**Six-Month Program For Chris Holt**

**to Learn & Play Quidditch**

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**Introduction to Chris Holt**

Chris Holt is a twenty year old male attending the University of Victoria for a degree in Environmental Studies. He was born in Penticton, B.C. He was always active as a child and played a variety of sports, excelling at soccer. When he was twelve years old, he was in a car accident, and he lost his left arm from elbow down. Chris spent multiple years in rehab, trying to come to terms with his condition.

Chris’ family spent all the money they could afford to on a prosthetic arm. He relies mainly on an electronically-powered prosthetic arm. This allows him to grip objects, and continue life as ‘normal’ as possible.

Most of Chris’ middle and high school experience was altered from his injury. He lost some friends, excluded from volleyball and other sports he once enjoyed. He did not have enough control over his prosthetic arm, and some of his school teachers saw it as a safety concern for other students. He began to fall out of sports, except for soccer, where his only drawback was having to pad his prosthetic arm for safety, which inhibited him from throwing the ball.

Unfortunately, Chris had another accident when he was sixteen. His left eye was accidently exposed to a chemical agent during a chemistry class. While doctors did everything they could, Chris lost complete vision in his left eye. It has taken him quite some time, and much practice and rehabilitation for him to adapt to monocular vision. After the accident, he rarely participated in any physical activity, as his depth perception, field of vision, and coordination significantly decreased.

One day while studying in the library at UVic, Chris noticed some students playing quidditch on the quad. The silly, but fun looking game appealed to him, and he approached me (the coach) to join the team. The team welcomes everybody, and I said he was more than welcome to play. However, I told Chris that there would be a few things we would have to do before he could start playing. I explained the game and its rules to him (See Physical Activity Choice section), and he explained his limitations to me. I agreed to work with him to adapt our practices and the games if he committed to the team. Together, we developed three goals for him:

1. To get back in shape through physical activity in an actual competitive game.
   1. I also attributed this to a goal of life time leisure. Chris’ past of falling out of sports was sad to hear, and as such I wanted his quidditch experience to promote activity in his life. It is important that individuals with multiple disabilities get to learn skills that are meaningful at the present to meet current goals, but also will have purpose and meaning later on in future recreation (Block, Klavina, and Flint, 2007).
2. To meet new people and friends, whom accepted him with his impairments.
3. To have a fun positive experience.

Chris and I agreed that these goals were achievable. Chris would observe the next two practices, working with me to brainstorm ideas on how to adapt the game to suit his needs. I believe that quidditch can help Chris achieve all of his goals. The ‘muggle’ game itself was designed for people who were different. There is no question of the physical demands for the game, which combined with weekly activity, will meet his fitness goal. The team itself has a motto of ‘family’ which is full of camaraderie, so I know Chris will fit in and meet some interesting people. Not only do I believe these goals can be met, but I also believe quidditch can provide other benefits through moderate energy expenditure like: cardiovascular exercise in decreasing coronary heart disease, the increased psychological well-being, increased quality of life, increased self-esteem provided by being able to do physical activity (Bragaru, Dekker, Geertzen, & Dijkstra, 2011). It will be a challenge with his impairments, but I believe he can play the game with his able-bodied peers.

**Physical Activity Choice**

Quidditch is unlike any other sport. It is a face-paced game, that only stops if there is an injury, faulty equipment, red or yellow cards, or to end the game. It is played year-round in all weather conditions, regardless of snow or temperatures. There are five balls in play, consisting of the Snitch, three bludgers, and one quaffle. All balls are somewhat deflated to make it easier to carry. The quaffle is a volleyball, the bludgers are dodgeballs, and the Snitch is a person that has a tennis ball in a sock, velcroed to his waist. There are three goals, or hoops, to score through, and can be scored from in front or behind. The field is an oval, 48 yards long, and 33 yards wide. Hoops are constructed of plastic piping, and hula hoops, at three different heights.

Below is a compiled list of risk concerns for quidditch. I went over them with Chris, and he is still eager to start playing, especially after observing some practices in order to grasp game play.

Extrinsic risk factors:

* Field/Weather Conditions
  + As an all-season and all-conditions sport, Quidditch can be played during any weather condition.
    - Snow or cold weather can freeze/harden field.
    - Potential for hypothermia on cold/wet days.
      * Make sure players keep warm on sideline.
      * Modifiable: players can wear warm clothing.
    - Rain can create puddles on field.
    - Summer and hot days have potential risk for heat stroke.
      * Hydration can reduce risk.
      * Some players aren’t aware of hydration levels.
      * Modifiable: instruct players to drink water and stay cool.
    - Unmodifiable: weather cannot be altered.
  + Bumps or holes in field
    - Quad is not an actual field, and is not in good condition.
    - Danger and risk to joints.
    - Risk and potential for head injury.
    - Modifiable: Move practices to an actual field, fill in holes, maintain field.
  + Muddy fields
    - Constant rain in Victoria.
    - Less grip on field, potential risk for sprains or damage to knee/ankle joints.
    - Unmodifiable: weather cannot be altered, but can recommend cleats to help with stability.
* Length of warm-up before games/practices
  + Longer time reduces risk of injuries (strains or muscle pulls)
  + Modifiable: can extend time of warm-up.
* Experience of other players
  + As a club team, anyone can join, and all amateurs are inexperienced, which increases risk for themselves and the other players.
  + Experienced players could be too intense against amateurs.
  + Unmodifiable: experience comes with time, however, amateurs can be prepared as much as possible before playing.
* Equipment
  + Brooms bring high risk potential for injury.
    - Unmodifiable: brooms are mandatory, and must reach a certain length.
  + Mouth guards
    - Are not mandatory, despite being a full contact sport.
    - Modifiable: Can recommend everyone to wear mouth guards.
  + Balls
    - Bludgers can be dangerous if fully pumped.
    - Modifiable: Can check/maintain equipment.

Intrinsic risk factors:

* Players
  + Lack of experience can endanger themselves and others.
    - Unmodifiable: can only instruct and prepare players as best as you can.
  + Variety of physical fitness, size, and gender.
    - Players have wide variation in body type and fitness level.
      * Unmodifiable: Sport is co-ed, and anyone can join, no matter what condition they are in. Can suggest cardio exercises to increase fitness.
  + Previous injuries or concussions.
    - Increase in risk for greater injury if previous one has already occurred.
      * Unmodifiable: only thing I can do is prepare for any potential injuries. I can’t stop them from playing.
  + Fatigue
    - Quidditch does not stop until the game ends. It is a constant sport, like rugby, and therefore people can fatigue easily, or become unaware of their condition, increasing potential for risk.

Common Types of Injuries in Quidditch:

* Sprains
  + Extensive amount of tackling, quick movements, and running raise potential for sprains. Usually not serious, and fairly unavoidable.
* Dislocations & Fractures
  + A full contact sport invites aggression and intensity, and therefore dislocations. Tackling increases risk of injury, especially with inexperienced players. Fractures are less common.
* Muscular Strains and Contusions
  + Since Quidditch is twice a week, back to back, muscles tend to be sore the second day. Also depending on the physical fitness of players, some are more likely to suffer a strain. If there is no warm-up, or no sufficient warm-up, this is more common and prone to happen.
* Lacerations
  + Depending on the cleats and the broom used, combined with the full contact aspect, risk is high. A player could be stepped on, speared with a broom, or accidentally hit with a cleat.
* Concussions
  + As a full contact sport, this is an obvious risk. If a player’s head is ‘rung’, the brain can bump into the inner lining of the skull, and can vary from mild to severe.
* Overuse
  + Since the game is constantly going, and there are rarely stops in play, it is easy for players to overuse their muscles. It is important to provide enough rest for players during and between games.

Rules to reduce injury

* Tackling
  + A player can only be tackled if they have a ball.
  + A player can only be tackled by someone who uses the same ball.
  + A player cannot tackle from behind.
  + A player can only use one arm to tackle.
    - This both reduces/increases chance of injury, as it is much harder to tackle with one arm. It also focuses contact on one shoulder joint.
  + High tackles and ankle tackles are not allowed.
  + No slide tackles, holding, or tripping.
* Snitches
  + May not intentionally injure someone.
* Brooms
  + Must be between 36 and 48 inches long.
  + Must be wooden or plastic.
  + Must be safe, judged by head referee.
* Hoops or Faulty Equipment
  + If during play a hoop is broken, play continues, and the hoop is fixed after play subsides.
  + If a broom breaks, it must be replaced before player can engage in the game again.
  + If a ball becomes faulty, play is stopped, and the ball is replaced.

Based on the type of sport quidditch is, and the impairments Chris has, there were a few things of concern. First, it is a full contact sport, which presents a problem, specifically with his vision. His loss of vision in one eye leaves him with approximately a 25% decrease in his field of vision (Politzer, 2014). This factor is a concern, especially if he can’t see an opponent hitting him. For this reason, I recommended the position of beater, as they rarely engage in physical contact other than wrestling for a ball. Tackles are rarely seen with beaters, which will keep Chris safe in a full contact game. This does not mean the position is not crucial, as beaters a key to strategy. I also intend on positioning Chris on the left side of the field, allowing him to angle himself to see the entire field, with only an out of bounds zone not in his field of vision.

Protecting his only good eye is also a major concern, and as such he will be required to wear protective squash goggles, which will protect him against any brooms, balls, or accidents during game play. Since his vision is limited, his stereopsis and peripheral vision suffer, which will cause problems in eye hand coordination, depth judgments, orientation, mobility (Politzer, 2014). These factors will limit his ability to join fully into the sport immediately, which is why I am recommending a practice session for us to work on basic things such as passing and catching to ease him into the game. He will have to prove his ability to perform these tasks before allowed to participate in a full contact game.

Another concern for Chris is his prosthetic arm. Two hands are not necessary for quidditch, but do make the game easier. For example, one arm does not always have to be on the broom, but it is nearly impossible to run with a ball and no hand on the broom. As such, it makes sense to adapt his prosthetic to firmly grip and hold the broom at all times, leaving his right hand free to catch, throw, or engage in contact. I also wanted to ensure his prosthetic arm would not hurt any other players who engage in physical contact with Chris. Therefore, some form of padding would need to cover his arm, although nothing excessive, or limiting his functioning.

After brainstorming these ideas, I met with Chris to discuss them. He agreed to everything I had come up with, and offered suggestions on how some might be achieved (see Ability Based Approach & Six Month Program). The only problem was he specifically told me he did not want to play as a beater. He wanted to be a chaser. I expressed my concern for his vision, and the amount of contact chasers engage in. Despite my recommendations and cautions he persisted with wanting to chase. As I could not tell if he would even be allowed to play if it were any other sport, I hesitantly agreed, only if he provided a doctor’s note stating he could participate in a full contact sport. Chris was more than happy to meet this requirement and provided the note at the next practice. I was still worried about his safety as a chaser, but I had to respect his wishes.

**Ability Based Approach**

I am going to design a six month program, based on the school semesters, grounded in an ability based approach. The ability based approach evaluates the individuals abilities, as well as the demands of the activity. This method has six factors: mobility, object manipulation, cognition, communication and perception, behaviour and social skills and fitness (Longmuir, 2003).

**Mobility**

Mobility is the movement of the participant, or parts of the participants body, within the active living setting. Chris’ family was able to afford an expensive prosthetic arm (The DynamicArm 12K100), but based on its cost it was the only prosthetic he currently uses. As such, we did not want an accident to put his every day living at risk, so Chris will be using an older prosthetic arm from high school. It is a body powered prosthesis, which was far less expensive than his current one. It has a hook attachment, which we have fashioned a specific broom for. The broom will lock together with his prosthesis, allowing him to hold it, keeping his other arm free for game play. This prosthesis also has a cover made from nylon-covered neoprene rubber, which can provide additional padded protection to opponents and user alike in contact sports (Radocy, 2014). We will constantly monitor its performance during the introduction phase to see if other adjustments or prosthesis may be necessary.

Chris’ mobility is also impacted because of his loss of vision in his left eye. As mentioned earlier, his vision has multiple affects to his stereopics. Another concern is postural control and inadequate static balance (Ray et al., 2008). Based on these factors, Chris will need lots of practice on the pitch with interpreting information in his environment. Sample exercises can be observed in the Evaluative Techniques portion. Studies have shown that teaching mobility training to patients with monocular vision maximizes their reduced visual field. This can be accomplished by having them turn their heads to scan the area of loss more frequently and farther than was previously needed (Ihrig &Schaefer, 2007). Through techniques like this, we can work with Chris to adapt his senses and perception to a game atmosphere. By the end of the program, we are hoping he will be able to fully participate, and his mobility will not be a hindrance.

**Object Manipulation (OM)**

Object Manipulation is primarily related to upper limb/hand function in relation to objects. The loss of one arm definitely plays a factor for Chris’ OM. It is essential that his prosthetic provide adequate strength, freedom of movement, and safety features (Radocy, 2014). This will be based on trial and error when incorporating his old prosthetic into play. His new model would be more efficient, but given its cost and risk of damage in quidditch, we cannot use it. The good news is that the only manipulation his prosthetic needs to perform is on the broom. This allows us to design a broom that meets his needs, and will work with his prosthetic. As long as he is satisfied with its performance, and his play is not hindered, OM should not be a major concern. Studies have shown that many amputees are not satisfied with their prosthetic, so we need to make sure he is comfortable with the one used for the game (Resnik et al., 2012). The majority of players will only use one arm anyway for ball control, keeping one reserved solely for the broom. Of course, the ability to switch hands can aid in some game play, but it is not ideal for Chris’.

As mentioned before, his loss of vision in one eye does affect his depth perception among other things. This will affect his ability to judge distances, specifically when throwing, catching, or aiming a ball. However, once he makes contact with a ball or object with his right hand, his proprioceptors will take over, and he can gauge his next move. With training we can hopefully help Chris to use his surroundings and constant head movements to predict a ball’s movement and position.

**Cognition**

Cognition relies our ability to acquire knowledge of our surroundings. The cognitive functions are perception, recognition, understanding, memory and attention (Longmuir, 2003). The only area Chris would struggle in is perception, which will be discussed in the next section. Chris’ impairments do not hinder his cognitive abilities. The only factor we should consider is making sure any demonstrations or discussion takes place within his field of vision.

**Communication & Perception**

Perception and Communication skills are the foundation of our interactions with other people and our environment. As previously discussed, Chris’ vision impairment will impact his perception. Something we hope may make things easier is adding a gradient to the equipment and balls used. Findings show that color information can be used by the visual system to encode depth, which is increased where the visual environment is rich in cues to signal depth (Troscianko et al., 1991). Among his training and introduction to quidditch, we hope these colors will help provide him cues that aren’t currently there.

The most important factor in this whole process will be communication. Chris’ communicative skills are not hindered in any way, and as such, we need to use them. Whether it’s training Chris to communicate with teammates or vice versa to coordinate defense/offense, or Chris informing me what is or is not working. Communication is key. Chris and I (along with the team) need to be in constant discussion over the trial and error of these modifications. If his prosthetic arm is bothering him or affecting his game play Chris needs to tell me, or if the gradients do not actually assist his perception, Chris needs to talk about it. This will help ensure the modifications in place are effective, and aid Chris towards a positive experience. Since Chris has limited vision, again placing him on the left side as a chaser will allow him to see the whole field, using the boundaries as a guide for his left. By maintaining constant communication in game, teammates can inform Chris if there are any players he is unaware of (usually Keeper’s job), and where he needs to be.

**Behavior & Social Skills**

Chris’ disabilities are physical and sensory based, not behavioral. Therefore there are no pressing concerns in this area. However one thing to consider is how much more head movement Chris will do to gather information on his environment. By informing the team, and discussing Chris’ situation, we can provide a safe social environment for him. Another important thing to consider is Chris’ goals and past experiences. He wants to have fun and meet new friends. This will not be challenging based on the team and their openness. There are also multiple team functions held such as parties or movies, which are open to all, to help Chris meet new people and get to know them. The bigger concern is Chris’ falling out of sport in the past based on his disabilities. We want to ensure this does not happen. Studies show that upper limb amputees are not satisfied with available technology based on various factors that include comfort and usefulness. We want to make sure Chris feels safe in this sport environment, physically and socially. As such, constant communication mentioned earlier will help ensure any adjustments or modifications necessary to give Chris a positive experience are given. We don’t want to see him falling out because he isn’t having fun due to his prosthetic.

**Fitness**

Despite not participating in sports, Chris is at a moderate fitness level. He enjoys running, but avoids gyms or area where people might stare at him. He used to swim frequently, without a prosthetic swim aid because his family couldn’t afford one. In order for him to meet the physical demands of quidditch, Chris needs to increase his strength, balance, aerobic capacity and flexibility. The demands of the sport call for high fitness levels. We need to make sure Chris is physically able to challenge for the ball, and not get knocked down easily when in contact. This does not ensure his protection, but will help prepare him. Another factor is in his strength. A study concluded that those with visual impairments are weaker at sit ups, leg raises and trunk raises (Winnick & Short, 1982). Improving strength and flexibility will need to be incorporated into Chris’ program.

**Six Month Program**

Below is a six month program designed specifically for Chris. A basic summary is given to provide insight on his progress to join the UVic quidditch team.

Table 1

Phase 1: First four weeks of program

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |
| Activity | Balance/Core | Bike Trails | Swim | Rest  Day | Practice | Practice | Rest Day |
| Duration/  intensity | 40 min | 45 min | 30 min |  | 60min | 120 min |  |

On Mondays Chris will be using his at-home gym to work on his balance and core muscles. Since his vision is impaired, he is not as stable as his able-bodied peers. Since quidditch is a sport that requires fast, explosive movements, Chris needs to build up his coordination and strength to use in game situations. He needs to have a strong base of support to help with this, which is why his core is so important as it plays a crucial role in his center of mass (McGinnis, 2005).

Tuesdays Chris will take his bike, with its adapted prosthetic grip, and ride trails nearby his house. This is based on the fact that Chris enjoys biking, but does not have a stationary bike, and does not like gyms. Biking and being outside are compromises, which will not push him too far out of his comfort zone. This form of exercise, using his watch monitor his heart rate, will help increase his aerobic capacity. He can monitor his intensity levels through his heart rate monitor, allowing him to gauge what a stationary bike would.

Wednesdays Chris will go to either a community pool, or the McKinnon pool based on his preferences. Swimming is one exception he makes for public facilities (gyms), as he enjoys the activity, but cannot do it anywhere else. Chris can successfully and comfortably swim without a prosthetic, and swimming itself stimulates the cardiovascular system, increase flexibility, and strengthen muscles involved (Radocy, 2014). If Chris becomes too self conscious at the pool, we can alter the activity, but he told me it would be fine.

Thursday will be a rest day for Chris, so not to overwhelm him with activity. He has agreed to stretch his muscles during this day and inform me if the intensity or duration is too much.

Friday the team meets for a scrimmage-only practice. Here is where Chris can take what we work on in Saturday practices and put them into effect. To begin with these will mainly involve becoming aware of the field and his surroundings, and working with his teammates. For the start, as he will not be accustomed to the amount of coordination and physicality of the sport, Chris will play with pinnies in his waistband. If one is pulled it simulates a tackle, but beating is no different. The use of pinnies can also be applied to any new recruits as they learn tackling and the game so not to isolate Chris. This will keep Chris safe as he eases into the new sport, getting to know its different dynamics. Once Chris has proven himself in the Saturday drill sessions (See Evaluative Techniques) in his coordination and abilities, he will be able to fully engage in physical contact. Despite the long duration for Fridays and Saturdays, the intensity can vary based on the drills or theme of the practice. Chris can work hard, with the option of more frequent rest breaks or substitutions during games.

Table 2

Phase 1: Second four weeks of program before beginning Phase 2

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Monday | | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |
| Activity | Balance/Core | | Bike Trails | Swim | Team Conditioning | Practice | Practice | Rest Day |
| Duration/  intensity | 40 min | 50 min | | 40 min | Personal choice | 60min | 120 min |  |

For the second half of phase 1 the activities stay the same, with the exception of Thursdays. Chris’ bike route on Tuesdays, if successful, will increase to 50min and Chris has the option to increase his average heart rate for the route by up to 20bpm. This helps ease him to increased activity, but if it’s too much, he can maintain his original heart rate, but go 5min longer. With his swimming on Wednesdays, his duration increases by 10 min, which again, is up to Chris if the activity is too much.

Thursdays will add the factor of team conditioning. Every Thursday the team meets to swim, run, lift weights, or other forms of exercise. It is not mandatory, but many participate. Now that Chris has gotten to know some of the team, and hopefully some new friends, he may be more open to exercising with people, potentially in a gym. Chris will have to agree to this addition, as we do not want him to do anything that makes him uncomfortable. While at conditioning, teammates can work at their own level, be it weight amount, distance running, or intensity of runs. This is just another way to socialize with the team, while exercising, but again it hinges on Chris’ opinion. Fridays and Saturdays remain the same practice days, as these are the designated practice times the team has made and cannot be altered. By now, hopefully Chris will be comfortable on the field and has adjusted his vision to meet the demands of the sport. Whenever Chris believes he is ready, we will run through a ‘test’ (See Evaluative Techniques) to judge his capabilities in a full contact game. If he passes, he can fully participate in the games with no different treatment from his able-bodied peers, which is the ultimate goal.

Table 3

Phase 2: The two months following Phase 1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |
| Activity | Balance/Core | Bike Trails | Swim | Team Conditioning | Practice | Practice | Stretching |
| Duration/  intensity | 50 min | 60 min | 50 min | minimum 70% effort, must stay for whole session. | 60min | 120 min | 30min minimum |

Phase 2 changes slightly from the previous stage. Again, duration and intensity have been increased, with the addition of a designated stretch day on Sunday. The main requirement for quidditch is stamina. As such, we want to keep Chris doing activities that will aid his aerobic capacity, which will help his overall health and game play. Despite the increase in duration/intensity in the week, Chris still has the choice of whether the amount of scheduled activity is too much, as he also has school and family to consider.

During Thursdays, Chris has expressed he enjoys the conditioning with his teammates. Therefore, he will now be attending it weekly, and giving at least 70% at whatever the activity is. Before he had the option at taking it easy, leaving early, or not even attending.

By now Chris has hopefully passed the test to fully include him in every drill and game at full intensity. If not, his goal for this phase is to pass before the end of the two months.

Table 4

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |
| Activity | Balance/Core | Personal Choice | Swim | Team Conditioning | Practice | Practice | Stretching |
| Duration/  intensity | 30 min | Personal Choice | 50 min | minimum 80% effort, must stay for whole session. | 60min | 120 min | 30min minimum |

Phase 3: Two months following Phase 2

There are a few changes to the last leg of the program. Monday’s core session has decreased to 30min, as Chris will now have to take fewer breaks, which forces him to work harder. Tuesdays are now personal choice for him. This was changed, as Chris found a hard time balancing the amount of activity over the last phase of the program. This gives him another rest day, while giving him the control to decide if he can do physical activity that day. He can choose to maintain his bike route, or add more swimming, or squeeze a small run if that’s all he has time for. We want to make sure he enjoys what he is doing, not push him away.

Conditioning remains the same, only raising his intensity to 80% minimum. Practices remain the same with Chris fully included in the game. He will be playing the same as his peers, in the position he wants to play.

**Evaluative Techniques**

This is the most challenging part of Chris’ experience. We want to make sure he met his goals, but in order to do that we had to analyze his ability to play a real game. His goals were:

1. To get back in shape through physical activity in an actual competitive game.
2. To meet new people and friends, whom accepted him with his impairments.
3. To have a fun positive experience.

Chris expressed after the six month program that he had a blast playing with the team. He met a bunch of new people, and made many friends. Goal two and three are difficult to evaluate the success in an analytical manner. That being said, the program was designed for Chris. If Chris has expressed his enjoyment, that new friends were made, and that he would be joining the team in the following semester, then I believe he has achieved these goals. This conclusion was made through a survey/interview on Chris and several teammates. They responded to their feelings towards playing with Chris and his experiences. With the amount of positive feedback, it was clear the program was successful for goals two and three.

Assessing whether Chris accomplished his first goal is more challenging. It is difficult to analyze his performance without proper equipment and assessment by professionals. With that in mind, Chris was responsible for recording all heart rates and times of exercises done throughout the program via his heart monitor watch. His journal should display an increase in distance, heart rate, or intensity as the program developed. For example, if he was only able to bike 5km in 45min in the first week, by the fourth week he should be able to bike over 5km. This was one form to assess his fitness. As such, his log book displayed constant increase in distance or intensity throughout the program. With this incline in performance, I concluded his overall fitness was better than when he started.

The next factor to consider is his ability to participate in the game from start to finish of the program. When starting, Chris and I worked before and after practices to help him adjust to his stereopsis and prosthetic. The two of us began with mobility drills, which included myself walking on his right side, and then shifting to his left, while Chris practiced moving his to see me or slows down to let me pass to opposite side. This type of mobility drill was found beneficial for visually impaired individuals (Ihrig &Schaefer, 2007). . We would work together to make sure he was able to track me, and other aspects in his environment. Other drills included setting up hoops and having Chris jump from side to side, landing in each hoop. This would aid and judge his balance.

Another drill, which focuses on his prosthetic arm, would be tossing a quaffle to him from three feet away. Once able to catch ten passes in a row, we would practice from different angles, moving our distance farther and farther apart while doing so. This allows Chris to get confidence and a feel for the quaffle before advancing to major long or short passes. We can then advance to passing with each other, while moving up the field, again close and far apart. Once Chris is consistently able to move and pass successfully, he can advance to shooting. Similarly, we can begin with stationary shots close and far, moving to on the run shooting, and finished with receiving a pass by the hoops and scoring.

While we want to encourage Chris and let him be successful, it is also import to let him fail and experience the game as it is. Therefore, unless he is uncomfortable he will be a part of each drill/game during practices. The pre/post sessions one on one with him are where we use these drills to help him get better without worrying about others. If however, he starts getting self-conscious, we can train him separately during practice instead of pre/post. The important thing to remember is that the team has a wide variety of male and female players who range from athletes to people who have never played sports. As such, even if Chris stumbles with catching or properly gauging distances, he is not alone. He is given the right to fail and succeed just like everyone else on the team.

Tackling is one thing that will be managed pre/post/separate from regular practice. This is simply for Chris’ protection. If he practices tackling with other new ‘rookies’ to the game, both can get injured. If he works with a skilled/advanced player confident with tackling, there is less room for risk. As such, the majority of tackling drills are at the beginning of the semester, or start of the program. Therefore, during these drills, Chris and another athlete will work one on one separate from the rest of the team. They may do the same drill, or based on progress, may move on or stay on a certain drill. This allows Chris to develop at his own pace, not restricted to the practice session. The main concern is his safety, as tackling in games can cause serious injuries if done improperly.

While learning to tackle, he will have pinnies in his waistband, which simulate a tackle when pulled. This allows him to still participate in full contact games, while maintaining his safety as he adjusts his impairments to the game. Sample tackling drills for him begin with stationary tackling on knees. Once Chris is confident it can advance to the tacklee standing, with Chris still on knees, finishing the segment with the tacklee walking past Chris, then jogging, finally running. These drills involve repetition to help Chris get used to the feeling of tackling, being tackled, and judging tackles. Only after he is successful at consistently tackling at least five times at running speed, will he advance to standing tackles. These will go through the same procedure of standing, walking and running.

To assist Chris’ visual impairment, was to position him as a left side chaser, giving him a left zone to cover. This allowed him to have the whole field in his vision, as well as knowing where he needed to be. The keeper and his fellow chasers also remain in constant communication with each other to coordinate their offense/defense strategy.

Once Chris is able and confident at tackling, he can lose the pinnies, and be fully included into a full-fledged game, along with all drills. It is important to note that all drills can begin with no broom, and once successful, repeat with a broom. A broom changes the dynamics of moving, especially when tackling, so it is important to be confident without a broom before incorporating one.

Chris’ first goal was to get back in shape through physical activity in an actual competitive game. The above include steps to assessing his skill at the game, but are also important stepping stones before fully engaging in the game. As such, one way that Chris is able to meet this goal was to fully participate in a real game against UBC’s team in phase 3. To play in this game he needed to play in multiple games before at full speed. His ability to play a full game with limited subs during practices is the main way to see if he was ready or not. This required him to make a total of 10 passes, 10 catches, and 5 tackles during games. These goals did not necessarily need to be met (every game is different), but they provided guides for Chris to work with. Chris was successful when included in a full fledged game, and actually faired better than some other chasers. He was also very successful when playing against UBC, meeting his goal of playing a competitive game (practice games were also competitive, but this was on a league level). Based on Chris’ performance in game, and his stamina after the game, he has achieved all of his goals.

**Summary**

Chris is an individual with a prosthetic left arm, and no vision in his left eye. He expressed his desire to learn and play quidditch at UVic, coming in with three goals:

1. To get back in shape through physical activity in an actual competitive game.

1. To meet new people and friends, whom accepted him with his impairments.
2. To have a fun positive experience.

Together we worked towards achieving these goals. It took a lot of practice to get him to a competitive level with his able-bodied peers, but by the end of the six month program, he accomplished his goals. It is important to note that participation in sports has been shown to help amputees improve their physical condition and overall well-being (Bragaru, Dekker, & Geertzen, 2012). This was an added goal of working towards physical activity in the future. Chris stated he would be joining the team the following semester in the fall, which shows his desire to continue this form of physical activity. That was the entire goal of this program. It was based on Chris’ needs and desires, which were always noted and adjusted to make him happy. The most important process was communicating between Chris, myself, and the team in order to assist Chris’ progress. Chris still has to work on several skills, but he has reached a point where he can openly practice with the team confidently.

**Appendix**

**Core Exercise**

Chris will perform the first set 30 seconds. He will take two minutes of rest after that set, and repeat for set 2, this time doing them for 60 seconds. Repeat for set 3 holding for 30 seconds. If any exercise cause pain or discomfort, stop, especially when planking.

|  |  |  |  |
| --- | --- | --- | --- |
| Phase 1 | 1st set | 2nd set | 3rd set |
| V-Sit | 30 sec | 60 sec | 30 sec |
| Leg Extension | 30 sec | 60 sec | 30 sec |
| Back Extension | 30 sec | 60 sec | 30 sec |
| Plank | 30 sec | 60 sec | 30 sec |

|  |  |  |  |
| --- | --- | --- | --- |
| Phase 2 & 3 | 1st set | 2nd set | 3rd set |
| V-Sit | 30 sec | 60 sec | 30 sec |
| Leg Extension | 30 sec | 60 sec | 30 sec |
| Back Extension | 30 sec | 60 sec | 30 sec |
| Reversed Crunches | 30 sec | 60 sec | 30 sec |
| Plank | 30 sec | 60 sec | 30 sec |

**Balance Exercises**

|  |  |  |
| --- | --- | --- |
| Jumping side to side | Do 5x each side. | Gradually spread distance out, making it harder. |

|  |  |  |
| --- | --- | --- |
| Standing only right foot doing a small squat | Do 10 squats on one leg holding onto something, then when feel comfortable, do squat without assistance | Once able to do squat on right leg 10 times without assistance, move on to harder balance exercise. |
| Standing only left foot doing a small squat | Do 10 squats on one leg holding onto something, then when feel comfortable, do squat without assistance | Once able to do squat on left leg 10 times without assistance, move on to harder balance exercise. |

**Independent Stretching**

Stretches may run 30-50 seconds, but should never stretch till pain is felt. It should not be painful or extremely uncomfortable.

|  |  |  |
| --- | --- | --- |
|  | Instructions |  |
| Hamstring Stretch | Sit on Ground with straight legs and touch your toes. | Do this one once with legs together and once with legs apart to stretch different muscle groups. |
| Calf Stretch | Stand up and at a wall place the ball of your foot on the wall and lean in with your body till you feel a stretch | Do for both sides |
| Gluteal Stretch | Sit on the ground and cross on leg over your body and twist away from that leg | Do for both sides |
| Hip Flexor Stretch | Do a lunge, but try to get as tall as you can in the lunge, even extend back a little | Do for both sides |
| Quad Stretch | At wall, grab ankle and pull leg back while keeping self tall | Do for both sides |
| Tricep Stretch | Raise arm and elbow above head and let arm fall onto the back | Do for Right side |
| Pectoral Stretch | At a wall, extend arm so palm faces the wall, and pull away from arm | Do for Right side |

**Bibliography**

Block, M.E., Klavina, A., &Flint, W. (2007). Including students with severe, multiple disabilities in general physical education, *Journal of Physical Education, Recreation & Dance, 78*(3), 33-37.

Bragaru, M., Dekker, R., Geertzen, J.H.B., & Dijkstra, P.U. (2011). Amputees and sports: A systematic review, *Sports Medicine, 41*(9), 721-740. Retrieved by Google Scholar.

Bragaru, M., Dekker, R., & Geertzen, J. H. B. (2012). Sport prostheses and prosthetic

adaptations for the upper and lower limb amputees: An overview of peer reviewed literature. Prosthetics and Orthotics International, 36(3), 290-296.

Ihrig, C., & Schaefer, D. P. (2007). Acquired monocular vision rehabilitation program.

Journal of Rehabilitation Research and Development, 44(4), 593. doi:10.1682/JRRD.2006.06.0071

Longmuir, P.E. (2003). Creating inclusive physical activity opportunities: An ability based approach. In R. Steward, E. Watkinson & G. Wheeler (Eds.), Adapted physical activity (pp. 363-381). Edmonton, Alberta: University of Alberta Press.

McGinnis, P.M. (2005). *Biomechanics of sport and exercise* (2nd ed.). Champaign, IL: Human Kinetics.

Politzer, T. Implications of Acquired Monocular Vision (loss of one eye). (n.d.).

Retrieved November 28, 2014, from https://nora.cc/for-patients-mainmenu-34/loss-of-one-eye-mainmenu-70.html

Radocy, B. (n.d.). Special Considerations: Upper-Limb Prosthetic Adaptations for

Sports and Recreation. *Atlas of Limb Prosthetics*. Retrieved from http://www.oandplibrary.org/alp/chap12-03.asp

Ray, C. T., Horvat, M., Croce, R., Christopher Mason, R., & Wolf, S. L. (2008). The

impact of vision loss on postural stability and balance strategies in individuals with profound vision loss. Gait & Posture, 28(1), 58-61. doi:10.1016/j.gaitpost.2007.09.010

Resnik, L., Meucci, M. R., Lieberman-Klinger, S., Fantini, C., Kelty, D. L., Disla, R., &

Sasson, N. (2012). Advanced upper limb prosthetic devices: Implications for upper limb prosthetic rehabilitation. Archives of Physical Medicine and Rehabilitation, 93(4), 710.

Troscianko, T., Montagnon, R., Clerc, J. L., Malbert, E., & Chanteau, P. (1991). The role

of colour as a monocular depth cue. Vision Research, 31(11), 1923-1929. doi:10.1016/0042-6989(91)90187-A

Winnick, J.P., & Short, F.X. (1982). The physical fitness of sensory and orthopedically impaired youth: Project unique. final report (Report No. 023CH10058). Washington, DC, Special Education Programs. Retrieved from Google Scholar :http://eric.ed.gov/?id=ED240764