Applying Theory to Overcome Internal Barriers for Healthy Behavior Change in Adults with Intellectual Disabilities

Adults with disabilities are 57% less physically active than individuals without disabilities and two-times as likely to be obese. With obesity, adults with disabilities also face increased risk of comorbid disabilities stemming from obesity. The purpose of this study was to identify key behavioral change theories which may be utilized increase physical activity levels in adults with intellectual disabilities. The Self-Efficacy Theory and Self-Determination Theory both present constructs for understanding behavior change, and many of these constructs are interrelated which strongly suggests many behavioral change theories identify internal barriers for change.

**Keywords:** intellectual disabilities, motivation, physical activity, self-efficacy, theory self-determination

Increasing the physical activity levels of the United States was a goal of Healthy People (HP) 2020 (U.S. Department of Health and Human Services, 2010). While individuals with disabilities are considered part of general the population, HP 2020 did not have any specific physical activity related goals or plans of action specific for this population’s particular needs (U.S. Department of Health and Human Services, 2010). More than 21-million adults have a disability in the United States and are three times more likely to develop comorbid diseases due to physically active lifestyles which are inadequate (Centers for Disease Control and Prevention, 2019). Inactive lifestyle is more prevalent in adults with disabilities (47.1%) than those without (26.1%) which creates an obesity prevalence rate in adults with disabilities (57%) at approximately twice that of adults without disabilities (Rimmer, Riley, Wang, et al., 2004).

It is recommended that all adults take part in regular physical activity focusing on each component of fitness: cardiorespiratory fitness, muscular strength, muscular endurance, flexibility and body composition. The Centers for Disease Control (CDC) (2019) recommends adults complete 100-150 minutes of moderate aerobic physical activity with strength training each week, a minimum of two days per week. Adults meeting these recommendations tend to enjoy various health benefits such as improved mood, better sleep, and improved fitness (Centers for Disease Control, 2019). Physical activity recommendations and benefits for the general population also pertain to individuals with disabilities; however, an individual who is unable to meet these requirements should exercise according to their ability level. The Department of Health and Human Services (2018) recommends all individuals with disabilities
be under the medical supervision of a doctor when beginning an exercise program. The CDC (2019) states that individuals with disabilities are approximately 80% more likely to begin an exercise program if a physician discusses the need for increased physical activity with the patient and supports the individual with selecting potential healthy physical activities. The repeated supervision of a physician may help individuals with disabilities to continue an exercise program.

Individuals with intellectual disabilities are defined by the American Association on Intellectual and Developmental Disabilities as someone with “a disability characterized by significant limitations in both intellectual functioning and in adaptive behavior as expressed in conceptual, social, and practical adaptive skills” (AAIDD, 2019). Intellectual functioning refers to general mental capacity including an individual’s ability to reason, plan, learn quickly, understand complex ideas, and learn from experiences (Stanton- Nichols and Block, 2016). Adaptive behavior focuses on a person’s ability to use social, conceptual, and practical skills in everyday living including but not limited to financial skills, time management, interpersonal skills, personal care, citizenship, and self-esteem (AAIDD, 2019). However, despite these limitations, it is also important to recognize many constraints which may have an impact on an individual’s ability to develop and apply these skills. Environmental, community, and familial constraints can all play a role in an individual’s lack of intellectual and adaptive development.

An Intelligence Quotient (IQ) assessment is typically performed in combination with an adaptive behavior measurement to diagnose an intellectual disability. An individual with an IQ of 70 or lower (-2 standard deviations [SD] below the average of 100) is classified with an intellectual disabilities if the adaptive behavior assessment scale is also 2 SD below the mean (Stanton- Nichols, and Block, 2016). While this is the official diagnosis framework for intellectual disabilities, oftentimes there are strengths that co-exist with limitations. However, with appropriate supports for the individual, limitations are not definitive of what the individual may be capable of in the future.

Individuals with intellectual disabilities exhibit mental constraints which are oftentimes not accompanied by physical limitations. Many individuals with intellectual disabilities can meet the daily recommendations for physical activity and actively participate in community recreation programs.
However, some experience limitations because of a secondary condition such as an inability to reach maximum heart rate resulting in a lower VO$_2$ max, musculoskeletal problems, or having an atlantoaxial instability. Stanton-Nichols and Block (2016) suggested individuals with intellectual disabilities differ considerably in physical fitness levels compared to their non-disabled cohort even if individuals with intellectual disabilities who experience physical limitations are excluded from the comparison. Lower VO$_2$ max levels, less muscle strength, weaker motor skills, and struggles with balance and coordination all represent physiological barriers experienced by individuals with intellectual disabilities that limit activity participation.

Individuals with intellectual disabilities often experience barriers not related to physiological factors participating in regular physical activity. These include transportation to physical activity programs and facilities, information about accessible facilities, and fitness professionals to help provide physical activity options as well as behavior intervention to facilitate appropriate behavior in public settings (CDC, 2019). Other barriers to physical activity include an individual’s need for behavior intervention in public fitness facilities, lack of finances, low social or familial support for exercise, and a lack of proper physical activity options and materials (Rimmer, Riley, Wang, et al., 2004). Many of these barriers are very external to the individuals with intellectual disabilities and can be resolved by planning within the community, environment, and society. Several additional barriers are more internal and may impact the individual’s ability to begin adopting a healthy lifestyle and identifying strategies and to initiate and maintain behavior change is paramount to overcoming internal barriers (Kosma, Cardinal, and Rintala, 2002).

The aim of this paper is to analyze how key behavior change theories might play a role in individuals with intellectual disabilities’ decisions to become more physically active. A thorough case study analysis was conducted on constructs for two theories as they pertain to behavior change for individuals with intellectual disabilities. Specifically, the Self-Efficacy Theory and Self-Determination
Theory were analyzed, adapted, and applied to considerations for how to increase physical activity levels in the adults with intellectual disabilities.

**Theoretical Intersection & Case Study Presentation**

Theoretical development is never meant to be conclusive, but rather an indefinite model which is constantly evolving (Rescher, 1996). The fluctuating movement of theory oftentimes result in constructs from previous theories being derived and inserted into a new theoretical paradigm. Theory drives practice (Hart, Tsaousides, Zanca, et al., 2014) and looking at possible rationales for individuals with intellectual disabilities’ lack of regular physical activity through various developed theories may help in identifying some of the internal barriers that are faced when making decisions about changing health related behavior. Internal barriers to participation in physical activity may be linked more toward autonomy or intrinsic and extrinsic motivation which can positively or negatively affect behavior change (Eagle, Chan, Iwanaga, et al., 2017). Different theories use different constructs to identify keys for intervention implementation; however, many constructs are shared across theories related to behavior change. Using theoretical models to change health behavior in individuals with disability has not been described in much detail within the disability literature but could be a fundamental part of initiating change (Lai, Young, Bickel, et al., 2017).

*Hypothetical Case Study: Utilizing theory to drive practice helps design more effective programming.*

The following descriptions represent individuals currently participating in a fitness program; however, a case study was not completed on them. Their personalities, observed motivation for fitness, and levels of fitness were used to create hypothetical subjects for purposes of this manuscript.

*Ann and Drew*¹ are young adults with intellectual disabilities, and each vary in their levels of physical activity. The support systems for each of these young adults with an intellectual disability are strong and desire for them to learn fundamental fitness skills to help them engage in active lifestyle more

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¹ These adults are current participants in a fitness program for individuals with disabilities; however, their names have been changed to maintain anonymity.
independently, but each have internal barriers preventing them from starting a change toward healthy behavior or improving current physical activity engagement.

Ann is a young woman who exhibits low self-esteem and is always very hesitant to try any new physical activities; however, she is very social and enjoys spending time with family and friends. Ann is motivated by trainers who are able to identify with her personality and interests but shuts down when activities are perceived as too difficult for her or they do not interest her.

Drew is a very social young man who is motivated only by activities he enjoys. Oftentimes, when he is presented with a task that doesn’t interest him, he shuts down and uses defense mechanisms to avoid the activity. Drew has a strong support system at home, however, when working with his trainer his support system revolves around his trainer and others in the workout facility he can identify with. He is not easily motivated when participating in fitness activities which are of little value to him and oftentimes looks for extrinsic motivation to come from his external support system in terms of positive encouragement, tangible rewards (sports drinks, and snacks), and being able to socialize with friends.

Theory Descriptions and Hypothetical Case Study Application

Two key theories were critically assessed for theoretical considerations of behavior change for Ann and Drew: Self-Efficacy Theory and Self-Determination Theory. The constructs involved in the Self-Efficacy Theory can be viewed as the foundation for developing self-determination and motivation for health behavior change. The Self-Determination Theory has proven applicable for use in gauging physical activity motivation and participation in individuals with disabilities through various studies. Qualitative studies conducted by Farrell et al. (2004), McLoughlin et.al. (2017) both determined that applying the constructs of the theory proved valuable in identifying why this population continuously participate in physical activity.

Self-Efficacy Theory

The Self-Efficacy Theory is a sub-scale theory developed by Albert Bandura which focuses on a person’s beliefs of their ability to change behavior. If individuals do not believe they are able to complete desired tasks or change behavior, they have little enticement to try the change (Bandura, 1999). An individual’s
expectancy outcomes also play an important factor in behavior change; individuals with intellectual
disabilities may also struggle to recognize the outcome benefits of which occur from putting forth effort
and will have little incentive to begin change (Eagle, Chan, Iwanaga, et al., 2017). Figure 1 depicts the
Self-Efficacy Theory which is one of the most professionally researched theories concerning what drives
behavior change and has shown significant effectiveness in motivating individuals to become physically
active (Kosma, Cardinal, and Rintala, 2002). Bandura (1999) theorizes that behavior change is directly
related to perceived competence which naturally equates to levels of self-efficacy. When working with
adults with intellectual disabilities, the four key constructs (mastery experiences, vicarious experiences,
social persuasion, and physiological signals) within Self-Efficacy Theory can be utilized and modified
for individual application as needed to stimulate desired results in increasing physical activity levels
(Kosma, Cardinal, and Rintala, 2002). Figure 1 identifies the key constructs involved in Self-Efficacy
Theory while Table 1 provides ideas for adaptation and implementation for individuals with intellectual
disabilities.

[insert figure 1]

*Figure 1-Self-Efficacy Theory Constructs to Behavior Change*

Ann (from the case study) is a young woman with intellectual disabilities and has low self-esteem. Ann
really enjoys running although she is hesitant to join a track team because she does not believe in her
ability to be successful against other individuals. Consideration of the constructs and possible adaptations
within the Self-Efficacy Theory for improving Ann’s self-efficacy may prove beneficial when identifying
internal barriers potentially keeping her from actively engaging in physical activity.
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| Mastery Experiences | Providing client with activities that are parallel with current level of performance prior to increasing difficulty | • Discuss with client recent activity accomplishments  
• Ask client to perform recent accomplishment  
• Observe client affect and demeanor during discussion and performance  
• Make activity recently accomplished slightly more difficult and offer assistance or make modifications if needed.  
• As client succeeds with modifications to activity begin encouraging more independence. | • Ann’s most recent accomplishment was winning a family relay race  
• Trainer decreased distance in running due to Ann experiencing fatigue  
• Trainer ran alongside Ann to build confidence |
| Vicarious Experiences | Having client observe similar individual complete the activity successfully | • Have client identify individual activity goals, and have client observe someone identifiable to them complete the activity successfully- in person or in video. | • The trainer accompanied Ann to watch a district Special Olympics track meet  
• Ann observed other individuals she could relate to be successful at the meet |
| Social Persuasion | Family and friends acting as positive influences for client’s behavior change | • Have a friend accompany client throughout workout  
• Trainer can do the activities alongside client  
• Positive encouragement from family, friends, and trainer | • The trainer met with Ann’s family and friends to encourage adopting active lifestyle alongside Ann for added support  
• Inviting Ann’s friends and colleagues to join her for training sessions |
| Physiological Signals | Providing client with information regarding physical symptoms they may be experiencing during exercise to help them identify these signals as normal | • Use rate of perceived exertion scale for client- if RPE is high ask what client is experiencing and reassure client of normal physiological signs and signals related to exercise.  
• Discuss when signs and symptoms need to be considered and activity should be terminated | • Ann informed her trainer about her soreness and fear of her heart beating so fast.  
• The trainer reassured Ann that these were normal bodily responses to exercise and began using a more practical scale of exercise intensity Ann could relate to. |

Table 1. Self-Efficacy Theory construct descriptions and general examples adapted from (Wise, 2002) with case study modification examples
Mastery experiences refer to a person’s ability to successfully complete tasks with relative ease and prominent levels of independence (Wise, 2002). Upon meeting Ann, her trainer discussed Ann’s recent accomplishment of challenging her relatives to a relay race at her family reunion. Her team won which elated Ann, so the trainer asked Ann to show her how fast she could run for 100 meters. The trainer observed that Ann was quick to show her running ability, but the closer she got to the finish line, the more Ann became fatigued and her affect dwindled. In response to this observation, the trainer decreased the distance Ann needed to run, challenged her to run again, and provided challenging support by running alongside Ann for the subsequent demonstrations. As Ann became more comfortable running, the trainer began increasing the distance and gradually began removing herself from running alongside to increase Ann’s independence. The trainer hypothesized that by adapting a skill Ann is already familiar with, she may build her performance confidence due to successful completion as well as independence. As the difficulty increased and Ann experienced success through adapted activities, the trainer expected fewer modifications to be necessary and independence with activity would increase over time which could further improve efficacy. As her trainer began removing modifications, Ann’s independency began to develop, and it became evident she was beginning to feel confident in her ability.

Bandura (1999) highlighted that observing the accomplishments of someone to whom the viewer relates, has profound impact on self-efficacy. Essentially, by observing someone to whom a person can relate accomplishing something they, themselves want, they can better envision themselves gaining that accomplishment. Ann’s case allowed for the trainer to implement ways for Ann to have vicarious experiences and observe effective task completion by another individual with whom she could self-identify. By observing these experiences of others to whom she could relate, an opportunity was created in which Ann might believe she could be successful in a physical task. To further improve work on Ann’s self-efficacy, her trainer escorted her to a District Special Olympics track meet where Ann observed other adults with intellectual disabilities. Because Ann could identify with these individuals, she was also able to experience the environment of a track meet and envision herself as a participant. The trainer did this with hopes of providing a vicarious experience for Ann to be able to imagine herself competing alongside
other athletes in a similar environment. After watching the track meet Ann showed signs of believing in her ability to participate in the Special Olympics in the future. She was verbalizing her interest in participating in track meets and began initiating physical activity more independently.

Ann’s family and friends want her to become more physically active as an adult but are essentially silent partners in the process. Ann’s silent partners transport her to meet with her trainer three days per week but do not stay to watch or demonstrate a lifestyle of physical activity. When meeting with Ann’s family and friends to discuss why they wanted Ann to have a trainer, the trainer discussed the importance of social persuasion to enhance a person’s efficacy, confidence, and motivation. The trainer strongly encouraged Ann’s support system to begin participating in activity alongside Ann, as well as began discussing encouraging aspects of Ann workouts. By implementing this partner engagement change, Ann was able to experience the support and change with the support of her partnership system. From this, Ann began to exhibit higher levels of self-efficacy. While Ann appreciated the support from family, she was relatively independent from her family in other aspects of daily living and preferred friends and colleagues to accompany and participate alongside her throughout her workouts. Some adults with ID who show already high self-efficacy may feel controlled or overprotected by large amounts of social support, so it is essential to provide social support as necessary (Hamilton, Warner, and Schwarzer, 2017). Everyone prefers diverse types of social support. Individuals prefer different supports at different life stages (Peterson, Lowe, Peterson, et al., 2008). As adults with intellectual disabilities get older, they may prefer support from a friend or colleague rather than a parent or family member (Peterson, Lowe, Peterson, et al., 2008).

Initially when Ann began training with higher intensity, she would become easily fatigued and her affect would diminish as well as her motivation. She was getting out of breath and experiencing body soreness during training sessions. The signals she was experiencing in her body were frightening and she quickly stopped the activity. Her trainer identified what Ann was feeling as physiological signals and reassured her the symptoms she was experiencing were related to normal exercise. Adults with intellectual disabilities may not have the knowledge regarding physiological effects of physical activity.
on the body and can turn their motivation into reluctancy (Stanton- Nichols and Block, 2016). Acknowledging these signs is necessary to negate negative emotions and to be reassuring that something effective is happening through physical activity (Wise, 2002). To further reassure Ann, the trainer began utilizing the Borg’s Rate of Perceived Exhaustion (RPE) (Centers for Disease Control, 2020) so they both could easily recognize when Ann needed a break or when exercise intensity was too high. Once Ann better understood her body’s response to exercise, and with the implementation of the RPE scale, she was able to continue exercise when these signals arose.

Individualized modifications theory constructs for individuals with intellectual disabilities can positively impact self-efficacy and reduce hesitancy in attempting an unfamiliar or challenging activity. Ann’s trainer’s ability to identify internal barriers keeping Ann from engaging in specific activities allowed him to make modifications to activities through the use of self-efficacy constructs. Upon implementing individualized modifications for self-efficacy constructs, Ann’s willingness to attempt activities improved, allowing her to overcome her barriers to exercise.

**Self-Determination Theory**

The Self-Determination Theory (SDT) depicted in Figure 2 centers on how much of an individual’s behavior is related to self-motivation or self-determined (Eagle, Chan, Iwanaga, et al., 2017).

![Figure 2- Self Determination Theory Constructs](https://mc.manuscriptcentral.com/jnlid)

Individuals with strong internal beliefs and desires will generally excel with motivation and determination; However, environmental factors must also be considered because these can effect an individual’s tendency to act on a behavior in which they intend to participate (Sun, Li, and Shen, 2017). Individuals need three various sources of motivation or self-determination “nourishment” for continued physiological growth and integrity: Autonomy, competency, and relatedness (Eagle, Chan, Iwanaga, et al., 2017). _Autonomy_ implies individuals have choices in activities and can experience, regulate and, acknowledge their own behavior (Eagle, Chan, Iwanaga, et al., 2017). When individuals experience autonomy, they tend to engage in activities and simply participate (Sun, Li, and Shen, 2017). _Competency_
is related to ability but is specifically being able to complete a task efficiently and effectively. Competency is an individually determined component especially when motivation is a factor (Standage, Duda, & Ntoumanis, 2003). When individuals' perceived competence is low, their motivation level is reciprocal. Relatedness is an innate need to feel connected to others and be considered a member of a group (Sun, Li, and Shen, 2017). Table 2 depicts adaptation and implementations for each Self-Determination Theory construct with regard to individuals with intellectual disabilities.

Examining the constructs of Self-Determination Theory through the lens of the self-determination continuum while making adaptations for individuals with intellectual disabilities becomes particularly important when working towards increased determination and motivation. Drew was the case study’s young man who is only motivated to participate in physical activity he enjoys. When Drew shuts down due to his disinterest in an activity, a consideration of possible adaptations related to self-determination may bring insight into what motivates him. Drew loves participating in boxing and power lifting, but he dislikes cardiovascular exercise, core strengthening exercise, and flexibility. Drew’s trainer understands his interests, but also acknowledges the importance of completing the activities he dislikes. The trainer identifies Drew’s motivation level for power lifting and boxing as autonomous in large part because Drew feels self-autonomy, competent in these activities, and related to the environment where both of these activities are practiced. Drew does not need extra reinforcement because of his inherent joy gained from the activity.
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| Autonomy  | Allowing the client to exert independence over physical activity selections | - Discuss client’s interests and enjoyable physical activities  
- Create fitness plan related to client interests  
- Provide client with alternative activities as needed | - Trainer discussed with drew his goals and interests as well as his dislikes to better understand how well he may engage with certain activities  
- The trainer had Drew select interests and favorable activities from a list in an effort to establish a feeling of autonomy for Drew |
| Competency | Activities that are easily and correctly completed by client | - During a pre-assessment identify activities and skills of competence  
- Use those activities as positive reinforcers during future sessions  
- Have client identify activities they feel competent in completing and assess whether or not competence is definite  
- Develop a fitness plan where activities of low and high competence are implemented throughout | - The trainer identified areas of skillfulness and motivation for Drew to use as potential motivational reinforcers for future sessions  
- Drew named specific components of fitness he disliked  
- The trainer asked Drew how successful he felt when he was completing selected pre-assessments as a gauge on perceived competence levels |
| Relatedness | Providing clients with a sense of belonging in facility and among other clients | - Introduce client to outgoing patrons throughout facility  
- Invite support system to participate throughout client’s training session  
- Work with client in an environment where they feel safe and included | - The trainer introduced Drew to several patrons of the facility and allowed Drew to take part in activities alongside them.  
- The trainer invited friends and family of Drew to participate with and allow him to observe their workouts in the facility to provide a feeling of relatedness within the facility as well as in the fitness community |

Table 2 Self Determination Theory key constructs and examples of possible modifications
Another aspect of the Self-Determination Theory which should be considered is the degree of motivation the individual exhibits to participate in a specific activity. Degrees of motivation can be visualized as additional components (within the Self-Determination Theory) on a continuum of defined levels of motivation based on an individual’s ability to regulate their own behavior towards completion of tasks. (See Figure 3). Autonomous motivation falls at the far end of the self-determination continuum where an individual’s self-regulation stems from intrinsic interest, satisfaction, and enjoyment of activities. Individuals set high expectations for themselves and do not need extrinsic motivation for participation (Ryan and Deci, 2000). However, prior to needing little extrinsic motivation, individuals exhibit varying degrees of determination and motivation which can be directly related to the self-determination constructs: autonomy, competence, and, relatedness. This continuum may be of value when deciding why an individual may behave in certain ways with regard to different activities.

Drew’s lack of motivation for cardiovascular type exercise may be categorized as amotivation or lack of intent to take part in the desired activity. Amotivation often occurs when individuals do not feel competent with the activity or they do not equate outcome expectancies with anything desirable making the activity itself of little personal value (Sun, Li, and Shen, 2017). Adults with intellectual disabilities who show signs of amotivation need to be met “where they are” and simply encouraged to interact with their environment in the proper ways applicable to the activity and take part in interpersonal interaction with others in the group. Drew’s trainer identifies his amotivation and behavior as externally regulated because even though Drew dislikes these activities, he will complete them with minimal effort out of shame and reaction to external rewards offered for activity completion. External regulation is the lowest level of controlled motivation and requires extensive external motivation with compliance and external rewards being the determining factors for self-regulation and activity participation (Ryan and Deci, 2000).

To increase Drew’s motivation for the activities, the trainer discusses with Drew why he enjoys power lifting and boxing so much which are related to his older brothers’ interests. Drew attends his brothers boxing and power lifting events, but he does not know that his brothers have had to work at all of the fitness components Drew does not enjoy in order to be successful. Drew’s trainer begins developing a
plan to include and implement activities related to boxing and power lifting which also work on the components of disinterest. The trainer also encourages a stronger support system from his family asking his brothers to do some workouts alongside Drew and having Drew observe their workouts. External rewards for Drew consist of socializing with others in the facility after completion of activities, guided self-activity selection, and repeated high energy positive encouragement.

With the implementation of each of these adaptations, Drew slowly began to move through controlled motivation to understand the importance of whole-body fitness as a way to improve his love for boxing and power lifting. As Drew begins to feel more autonomy and competent over the selection of activities needed to improve his fitness, he moves toward introjected regulation. Introjected regulation results in an individual completing an activity to avoid a sense of guilt or to maintain pride. Individuals at this level still require ample extrinsic motivation and utilize self-control as a way to regulate motivation, but they still do not place value on the activity, and instead rely on outside motivation (Standage, Duda, and Ntoumanis, 2003). Drew’s trainer begins to implement more strategies to enhance Drew’s motivation and understanding of why the activities he is doing are so beneficial to improve his power lifting and boxing skills. The trainer begins trying to increase Drew’s knowledge related to each exercise and how it might relate to his desired activities. Even though Drew does not completely understand the benefits of each activity, he became more motivated by how these exercises might improve his boxing and power lifting ability. Drew’s self-regulation became more intrinsic as he was able to start envisioning the benefits of completing activities which previously made him shut down.

As individuals near identified regulation, individuals begin to understand the value and recognize the personal importance of the activity (Ryan and Deci, 2000). This slow growth toward determination lends itself to individuals developing a limited level of intrinsic motivation while most motivation is still extrinsic. Because Drew’s trainer began explaining the importance of the activities, Drew moved into
identified regulation with relative ease. While he still disliked the activities, Drew began to understand their value and importance with regard to his power lifting and boxing abilities and began to experience the benefits of increasing his effort with them.

Through Drew’s increased effort, he began noticing improvements in his power lifting and boxing skills and his self-awareness shifted from a largely extrinsic motivation mindset towards one that was intrinsically focused. At this point, Drew has reached integrated regulation on the continuum. Integrated regulation represents individuals beginning to adopt the values of the activity and integrate them into their own level of motivation. People demonstrate integrated regulation when they recognize the importance of participation and are able to actively participate without needing much external motivation (Sun, Li, and Shen, 2017). Drew’s trainer recognized his motivation shift and began slowly phasing out external reinforcement and rewards to encourage Drew and instead encouraged him to begin doing more self-reflection after activity completion. Self-reflection increased Drew’s perceived competence and began to illustrate the autonomy and relatedness he felt while exercising.

Because adults with intellectual disabilities may identify anywhere along the self-determination continuum, they may require many different modifications or reward systems to increase motivation levels for regular physical activity. If they do not believe they have autonomy, are competent, or feel related to others or the activity they may struggle with any type of extrinsic motivation and struggle with self-regulation. Respectfully maintaining high behavioral expectations is extremely important, and will allow these adults to begin understanding expectations and may be a good opportunity for them to interact on a personal level to describe what physical activities they value or find the most satisfying. Personal interaction with adults with intellectual disabilities will be valuable in determining whether the activity is worth pursuing. Through interaction identification of where an individual might fit on the continuum can be very useful and possibly lead to the consideration of other activities which may be of more value to the individual.
Conclusion

Understanding the theoretical perspectives that drive change is important when assisting adults with intellectual disabilities with behavior change. Understanding too how to apply behavior change theories to adults with intellectual disabilities can offer best practice suggestions and establish a framework for development. Considering individuals’ levels of self-efficacy, personal autonomy, external support, perceived competence and motivation, and outcome expectancies may offer essential information on how best to facilitate an increase in physical activity for adults with intellectual disabilities. Decreasing the obesity levels of individuals with disabilities has been a national goal for over a decade, (U.S. Department of Health and Human Services, 2010) and comorbid diseases related to obesity is plaguing this population (Centers for Disease Control, 2019). Increasing physical activity rates in individuals with disabilities is one method to decrease the likelihood of these comorbid diseases as well as decrease the prevalence of obesity. However, with various physiological, cognitive, external, and even internal barriers increasing physical activity in individuals with disabilities remains difficult for many. While many of these barriers can be eased through environmental, community, and social support, internal barriers remain a concern. Adults with intellectual disabilities may struggle with the knowledge of effective physical activity or experience physiological issues keeping them from actively engaging in physical activity. With proper support and modifications during activity, the enjoyability, interpersonal interaction, and outcomes experienced from physical activity may provide increased motivation to maintain behavior change. Certainly, utilizing the Self-Efficacy Theory and the Self-Determination Theory can prove beneficial when developing a behavior change plan for adults with intellectual disabilities.
References


Motivation and Determination

- **Competence**
  The experience of mastery and accomplishing activities

- **Autonomy**
  The feeling a person has a choice and can approve behavior

- **Relatedness**
  The need to feel connected with others
Behavior  | Nonself-Determined  | Self-Determined
---|---|---

Motivation  | Amotivation  | Intrinsic Motivation
Regulatory Styles  | Non-Regulation  | Intrinsic Regulation

Extrinsic Motivation  | External Regulation  | Introjected Regulation  | Identified Regulation  | Integrated Regulation

Perceived Locus of Causality  | Impersonal  | External  | Somewhat External  | Somewhat Internal  | Internal
Relevant Regulatory Processes  | Nonintentional, Nonvaluing, Incompetence, Lack of Control  | Compliance, External  | Self-control, Ego-Involvement, Internal Rewards and Punishments  | Personal Importance, Conscious Valuing  | Congruence, Awareness, Synthesis With Self
|  | External  | Internal Rewards and Punishments  | With Self  |  | Interest, Enjoyment, Inherent Satisfaction

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