## Introduction

Children and adolescents with Down Syndrome and Autism Spectrum Disorder (ASD) have been found to be less active and at increased risk for overweight and obesity than their peers without a disability.°²

### Hypothesis

This is a concern because physical inactivity is a risk factor for obesity and has been linked to type 2 diabetes, stroke, cardiovascular diseases, and certain cancers.³

Parents have asked for assistance from physical activity professionals – both home and community-based activities, along with setting up more opportunities in the community that their children could participate in and when they are adults.³

There is a need for well-designed, accessible, preventive health promotion strategies and interventions to help increase the levels of exercise for individuals with disabilities that take into account the unique barriers to physical activity these individuals face.⁴

### Methods

1. Conducted a literature review of peer-reviewed published research studies from 2000-present, using databases Pubmed, EbscoHost, and Web of Science.
   - Inclusion criteria for the articles consisted of a variety of quantitative and qualitative data, including clinical trials and systematic reviews.
   - About the importance, benefits, and risks of exercise for children and adolescents with Down Syndrome and Autism, effective exercises for these populations, and children’s parents’ overall reactions to help develop fact sheets and exercise program.

2. Participated in community events and learned ways to engage children with Down Syndrome and Autism, including Gigi’s Playhouse and Special Olympics gymnastics.

## Results

### BENEFITS:

Exercise can improve motor, and social skills, mental health, appropriate play, and academic performance, while helping to reduce behaviors such as stereotypy, agitation, off-task behavior, and elopement for individuals with Autism.⁵⁶⁷ For individuals with Down Syndrome, physical activity has been shown to improve the cardiovascular, musculoskeletal, metabolic, and psychosocial health, while having fun and meeting new friends.³⁸³⁹ There are also reports that exercise made positive changes in academic performance, communication, concentration, creativity, sleep patterns, motivation, encouragement, leadership skills, with decreased self-damaging behaviors.⁹

### RISKS AND PRECAUTIONS

Individuals with Autism are at an increased risk for epilepsy and gastrointestinal problems. These conditions can result in difficulty with gross and fine motor skills, frustration, and difficulty concentrating, affecting physical activity participation.¹⁰¹¹ Participation in exercise may also be difficult for some individuals with Autism because their medications can cause a number of side effects.¹²

Individuals with Down Syndrome may have other concurrent pathologies that need to be assessed prior to significant increases in activity, including increased joint mobility and risk of atlanto-axial instability, putting them at risk for many orthopedic conditions and injury of the spinal cord.¹³¹⁴ Individuals with Down Syndrome may also have an underdeveloped cardiovascular and respiratory system and be at an increased risk of congenital heart defects and anemia, which affects their health and ability to exercise.¹⁵¹⁶ It is important that caregivers consult their child’s healthcare professional prior to making significant changes in physical activity if they have any concerns about their child.

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## Conclusion

Exercise for children and adolescents with Down Syndrome and Autism is important because they are at an increased risk of obesity and related negative health outcomes. These children and their families would benefit from an increased understanding of the benefits and risks of physical activity participation. A fact sheet was created to provide families with a source of information.

Future research should explore the importance of possible barriers to activity participation and how to help the number of children with Down Syndrome and Autism who exercise, but more needs to be done. Families would benefit from having more information about the resources that are available and community opportunities or programs that the child can participate in and continue that healthy lifestyle into the future.

By providing all of the child’s caregivers with the resources to encourage the child to exercise, we can improve their overall health, by decreasing their risk of obesity and other medical conditions, while often improving their social skills, academic performance, mental health, and overall behavior, and maybe enjoying themselves. An exercise program was created to offer parents exercises that they can do at home with their child.

## References