This study examined changes in children’s thirst and drink preferences during exercise-induced hypohydration and their spontaneous rehydration during a 30-min recovery. Twenty-four 9- to 13-year-old children (14 females, 10 males) participated in four intermittent 90-min cycling sessions in the heat (35°C, 20% relative humidity); the sessions differed in the drinks the children were sampling (apple, orange, water, and grape). Thirst and drink preferences were assessed (analog and category scales) while children dehydrated up to about 0.76% of their initial body weight. During 90 min dehydration, there was an increase in thirst intensity for all drinks. The grape was the preferable drink throughout the dehydration phase, but its desirability did not increase as much as the desirability of the orange, apple, and water drinks. During the 30-min recovery, most subjects rehydrated spontaneously, exceeding baseline levels by 0.76 ± 0.15% (M ± SEM) for grape, 0.40 ± 0.15 for apple, 0.71 ± 0.18 for orange, and 0.48 ± 0.16 for water. Although full rehydration was achieved with all drinks, the magnitude of rehydration was statistically greater with grape and orange than water and apple (p < .05). It was concluded that mild hypohydration during exercise increased children’s thirst and drink desirability. In general, spontaneous overshoot of fluid consumption occurred during recovery.