Individual differences in human voice pitch are highly stable

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Voice pitch is arguably the most intensively studied and salient nonverbal parameter of the human voice. As the perceptual correlate of fundamental frequency (f_o), determined by vocal fold size and tension, voice pitch is lower in adults than in children and in men than in women. However, f_o also varies considerably within these age-sex classes. Hundreds of studies have linked these individual differences in f_o to biologically and socially relevant speaker characteristics, from hormone levels and reproductive fitness to perceived dominance and trustworthiness. Given the dynamic nature of f_o, both as people age and as they speak, how stable are between-individual differences in this critical vocal parameter? In a series of within-subject and longitudinal studies, we show that individual differences in human f_o remain remarkably conserved across the lifespan and across utterances. The pitch of babies' cries predicts their voice pitch as children, and the pitch of pre-pubertal children's voices predicts their voice pitch throughout adulthood. Individual differences in voice pitch also covary among neutral speech, emotional speech, and nonverbal vocalisations such as cries and screams. Taken together, these results suggest that voice pitch, known to play an important role in social and mating success, is largely determined in early human ontogeny and has predictive power as a robust individual and biosocial marker across disparate communication contexts, with relevance to both human listeners and voice recognition technologies.