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A Preliminary Study on the Effects of Equestrian and Basketball Exercises in Children with Autism

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Abstract : Equestrian practice is often considered having a unique effect on improving symptoms in children with autism. This study evaluated and measured the changes in daily behavior, morphological, physical function, and fitness indexes of two group children with autism by means of 12 weeks of equestrian and basketball exercises. 19 clinically diagnosed children with moderate/mild autism were randomly divided into equestrian group (9 children, age=10.11±1.90y) and basketball group (10 children, age=10.70±2.16y). Both the equestrian and basketball groups practiced twice a week for 45 to 60 minutes each time. Three scales, the Autism Behavior Checklist (ABC), the Childhood Autism Rating Scale (CARS) and the Clancy Autism Behavior Scale (CABS) were used to assess their human behavior and psychology. Four morphological, seven physical function and fitness indicators were measured to evaluate the effects of the two exercises on the children's body. The evaluations were taken by every four weeks (pre-exercise, the 4th week, the 8th week and 12th week (post exercise). The result showed that the total scores of ABC, CARS and CABS, the dimension scores of ABC on the somatic motor, language and life self-care obtained after exercise were significantly lower than those obtained before 12 week exercises in both groups. The ABC feeling dimension scores of equestrian group and ABC communication dimension score of basketball group were significantly lower,and The upper arm circumference, sitting forward flexion, 40 second sit-up, 15s lateral jump, vital capacity, and single foot standing of both groups were significantly higher than that of before exercise.. The BMI of equestrian group was significantly reduced. The handgrip strength of basketball group was significantly increased. In conclusion, both types of exercises could improve daily behavior, morphological, physical function, and fitness indexes of the children with autism. However, the behavioral psychological scores, body morphology and function indicators and time points were different in the middle and back of the two interventions.But the indicators and the timing of the improvement were different. To the group of equestrian, the improvement of the flexibility occurred at week 4, the improvement of the sensory perception, control and use their own body, and promote the development of core strength endurance, coordination and cardiopulmonary function occurred at week 8and the improvement of core strength endurance, coordination and cardiopulmonary function occurred at week 12. To the group of basketball, the improvement of the hand strength, balance, flexibility and cardiopulmonary function occurred at week 4, the improvement of the self-care ability and language expression ability, and core strength endurance and coordination occurred at week 8, the improvement of the control and use of their own body and social interaction ability occurred at week 12. In comparison of the exercise effects, the equestrian exercise improved the physical control and application ability appeared earlier than that of basketball group. Basketball exercise improved the language expression ability, self-care ability, balance ability and cardiopulmonary function of autistic children appeared earlier than that of equestrian group.

Keywords : intervention, children with autism, equestrain, basketball
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