

Title	ERP elicited by deviant three-chord musical cadences Presentation Code: 17.04 Abstract Number: 891 Poster Board Number: D59
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ERP responses to musically significant stimuli can be divided into four categories, according to the applied stimuli: sounds only characterized by their pitch, definite musical products, melodic patterns, and harmonic patterns. Typical components are, together with earlier purely acoustic waveforms, the mismatch negativity (MMN, latency from 150 to 250 ms), the early anterior negativity (ERAN, latency from 180 to 270 ms), the P300 (latency of about 300 ms or longer), the N5 (latency of about 550 ms), and a later positive component (LPC). The MMN and the P300 are due to deviant stimuli in an oddball paradigm and are not specific of acoustic responses. The ERAN is obtained as a response to inputs that violate the rules of the so-called Western tonal system. The N5 has been interpreted as reflecting the harmonic integration of an unexpected chord into a preceding context. The LPC has been interpreted as a marker of musical expectancy. For bibliographic references, we here limit ourselves to referring to those mentioned in a recent review (Koelsch, 2011). We have chosen a stimulation protocol based on chord successions presented according to an oddball paradigm: the more frequent stimulus consisted in a minimum-size unambiguous cadence in accordance with the Western tonal system, precisely a succession of subdominant, dominant, and tonic chords, while a strongly dissonant chord in the deviant stimulus replaced the tonic chord. This kind of stimulus (syntactically minimal) allowed eliciting well-defined consistent ERPs from eight subjects, whose ages were in the range from 30 through 40 years. The P300 and N5 components were very large, diffused across the scalp, and their occurrence presented a high statistical significance. We introduced simple automatic methods for the measure of the average latencies of the various peaks and for an assessment of the statistical significance of the obtained results.