# CLIMBING TOGETHER: INCREASING CLIMBING GYM STAFF SELF-EFFICACY AND KNOWLEDGE FOR WORKING WITH INDIVIDUALS WITH INTELLECTUAL AND DEVELOPMENTAL DISABILITIES THROUGH AN EVIDENCE-BASED, OCCUPATIONAL THERAPY MANUAL

A Thesis submitted to the faculty at Stanbridge University in partial fulfilment of the requirements for the degree of Master of Science in Occupational Therapy

by

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## Dedication

To Lisette and her love for big adventures.

## Abstract

Participating in indoor rock climbing has demonstrated a multitude of benefits for individuals of all abilities who choose to climb for competition, for sport, or even to try something new. Even so, there is a notable gap in equipping traditional rock climbing environments to be fully accessible to individuals with intellectual and developmental disabilities (IDD), which could limit this population's participation and enjoyment of the activity. This study aims to create an evidence-based occupational therapy (OT) manual to provide training surrounding development and social engagement for individuals with IDD to increase the self-efficacy of climbing gym staff in interacting with these individuals. This study utilized an in-depth literature review to gather sources centered on educating gym staff to support climbers with IDD. The manual, included in the appendix, was created for individuals over 18 working in climbing gyms in Southern California. It introduces the IDD population, the benefits of rock climbing for individuals with IDD, a variety of proactive communication strategies, reactive strategies for coping and regulation, and opportunities to make climbing gyms even more accessible. A continuation of this project is necessary to disseminate the manual and determine its effectiveness in improving gym staff members' self-efficacy and retention of the skills provided using the modified Teaching Students with Disabilities Efficacy Scale (mTSDES) and a knowledge check that we created.

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# Climbing Together: Increasing Climbing Gym Staff Self-Efficacy and Knowledge for Working With Individuals With Intellectual and Developmental Disabilities Through an Evidence-Based, Occupational Therapy Manual

Imagine achieving new heights in both sport and inclusivity, where rock climbing not only strengthens physical and mental states but also empowers every individual, regardless of their ability. This vision motivates an essential exploration to improve accessibility and support for individuals with intellectual and developmental disabilities (IDD) in the dynamic field of rock climbing. According to the National Institute of Child Health and Human Development (2021), intellectual disability is characterized by difficulties with intellectual functioning, such as the ability to learn, reason, problem solve, and other skills, in addition to differences in adaptive behavior. Developmental disabilities are a category that also presents lifelong challenges in intellectual and physical functioning. IDD is the umbrella term used to describe situations in which intellectual delay and developmental disabilities are present.

Rock climbing has become a very popular sport that has even been included in the Olympic Games as of 2020 and is in the works for being included in the 2028 Los Angeles Paralympics (Burgman, 2023). Indoor or outdoor rock climbing serves as both a competitive sport and a recreational activity, accessible to participants at any skill level for one's enjoyment. Engaging in this activity allows individuals to enhance their performance at work, influence their confidence to succeed in their occupations, and increase their overall satisfaction with the sport (Vreuls et al., 2022). Research indicates that participation in rock climbing impacts skill development in various domains such as strength, balance, flexibility, endurance, social, attention, and decision-making (Schram

Christensen et al., 2017). Furthermore, rock climbing offers increased engagement in career and educational pursuits, contributing positively to overall well-being. Rock climbing promotes physical activity, participation, enjoyment, and development of social interaction and motor skills (Vreuls et al., 2022). Unfortunately, there is a notable gap in research in equipping traditional rock climbing environments to be fully accessible to individuals with IDD, which could limit this population's participation and enjoyment of the activity.

Occupational therapy (OT) is uniquely positioned to address the central issues of accessibility and participation in rock climbing for individuals with IDD, by offering unique strategies and interventions that promote inclusivity and meaningful engagement in this activity. When individuals engage with their surroundings, factors such as their attitudes, knowledge, and interests have the power to either facilitate or hinder their involvement in meaningful activities. These factors can pose challenges or offer assistance and resources for providing services (American Occupational Therapy Association [AOTA], 2020). Rock climbing gym staff might find it more challenging to facilitate and foster engagement for individuals with IDD due to cognitive delay, physical impairment, or temperament. As a result, those with IDD may not engage in activity due to the lack of support that they experience outside of specialized facilities that are appropriately equipped with resources and have adequately trained staff that can tailor to their needs (Simons et al., 2020).

To increase the self-efficacy of climbing gym staff, as well as their specialized knowledge and skills, we created an evidence-based OT manual to provide training surrounding development and social engagement for individuals with IDD. In developing

our manual, we built upon the work of a previous thesis group from Stanbridge University—Lauren Chetwood, Andrew Hahn, Kianna Ugalde, and Jamie Wilson, under the guidance of Dr. Kaitlin O'Hara—who conducted a live presentation on a similar topic (Chetwood et al., 2023). We have also adopted the same scale for measuring self-efficacy, the modified Teaching Students with Disabilities Efficacy Scale (mTSDES), used in their study as it aligns with our research objectives. Our manual aims to follow a structure that highlights the performance skills listed in the "Occupational Therapy Practice Framework 4th edition" (OTPF-4): process skills, motor skills, and social interaction skills as they are influenced by psychosocial improvements (AOTA, 2020). This directly aligns with the Stanbridge University Masters of Occupational Therapy's mission to promote diversity by using an occupation-based focus to advocate for the inclusion of an underserved population of individuals with IDD through relevant training aimed to support gym staff by increasing their self-efficacy in working with this population (Stanbridge University, 2024, "MSOT general information").

In addition, this manual looks to contribute to the AOTA "Vision 2025" by enhancing the quality of life for individuals with IDD through the distribution of an effective resource that can facilitate their participation in everyday living (AOTA, n.d.). To align with the AOTA research agenda, this manual integrates current research findings on effective strategies to enhance climbing gym staff's competencies in supporting diversity, inclusion, and equity for individuals with IDD. By incorporating evidence-based practices, it aims to contribute to the advancement of occupational therapy knowledge, effectively promote societal participation, improve the quality of life

for this population, and fulfill AOTA's "Vision 2025" goals for improving outcomes and inclusivity (Occupational Therapy Education Research Agenda–Revised, 2018).

## Statement of Problem

Due to insufficient training and education within gym facilities, staff members may face challenges in offering appropriate assistance and accommodations for individuals with IDD participating in this activity. The purpose of this study is to provide an evidence-based OT manual aimed at enhancing the self-efficacy and knowledge of climbing gym staff working with individuals with IDD. This manual serves as a comprehensive educational resource, addressing the unique characteristics of this population, common deficits, and specific training needs to effectively assist in areas of communication strategies, behavior support techniques, and overall inclusivity methods. Additionally, the manual highlights the specific challenges individuals with IDD may face in engaging in rock climbing activities, such as limited motor skills and sensory sensitivities, by providing practical strategies and tools to address these areas. With this manual, climbing gym staff can familiarize themselves with the knowledge, strategies, and methods necessary to support these individuals effectively.

## Literature Review

Rock climbing has been rising in popularity among youth and young adults (Gallotta et al., 2015). It was previously a niche activity pursued by a small group of athletes and has since evolved into a sport that anyone can start. Rock climbing has increased in popularity due to the rising number of indoor rock climbing gyms as indoor gyms pose the advantages of being a more controlled environment, being safer, having adjustable difficulties, and fostering a sense of predictability compared to outdoor rock

climbing environments. Since the sport is relatively new, it has the challenge of being inclusive to everyone, especially those with disabilities. A variety of studies indicate that interventions that include physical activity promote improvements in process skills, motor skills, and social interaction skills (Bibro et al., 2023; Boudreau & Gibbons, 2019; Franco et al., 2023; Frühauf et al., 2021; Gallotta et al., 2015; Kashi et al., 2023; Korkusuz & Top, 2021; Pan et al., 2017). Occupational therapy practitioners (OTPs), have the unique opportunity to explore and appreciate the impact of indoor rock climbing and other physical activities on the body and mind, for both leisure and intervention purposes. Building on this foundation, we created a manual to be shared amongst many rock climbing gyms so the staff can have the knowledge and skills to work with individuals with IDD to increase accessibility to the sport.

**Rock Climbing Improves Process Skills**

Several studies have addressed how individuals with IDD demonstrated improved cognitive performance after intervention techniques were applied to adapt indoor rock climbing to better suit the needs of the population. Korkusuz and Top (2021) implemented a 14-week training program that utilized the Test of Attention, Benton Visual Retention, and Bruininks-Oseretsky Test of Motor Proficiency-2nd version to note improvements in concentration, visual retention, perception, and attention in participants. While Korkusuz and Top focused on evaluating the combined effect of physical activity and attention training, Franco et al. (2023) further discussed how the quality of life for people with IDD is impacted by physical activity, whether it is non-regulated physical activity or sports activities. Through the use of a questionnaire and the Comprehensive Assessment of the quality of life of People with Intellectual or Developmental

Disabilities Scale, the participants in the study who practiced sports showed higher values in physical, emotional, and psychosocial well-being (Franco et al., 2023). Pan et al. (2017) implemented a training program that measured three indices of the Wisconsin Card Sorting Test executive function (i.e., total correct, perseverative response, and conceptual-level response). Six raw scores from the Wisconsin Card Sorting Test (i.e., total correct for overall performance, perseverative responses for the number of responses regardless of correctness, perseverative errors for the number of errors made after a rule change, conceptual level response for insight into sorting principles, categories completed to indicate correct shifting, and non-perseverative errors to reflect incorrect shifting) were used to test the presence of improvements in executive functioning after participation in a physical activity intervention. The researchers further noted a positive impact of physical activity interventions on cognitive control and executive function. All three studies contributed knowledge to how process skills are improved in individuals after participation in structured physical activity, such as rock climbing, by nodding to improvements in retention consistent with changes within brain regions and positive effects on physical fitness, mood states, and anxiety, respectively, creating an overall better quality of life (Franco et al., 2023; Korkusuz & Top, 2021; Pan et al., 2017).

Furthermore, sports activities that promote the relationship between motor development and cognitive functionality result in more positive outcomes than studies that target one area in isolation (Korkusuz & Top, 2021). Other researchers noticed that climbing requires an athlete to have good physical abilities such as strength, agility, balance, and mental control (Gallotta et al., 2015). Pan et al. (2017) sought to evaluate motor skill proficiency and executive function improvements in children with autism

spectrum disorder (ASD) over a 12-week table tennis exercise program in conjunction with the sustained effects of the intervention. For the purpose of the program, the researchers did not feel the need to teach all of the rules of table tennis, since there was not yet mastery of skills for a regulated match; instead, the training focused on the manipulation of the temporal and spatial characteristics of the task and the ability to utilize body feedback to understand the outcome of movements to anticipate upcoming events. These skills are beneficial to rock climbing abilities by contributing to an awareness of the body in space to adjust balance, posture, and weight shift along the wall with the anticipation of what will happen on the next reach.

Emotions also impact rock climbing performance, and an optimal level of anxiety is necessary to facilitate successful climbs (Gallotta et al., 2015). Anxiety levels are shown to impact climbing duration and the number of movements; strategies in familiarizing individuals with gear and rope management, acquiring footwork and route finding, and locating good belay spots and resting positions while climbing are central to emotional regulation throughout climbs. Physical activity has been demonstrated to positively impact the cognitive well-being of individuals with IDD by increasing self-determination, self-efficacy, and independence (Franco et al., 2023). Engaging in various physical activities can enhance self-determination for individuals with disabilities by promoting independent decision-making and improving process skills.

**Motor Skill Benefits of Rock Climbing**

Other studies addressed how the application of multiple-week physical activity programs as interventions targeted motor outcomes for individuals with ASD and IDD, which could be integrated into the foundational knowledge of a training manual. In the

study conducted by Korkusuz and Top (2021), participants engaged in a 14-week training program that emphasized both physical activity and attention training. Following this training, the researchers observed enhancements in fine motor skill integration, manual dexterity, and upper-limb coordination skills among individuals with IDD. Pan et al. (2017) focused on a 12-week table tennis intervention on motor skill proficiency and executive function of 22 boys with ASD, which noted significant interaction effects and improvement in three motor area composites (i.e. manual coordination, body coordination, and strength).

On the other hand, Bibro et al. (2023) concentrated on a 15-week climbing program that specifically targeted static and dynamic balance. For individuals with IDD, more functional tests and intervention techniques proved to be the most beneficial in improving climb retention and the ability to feel one's body in space to make appropriate postural adjustments in climbs. In a study conducted by Kashi et al. (2023), the researchers implemented a structured physical exercise intervention over the course of 12 weeks to improve both motor and social interaction development among adolescents with IDD. They noted improvements in various aspects of motor proficiency, including overall motor proficiency of Bruininks-Oseretsky Test of Motor Proficiency, gross motor proficiency, fine motor proficiency, and upper limb coordination scores, among those who participated in the exercise program. Researchers highlighted the potential for individuals with IDD to enhance their motor skills through participation in a rock climbing program and transferring the application of these skills to perform activities of daily living. Bibro et al. (2023) emphasized that the ability to maintain a stable body position in individuals with IDD is lower than that of the general population, so the

integration of activities like rock climbing promoted neuroplasticity for postural control and dynamic balance. Each study contributed knowledge to how physical activity-based programs improve motor skill proficiency in association with continued climbing participation. By understanding the motor benefits of rock climbing on the IDD population, a manual can be created to give gym staff the tools to work with these individuals and further establish their motor skills in climbs.

**Growth in Social Interaction Skills Influenced by Psychosocial Improvements**

Several studies addressed the psychological effects of climbing as a training program, such as self-esteem, fears and limits, focus, and motivation; gains in these areas translate into more successful communication skills. While Boudreau and Gibbons (2019) focused on the self-efficacy of a high school class throughout their rock climbing program, Frühauf et al. (2021) assessed the perspectives of various professionals on the expected effects of therapeutic climbing. Each study contributed to knowledge of the psychological effects of rock climbing by exploring the fundamental changes that happen in the mental state through the implementation of a climbing program and how those changes could be applied to other daily activities. In the research conducted by Gallotta et al. (2015), the intervention spanned three months, during which researchers conducted pre- and post-intervention evaluations. Researchers compared the psychophysical effects of anxiety, functional fitness, and mood states in rock climbing in healthy adults. These interventions aimed to explore the psychophysical effects experienced by individuals during a rock climbing group or fitness group. The findings revealed a notable improvement in mental fortitude and a reduction in anxiety levels across both groups.

When considering the implications of self-efficacy, Boudreau and Gibbons (2019) utilized Bandura's four sources of influence: mastery experiences, vicarious learning, verbal persuasion, and affective states. The achievement of each of these sources of influence was necessary despite the level of the climbers (novice, intermediate, or experienced). Throughout the duration of the program, increases in self-esteem were reflected in students' journals, where they noted enjoyment for the sake of climbing, the usefulness of a positively challenging environment, the motivation cultivated through effective goals, and the increase in confidence when they were entrusted with teaching their peers. Frühauf et al. (2021) explained that through the duration of a climbing program, experts expected to see changes in self-esteem due to familiarity with routes and increased body awareness. Fears and self-perceived limits of capability were overcome and let go in a safe environment, where attention and concentration are enhanced. Both groups of researchers expected to see that the psychological improvements would be transferable to other life aspects.

**Remaining Gaps in Evidence**

The goal of creating a comprehensive training manual is to provide climbing gym staff with the knowledge and skills necessary to support individuals with IDD effectively in their gyms. Korkusuz and Top (2021) found that when they gave their participants attention-enhancing activities, they had stronger perception and attention when completing new tasks. Another correlation they found was when they placed their groups into a physical activity program, those participants had increased motor skill development and process skill functionality. Korkusuz and Top, and Gallotta et al. (2015) showed that different programs were able to enhance the overall skills of their participants in physical

activity-based outcomes in addition to their mental well-being. Bibro et al. (2021) discussed the effectiveness of the specific training plan for those individuals with IDD; one of the groups worked with children with cerebral palsy, and those children showed significant improvement after working with the proper climbing plan that looked at improving overall static and dynamic balance. Kashi et al. (2023) noted the fact that even with the improvements in education, individuals with IDD are not presented with ample opportunity to participate in physical activity; even still, many teachers and trainers are ill-equipped to create or implement suitable training modalities for this population.

While each study is beneficial in its contribution to knowledge, there is an overarching issue with the ability to generalize the findings to broader populations of individuals with IDD and formulate this information into a standardized training manual. In addition, there is a disconnect between the benefits of physical activities for the IDD population and the number of public spaces accessible for individuals with IDD to participate meaningfully. Due to the lack of available knowledge and training on how to navigate and facilitate the IDD population in public gym spaces, gym staff often exclude individuals with IDD from participating in activities at the same level as their neurotypical counterparts. The purpose of creating a training manual is for it to be accessible to a variety of gyms with different climbing walls and different instructors in a way that generates the same outcomes. With the understanding that process, motor, and social interaction skill improvements parallel each other in generating successful climbs, the aim is to generate a training manual that encompasses these themes and builds upon them. The goal is to create material that can be repeatedly referenced to increase knowledge availability and support the IDD population in indoor rock climbing gyms.

**Clinical Significance**

After reviewing the above articles, we identified the correlation between physical activities, such as rock climbing, and improvements in process, motor, and social interaction skills for individuals with IDD. By identifying ways in which climbing or other similar activities can help improve these skills and the effects of inclusion, we could use this as a foundation to train rock climbing staff members to work with those individuals with IDD properly. As this literature review indicates, there is a correlation between the effectiveness of physical activity on different states of cognitive functioning, overall motor control, and areas of self-perception. Individuals with IDD have areas of fine and gross motor deficiencies, memory or perception difficulties, and shorter attention spans. While there are notable benefits for individuals with IDD participating in physical activities, there is a gap in accessibility to these programs and a lack of trained staff to support individuals with IDD who step into the gym environments. There is a need for understanding those with IDD as individuals, how to support them, and training others to be able to guide them through a novel activity. Being able to teach those who will be working with these individuals is an important step toward strengthening those deficiencies and giving back independence to individuals with IDD.

With our manual, we leave a collaborative resource to educate gym staff about addressing deficits and behavior strategies to improve their ability to support climbers with IDD. Using this understanding, we established effective protocols for working with individuals with IDD to provide gym staff with an educational resource to expand their indoor rock climbing spaces to be more inclusive to the IDD population. We considered all the implications in the studies and worked with new outcomes to try and push through

these limitations. Understanding what has proven successful and what has not, should help establish the common ground that can benefit those who come across this research study.

## Statement of Purpose, Hypothesis, and Research Question

The purpose of this research study was to design and implement a robust evidence-based OT manual through an in-depth literature review that targets staff at climbing gyms to increase their self-efficacy and knowledge for working with individuals with IDD. Research studies have explored the benefits of rock climbing for individuals with IDD in various domains: process skills, motor skills, social interaction skills, emotional gains, and quality of life improvements (Gallotta et al., 2015; Korkusuz & Top, 2021). As OTPs, we have the opportunity to explore and appreciate the impact of indoor rock climbing and other physical activities on the body and mind for both leisure and intervention purposes. Using this understanding, we established effective protocols for working with individuals with IDD with the intent of providing gym staff with an educational resource to expand their indoor rock climbing spaces to be more inclusive to the IDD population. The central research question guiding this study is: Does implementation of an evidence-based occupational therapy manual increase the self-efficacy and knowledge of rock climbing gym staff in working with individuals with IDD? After creating the manual, a future thesis group may implement it and test its effectiveness. During the testing phase, we propose that the staff members report levels of improved self-efficacy and demonstrate improved knowledge of practices in working with individuals with IDD in the gym through increased scores on the mTSDES and through a knowledge exam created based on the content in the manual.

## Theoretical Framework

The occupational adaptation (OA) frame of reference is the foundation for the development of the manual for gym staff in indoor rock climbing gyms that are located in Southern California. According to the AOTA (2020), occupations are central to an individual's health, identity, and sense of competence and hold meaningful value to the client. The AOTA further defines occupations as the everyday activities that people do independently, with families, and/or with communities to occupy time and provide meaning to one's existence. Occupations occur in contexts and are perceived to have utility to the client.

The OA frame of reference is a comprehensive model that is not targeted toward a specific population and has a heavy focus on the process of adaptation (Cole & Tufano, 2020). The adaptation cycle features the person, their occupational environment, and the subsequent interaction between the person and the environment. Instead of focusing on the occupation of climbing, it focuses on therapeutic changes and the adaptations the gym staff should make. Researchers from the Netherlands utilized information on how the trainers' context and perceptions about the IDD population influenced the levels of participation and willingness to climb experienced by gym goers with IDD (Simons et al., 2020). Using the OA frame of reference, we can foster the need for mastery over the information in the training manual to successfully integrate the environment and the individual (Cole & Tufano, 2020). Throughout the manual, the OA sub-processes of adaptive response generation, adaptive response evaluation, and adaptive response integration will all be critical components in training a gym staff to work across clientele and between each other to produce similar results. In its application, occupational

functioning reflects an external behavior outcome that is a direct result of the adaptation process to face the occupational challenge, and dysfunction of the manual would be evident if the gym staff demonstrated an inability to adapt their techniques to integrate individuals with IDD. According to the OA frame of reference, there are four key components to consider when assessing mastery: efficiency, effectiveness, satisfaction to self, and satisfaction to society.

The implementation of the OA frame of reference begins with the occupational challenge of addressing a population that requires more careful management and that needs to be more understood than a standard population. The gym staff should overcome occupational barriers when they interact with clientele that have IDD, even if they do not have the resources, allowing them to interact appropriately within the gym environment. The gym staff members take on the challenge of integrating individuals with IDD into climbing sessions in order to gauge their performance as effective trainers. To promote and foster understanding for those with IDD, a study conducted by van Oorsouw et al. (2009) supported a staff training program to improve their emotional intelligence and awareness of behavior toward clients based on interactional patterns. In reference to our objective, the gym staff should achieve occupational functioning with a degree of improved self-efficacy in addressing individuals with IDD who were to participate in their gym. The OA frame of reference further notes that occupational role behaviors and expectations of the gym staff are shaped by their internal values and external social standards to meet self-expectations of being able to integrate the information they learned (Cole & Tufano, 2020).

## Methodology

Prior to the creation of the manual, we conducted a thorough literature review to identify the benefits of indoor rock climbing for the IDD population in terms of process, motor, and social interaction skills, as well as how to best support the IDD population. As the project progressed, we continued to gather research to reinforce our purpose of teaching gym staff how to support the IDD population effectively. To collect research for the manual, we used a variety of databases. These databases included EBSCO databases: CINAHL Complete, Academic Search Complete, MEDLINE Complete, PsycINFO, Education Resource Information Center (ERIC); and non-EBSCO databases: Cochrane Library, UCR and CSUSB databases, Lean Library, Sage Journals, Elsevier, and Google Scholar. We collected information from the articles and structured it into the manual as we created it. We focused on categories based on process skill development, motor skill improvements, and social interaction skill gains. Furthermore, these categories reflect the three areas of performance skills in the OTPF-4.

We utilized the following inclusion criteria in the search for information: studies that focused on the benefits, challenges, and considerations for individuals with IDD participating in indoor rock climbing; information on effective strategies for educating and training gym staff to work with IDD individuals, including practical techniques, communication strategies, and adaptations; and research that investigated the effectiveness of training programs in improving gym staff's knowledge, skills, and attitudes towards supporting individuals with IDD. Within the manual, we excluded other recreational activities, adaptations, or any training objective not applicable to indoor rock climbing. We also excluded content created before 2005, not at the level of training for

gym staff, and content that may raise legal or ethical concerns with occupational safety standards.

A variety of studies indicated that interventions that include physical activity promote improvements in process skills, motor abilities, and social interaction skills (Bibro et al., 2023; Boudreau & Gibbons, 2019; Franco et al., 2023; Frühauf et al., 2021; Gallotta et al., 2015; Kashi et al., 2023; Korkusuz & Top, 2021; Pan et al., 2017). Upon searching the databases at our disposal, we found the amount of information about the IDD population participating in gym spaces underwhelming, as well as the lack of inclusion of this population in community-based physical activities. To address this gap, we worked to identify strategies on how to educate climbing staff on how to support the engagement of the IDD population in the activity of indoor rock climbing by compiling the information into a training manual to distribute to climbing gyms in Southern California.

We recommend that a future thesis group should disseminate the manual and test the manual's effectiveness through a knowledge check and an efficacy scale (mTSDES). The knowledge check and mTSDES can also provide a means of gathering feedback to make any changes to the manual. In areas where the phrase “future student researchers" is used, we highlighted what we expect a future thesis group to do; the phrase “we” was used to describe what our current thesis group created in this project. We tailored the following considerations to those expectations

**Population**

The manual's target population is the gym staff of Southern California climbing gyms. This criterion excludes gyms used for other recreations and has a rock climbing

section since staff within those gyms may rotate positions, and training can be conflicted or inadequate to support the activity fully. In the later dissemination of the manual by future student researchers, the participants should be adults 18 and over who volunteer to participate in the study. The sample size should consist of gym staff members who are directly involved in facilitating rock climbing activities within the gym. All the participants should be volunteers from these gyms, aiming to make the manual as widely available as possible for those with IDD pursuing rock climbing. Some exclusions in gathering the population for the manual's dissemination should include gym locations that include other recreational activities and have a rock climbing section since training styles and staffing may conflict, rock climbing gyms outside of Southern California, the manual being made only in English, and no staff or volunteers under the age of 18 should be included in evaluating the efficacy of the study even if the gym employs individuals under 18.

**Project Method**

We developed a comprehensive manual designed to enhance the self-efficacy of climbing gym staff in effectively working with individuals with IDD. To support this initiative, we continuously reviewed relevant literature to gather information for the final creation and implementation of the manual. The manual consists of eight main sections, each containing its own sub-sections, along with case studies, references, and four appendices. The eight main sections are as follows: "Introduction," "Communication Strategies," "Reinforcement," "Feedback," "Strategies for Coping and Regulation," "Setting Modifications for Sensory Needs in the Climbing Gym," "Review," and "Knowledge Check." The introduction section describes how the manual utilizes

evidenced-based OT techniques to promote the inclusion of individuals with IDD in rock climbing gym spaces. The manual contains case study scenarios that gym workers might face while interacting with an individual with IDD in their gym. These scenarios are meant for the gym staff to reflect on the section they just previously read and mentally apply the techniques. The manual is intended to be read in about 30 to 60 minutes and includes post-administration tests at the end. Future student researchers may take the next steps by measuring self-efficacy levels using a pre-and post-dissemination of the mTSDES and evaluating knowledge retention through a post-dissemination knowledge check. The goal is to improve the staff's levels of self-efficacy by providing targeted training and skill modulations to meet the needs of climbers with IDD. Additionally, the post-test materials feature a feedback section, allowing staff to share their suggestions for improvement, which future researchers can use to refine the manual.

**Outcome Measures and Knowledge Check**

As an intended next step for future student researchers, they should administer a post-manual knowledge check to assess the retention of information in the manual as well as the distribution of the mTSDES before and after the dissemination of the manual (Dawson & Scott, 2013). With permission from Dr. LaRon A. Scott, some of the terminology has been adjusted to best fit a climbing gym's environment to maintain the scale's integrity. We used the same language as the previous group mentioned prior, so that the student researchers that come after us can potentially compare the changes in the mTSDES between the live presentation and the manual. Implementing the pre-and post-test scale should provide a means to measure the effectiveness of the manual through the changes in staff self-efficacy levels.

The purpose of the knowledge check is to determine if information from the manual has been retained for later application if an individual with IDD were to come into the gym space, another way to determine the manual's effectiveness. To prevent bias, we suggest that future student researchers propose not to inform the participants about the implementation of the knowledge check. The participants' feedback can help future research determine whether the manual was effective and achieved its objectives.

**Advantages of Methodology**

This method can increase the potential for use and broaden the potential for more gyms to be better equipped to support the underserved IDD population. As a result, individuals with IDD should be able to participate in physical activities, such as indoor rock climbing, to improve their process skills, motor skills, self-esteem, and community integration (Boudreau & Gibbons, 2019; Pan et al., 2017). This manual could pave the way for future projects to build upon and expand into other fields, ensuring better representation of individuals with IDD in all aspects of life.

## Results

In designing our manual, we assumed that a high school education was the minimum requirement to work at the rock climbing gym. As a result, all verbiage, diagrams, and tables were structured in consideration of this audience to make the information accessible to the masses. The manual will appear as an appendix of this manuscript.

The first section of the manual is the "Introduction," where we explain the purpose, why we created the manual based on the gaps in research that we found, and how we, as OT students, are equipped to create this resource. In the first subsection, we

clarify how to recognize and support individuals in the climbing gym with IDD. After defining IDD and its prevalence in the U.S., we put together a table that includes common IDD diagnoses along with their signs and symptoms. In doing this, we emphasized that these are general statements; not every individual with IDD presents the same way, and it is important to refrain from making assumptions about potential diagnoses based on behaviors observed in the gym. The remainder of the section lists the benefits of rock climbing for the IDD population based on pieces of information from our literature review. To end the introduction section, we restate why we created the manual and thank those who will read and use the manual's contents to assist individuals with IDD.

The "Communication Strategies" section of the manual describes strategies gym staff can implement to promote positive interactions between gym staff and individuals with IDD. Within this section there are five subsections and three case studies to apply the information. We initially describe different types of language choice and how facial expressions, gestures, and modeling can be effective communication tools for individuals struggling with traditional conversation. Next we outlined why some individuals may utilize a communication device and how the caregiver/parents can support staff to better interact with the climbers. We also include a table that details different types of common communication devices that gym staff may see climbers carrying and how those with IDD use them. Nevertheless, some climbers may face communication challenges and may not have access to a communication device. To address this, we incorporated a table summarizing common American Sign Language gestures that can be applicable to the gym space, along with other ways to guide nonverbal communication in the form of cue

cards. This section further details how to break down instructions into more simplistic forms to promote effective communication and improve attention along with practical examples. The “Reinforcement” sub-section outlines various positive reinforcement strategies that gym staff can use when interacting with the climbers, directly or in collaboration with their caregivers or parents. We discuss how to incorporate verbal praise, gestures, and tangible rewards proactively to mitigate potential situations in which dysregulation can arise. The “Feedback” sub-section further supports the above strategies. We clarify the distinctions between direct, concise, and timely feedback and guidance on how to implement each type. We integrated these concepts in a case study to provoke ideas on how to apply the listed strategies and how each of them is used differently. These two sections conclude with a small summary to restate the goal of the manual and the use of the proactive strategies in the above sections.

The next main section of the manual, “Strategies for Coping and Regulation,” summarizes reactive strategies that gym staff can use in the gym space to navigate instances of dysregulation in those with IDD safely. While the preceding portions of the manual equip gym staff with proactive strategies, dysregulation is not entirely preventable, and it is pivotal to equip the gym staff with strategies to safely navigate these scenarios. The table features three main signs of sensory overload (social/physical engagement withdrawal, aggression, and self-stimulation) along with coping strategies for each of these areas.

The latter part of the manual, “Setting Modifications for Sensory Needs,” integrates suggestions to further promote accessibility in indoor climbing gyms that surpass the descriptions of day-to-day gym functions. The first table includes four

potential setting modifications that can be brought up to upper management to make times in the gym more exclusive to individuals with IDD in certain areas. The second part of this section suggested the creation of a sensory room in the gym. While we recognize that gym staff alone do not have the authority to change the gym itself, these modifications may require the input of upper management to make climbing gyms more accessible. This section concludes with the final case study of the manual to not only integrate the techniques of the section, but to highlight how gym staff members can also act as advocates if that is a role they choose to fill.

A "Review" section summarizes the key points of the manual, highlighting how the manual went over both proactive and reactive strategies that gym staff members can integrate to improve their understanding of the IDD population. We briefly touched on the content in the main headings and were sure to thank those who read our manual. Following the content of the manual, we created a knowledge check that consists of 10 questions that highlight key points discussed in the manual. During its creation, we intended that future student researchers should administer the knowledge check only once, after the manual has been read. We suggest that the gym staff should not be informed of its existence prior so they cannot study or have any preconceptions of its contents as a means of preventing bias when measuring the efficacy of knowledge administration and retention.

There are four appendices at the back of the manual to support sections within the manual. "Appendix A: Suggested Case Study Answers" provides suggested answers for the case studies scattered throughout the manual. While these are not the only answers to these questions, we aim to assist the gym staff in aligning their thinking with how we, as

OTPs, would apply the strategies in the manual. “Appendix B: Cue Cards” expands upon supplementary cue card examples and the different ways gym staff can use cue cards. There are examples of cards based on equipment, specific gym areas, behavior instructions, and written instructions for how to use gym materials. It indicates that these cards can be used in a variety of ways and can also be edited by each gym staff to better coincide with their materials and gym rules. “Appendix C: Modified Teaching Students with Disabilities Efficacy Scale” is the comprehensive mTSDES that should be administered pre- and post-dissemination and serves as the foundation for the creation of the manual to improve the self-efficacy of gym staff in working with the IDD population. “Appendix D: Feedback” further integrates a section in which gym staff that read the manual can provide feedback to expand the manual. We requested feedback in three areas: clarity of the information, practicality of using the tools in their gyms, and an open-ended area for any further suggestions for improvement.

## Limitations of the Project

The project has several limitations, one of which is that it has inherent risks of materials designed to educate only a specific cultural or demographic group. Since our gym staff mainly come from Southern California, their learning preferences and styles may differ from those of staff from other geographical locations. Another limitation is that the manual is designed to be a general manual to support staff working with individuals with IDD. To that token, no two people with IDD are the same, so it is understood that the manual cannot cover every need. One of the strategies and approaches might not be as appropriate in their direct application to supporting one person with IDD in comparison to another. In addition, individuals with IDD, or any

disability, are usually not identifiable in a public space unless they self-identify, so knowing with whom to use these strategies may be difficult to target.

Implementing a manual for staff to support individuals with IDD can present challenges, including recruitment, retention, resistance to change, and quality control. One problem that might arise is the lack or shortage of qualified staff available to work with the IDD population. Due to the challenges and necessary care required by the IDD population, staff members may be reluctant to participate and drop out of the project due to the potential increase in their workload. Future student researchers can collaborate with the gym facility to propose a training program to address this dilemma. This program can equip the staff with the necessary skills beforehand and offer professional development to get them ready to work with the IDD population. One concern is that the manual's quality control and consistency are not being efficiently implemented in the gym. To ensure that staff are willing to practice what they learn, the manual will communicate the benefits and rationale behind the intervention and implement changes that are not too far beyond their ability. Additionally, future student researchers can seek feedback so that the manual can be improved and adjusted to enhance any interventions, ensuring better service to the IDD population and better support for the staff.

## Ethical and Legal Considerations

We would like to reinforce that our project is the creation of the manual. A following thesis group, referred to as future student researchers, should disseminate the manual and test the manual's effectiveness through a pre- and post-administration of the mTSDES, a post-administration knowledge check, and offer a means of obtaining feedback. These considerations are tailored to those expectations.

Future student researchers should send out invitation letters to all rock climbing gyms to invite them to participate in the implementation of the manual with their staff at their gym. Before administering the training manual, informed consent should be obtained from the participants (e.g., gym staff members and management). The participating gym staff members and facilities should sign and return consent forms before the manual and other materials are administered. Outlines should be made to ensure fair treatment and equal opportunities for the gym staff to complete the manual's training and reinforce that participation is voluntary.

Future student researchers should work directly with the staff and not with individuals with IDD, meaning no vulnerable populations should participate in this study directly. This also means that we and future student researchers should not have buy-in from the IDD population that we suggest can benefit from the training the gym staff should receive. Following the administration of the manual, future student researchers should issue a knowledge check, and staff should be encouraged to send any additional feedback. All responses should remain anonymous, and two-factor authentication passwords can protect all data obtained electronically. Their paper data feedback can also be stored electronically. To protect the participants' privacy, all identifying information should be removed; in addition, only the future student researchers and thesis advisor should have access to the collected data. All communication and data collection regarding the study done through email or other electronic platforms should be done through secure platforms or with email encryption. Possible conflicts of interest are limited in this study because the gym employees should not be incentivized to complete the assessment or give positive feedback. As a result, the data gathered should be more

reliable if staff members do it willingly. None of the writers of this thesis have financial interest in the outcomes of this study. The student researchers, current and future, should ensure that the training manual does not closely resemble existing publications and is evidence-based.

## Discussion

We created our manual with the intention of providing proactive and reactive strategies for indoor rock climbing gym staff to use among climbers in their gym that have IDD. The manual showcases a brief glimpse of how IDD can significantly impact a person's process, motor, and social interaction skills and how to support climbers in these areas. As there are many types of IDD, we expressed that while no two individuals will display the same symptoms or behaviors, having the tools and resources to support a variety of individuals is pivotal to creating an accessible and supportive gym environment. The manual includes alternative communication methods, how to simplify communication, and how to give effective feedback. Even with these proactive strategies in place, dysregulation is not entirely preventable; the manual further provides reactive strategies to handle these instances safely along with other upper management suggestions to make indoor rock climbing gyms even more accessible.

The manual integrates strategies to address and improve performance skills listed in the OTPF-4: process skills, motor skills, and social interaction skills as they are influenced by psychosocial improvements (AOTA, 2020). By promoting key interaction tools for gym staff to use, they can support the participation of individuals with IDD in the indoor rock climbing space, allowing for those with IDD to experience the benefits of climbing in the above three areas. To align with the AOTA research agenda, this manual

integrates current research findings on effective strategies to enhance climbing gym staff's competencies in supporting diversity, inclusion, and equity for individuals with IDD in promotion of the AOTA "Vision 2025" by enhancing the quality of life for individuals with IDD (AOTA, n.d.).

## Conclusion

Due to insufficient training and education in gym facilities, staff members may struggle to provide appropriate assistance and accommodations for individuals with IDD participating in climbing activities. This study aimed to develop an evidence-based OT manual to enhance the self-efficacy and knowledge of climbing gym staff when working with individuals with IDD. To align with the AOTA research agenda, our manual integrates current research findings on effective strategies to enhance climbing gym staffs' competencies in supporting diversity, inclusion, and equity for individuals with IDD. The research to support the suggested strategies is centered on challenges individuals with IDD may face in rock climbing gyms, such as deficits in process skills, motor skills, and social interaction skills, which aligns with the performance skills listed in the OTPF-4.

This issue is significant for OT because individuals with IDD face potential barriers to accessing and fully participating in rock climbing as a meaningful occupation. Engagement in activities in public spaces is influenced by factors such as attitudes, knowledge, and interests of the surrounding peers and staff, which can either facilitate or hinder involvement in meaningful activities. Even though a culmination of studies has indicated the positive outcomes of indoor rock climbing in areas of process skills, motor development, and social interaction progression of the IDD population, there seems to be

a lack of resources to support the inclusion of this population in climbing spaces. Consequently, those with IDD may not participate in climbing activities due to the lack of support they receive outside of specialized facilities that are properly trained.

Our manual serves as a comprehensive educational resource that addresses how to recognize and support individuals with IDD through proactive and reactive strategies to create a supportive and inclusive environment. It covers areas such as common diagnosis, a variety of communication strategies, strategies for coping and regulation, and even setting modifications for further areas of advocacy in the gym. After reading the manual, climbing gym staff should be equipped with the necessary knowledge, strategies, and methods to support these individuals effectively. To fully understand the effectiveness of the manual and its impact on the IDD population, it is suggested that a future thesis group disseminate the manual and examine both knowledge retention and efficacy levels in gym staff. The results of our manual's dissemination could lead to a further expansion of this project into other activities, other diagnoses, and other regions.

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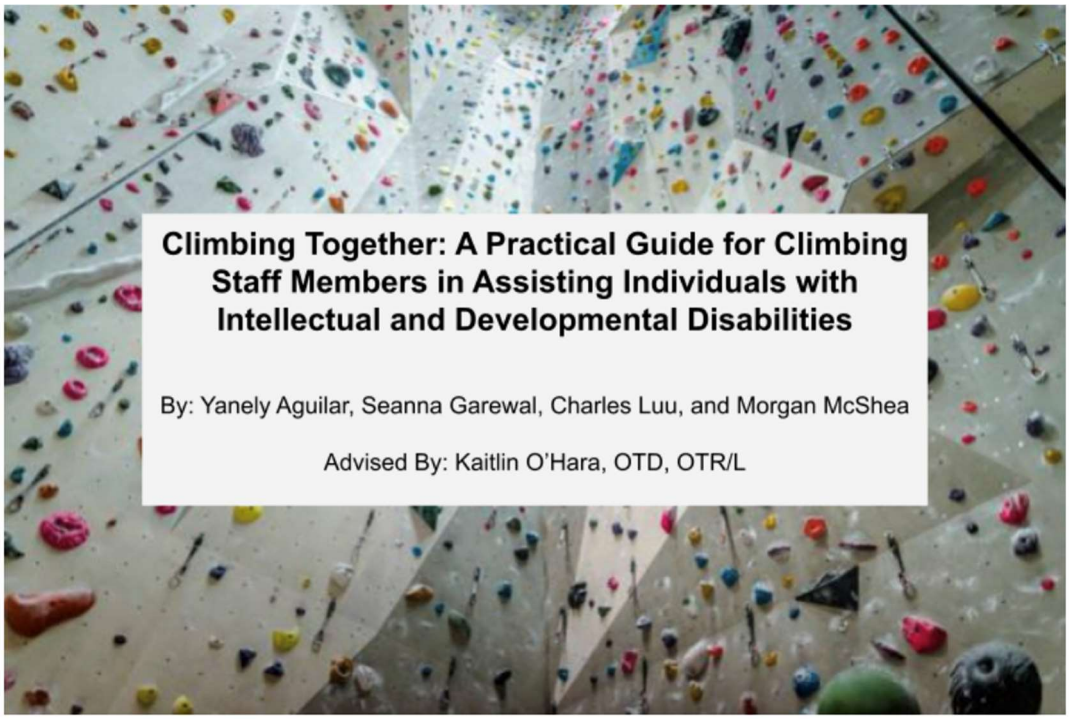
# Appendix

## Climbing Together Manual



## Table of Contents

## Introduction

This manual was created by occupational therapy students as part of a thesis project that is looking to bring awareness about the benefits of rock climbing for individuals with intellectual and developmental disabilities (IDD). As future occupational therapy practitioners, we are uniquely qualified to address this issue by using our skills in activity analysis, sensory integration, and adaptive strategies to help train climbing gym staff to make indoor rock climbing more accessible and enjoyable for individuals with IDD.

Our research has shown that, even though rock climbing can enhance many skills for individuals with IDD physically, mentally, and socially, there is an overall lack of the knowledge and skills needed to actively engage individuals with IDD in this activity. As a result, individuals with IDD often face societal barriers that might exclude them from participating in activities enjoyed by their typically-developing peers.

Our hope is to build a future where indoor rock climbing gyms provide a welcoming and supportive environment for all climbers, regardless of ability, while working on their physical, mental, and social well-being.

**Recognizing and Supporting Individuals with IDD in the Climbing Gym**

The definition of IDD is "differences that usually are present at birth and affect the trajectory of the individual's physical, intellectual and or emotional development while also affecting multiple body parts and symptoms" [8]. According to the CDC National Center for Health Statistics Data Brief completed in July 2023, approximately 8.56% of individuals age 3-17 have an IDD diagnosis as of 2021 [28]. If there are a proposed 74.4 million children between the ages 0-17 in 2023, that would estimate to about 6.3 million individuals with an IDD in the US [10]. In a day, if 50 people between the ages 3-17 come into the gym it can be estimated that 5 of them will have an IDD diagnosis.

While this may be more common than expected, individuals with an IDD diagnosis may not be immediately recognizable in public, unless they choose to self identify. There are some common signs that you, as gym staff, can use to help identify who may need more support while climbing. However, we want to refrain from assuming a diagnosis. The goal is to provide extra support with problem-solving in difficult situations or with difficulty understanding different social norms and their consequences rather than punishing behaviors. By recognizing these signs, you can provide appropriate levels of support and create a more inclusive environment in your gym.

Some of the common diagnoses of IDD and their signs and symptoms are in the chart below: ***Disclaimer*** The chart below shows general definitions, signs, and symptoms of many common IDD diagnoses. Not every individual with IDD is the same and might have different signs & symptoms.

| Diagnosis | Definition | Common Signs & Symptoms |
|---|---|---|
| **Autism Spectrum Disorder (ASD)** | A neurological and developmental disorder that affects how people interact with others, communicate, learn, and behave [18]. | • Difficulty taking turns in conversations<br>• Impaired eye contact<br>• Decreased tone of voice regulation<br>• Repetitive body movements (often called “stimming”)<br>• Repeating words/phrases<br>• Difficulty with changes in routine<br>• Increased sensitivity to light, sound, touch or texture |
| **Cerebral Palsy (CP)** | A neurological condition that causes impaired muscle control due to damage to the brain during fetal development or birth [6]. | • Head size differences<br>• Lack of interaction with others<br>• Uncoordinated movements<br>• High muscle tone that causes stiffness<br>• Low muscle tone that appears as being “floppy”<br>• Slow movements or movements that look like fidgeting |
| **Down Syndrome** | A genetic condition where the individual is born with an extra chromosome that impacts body and brain development [9]. | • Low muscle tone that may appear as being “floppy”<br>• Flattened facial profile with upward slanting eyes<br>• Decreased attention span<br>• Impulsive behavior and delayed language |
| **Attention-Deficit Hyperactivity Disorder (ADHD)** | A chronic condition that has a low number of chemicals transported in the brain which affect brain functioning [14]. | • Difficulty with focusing on a task<br>• Difficulty following instructions<br>• Easily distracted<br>• Fidgets or squirms when needed to stand/sit still<br>• Runs around/climbs when it's not appropriate<br>• Interrupts others while talking<br>• Increase in talking<br>• Difficulty doing an activity quietly<br>• Difficulty waiting for their turn |

| | | |
|---|---|---|
| **Traumatic Brain Injury (TBI)** | An injury to the brain that is the result of a violent blow/jolt to the head or body that affects how the brain structures work [15]. | • Paralysis of facial muscles<br>• Hearing or vision loss<br>• Impaired judgment or attention<br>• Impaired problem solving or decision making<br>• Difficulty following conversations and speaking<br>• Difficulty waiting for their turn<br>• Difficulty starting or stopping conversations<br>• Impaired self-control<br>• Verbal or physical outbursts<br>• Low hand-eye coordination, blind spots, trouble with balance<br>• Lack of empathy for others<br>• Increased Irritability |
| **Non-Traumatic Brain Injury (NTBI)** | An injury to the brain caused by factors other than external trauma such as: exposure to toxins, complications from an infection, symptoms of a medical condition [16]. | • Increased sensitivity to light<br>• Impaired speech<br>• Mood swings<br>• Aggressive behavior<br>• Decreased memory capacity<br>• Difficulty with concentration<br>• Impaired decision-making skills<br>• Decreased attention span |

**Benefits of Rock Climbing for Individuals with IDD**

Our research tells us that rock climbing provides valuable benefits for individuals with IDD. Participating in rock climbing helps to better overall well-being and daily functioning by enhancing their daily living skills, through improvements in **cognition, motor skills, and social interaction skills** [24]. While engaging in a session, individuals with IDD use skills like planning and carrying out tasks, while simultaneously working on balance and coordination. The more they participate, the stronger these skills become which motivates them to keep going. Each of these skills are valuable for success in other daily activities.

One of the benefits of rock climbing for individuals with IDD is the improvement of **cognitive skills**. Research has shown that rock climbing helps individuals be able to plan, carry out, and complete everyday tasks more efficiently [21]. Individuals were able to progress in their rock climbing sessions due to an increase in perseverance, problem solving, and retention after repeated climbs. These skills can help an individual with IDD learn to keep going when tasks start to get tough as well as tackle new challenges and find effective solutions for them even outside of the rock climbing gym.

Another benefit of rock climbing is the development of stronger **motor skills**. These motor skills help individuals with IDD maintain balance and stability while moving, improving their overall ability to stay upright and coordinated [4, 22]. These motor skills developed during rock climbing sessions can transfer to everyday tasks such as dressing themselves in the morning or standing at the sink to brush their teeth.

Lastly, the individuals who participate in rock climbing are able to grow in their **social interaction skills** due to the improvements of how an individual understands how their different emotions can affect their overall-well being. For example, rock climbing can help grow an individual's self esteem and as well focus and motivation which can allow them to cope with new challenges or situations during rock climbing [5]. Participating in a rock climbing session can provide individuals with a sense of safety and positive challenge, which supports personal growth, improves relationships, and promotes good emotional health.

Using this knowledge, we created this manual to help guide you to best support this population in achieving these benefits while creating a more accessible space in your gym. Thank you for taking the time to learn from this resource.

## Communication Strategies

In this section we will discuss language choice, devices and tools for nonverbal interactions, some basic signs, other ways to guide non-verbal communication, simplifying instructions, and how to utilize feedback and reinforcement with the help of the caregiver/parent, to better support your interactions with climbers that have IDD. Some individuals with IDD have difficulties with speaking and other forms of communication. These strategies are proactive ways to promote a supportive gym environment. It is important to note that communication deficits are not always a result of impairments in cognition but can also stem from hearing loss, neurological disorders, brain injury, or other physical impairments.

In addition to the strategies in this section, remember to utilize active listening strategies when communicating with all climbers in the gym. This approach helps ensure that everyone feels valued and respected, particularly those who might feel embarrassed or overwhelmed when seeking help. Active listening helps to build trust, understanding, and can empower climbers. Key practices include paying full attention, showing empathy, paraphrasing what the climber has said, asking for clarification when needed, and offering constructive feedback or follow-up. By integrating these practices, you will create a supportive environment that encourages open communication and enhances the climbing experience for everyone.

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**Language Choice**

Some climbers may have different communication needs and may use alternative methods of expression beyond traditional conversation. Be mindful of your facial expressions, gestures, and ways you can model activities as an additional means of communication.

Facial expressions → Demonstrate a wide range of emotions and reactions. Be mindful of your expressions as they help communicate encouragement, concern, and clarity.

Gestures → Use clear and deliberate gestures to supplement verbal instructions. Simple gestures like hand signals, nods, or other physical cues to deliver important instructions.

Modeling → Show the movements or actions clearly and slowly. For example, when instructing how to put on a piece of climbing equipment, perform the steps in a manner so that the individual can observe and imitate

**Devices and Tools for Non-Verbal Interactions**

Other individuals may carry a communication device. Take the time to familiarize yourself with the devices in this section. If you are unsure when you come across these methods in the gym, you can ask the individual or their caregivers about the devices' features. Understanding the basic functions such as selecting and inputting messages can be key to having a positive interaction. In some instances, they can be customized to better suit rock climbing needs. For individuals that utilize a communication device, ensure that the device is within easy reach and accessible during climbing activities.

It is important to recognize each individual with IDD has unique communication needs and preferences. Augmentative and Alternative Communication (AAC) is the umbrella term that describes all of the ways that someone can communicate without talking [1]. In its parts, augmentative means to add to someone's speech and alternative means to be used instead of speech. There are a lot of different types of AACs, and they can range from no-tech to high-tech. Some commonly seen forms are described in this table.

| Form of Alternate Communication | Definition/ How to Use | Image |
|---|---|---|
| AAC Device [13] | • A tablet/laptop<br>• Uses a combination of words, sentences, and images that the device then says out loud<br>• Can also be called a speech generating device (SGD) |  |
| Letter Boarding or Spelling to Communicate (S2C) [11] | • Tool that is used to spell out words or phrases using the alphabet laid out on a sheet of paper or on a board<br>• Can be a physical board, laminated sheet, or an app<br>• To use this aid, individuals will point to letters on the board to make out words<br>• This technique can take a few minutes for an individual to communicate their needs or preferences |  |

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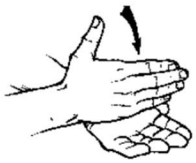
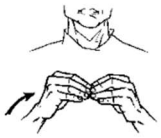
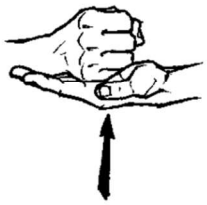
| | | |
|---|---|---|
| American Sign Language (ASL) [17] | • A complete and natural language<br>• Expressed by movements of the hands and face<br>• ASL utilizes fingerspelling in addition to certain words having their own sign known as gestures<br>• There is no universal sign language and different sign languages are used in different regions<br>• A gesture or symbol in ASL is called a sign<br>• More than just an individual letter, some signs can mean whole words<br>• Each sign has three distinct parts: the handshape, the position of the hands, and the movement of the hands | Fingerspelling Alphabet:<br>  <br>Examples of Gestures:<br>  |

**Basic Signs to Know**

Learning some basic sign language can be a valuable tool when communicating with individuals with IDD. Using simple signs can enhance clarity and promote a more inclusive environment. Below are some key signs that are particularly useful in a rock climbing gym setting. When signing, use body language, tone of voice, and facial expressions while signing to stress how much you mean [26].

| NAME | INSTRUCTIONS | IMAGE [27] |
|---|---|---|
| Stop | • Hold one hand flat and palm up<br>• With other hand, also flat, lower it pinky first into first hand so they collide<br>• As the hands collide they stop moving<br>• Do this with more or less oomph depending on how important it is |  |
| More | • Place your fingertips on each hand together<br>• Tap the fingertips of both hands together a couple times |  |
| Help | • Bring one hand up to about chest height palm flat, facing up<br>• With other hand make a fist or thumbs up<br>• Place this on the palm of the first hand<br>• This is a directional sign so to ask if they want your help move the sign towards them |  |
| Go | • Extend both pointer fingers and close the rest of the fingers<br>• Start with hands back towards the body fingers pointing up<br>• Move hands in arc forward to the direction you want to go |  |

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| | | |
|---|---|---|
| Please | • Take one and and place it flat on chest, fingers spread out slightly<br>• Make small circles on chest in clockwise direction a couple times |  |
| Thank you | • Hold hand flat on chin, palm facing chin<br>• Pull hand forward, off of chin, and stop it palm up |  |
| Greetings/ Hello | • Lift hand about shoulder height palm facing other person<br>• Shake hand left and right |  |
| Yes | • Hold on hand up in a fist<br>• Bend wrist up and down a few times<br>• Can shake head yes as do this |  |
| No | • Bring one hand up about shoulder height with pointer and middle finger together, tongue extended out, and rest of fingers tucked into palm<br>• Tap finger tips of pointer and middle finger to thumb<br>• Can shake head no as do this |  |

***Images used with permission from William G. Vicars, Ed.D**

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Case Example A:

You are assisting an individual with limited speech abilities to participate in rock climbing. The individual is unfamiliar with the equipment and is hesitant to start the activity.

- How would you effectively use the individual's communication device, if they have one with them?
- What signs or gestures could you use as you approach them and ask if they need help?
- If the individual still seems unsure about what you're trying to communicate, how can you demonstrate your message more clearly through actions or examples?

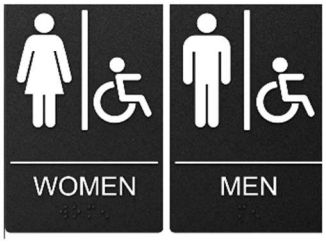
**Other Ways to Guide Non-Verbal Communication**

In addition to the tools listed above, cue cards or other means of posting instructions like a transportable bulletin board may come in handy for individuals that have little to no language or difficulty expressing their needs. Cue cards can be pictures with short phrases to help an individual express what they want. These cards can have equipment labeled on them (e.g. helmet, harness, chalk bag), behavior instructions (e.g. stand in line, one step at a time), specific gym areas (e.g. bathroom, front door, equipment area), or even written instructions (e.g. how to put on a harness, how to put on helmet, basic climbing instructions).

Some individuals may be very familiar with cue cards from their use at home or in school. In this case, the individual may be more comfortable with this mode of communication and might take the initiative to explain what they want or need. These can also be helpful to leave with the climber after you have verbally interacted with them to serve as reminders as you walk away to continue your other gym staff duties. Here are some examples (note: using a computer, these images can be adjusted to match the items that are in your gym).

**HELMET**

**WAIT IN LINE FOR YOUR TURN**




**BATHROOM**

**HOW TO PUT ON A HARNESS**

1. Step into the leg loops.
2. Pull the harness up to your waist.
3. Tighten the waist belt so it is snug but comfortable.
4. Make sure the leg loops are secure.

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Case Example B:

As a gym staff member, you notice Jennifer, a climber, setting her equipment aside but struggling with coordination while fastening her helmet. When you offer assistance, Jennifer shares that she has ADHD, which makes it challenging for her to remember all the climbing instructions and equipment details.

- What visual aids could you provide to assist her during her climbing?
- Are there any types of aids that you think might not be necessary?

**Simplifying Instructions**

Whether you are sitting or standing, when interacting with an individual with IDD, it is important to communicate at their level. Not only does this help to focus their attention, it improves understanding and promotes effective communication. When working with individuals with IDD, staff members should use simple, direct language; do your best to avoid complex language, jargon, or lingo/abbreviations that only other members of the gym staff will understand [23]. If you notice someone in the gym space who appears to need assistance, approach them and offer your help.

Utilize the strategies mentioned earlier to determine if this person has IDD and may require more specific attention. The key is to provide step by step instructions [23]. This can be utilized if they need assistance putting on equipment, finding things in the gym, or understanding how to climb a rock wall if they are having a hard time or even more excitingly, it is their first time.

Ask for their name and use it throughout the interaction; this will help to focus their attention [23]. Point to things or bring items over if needed to make things more clear. Be consistent with the terms and instructions as it helps individuals understand and remember. You can also ask simple yes/no and either/or questions to check in with the individual that you are helping. When using either/or questions limit the question to only two options to guide the climber and help them decide. The choices should be simple and leading rather than discouraging.

Ensure that between each direction, there is a pause for understanding or to allow the individual to perform the direction. Demonstrate instructions if it still seems like the individual is confused. Have them follow your lead.

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Examples:

1. Identify what that the individual needs help with (e.g., harness, helmet,climbing, encouragement)
2. Provide clear and concise instructions while allowing pauses

| | | |
|---|---|---|
| Putting on equipment (e.g.harness) | → | "First, step into the leg loops. Now pull the harness up to your waist. Then tighten the waist belt so it is snug but comfortable. Make sure the leg loops are secure."<br><br>Once the equipment is on, ask for permission, then double check that it is properly fitted and secure. |
| Climbing the rock wall (if part of your duties as an employee) | → | Explain the basic, essential techniques and any safety measures your gym abides by.<br><br>"Make sure your harness and helmet are secure. Keep three points of contact with the wall at all times - either two hands and one foot or two feet and one hand."<br><br>If necessary, provide step by step guidance as they begin to climb<br><br>"Place your right foot on that blue hold there. Now reach up with your left hand and grab that next yellow hold. Great job!" |
| Take time to encourage and reassure the climber | → | "You're doing great! Just take your time and keep looking for the next hold." |

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Case Example C:

You are a gym staff member who notices a young climber, Alex, who appears to need assistance. Alex does not have any equipment on, is only holding a helmet, and has been looking at the climbing wall with a mix of excitement and uncertainty. You decide to approach and offer to help. Upon approaching Alex, you see that he is gesturing at the rock wall, limits his eye contact with you, is becoming easily distracted, and he has started to stand quite close to you.

- Understanding that Alex requires a bit more assistance than other climbers you've interacted with today, how would you guide him through the equipment to prepare to climb the wall?
- How would you instruct him through the climb?
- What are some things you can say to encourage him?

**Reinforcement**

Positive reinforcement is a good way to promote learning and enhance the levels of engagement seen by individuals with IDD [19].

| Positive Reinforcement Strategies | Details |
|---|---|
| Verbal Praise | Use specific comments related to the activity:<br>● "You did a great job climbing to the top!"<br>● "Good job at following safety instructions!"<br>Maintain a warm, enthusiastic tone to be encouraging and genuine. |
| Gestures | ● Thumbs-up, nods, or high-fives can celebrate success.<br>● Be mindful that some individuals may prefer not to be touched.<br>● Smiling, eye contact, and nodding are good alternatives to show encouragement. |
| Tangible Rewards | ● Collaborate with caregivers/parents to select appropriate rewards like toys or comfort objects.<br>● Personal items such as stuffed animals or blankets can provide emotional support and comfort.<br>● Avoid large or distracting items and ensure small toys are safe and not choking hazards. |

**Feedback**

Providing constructive feedback is another way to promote growth, skill development, and positive behavior in individuals with IDD. To be effective, feedback should be direct, concise, and timely.

Direct → When you notice a climber having trouble with their grip technique, it is helpful to show them the correct hand positioning rather than just telling them.

Concise → You should demonstrate the climbing hold techniques briefly before asking climbers to try them.

Timely → After a climber completed a climbing route, immediately let them know what they did well and which areas they can improve on their next climb.

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Case Example D:

John is a 12-year-old boy with IDD and has just finished his first ever climb on the rock wall. As you pass by you see that he only made it up a few footholds then became hesitant and let go. To help encourage him and engage him more fully, you decide to give him some feedback.

- What verbal praise can you give him?
- What specific feedback can you offer to help him build confidence and progress further up the wall, while still acknowledging his current efforts?

**Have Fun!**

Our main goal is for you and the climbers to stay safe and have fun. We hope that these proactive strategies help give insight on how to best help the IDD population and help you feel more comfortable interacting with climbers who may need more specialized attention.

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## Strategies for Coping and Regulation

You've now learned proactive strategies for helping climbers with IDD in the gym, however, despite that, these individuals may experience sensory dysregulation and might need extra support. By understanding these shared challenges, you can develop and implement strategies that provide meaningful support and increase their ability to engage in rock climbing activities successfully. This will further foster inclusion and promote a positive environment for growth in your gym. Here are strategies for safely addressing dysregulation after it occurs.

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**Understanding Signs of Sensory Overload for Individuals with IDD**

| | |
|---|---|
| **Social/Physical-Engagement Withdrawal:**<br>● The individual may seek quieter/less stimulating areas as many things going on at once might be causing them too much distress.<br>● They may stop responding to verbal or physical cues, such as instructions or gestures, indicating a potential shutdown or disengagement. | **Regulation & Coping Strategies: [22]**<br>● Staff should not force interaction when individuals with IDD display these behaviors as they are not ready to rejoin the activity.<br>● Staff can guide the individual to an open area where they can observe without participating. Passive participation can help encourage participation at a later time.<br>● After some time has passed, staff can gradually reintegrate them back into activity by checking in on them frequently. |
| **Aggression:**<br>● Some of the signs that could be an indication of aggression are: yelling, screaming, hitting, kicking, and throwing objects.<br>● This form of aggression is often a sign of internal distress, so it is important for staff to recognize the signs and know how to de-escalate the situation and help regain control of their emotion. | **Regulation & Coping Strategies: [23]**<br>● Staff should maintain a calm and non-threatening demeanor when approaching individuals who are struggling.<br>● In this situation, allowing time for individuals to release their energy and frustration in a safe manner is often recommended.<br>● One of the strategies that you can use as a staff member is to use a mood scale/meter to gauge the individual's emotions before starting an activity.<br>● Staff should seek assistance from caregivers if the situation escalates further, as they know these individuals best.<br>● You can also offer alternative activities that promote being calm and mindful. |
| **Self-Stimulation:**<br>● Individuals with IDD might use self-stimulatory behaviors as a way to regulate their emotions and physical input. These behaviors help them manage stress, anxiety, and overwhelming stimuli coming from being in a new situation.<br>● Rapid movements or noises, especially common in individuals with ASD | **Regulation & Coping Strategies: [23]**<br>● Stimming is a common and natural form of self-regulation for individuals with IDD.<br>● Gym staff can provide a safe and supportive environment for stimming to allow individuals to express themselves and engage.<br>● Staff can also propose different forms of stimulation if needed (e.g., using a stress ball, or throwing ice at a wall)<br>● Allowing breaks between activities for self-regulation can be an effective way to prevent anxiety from building up. |

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## Setting Modifications for Sensory Needs in Climbing Gyms

Studies have shown that making adjustments to the gym environment to accommodate sensory needs can greatly improve the experience for those with IDD. As a staff member, this may not fit into your daily protocols, however, you play a key role in advocating for the modifications that fit the population that frequents your facility. By bringing potential suggestions to upper management and encouraging them to implement changes, you can foster a more inclusive and welcoming environment. Below are some sample suggestions that have been shown to create an environment tailored for individuals with IDD.

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**Setting Modifications/Strategies**

| | | |
|---|---|---|
| Suggest that the climbing area should have reduced external stimuli [2] | → | • Open the gym for a separate block of time on a specific day of the week/month only for people with IDD.<br>• Limit noise during one hour of operation for individuals with IDD.<br>• Adjust lighting to be softer and less intense to create a more calming atmosphere that can help with emotional regulation.<br>• Spread the crowd out to prevent claustrophobia and ensure there is adequate space between individuals. |
| Include visual steps for climbing techniques to assist visual learners [3] | → | • Use step-by-step instructions and pictures to help guide individuals to better understand how to execute the next move. |
| Routine and Predictability | → | • Hold separate classes to guide the individuals with IDD through routes with fewer holds and more straightforward paths. This will lessen frustration and build up confidence for a more difficult route as well as give them a sense of comfortability when they attend the gym during normal hours. |
| Create structured activities | → | • Have printouts or coloring pages with rock climbing themes.<br>• Have the caretaker be part of the climbing activities for a reduced cost.<br>• Have time slots to play games like red light green light, Simon says, or create obstacle courses in the gym space to allow individuals with IDD to become familiar with the space in a different way. |

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**Building a Sensory Room for Regulation**

**What is a sensory room? [12]** → **How to create one in a climbing gym? [20, 25]**

- A sensory room is a specially designed place that provides individuals with a controlled and immersive sensory experience for regulation, stress-relief, and a tool to help build skills.

- Design the room to be calming, with minimal decorations.
- Ensure the room is soundproof or has reduced noise to limit auditory distractions.
- Include various sensory tools (e.g., crash pads, weighted blankets) to help climbers self-regulate.
- Install viewing windows for safety and visual participation.

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Case Example E:

As a gym staff member, you notice Johnny was initially excited during his climbing session. However, once more climbers began to fill up the gym and other lights were being turned on, you notice Johnny becomes overwhelmed by the bright lights and noise. He starts to isolate himself and appears frustrated. His mother shares that Johnny has autism.

- How would you approach Johnny to offer support while respecting his need for space?
- What strategies might you use to help Johnny calm down and feel more comfortable in the environment?

## Review

After reading this manual, you now have a solid understanding of how to use proactive and reactive strategies to create a supportive and inclusive environment for individuals with IDD at your rock climbing gym. The manual showcases a brief glimpse of how IDD can significantly impact a person's physical, intellectual, and emotional development. As there are many types of IDD, no two individuals will display the same symptoms or behaviors. For this reason, recognizing these signs allows you as support staff, to provide more effective support for those with IDD.

You also learned that communication does not have to be limited to just speech; it also includes many other methods such as assistive devices, ASL, and visual aids are things that people with IDD utilize to get their needs across. Additionally, you read about how to provide effective feedback and reinforcement that can enhance engagement and support the individual's learning process.

At times, individuals with IDD might experience sensory and emotional dysregulation and require additional support. By understanding their challenges, you can implement and build on the strategies that were presented in this manual that you think would serve you best.

The manual also outlined accommodations that you can suggest to upper management to address dysregulation and help these individuals engage in rock climbing successfully and in a way that keeps you and others safe. These approaches and strategies will not only improve the climbing experience of those with IDD but also contribute to a more inclusive and positive environment at your climbing gym.

We appreciate your time and hope this manual has supported your understanding of our goals and the importance of creating a supportive space for those with IDD.

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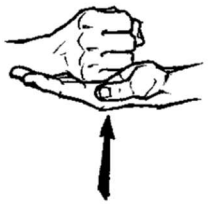
## Knowledge Check

1. What is the primary goal of integrating our training manual into your gym for individuals with IDD as outlined in our vision?
    a. To solely improve athletic performance in individuals with IDD
    b. To enhance physical and mental well-being while empowering individuals of all abilities
    c. To increase competitiveness in rock climbing
    d. To focus only on the social interaction skills of individuals with IDD

2. Which of the following presents as having trouble focusing on a task, having trouble following through instructions, easily distracted, fidgets or squirms while needed to stand/sit still, run around/climb when it's not appropriate
    a. ASD
    b. Down Syndrome
    c. ADHD
    d. TBI

3. Which type of AAC uses an alphabet laid out on a laminated sheet of paper, a board, or in an app to allow users to spell out words or phrases?
    a. AAC Device
    b. ASL
    c. ASL Informed Gestures
    d. Letter Boarding

4. What does the following image represent?



    a. Stop
    b. More
    c. Help
    d. Please

5. When interacting with an individual with IDD in the gym, what is an important communication strategy to use?
    a. Communicate at their level and use simple, direct language
    b. Use complex language and gym-specific jargon to show expertise
    c. Avoid offering assistance unless asked
    d. Provide multiple complex options to encourage decision-making

6. Which of the following strategies is most effective for promoting engagement and learning in individuals with IDD during climbing activities?
    a. Using general praise like “good job!” for all tasks
    b. Providing specific verbal praise related to the climbing activity and using gestures like thumbs-up and high-fives
    c. Offering tangible rewards that do not align with the individual’s preferences
    d. Avoiding collaboration with caregivers to keep the process simple

7. What is a key strategy for effectively communicating with non-verbal individuals in the gym?
    a. Being mindful of facial expressions and using clear gestures to supplement verbal instructions
    b. Relying solely on verbal instructions without using gestures
    c. Using complex and rapid gestures to give instructions quickly
    d. Avoiding the use of modeling or visual aids to prevent confusion

8. What is the primary purpose of using cue cards for individuals with limited language abilities in the gym?
    a. To replace verbal communication entirely
    b. To help individuals express their needs and follow instructions through simple pictures and short phrases
    c. To provide complex instructions that require detailed explanations
    d. To discourage independence by relying solely on visual aids

9. If the climber is isolating and refusing to participate in climbing activities, what should the staff do?
    a. Tell the climber to come back to the group right away
    b. Ignore the climber and let them stay there by themselves
    c. Check in with the climber regularly and invite them back to the group whenever they are ready
    d. Remove the climber from the area so that other climbers do not follow what they are doing

10. Which of the following strategies is recommended for managing sensory overload and aggression in individuals with IDD during a new activity?
    a. Force the individual to participate in the activity to help them adapt
    b. Ignore signs of aggression and allow the individual to let out their emotions
    c. Avoid new activities and engage only in familiar activities
    d. Provide a dedicated space where the individual can take a break and can still observe the activity, promoting their involvement.

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## Appendix A: Suggested Case Study Answers

Case Example A:
You are assisting an individual with limited speech abilities to participate in rock climbing. The individual is unfamiliar with the equipment and is hesitant to start the activity.

- How would you effectively use the individual's communication device, if they have one with them?
  - A: I will effectively use the individual's communication device by understanding the basic functions such as selecting and inputting messages for interactions. I will familiarize myself with the device, if possible, and see if it can be customized to better suit rock climbing needs using help from the caregiver/parent. I will also make sure the device is within easy reach and accessible during climbing activities.
- What signs or gestures could you use as you approach them and ask if they need help?
  - A: I could use simple gestures like hand signals, nods, or other physical cues to approach them. Gestures such as "help", "more", "stop", "please", or "go".
- If the individual still seems unsure about what you're trying to communicate, how can you demonstrate your message more clearly through actions or examples?
  - A: I will demonstrate what I am trying to communicate through modeling. I will do the movements or actions clearly and slowly. Such as when instructing how to put on a piece of climbing equipment, I will perform the steps in a manner so that the individual can observe and imitate.

Case Example B:
As a gym staff member, you notice Jennifer, a climber, setting her equipment aside but struggling with coordination while fastening her helmet. When you offer assistance, Jennifer shares that she has ADHD, which makes it challenging for her to remember all the climbing instructions and equipment details.

- What visual aids could you provide to assist her during her climbing?
  - A: I could first grab a helmet and explain how to put it on as I am putting it on. Since she mentioned that she struggles to remember things, I could leave her with a cue card that has instructions for what she needs to do next.
- Are there any types of aids that you think might not be necessary?
  - A: Jennifer does not seem to need a form of AAC or the use of sign language. Jennifer would most benefit from visual instructions and reminders to come back to when she is on her own.

Case Example C:
You are a gym staff member who notices a young climber, Alex, who appears to need assistance. Alex does not have any equipment on, is only holding a helmet, and has been looking at the climbing wall with a mix of excitement and uncertainty. You decide to approach and offer to help. Upon approaching Alex, you see that he is gesturing at the rock wall, limits his eye contact with you, is becoming easily distracted, and he has started to stand quite close to you.

- Understanding that Alex requires a bit more assistance than other climbers you've interacted with today, how would you guide him through the equipment to prepare to climb the wall?
  - A: To assist Alex in putting on the equipment, I will break down the instructions of: "First, step into the leg loops. Now pull the harness up to your waist. Then tighten the waist belt so it is snug but comfortable. Make sure the leg loops are secure." Once the equipment is on, I will ask Alex for permission to double check that it is properly secured.
- How would you instruct him through the climb?
  - A: To instruct him through the climb, I will explain the essential techniques and any safety measures. I will tell him to keep three points of contact on the wall at all times, either two hands and one foot or two feet and one hand. I will also provide any necessary guidance as they begin to climb, for example, " Place your right foot on the blue hold here, now reach up with your left hand and grab the yellow hold, great job!"
- What are some things you can say to encourage him?
  - A: Some things I can say to encourage him are: "You're doing great! Just take your time and keep looking for the next hold." or "You're going great Alex! If you need a break or some help, just let me know, you got this!".

Case Example D:
John is a 12-year-old boy with IDD and has just finished his first ever climb on the rock wall. As you pass by you see that he only made it up a few footholds then became hesitant and let go. To help encourage him and engage him more fully, you decide to give him some feedback.

- What verbal praise can you give him?
  - A: To ensure John feels supported, I will provide verbal praise such as, "don't give up! Let's try again!" to encourage him to try again. Throughout the activity I will continue to praise him by saying, "You did a great job climbing!" or "Good job at following safety instructions!" I will also consider maintaining a warm, enthusiastic tone throughout.
- What specific feedback can you offer to help him build confidence and progress further up the wall, while still acknowledging his current efforts?
  - A: While acknowledging his current efforts, I will give John direct and timely feedback by explaining how he can place his feet more firmly on the footholds and keep a steady grip with his hands. I'll say something along the lines of, "You have accomplished your first climb! Now each climb will help you improve and you can go higher. Keep practicing and you will get better!"

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Case Example E:
As a gym staff member, you notice Johnny was initially excited during his climbing session. However, once more climbers began to fill up the gym and other lights were being turned on, you notice Johnny becomes overwhelmed by the bright lights and noise. He starts to isolate himself and appears frustrated. His mother shares that Johnny has autism.

- How would you approach Johnny to offer support while respecting his need for space?
    - A: One thing to remember as a staff member is that you can always call for the help of the caregiver/parent as they know the individual better than you. They can help get the individual to re-engage with the activity or provide other strategies to help calm them down that you may be unfamiliar with.
- What strategies might you use to help Johnny calm down and feel more comfortable in the environment?
    - A: I can approach Johnny with a calm demeanor and ask gently how he is feeling and if he would like to rejoin the activity or take a break. The focus here is not to force Johnny to participate but to give him options.

## Appendix B: Cue Cards

These cards can have equipment labeled on them (e.g. helmet, harness, chalk bag), behavior instructions (e.g. stand in line, one step at a time), specific gym areas (e.g. bathroom, front door, equipment area), or even written instructions (e.g. how to put on a harness, how to put on helmet, basic climbing instructions). Cue cards can be used in multiple ways. They can be left with the climber as reminders for instructions, they can provide visual guides for climbers to point to what they need help with, or they can be verbal cues written out for individuals with hearing difficulties to understand what you are saying. Note that with a computer, these images can be changed to match what the items in your gym look like

**Cards for Equipment**

| | | |
|---|---|---|
|  **HELMET** |  **HARNESS** |  **CHALK BAG** |
|  **FOOT HOLDS AND HAND HOLDS** |  **CLIMBING SHOES** |  **CLIMBING ROPE** |

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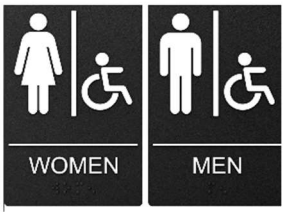
**Cards for Specific Gym Areas**

| | | |
|---|---|---|
|  BATHROOM |  FRONT DESK |  CLIMBING WALL |

**Cards for Behavior Instructions**

| | | |
|---|---|---|
|  WAIT IN LINE FOR YOUR TURN |  NO FOOD OR DRINKS IN THIS AREA |  ONE STEP AT A TIME |
|  TAKE A BREAK |  STAY SAFE | |

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**Cards for Written Instructions**

**HOW TO PUT ON CLIMBING SHOES**

1. Get your size from the front desk
2. Sit on the ground and place your shoes in front of you
3. Put the right shoe on the right foot and velcro it
4. Put the left shoe on the left foot and velcro it

**HOW TO PUT ON A HARNESS**

1. Step into the leg loops.
2. Pull the harness up to your waist.
3. Tighten the waist belt so it is snug but comfortable.
4. Make sure the leg loops are secure.

**HOW TO CLIMB THE WALL**

1. Make sure your harness and helmet are secure.
2. Keep three points of contact with the wall at all times - either two hands and one foot or two feet and one hand.
3. Place your right foot on that blue hold there.
4. Now reach up with your left hand and grab that next yellow hold.
5. With your right hand grab the red hole next to your head.
6. Place your left food on the green hold
7. Reach up with your right hand to grab the next hold.
8. With your right foot step up to the next red hold.
9. Keep going with that pattern.

## Appendix C: Modified Teaching Students with Disabilities Efficacy Scale [7]

**Please circle: pre-test or post-test**

**On a scale from 0 (least) to 5 (most), how competent do you feel to…**

| | |
|---|---|
| Adjust activities to meet the needs of all climbers in the gym, regardless of ability level. | (0) (1) (2) (3) (4) (5) |
| Create an environment that is open and welcoming for every climber, including those with intellectual and developmental disabilities. | (0) (1) (2) (3) (4) (5) |
| Encourage all climbers to accept those with intellectual and developmental disabilities in the gym. | (0) (1) (2) (3) (4) (5) |
| Manage a climbing gym when your climbers range from learning disabled to gifted. | (0) (1) (2) (3) (4) (5) |
| Change society's view of individuals with intellectual and developmental disabilities. | (0) (1) (2) (3) (4) (5) |
| Establish meaningful relationships with your climbers with intellectual and developmental disabilities. | (0) (1) (2) (3) (4) (5) |
| De-escalate a situation involving a climber with intellectual and developmental disabilities who is getting out of control in the gym. | (0) (1) (2) (3) (4) (5) |
| Motivate a climber in the gym who has an intellectual and developmental disability, regardless of how uncomfortable you may be. | (0) (1) (2) (3) (4) (5) |
| Control a situation in which a climber with an intellectual and developmental disability is displaying disruptive behaviors in the gym. | (0) (1) (2) (3) (4) (5) |
| Promote acceptance of climbers with intellectual and developmental disabilities in the community. | (0) (1) (2) (3) (4) (5) |
| Teach a climber who is motivated to learn but struggles because of their disability. | (0) (1) (2) (3) (4) (5) |
| Utilize different teaching strategies when your teaching isn't as effective as you had hoped. | (0) (1) (2) (3) (4) (5) |

**•Adapted from Dawson, H., & Scott, L. (2013). Teaching students with disabilities efficacy scale: development and validation.**
***Inclusion*, *1*(3), 181–196. https://doi.org/10.1352/2326-6988-1.3.181 with permission from Dr. LaRon A. Scott**

## Appendix D: Feedback

Thank you for taking the time to read our manual. We hope that you have learned some valuable tools to help you interact with individuals with IDD who come into your climbing gym. Since your feedback is incredibly valuable, we would love to hear your thoughts on it. We would greatly appreciate hearing your feedback in the following areas.

1. **Clarity:** Are the suggestions we presented easy to understand and follow? Is there any terminology that seems unclear or could be better explained?

2. **Practicality:** Do these tools seem feasible in real world scenarios at your gym? Are there any that might be challenging to implement?

3. **Additional Suggestions:** Are there any sections that could be expanded upon, or topics that you feel were missing?

If you have the time to answer these questions, please send your comments to kohara@stanbridge.edu with the subject line “Indoor Rock Climbing Training Manual Feedback”. Thank you in advance for your time and input.