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The alarm whistle frequency is not related to age or weight in two ground squirrel species

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In most mammals, the larger body sizes of adult animals correlate with lower fundamental frequency and more closely spaced formants in their calls in comparison with juveniles. However, in alarm whistles of two free-living rodents, the speckled ground squirrel *Spermophilus suslicus* and yellow ground squirrel S. *fulvus,* lacked any cues to body size, in spite of prominent differences in body weight, skull and larynx sizes between juveniles and adults. No significant correlations was found between the individual maximum fundamental frequency and body weight, both within the age categories and for pooled sample of all animals within species. Furthermore, the mean alarm whistle maximum fundamentals did not differ significantly between the ages in the speckled squirrel and were even significantly lower in juvenile yellow squirrels. We discuss the hypothesis, that the indistinguishable alarm calls between juvenile and adult squirrels may represent a special adaptation of pup vocal behaviour - some kind of "vocal mimicry", resulting in imitation of adult vocal pattern to avoid infanticide and age-dependent predation risk. Maybe, pups with their more elastic vocal folds than in adult squirrels, may stretch them, enlarging their length. As soon as longer folds produce the lower frequency sound, this tuning of vocal apparatus allows producing lower calls that should be expected from small sizes of juveniles. This adaptation may be important for these species with widespread infanticide and age-specific predation, because age-specific predators or infanticidal conspecifics can interpret pups calling in high grass or from burrows as adults and ignore them as potential victims. Supported by RFBR (grant 06-04-48400).