Massachusetts Commission for the Blind VR Research Initiatives 2020

The Impact of Team Sports Participation on VR Outcomes

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# Abstract / Executive Summary

The purpose of this study was to analyze the relationship between participation of Vocational Rehabilitation (VR) consumers in structured team sports and successful consumer outcomes. The objectives of this study were to:

* Assess the potential benefits of team sports participation;
* Identify the key facilitators of and barriers to sports participation for individuals with visual impairments and other disabilities; and
* Formulate recommendations for how the Massachusetts Commission for the Blind (MCB) can best support sports program coordinators and individuals with visual impairments to approach team sports to maximize potential long-term benefits.

PCG reviewed extant scholarly literature on the impact of team sports participation on employment outcomes and development of employment-related skills. The literature was reviewed to examine factors which influence structured sports participation among individuals with visual impairments and other disabilities. PCG also conducted interviews with program facilitators of modified and traditional sports programs.

Key findings from the literature review and stakeholder interviews include the following:

* Participation in team sports aids in the development of important socio-emotional skills which are related to employment.
* The development of these socio-emotional skills is intrinsic to participation in team sports and does not need to be explicitly cultivated.
* Different types of sports are associated with different improvements in vocational outcomes.
	+ Team sports are generally associated with greater participation in the workforce.
	+ Outdoor sports are associated with higher wages.
* Major barriers to sports participation by VR consumers include a lack of accessible transportation, a lack of willing participants to modify and accommodate sports leagues, a perceived risk of injury from their participation, and an underestimation of the long-term benefits of participation.

Based on the findings from the literature review and stakeholder interviews, PCG formulated the following recommendations for MCB:

* Increase access to transportation and facilitate coordination between sports program facilitators and service providers to make sports more easily accessible to MCB consumers.
* Provide more information on the potential benefits of participating in team sports to parents of youth with disabilities and trusted information sources such as counselors and teachers.
* Consider a wide variety of potential opportunities for programs to promote participation of VR consumers, with a greater emphasis on team participation as opposed to the physical aspects of traditional “sports.”

# introduction

The following section introduces the goals of this research and the reason it was commissioned.

## Study Objective

The Massachusetts Commission for the Blind (MCB) is charged with administering Vocational Rehabilitation (VR) services for the Commonwealth’s legally blind job-seeking consumers. This includes promoting and supporting individuals in non-work activities to build the skills necessary to be successful at work. While this has classically been understood to involve service delivery in providing education, orientation and mobility, or technical job skills, there are other skills which are necessary to obtain and maintain employment. These include a general sense of physical health, and importantly, a suite of basic social and emotional (socio-emotional) skills which are more difficult to group and measure. These include concepts like teamwork, emotional self-regulation, goal setting, and many others. These are all skills that may be promoted by participation in team sports activities that have not always been viewed as specific job training.

MCB chose to partner with Public Consulting Group (PCG) to learn more. This research study attempts to understand the relationship between participation of VR consumers in structured sports and VR participants achieving successful employment outcomes. This study attempts to assess the potential benefits to individuals with visual impairments who participate in sporting activities, the opportunities and barriers for them to participate in such activities in Massachusetts, and provides recommendations for actions that the Massachusetts Commission for the Blind could undertake based on these findings. With this report, MCB will be able to determine the benefits their consumer population could enjoy, and the best ways they can incorporate potential sports programs into their existing programming.

To complete this assessment, PCG:

1. Conducted a literature review of scholarly articles relating to the benefits of and barriers to team sports participation among youth regardless of sightedness,
2. Conducted stakeholder surveys of those with an interest in team activities for youth in Massachusetts,
3. Analyzed collected data to identify potential job skills gained through sports participation, and better understand the current landscape for participation by youth with visual impairments or blindness,
4. Leveraged other research being done in partnership with MCB, and
5. Developed a spectrum of recommendations for MCB’s consideration.

# methodology

This section explains important terms used in this research for ease of reference, and briefly describes how PCG went about collecting research and information.

## Terminology

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| --- | --- |
| Term | Definition |
| MCB | The Massachusetts Commission for the Blind |
| PCG | Public Consulting Group |
| Youth | Individuals age 21 and younger |
| Team sports | Activities which involve a group of individuals (two or more) who participate in some physical form of recreation regardless of whether the recreation explicitly requires coordination between individuals. For example, a track meet would be a team sport, while a marathon would not. |

## Data Collection & Research

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| --- | --- |
| **Research** | * PCG conducted a literature review on the impact of participation in team sports on employment outcomes. This included research on potential benefits of team sports participation which could impact employment outcomes such as socio-emotional development. In total, 17 articles were used for this research.
* Studies were reviewed if they appeared high in relevance on free-to-access databases of scholarly research, were printed in English, were published in the last 15 years, and were accessible to researchers.
 |
| **Interviews** | * An interview questionnaire was created, focusing on how interview subjects incorporate practices which align with findings from the literature review, and their perceptions of the impact of team sports on future employment and life skills outcomes. The goal of these interviews was to better understand the current landscape for sports programs.
* The questionnaire covered topics like program design, skills development, and barriers to participation. It is included in Appendix: Interview Questionnaire.
* Interviews were conducted with individuals representing organizations that operate either traditional or adaptive sports programs.
* PCG conducted 2 interviews.
 |
| **Data Analysis** | * Qualitative analysis was conducted of the interview responses to identify trends and additional insights into current programming.
* PCG has also incorporated aspects and findings from research done in partnership with MCB such as the Comprehensive Statewide Needs Assessment, the review of Essential Job Duties of Successful VR Closures, and the Feasibility of Establishment of a For-Profit Business.
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# Literature Review

This section describes the findings of the literature review, detailing the points of greatest relevance to MCB’s goals for this research and their greater mission. Full references for each of the works cited in this section can be found in References.

## Socio-Emotional Skills

Several recent studies have found that participation in team sports aids in the development of important socio-emotional skills. For example, a study in Italy found a correlation between blind individuals’ participation in Torball, a popular adaptive sport which is played in many countries around the world by individuals with visual impairments and other disabilities, and psychological well-being and enhanced social skills (Di Cagno et al., 2013).

In Torball, players are divided into two teams of three. These teams attempt to score points by getting a ball into their opponents’ goal area, while simultaneously preventing their opponents from doing the same. All players must keep the ball’s movement beneath a set height, limiting the movement of the athletes in three dimensions. The balls are specially designed to make noise as they move, signaling their location to the players (International Blind Sports Federation, 2020).

In comparison to the non-players (i.e., blind individuals who did not participate in Torball), the Torball players showed significantly better scores across eight symptomatic dimensions: anxiety, depression, obsessive-compulsive disorder, interpersonal sensitivity, phobic anxiety, paranoia, psychoticism, and sleep disorder. The only symptomatic dimensions which did not show significant differences between the player group and the non-player group were somatization (i.e., anxiety or depression manifesting as pain or physical symptoms) and hostility (Di Cagno et al., 2013).

The player group also scored significantly better than the non-player group in five dimensions related to psychological well-being: self-acceptance, personal growth, positive relations with others, purpose in life, and environmental mastery (i.e., feeling in charge of the environment in which one lives). The only psychological well-being dimension which did not show a significant difference between the two groups was autonomy. Social restriction scores, measuring each individual’s level of social participation, were also significantly better for the player group than the non-player group (Di Cagno et al., 2013).

The low levels of psychological disorder symptoms and high scores for psychological well-being and social participation suggest that participation in Torball can help individuals with visual impairments to achieve psychological well-being, improve their mental health, and enhance their social skills (Di Cagno et al., 2013). While this publication’s findings were limited to Torball, these implications could potentially be linked to sports beyond Torball in which individuals participate. The cause does not seem likely to be related to the specific activities of Torball, but rather the social and physical benefits of sports at large.

A recent study on the impact of coaches in community sports programs on the personal development of socially vulnerable youth found that sports participation can help socially vulnerable youth to learn important life skills such as teamwork, perseverance, and coping skills. These skills will be extremely valuable as youth enter the workforce later in life and can also help youth achieve greater educational and social success. Importantly, the sports coaches agreed that the transfer of these life skills from a sports setting to other societal domains occurs naturally and unconsciously, which means explicit strategies to stimulate life skill transferability are unnecessary (Super, Verkooijen & Koelen, 2018).

A few of the coaches did mention, however, that it is sometimes a good idea to remind youth that the skills they are developing through sports participation have important applications in other domains and can help them in everyday life. More so than explicit strategies to stimulate life skill transferability, the coaches emphasized the importance of creating a safe and compassionate social climate which is conducive to life skill development (Super et al., 2018). Super, Hermens, Verkooijen and Koelen (2018) found a statistically significant positive association between sports participation and several youth developmental outcomes for socially vulnerable youth, including pro-social behavior, subjective health, well-being, and sense of coherence. Conversely, they found no evidence of an association between sports participation and problem behavior or self-regulatory skills.

## Type of Sport

Recent research indicates the impact of sports participation on employment outcomes varies based upon the type of sport in which an individual participates. Lechner and Downward (2017) found that team sports contribute most to employability, while outdoor activities contribute most to higher incomes. According to Gorry (2016), participants in team sports experience greater labor market benefits than participants in individual sports. The study found participation in team sports was associated with significant increases in employment and earnings, and a significant decrease in use of income supports. Conversely, participation in individual sports was not associated with significant improvements in labor market outcomes. “The disparity between team sports and individual sports implies that there may be benefits to participating on a team and interacting with teammates that are not realized through individual sports participation. It suggests that policy makers should consider not just whether to create sports programs, but also think about which sports should be available to students” (Gorry, 2016, p. 15).

Studies suggest there is a link between the level of physical exertion involved in a sport, and the degree to which participation in that sport impacts employment outcomes. A recent study of longitudinal data from a Canadian public health survey found that, “over time, there are positive effects on [personal income] for an activity increase from moderate to active, but the increase from inactivity to only a moderate level of sports and exercise is too small to generate such effects” (Lechner & Sari, 2015, p. 9). In the long run, increasing one’s level of physical activity from moderate to high results in a 10 to 20 percent increase in personal income. This same pattern was observed for household income, although the magnitudes of the effects were slightly greater (Lechner & Sari, 2015).

## Barriers and Facilitators to Participation

Although participation in modified sports offers many benefits for individuals with visual impairments and other disabilities, a substantial number of eligible individuals do not participate. The most common barriers to participation in adaptive sports programs include transportation, perceived risk of injury, doubts about one’s abilities, limited financial resources, and difficulties accessing information about available programs (Lape et al., 2017).

Research suggests that transportation is a multifaceted barrier to participation in adaptive sports programs. Travel to and from adaptive sports activities requires advance planning and consumes financial, physical, and emotional resources, as well as time (Lape et al., 2017). In a study conducted by Lape et al. (2017), participants expressed frustration with publicly funded transportation programs, explaining that they “[experienced] long waits, inconvenience, and disrespect that threatened their feelings of control and autonomy” (p. 7). When asked about possible strategies to overcome these transportation issues, focus group participants mentioned planning trips as far in advance as possible, establishing a regular participation schedule, and setting aside several hours for transportation before and after activities (Lape et al., 2017).

In a study conducted by Shields and Synnot (2016), affordability was found to be a key determinant of individuals with disabilities’ participation in sports programs. “While cost is barrier to participation in physical activity that affects children with and without disability, there [is] an additional burden for families of a child with disability given the extra expense of caring for a child with disability, a reduced income as parents often [work] less and the need for one-on-one attention” (Shields & Synnot, 2016, p. 4). Focus group participants suggested flexible payment plans, subsidized programs, and access to modified equipment as ways to help families overcome these financial barriers (Shields & Synnot, 2016).

Shields and Synnot (2016) found that a lack of suitable opportunities for children with visual impairments and other disabilities was another major barrier to their participation in sports programs. While many communities offer an abundance of sports opportunities for children in general, sports programs for children with disabilities are few and far between. Furthermore, due to the shortage of viable sports programs for children with disabilities, many of the programs that do exist have extensive waiting lists. Personnel in the sports and recreation industry mentioned that adaptive sports programs often are not viable due to a lack of participants. When asked what could be done to overcome this barrier, focus group participants suggested that having more programs which are local and easily accessible via public transportation could facilitate participation.

In a study conducted by Lape et al. (2017), focus group participants cited injury risk as a significant barrier to participation in adaptive sports programs. Safety was reported to be an important consideration, not only when learning a new sport, but also when participating in a familiar sport. When discussing ways to overcome this barrier, participants emphasized the importance of having knowledgeable staff to help mitigate the risk of injury and put the athletes’ minds at ease. Focus group participants also recommended investing time before trying a new sport to identify ways to participate safely. Additionally, some adaptive sports participants reported that pushing the limits with regards to safety was a source of pride for them.

Participants in Shields and Synnot’s (2016) study “indicated that social barriers to participation (such as the attitudes of parents, staff and peers) were more influential than other types of barriers” (p. 8). While Shields and Synnot (2016) acknowledge that changing societal attitudes is difficult, they suggest that disability awareness programs could help sports program staff learn how to properly adapt activities to enable individuals with disabilities to participate. Furthermore, these disability awareness programs could help staff learn how to encourage positive interactions between children with and without disabilities, thereby offering opportunities for children with disabilities to develop friendships while also increasing awareness and understanding of disabilities for children with typical development.

## Impact on Employment and Endogenic Error

To understand the impact of team sports participation on employment outcomes – e.g. the likelihood of employment, wages, job status and self-determination at work – it is important to first understand the concept of endogenic error.

Endogenic error results from misunderstanding or underestimating the interactions between variables in a theoretical model. While there are many sub-types of endogenic error, the most important to understand in the context of this work is error created by dual causation. In a theoretical model, outcome variables such as employment are supposed to be determined by input variables such as gender, race, or education. Race (input variable) determines employment (output variable) instead of vice versa. Dual causation endogenic error occurs when an outcome variable determines, to at least some extent, an input variable.

Endogenic error is a source of confusion that plagues existing research on topics such as team sports participation on employment outcomes. We explain and unravel this difficult concept here as it is an important feature of the research that we must acknowledge. Any literature review without a thorough acknowledgement of the possibility of endogenic error would be incomplete as it is well understood as a potentially confounding factor. Due to the nature of endogenic error, it is impossible within the confines of a literature review to determine how great an effect this error has on any given piece of research. However, failure to understand and acknowledge this form of error leads to the likelihood of over determination.

This is the case with the relationship between participation in team sports and employment outcomes. Some of this dual causation is due to underlying variables – such as gender, race, and family income – that can be measured and controlled within a well-constructed statistical model. Other elements can underlay both variables but are more difficult to measure and thus to control within a model, such as social skills or emotional development. Still more error is introduced by the possibility of an inherent link between the two variables; individuals less interested in participation in team sports may simply be less interested in or capable of employment in a way that cannot be meaningfully decoupled within a statistical model.

Many studies conducted in recent years have demonstrated that participation in sports has a positive impact on employment outcomes. For example, a recent study in England found that sports participation is associated with a 10 percent increase in income across all ages and genders, and greater likelihood of employment for younger individuals (Lechner & Downward, 2017). A U.S. study of adults with chronic spinal cord injuries found that participation in organized sports is positively associated with employment. This effect is independent of factors such as age, level of education, and body mass index (Blauwet et al., 2013). Similarly, Lastuka and Cottingham (2016) found a positive correlation between team sports participation and rate of employment. Cabane and Clark (2015) identified managerial responsibilities and autonomy as the outcome variables for which childhood sports participation has the most significant effects.

## Selection of MCB 2020 Research Initiatives

Several of the barriers to team sports participation which were identified in the literature and in the interviews echo barriers presented in other aspects of research done in partnership with the Massachusetts Commission for the Blind. Foremost among these is transportation. Transportation was the most commonly reported barrier among respondents to the MCB consumer survey, and was frequently cited as a barrier by MCB staff and other service providers. The need for additional transportation options and resources for visually impaired or blind individuals seems to radiate throughout all available information.

Interview subjects mentioned that one limitation on the up-take of team sports for the visually impaired was a lack of potential participants. With noted difficulty finding transportation, individuals in rural parts of Massachusetts may be the only youth with a visual impairment in their area. This makes creating a team for an adaptive sport extremely difficult. Teachers for the visually impaired noted a lack of resources in rural Massachusetts, and that areas may be underserved because of the small potential service populations.

Teachers for the visually impaired and sports program administrators both also brought up a struggle working with parents of youth who are visually impaired or blind. Both believed that parents tend toward being overprotective and concerned with injury in ways that undercut independence and skill development among youth. This limits potential team sports participation and may undercut the development of skills required to achieve independence as an adult or working individual. The literature review shows that the perception of injury risk among participants exists, and this concern is likely to extend beyond the realm of sports participation (Lape et al., 2017).

PCG’s review of the most essential job duties for successful VR case closures showed that the most frequently cited job duties of a selection of occupations most often pursued by MCB’s VR consumers. The most cited duties were related to interpersonal interactions and the ability to work well and communicate with others. These link closely to the socio-emotional skills that the literature suggests may be built by team sports participation. This suggests that participation in team activities could be viewed as a job training or skills building exercise for many of the sorts of occupations these individuals pursue.

# Recommendations

The following recommendations are based on PCG’s review of the extant literature, the supporting evidence from stakeholder interviews, and PCG’s experience with other research commissioned by MCB. These recommendations are published in no particular order, and each is independent of the others.

## Promote Awareness of the Benefits of Team Sports Among Parents and Support Staff

All available research points to some individuals, particularly parents of youth with visual impairments and blindness, judging the risk of injury from sports participation as being particularly high. The perceived risk of injury may cause parents to underestimate the potential benefits of sports participation for their children, particularly if they do not understand the link between sports participation and the socio-emotional skills which research shows it helps to cultivate. Informing parents about the benefits of sports participation, through staff and personnel who parents trust, could increase the rate of sports participation among youth with visual impairments. This would also help youth to develop an interest in sports participation at a young age, thereby increasing the likelihood that they will participate in sports when they are older.

## Identify Opportunities to Promote a Variety of Sport Types

Interviews and the literature both point toward a variety of benefits and barriers to consider when deciding which sports to promote. Some sports require a low degree of adaptation to allow for participation from a variety of differently abled individuals while other sports, which require greater adaptation, are linked to improved socio-emotional development. Sports which are specifically tailored to participants who are blind or visually impaired may hold little interest to the wider population, which makes continuous engagement and high levels of participation difficult.

There is no one sport or model which completely addresses all potential barriers or maximizes all potential goals. Rather, MCB should seek to promote the ability of individuals who are interested in sports participation to determine their own interests. This can be accomplished by maintaining an agnostic attitude towards the specific nature of the sporting event, and instead focusing on the ability to help individuals form the social and emotional ties to a team that seem most closely related to job skills, independence, and job readiness.

## Increase Transportation Program Options and Access to Existing Transportation Resources

The demand for additional transportation options has been present across multiple pieces of research done in partnership with MCB. During the research conducted for the Comprehensive Statewide Needs Assessment, consumers reported high levels of transportation barriers to employment, and service providers reported limited transportation options as both a cost and a limitation on the types of supports they can provide. An interviewed adaptive sports provider also mentioned transportation needs as a limitation, preventing his or her organization from creating as many opportunities for sports participation as might otherwise be possible. The provider also reported that the organization had specifically considered providing transportation but decided that the cost was simply more than the organization’s resources would allow. This aligns with the findings within the literature.

MCB should consider what resources can be devoted to providing transportation options to potential sports participants if the desire is to promote team sports among individuals with visual impairments as a goal. MCB could also promote awareness of existing options. Consumer surveys and focus groups identified the RIDE’s Uber/Lyft subsidy program, MTBA’s blind access cards, and the orientation and mobility skills training necessary to travel independently as viable options.

MCB should also work to coordinate the placement and scheduling of adaptive sports activities between individuals with disabilities, sports providers, educators, and service providers. By bringing these groups into the conversation on the placement and timing of sports activities, greater levels of participation could be achieved. MCB is ideally situated to play a coordinating role in these relationships.

## Look Beyond Sports for Opportunities to Participate

This research focused on the link between participation in sports, particularly team-based sports, and employment outcomes. As research progressed, findings showed that the existence of such a link depends as much on the team aspect of an activity as it does the physical component. When searching for opportunities to help younger individuals develop important socio-emotional skills cited in this report, MCB should consider opportunities beyond traditional sports. While non-sport activities may not offer all the same benefits as team sports, this research suggests that many of the socio-emotional benefits of team sports participation are not necessarily linked to any specific sporting activity.

Moving the scope of consideration beyond traditional sports is useful in many ways. First and foremost, in comparison to team sports programs, team-based non-sport activities typically have fewer barriers to participation for individuals with visual impairments. An interview with an individual from National Academic Quiz Tournaments, LLC suggested that there are no activities involved in their quiz bowl tournaments which an individual with a visual impairment could not undertake without accommodation. Additionally, an organization can field a quiz bowl team for relatively little money compared to traditional sports teams, which require specialized equipment, uniforms, and larger numbers of players. There are many team-based non-sport activities which promote team engagement, including academic tournaments, debate clubs, and board game tournaments. An even broader view might remove the requirement for competition and include arts groups in which individuals with various disabilities could participate with little or no accommodation necessary.

Low-to-no accommodation activities could also overcome the lack of participants in many communities, which interviews and literature research revealed is a significant barrier facing adaptive sports providers. While a goalball team demands a population large enough to have multiple individuals with visual impairments be present, no such barrier exists for low accommodation activities such as quiz bowl. A youth with a visual impairment can participate in an academic or arts team alongside their peers who do not have disabilities. In addition to expanding access opportunities, it would potentially help destigmatize individuals with disabilities and normalize integrated settings for participating youth.

Sports participation offers some benefits which it is difficult to conceive of these other team activities providing, such as an increased sense of physical well-being and physical health. While there is some evidence that these are linked to employment success, other considerations limit the potential ability of individuals with disabilities to participate in sports. There is no compelling reason to believe that the other benefits identified in this research are exclusive to sport.

Many of the benefits of sports participation identified by PCG are linked more to team membership than to sports participation. There are activities which could conceivably provide similar benefits but have considerably fewer barriers to participation. Further research could help to build a solid foundation of evidence for this conclusion. PCG suggests pursuing research into the ways in which individuals with visual impairments could participate in mind sports, such as chess, Go, or knowledge competitions, or in e-sports, a growing field of competition in team-based electronic entertainment and games such as Fortnite, StarCraft, and many others. When seeking programs to promote, MCB should define team sports broadly to identify potential opportunities for team membership.

# Conclusion

This research provides an overview of the research on team sports participation and the places where those benefits of team sports participation overlap with the goals and function of MCB VR. It demonstrates that team sports participation can provide an array of important benefits which potentially translate into improved employment and vocational outcomes for participants. The benefits of team sports participation include numerous socio-emotional skills which are related to mental health and well-being and are often necessary to achieve basic success in a team-based or workplace environment. Socio-emotional skills are vital job skills which are necessary to function in a highly specialized working environment or fulfill the basic duties of any job which entails serving or working with others. This describes a great many of the occupations in the modern economy, as well as the occupations most commonly entered by successful MCB case closures. As such, MCB might categorize these as job training.

Although there is evidence to suggest that team sports participation during adolescence is correlated with positive employment outcomes later in life, there is reason to take this conclusion with a grain of salt. Unfortunately, employment and team sports participation are linked by many underlying factors, and it is extremely difficult to prove a causal relationship between the two. While extant research cannot definitively prove that team sports participation has a direct impact on employment outcomes, participation in team sports has been shown to aid in the development of important skills which are necessary for workforce participation and employment success.

Unfortunately, MCB consumers and other youth with visual impairments face significant barriers to participation in team sports. The population available to participate in adaptive sports is quite small in many areas of the Commonwealth, making it virtually impossible to start a team or league without making a significant investment in transportation resources to make the program accessible to participants who live outside of the immediate area. In areas where the population of individuals with visual impairments is large enough to make sustaining a team or league possible, interest often is moderated by perceived risk of injury, or by youth having little free time to participate in extra-curricular activities due to additional services and skills training which they are already undertaking. Finally, cost can be a barrier for some families whose budgets are already stressed by the needs of someone with a visual impairment.

PCG has formulated recommendations for MCB on ways to confront these barriers and promote team sports participation. Firstly, greater efforts should be made to educate MCB consumers and staff on the benefits of team sports participation and its impact on the development of important life and job skills. In their promotion of sporting activities, MCB should attempt to provide the broadest possible range of offerings—while team sports appear to provide the greatest benefits, many sports provide similar benefits. Also, overcoming interest and participation barriers should be prioritized. Finally, MCB should consider promoting activities beyond traditional sports. Mind sports, for example, have very low barriers to adaptation for individuals with visual impairments. Additionally, e-sports is an exciting and emerging field which deserves more research. By focusing more on team activities than a traditional view of sports, MCB can maximize the available methods of participation.

Ultimately, the promotion of team sports fits well within MCB VR’s goals of promoting employment and providing job training for individuals with visual impairments. Many of the skills required to help an MCB VR case close successfully are promoted by team sports participation. The barriers to participation are daunting, but with support and a broad focus, they can be overcome. MCB should consider the best ways to increase team sports participation among its consumers, and how these programs can fit into the portfolio of services which consumers may choose to receive.

# References

Blauwet, C. A., Yang, H. Y., Cruz, S. A., Collins, J. E., Smith, K. C., Losina, E., & Katz, J. N. (2017). Functional and Environmental Factors Are Associated With Sustained Participation in Adaptive Sports. *PM&R, 9*(7), 668-675. doi:10.1016/j.pmrj.2016.10.015

Cabane, C., & Clark, A. E. (2015). Childhood Sporting Activities and Adult Labour-Market Outcomes. *Annals of economics and statistics*, 123-148. doi:10.15609/annaeconstat2009.119-120.123

Di Cagno, A., Iuliano, E., Aquino, G., Fiorilli, G., Battaglia, C., Giombini, A., & Calcagno, G. (2013). Psychological well-being and social participation assessment in visually impaired subjects playing Torball: A controlled study. *Research in Developmental Disabilities, 34*(4), 1204-1209. doi:10.1016/j.ridd.2012.11.010

Gorry, D. (2016). Heterogenous effects of sports participation on education and labor market outcomes. *Education Economics, 24*(6), 622-638. doi:10.1080/09645292.2016.1143452

International Blind Sports Federation. (2020, September 3). *Torball - General information*. Retrieved from International Blind Sports Federation Web site: https://www.ibsasport.org/sports/torball/

Lape, E. C., Katz, J. N., Losina, E., Kerman, H. M., Gedman, M. A., & Blauwet, C. A. (2017). Participant-Reported Benefits of Involvement in an Adaptive Sports Program: A Qualitative Study. *PM&R, 10*(5), 507-515. doi:10.1016/j.pmrj.2017.10.008

Lastuka, A., & Cottingham, M. (2016). The effect of adaptive sports on employment among people with disabilities. *Disability and Rehabilitation, 38*(8), 742-748. doi:10.3109/09638288.2015.1059497

Lechner, M., & Downward, P. (2017). Heterogeneous sports participation and labour market outcomes in England. *Applied Economics, 49*(4), 335-348. doi:10.1080/00036846.2016.1197369

Lechner, M., & Sari, N. (2015). Labor market effects of sports and exercise: Evidence from Canadian panel data. *Labour Economics, 35*, 1-15. doi:10.1016/j.labeco.2015.04.001

Shields, N., & Synnot, A. (2016). Perceived barriers and facilitators to participation in physical activity for children with disability: a qualitative study. *BMC Pediatrics, 16*(9), 1-10. doi:10.1186/s12887-016-0544-7

Super, S., Hermens, N., Verkooijen, K., & Koelen, M. (2018). Examining the relationship between sports participation and youth developmental outcomes for socially vulnerable youth. *BMC Public Health*, 1-12. doi:10.1186/s12889-018-5955-y

Super, S., Verkooijen, K., & Koelen, M. (2018). The role of community sports coaches in creating optimal social conditions for life skill development and transferability – a salutogenic perspective. *Sport, Education and Society, 23*(2), 173-185. doi:10.1080/13573322.2016.1145109

# Appendix – Interview Questionnaire

## Basics

Interviewer:

Time:

Interviewee:

Position:

Organization:

## Introduction

Thanks for speaking with me today. My name is [NAME], and I work with Public Consulting Group. We’re working in partnership with the Massachusetts Commission for the Blind to learn more about sports programs and adaptive sports for individuals with visual impairments. We particularly want to know more about the long-term effects of sports and team involvement on participants. I have a few questions to ask, but the primary goal is to listen to what you have to say.

To let you know, I’m recording this conversation. This is only so I can spend less time taking notes and more time paying attention to what you have to say. This recording will never be provided to MCB, it’s only for my own reference. Your name and organization will not be attached to anything we produce without your explicit permission.

Before we begin, do you have any questions for me?

## Interview Questions

1. To begin, what can you tell me about your organization, its programs, and its goals?
2. What sorts of sports or other team activity programs does your organization run?
3. How many people participate in your organization’s programming? How many are youth under the age of 21? What portion of the people you serve are legally blind? How many staff do you employ?
4. What sort of training is required of your coaching staff? For example, do you require individuals to have a degree in education, or specific background in adaptive sports?
5. Where do you operate programs, e.g., county or city location, and what sort of settings, e.g., schools, public recreation facilities, private facilities, or somewhere else?
6. Our research has identified transportation as a major limiting factor for many young people with visual impairments. What transportation modes are most commonly used by participants to get to your programs? Do you provide any sort of transportation?
7. How do you encourage youth to participate in your programs? What mediums are used to promote your programs to youth with visual impairments?
8. What skills does your program focus on?
9. Why do you focus on those skills?
10. What does your program do to encourage and monitor the development of those skills?
11. How do you see these skills as impacting the development and future potential of the youth in your programs to achieve success in their careers?
12. What sorts of challenges or barriers do you most commonly encounter when working with youth with visual impairments?
13. Finally, do you have anything else you’d like to add about your services or programs in supporting youth with visual impairments? What should I have asked about that I didn’t?