined as any instrument or voice being used primarily to keep time, provide rhythm for an ensemble, or create a percussive effect. This could include drum kit, beat-boxing, tap dancing, or piano/guitar accompaniment if focused on creating rhythm/groove.

- At some point in my life, I performed or deliberately practiced a specific rhythm instrument or percussive dance frequently (around once a week or more).

    Yes/No

- Years of frequent rhythm instrument / percussive dance performance or practice:
    1. 1 or less
    2. 2
    3. 3
    4. 4 - 5
    5. 6 - 9
    6. 10 or more
- At the peak of my rhythm instrument / percussive dance performance or practice, I dedicated approximately ___ hours per week to this type of performance or practice.
    1. 1 hour or less per week
    2. 2-3 hours per week
    3. 4-6 hours per week (30min - 1hr per day)

4. 1-2 hours per day
5. 3 or more hours per day

Supplementary data

In order to ensure that the results of our model fitting were valid, we also fit a simpler error correction model to the data:

$$A_{i+1} = (1 - \alpha_0)A_i + K + N_i$$

where α_0 was an error correction factor, K was a constant producing the negative mean asynchrony, and N_i was noise with mean zero and standard deviation σ_0. This model is only valid for a steady metronome, so for each participant, we fit the model to the collection of all pairs of consecutive asynchronies produced over all three *Continuation* trials. The model was fit using linear regression, as shown in Figure S1: the slope was $(1 - \alpha_0)$, the intercept was K, and the standard deviation of the residuals was σ_0.

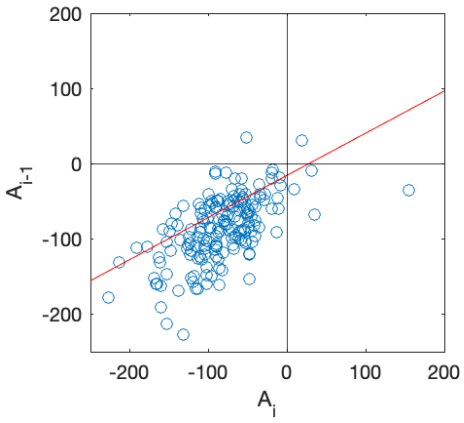

Figure S1: Linear regression was used to fit a model in which each asynchrony was linearly predicted by the previous one.

As in our previous analyses, we found no significant group difference in error correction factor α_0 (ANCOVA: $F(1,76) = 0.009$, $p = 0.927$, $\eta_G^2 = 0.00011$) but a highly significant group difference in tapping noise σ_0 (ANCOVA on $log(\sigma_0)$: $F(1,76) = 21.7$, $p < 0.001$, $\eta_G^2 = 0.22$) that in this case was more substantial than the effect of musical training ($F(1,76) = 15.0$, $p < 0.001$, $\eta_G^2 = 0.17$).

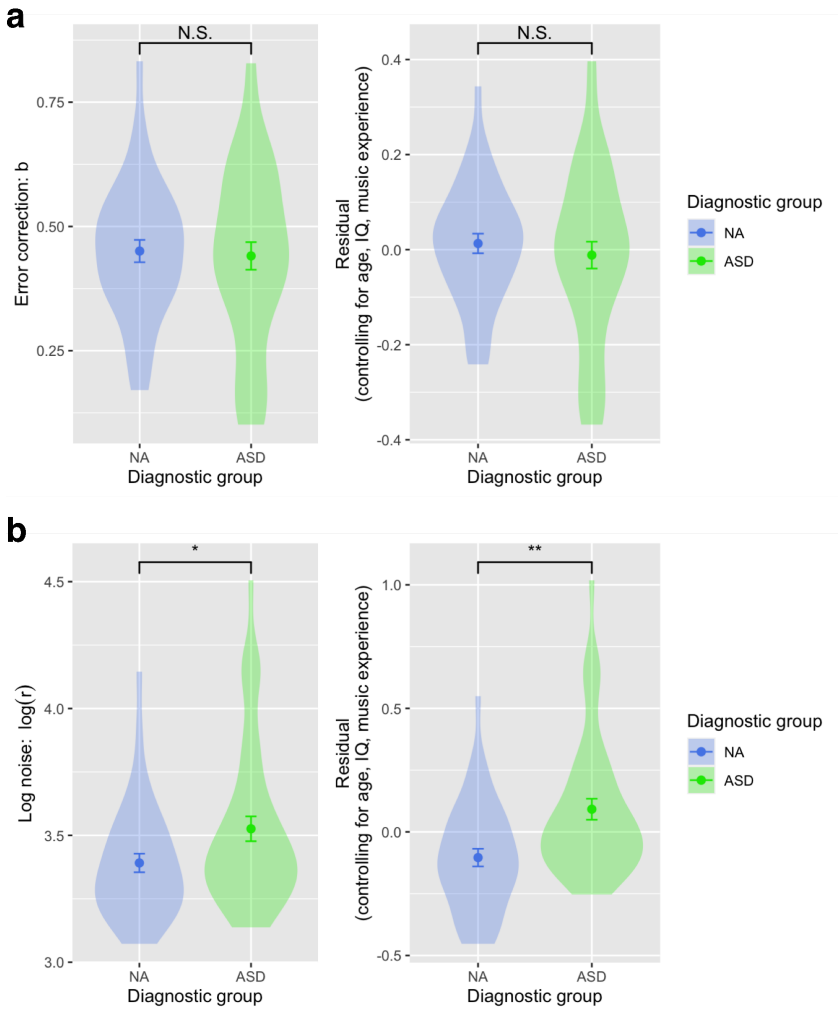

Fig S2: Fitting a simpler linear error correction model to each trial and averaging parameters over trials for each participant yielded similar results to the more complex error correction model. a) Error correction strength did not significantly differ between groups, even controlling for IQ, age, and music experience. b) In

these model fits, the ASD group showed significantly more tapping noise, with an even stronger difference after controlling for IQ, age, and musical experience.