Long-term music training modulates the recalibration of audiovisual simultaneity

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Supplemental Results

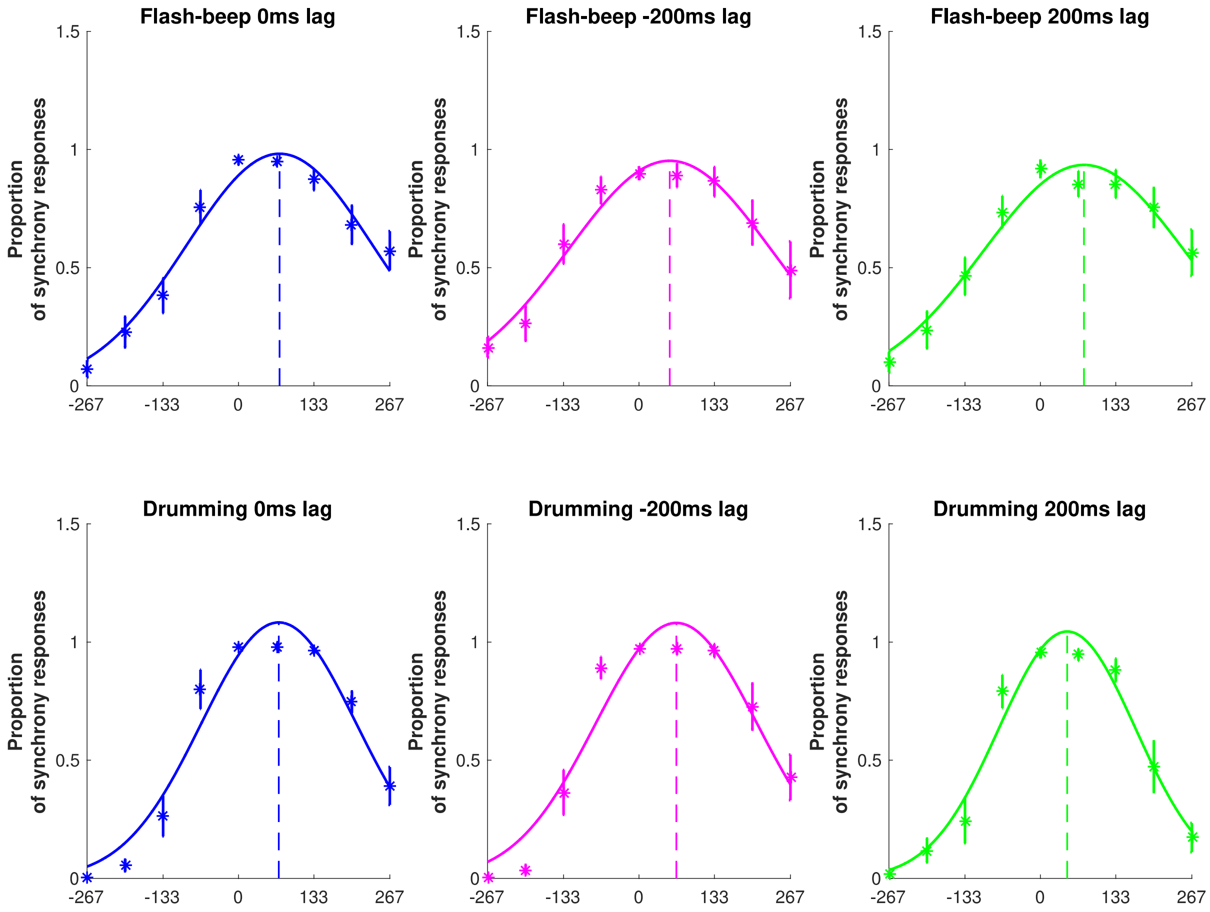

Fig S1. Fit to average proportion of "synchrony" responses as a function of audiovisual SOAs for the musicians (non drummers) group shown separately for no adaptation (blue), -200 (magenta) and 200ms (green) adaptation conditions. Results for drumming displays are shown in the bottom panels and flash-beep displays in the top panels. Solid lines represent the best-fitting Gaussian curves while the asterisks represent the average data at each audiovisual SOA. The peak of the Gaussian curves provides an estimate of the PSS (point of subjective simultaneity), marked by the dashed vertical lines, while the width of the Gaussian represents the TIW (temporal Integration window). The error bars represent the standard error of the mean.

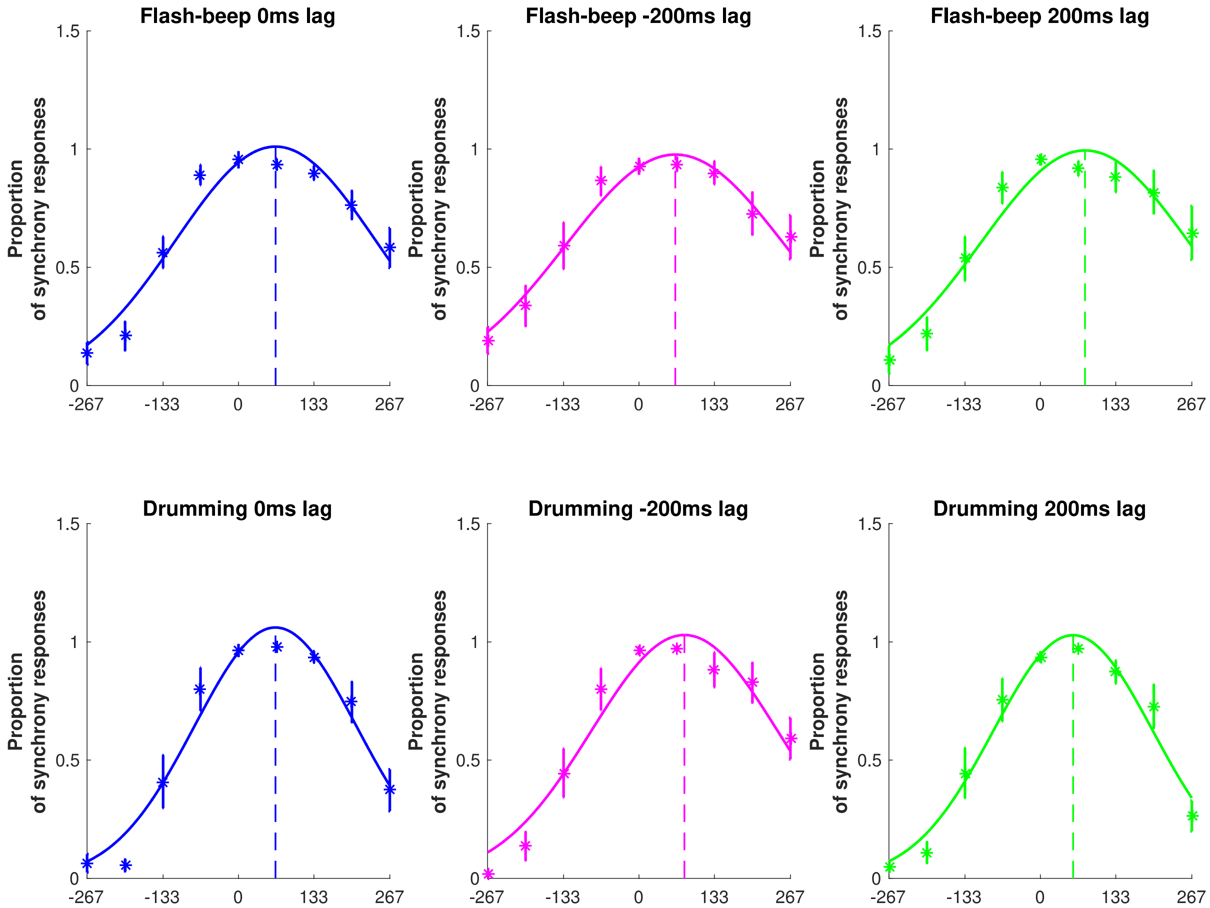

Fig S2. Fit to average proportion of "synchrony" responses as a function of audiovisual SOAs for the non-musicians group shown separately for no adaptation (blue), -200 (magenta) and 200ms (green) adaptation conditions and drumming (bottom panels). Results for drumming displays are shown in the bottom panels and flash-beep displays in the top panels. Solid lines represent the best-fitting Gaussian curves while the asterisks represent the average data at each audiovisual SOA. The peak of the Gaussian curves provides an estimate of the PSS (point of subjective simultaneity), marked by the dashed vertical lines, while the width of the Gaussian represents the TIW (temporal Integration window). The error bars represent the standard error of the mean.

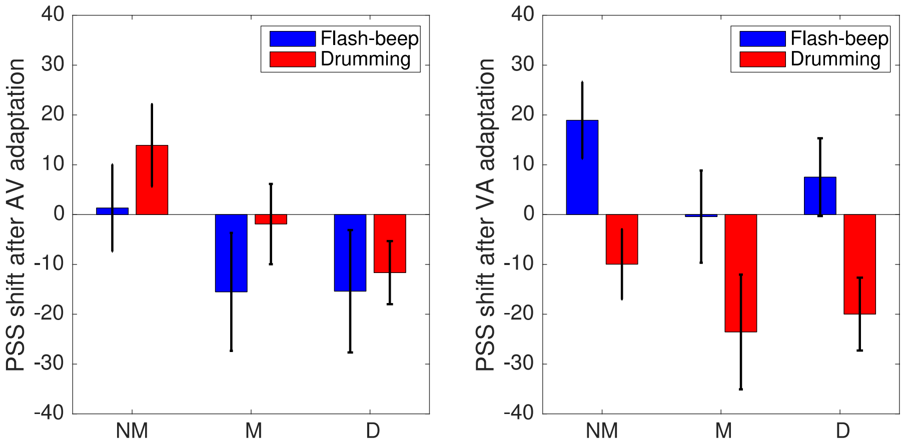

Fig S3. *Left:* PSS shift for non-musicians (NM), musicians (M) and drummers (D) after adaptation with the -200ms auditory leading fixed asynchrony lag (in blue for flash-beep displays and red for drumming displays). *Right:* PSS shift for non-musicians, musicians and drummers after adaptation with the +200ms visual leading fixed asynchrony lag (in blue for flash-beep displays and red for drumming displays). The PSS shift in milliseconds was calculated by subtracting the value of each individual PSS after adaptation from that before adaptation (i.e. from the baseline or PSS before any adaptation took place). The recalibration for musicians and drummers is mostly towards audio-leading asynchrony (negative values) for both adaptation conditions and both displays (drumming and flash-beep). For non-musicians recalibration is mostly towards visual-leading asynchrony (positive values) for both adaptation conditions and both displays (drumming and flash-beep). This trend is shown by the ANOVA results and by Fig. 1 in the manuscript. Error bars show standard error of the mean.

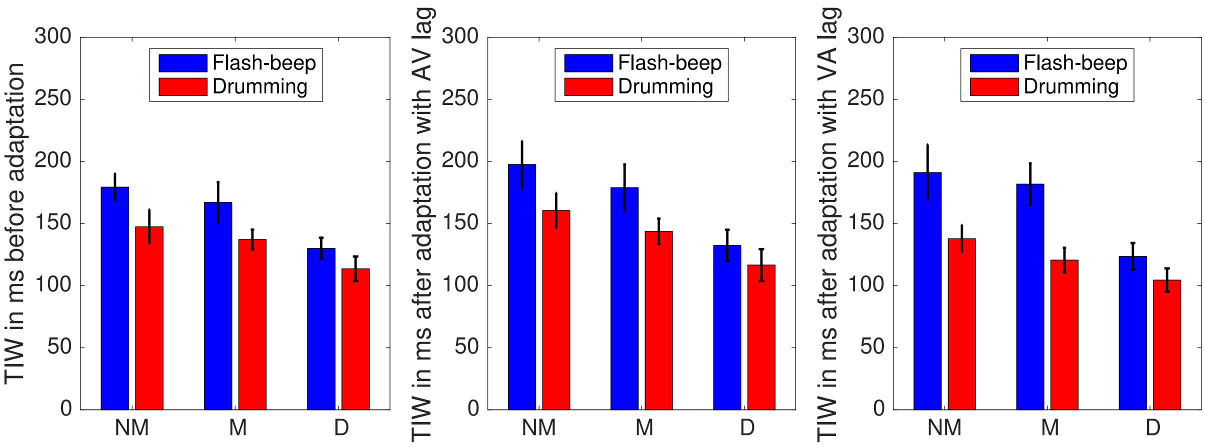

Fig S4. *Left*: TIW width for the non-musicians (NM), musicians (M) and drummers (D) in the baseline condition (before adaptation). *Middle*: TIW width for the non-musician, musicians and drummers after adaptation with the -200ms auditory leading fixed asynchrony lag (in blue for flash-beep displays and red for drumming displays). *Right:* TIW width for the non-musician, musicians and drummers after adaptation with the +200ms visual leading fixed asynchrony lag (in blue for flash-beep displays and red for drumming displays). Error bars show standard error of the mean.

Recalibration analyses for male sample only

The data for the male sample only were analysed with a mixed factorial ANOVA with group (drummers, musicians, and non-musicians) as between-subjects factor and display type (drumming and flash-beep) and adaptation asynchrony (-200 and +200ms) as within-subjects factors. We found a main effect of group, $F(2,15)= 4.860$, $p= .024$, $\eta_p^2 = .393$, a significant interaction between display type and adaptation asynchrony $F(1,15)=24.030$, $p<.001$, $\eta_p^2 = .616$, and a significant interaction of display type and group $F(2,15)=6.606$, $p=.009$, $\eta_p^2 = .468$. All other effects did not reach significance level ($F\leq.573$, $p\geq.071$). Fig. S5, left panel, shows that the effect of recalibration was very similar for drummers and musicians whose PSS shifted to an audio-leading asynchrony. The recalibration effect of non-musicians, however, was very different with their PSS shifting towards video-leading asynchrony. Fig. S5, right panel, shows that the interaction between type of display and adaptation was due to the flash-beep display inducing a PSS shift in the direction of the adapted asynchrony; that is, towards visual-leading asynchrony if the asynchrony used during adaptation had the video leading the auditory or towards audio-leading asynchrony if the asynchrony used during adaptation had the audio leading the video. In contrast, for the drumming display the PSS shifted towards audio-leading when the visual-leading asynchrony was used during the adaptation phase.

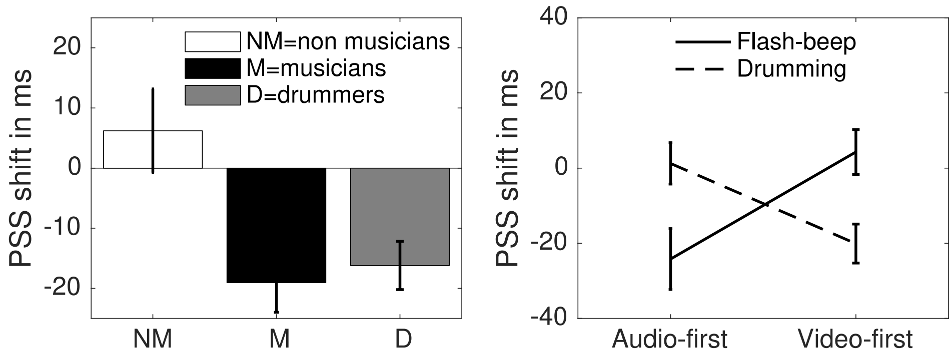

Fig S5. *Left:* PSS shift for non-musicians, musicians and drummers in the only male sample. The PSS shift in milliseconds was calculated by subtracting the value of each individual PSS after adaptation from that before adaptation (i.e. from the baseline or PSS before any adaptation took place). The adaptation for musicians and drummers was in the opposite direction to that of non-musicians. *Right:* Overall PSS shift for flash-beep and drumming displays for the audio-leading and video-leading adaptations. Error bars show standard error of the mean.