

## Supplementary material

**Table 1. Structural and functional modifications associated with PTSD in relation to the structural and functional modifications induced by playing or listening to music.**

	Modifications in PTSD		Music-induced changes	
	Structural	Functional	Structural	Functional
<b>Prefrontal cortex</b>	Atrophy (Harnett et al., 2020; Shin, 2006)	Hypoactivation (Harnett et al., 2020; Shin, 2006)	Gray matter volume of right superior and middle frontal cortex increases <b>with duration of musical practice</b> (Groussard, 2014)	Activation of the prefrontal cortex <b>when listening to happy or favorite piece</b> (Moore, 2013) Supplementary activations in the medial frontal gyrus induced by musical expertise (Groussard, 2010)
<b>Hippocampus</b>	Atrophy (Geuze et al., 2005; Logue et al., 2018; Postel et al., 2021; Woon & Hedges, 2008; Yehuda & LeDoux, 2007)	No clear pattern (Geuze et al., 2005; Yehuda & LeDoux, 2007)	Gray matter volume of the left hippocampus increases <b>with duration of musical practice</b> (Groussard, 2014)	<b>Supplementary activations induced by musical expertise</b> (Groussard, 2010)
<b>Anterior cingulate cortex</b>		Hypoactivation (Dossi et al., 2020; Fitzgerald et al., 2018)		Activation of the left ACC <b>when listening to favorable piece</b> and activation of the right ACC <b>during music improvisation task</b> (Blood & Zatorre, 2001; Moore, 2013)
<b>Amygdala</b>		Hyperactivation (Harnett et al., 2020; Hayes et al., 2012; Shin, 2006)		<b>Decreased</b> amygdala activation <b>when listening to music considered pleasant or joyful and during musical improvisation</b> (Blood & Zatorre, 2001; Moore, 2013)
<b>Fronto-hippocampal connectivity</b>	Impaired connectivity (Leone et al., 2022; Mary et al., 2020)		<b>Better top-down modulation owing to musical expertise</b> (Gagnepain, 2017a)	
<b>Fronto-amygdala connectivity</b>	Impaired connectivity (Andrewes, 2019)		Elicited by the emotional regulation provided by music. <b>Better medial prefrontal-amygdala connectivity during musical improvisation</b> (Liu et al., 2012)	