

On Coaching the Paralympic Athlete

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30:4; 67-74, 2015

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ABSTRACT

A lack of qualified coaches working with disabled, or Paralympic, athletes has a negative impact on the performance and sports experience of these athletes. Integrating disabled and able-bodied athletes in training groups to get the best training for all is a possible solution. There are a number of benefits from such an arrangement including the satisfaction that goes with fulfilling the mission of all coaches, i.e. to help athletes develop, opportunities for deeper understanding of the movement patterns of all athletes, thinking outside the box to find solutions and creating a vibrant training community that enriches everyone involved. However, such a move involves significant challenges for the coach. The authors share their thoughts and experiences on three areas of immediate interest to those considering such a move: managing the training programme, sport psychology, and facilities and equipment. They then give two short case studies with practical details from training programmes they have used with disabled athletes. In their conclusion they express the hope that the information presented will be food for thought and inspiration for coaches working in this increasingly important aspect of athletics.

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Introduction

Central to all disabled or Paralympic sport, including athletics, is a system of classification for the competitors' various disabilities and levels of impairment. This system, established and maintained by the International Paralympic Committee (IPC), allows for the determination of eligibility to take part in disabled competition and it ensures that the competition is as fair and equal as possible¹.

The main challenge for Paralympic athletics coaches is to understand the various classifications and their implications and then to design programmes that maximise their athlete's physical development and ability to compete. In previous times, coaches of disabled athletes were concerned mainly with participation. They often lacked technical knowledge and were unable to comprehend the potential of the athletes with whom they worked. With the development of high-profile international competition opportunities, an equally short-sighted view of Paralympic athletes as simply elite performers whose disabilities were incidental became the norm. This approach lacked the appreciation and potentially the empathy for the impact that the disability may have had on the athlete. With time and greater awareness, a more modern and nuanced approach has emerged and this can be summarised in the phrase "understanding the capabilities within the disabilities".

Unfortunately, the number of knowledgeable and experience athletics coaches currently able to apply this approach is not sufficient to meet the needs of the growing Paralympic community. According to two studies looking at the coaching of disabled athletes, a lack of qualified coaches negatively impacts the performance and the sports experience of these athletes^{3,4}. One idea for addressing this situation is to integrate disabled athletes into able-bodied training groups and thereby take advantage of the quality of coaching available there. This is a challenge for many coaches of able-body athletes who will be aware of downside risks such as the extra work, the limits of their ability to meet the special and seemingly unpredictable needs of disabled athletes and the impact on the athletes they currently train.

In our experience successful integration is possible and we want to recommend it. There are significant benefits to be realised for trying. First, there is the satisfaction that goes with fulfilling the mission of all coaches, i.e. to help athletes develop, by stepping out of a personal comfort zone and working with deserving and committed individuals who happen to have a

wider set of needs. Just as important, working with athletes who have impairments can actually make one a better coach as it provides opportunities for deeper understanding of movement patterns and thinking outside the box to find solutions. Finally, integration can create a vibrant training community that enriches all the athletes involved.

The aim of this article is to provide some insight to coaches who have recently taken or are considering such a step. Based on our experiences working with both Paralympic and able-bodied athletes in Canada and Great Britain, we share some general thoughts on three areas of challenges that will be of immediate interest:

- managing the training programme,
- sport psychology,
- facilities and equipment.

We then discuss specific training through two short case studies and details from programmes we have applied.

Managing the Training Programme

We are going to push each other to become better than we were the day before

(Heather Erickson 2008 & 2012 US Paralympian)

All competent coaches know that appropriate training programmes are essential for the physical and mental development of athletes as well as for preventing injuries, overtraining syndrome, burnout, depression, anxiety, eating disorders and other conditions with negative impacts on health and performance. In designing their programmes, coaches will certainly refer to the parameters identified in basic training theory, including intensity, duration, and frequency². With disabled athletes the application of these is influenced by all the same factors affecting able-bodied athletes but there are additional factors related to the disability and injury patterns associated with different disabilities. These include numerous medical issues that may hamper their physical progress and development such as, for exam-

ple, the thermoregulation difficulties, pressure sores, premature osteoporosis, and peripheral nerve entrapment syndrome faced by wheelchair athletes. This extra set of concerns places additional demands on coaches they need to be ready to accept and embrace.

Unlike with able-bodied athletes, whose training is defined by their event and not their specific disability/capability, the training programme for one group of disabled athlete cannot easily be adapted for another group. This is even true within disability groups since different levels of impairment exist and can affect the response to a training stimulus. For example, as with able-bodied athletes, the recovery and regeneration timeline for disabled athletes is influenced by “external factors” such as sleep, nutrition, family situation, and employment or educational stresses. But athletes with cerebral palsy (CP), a neurological condition, require longer recovery times, the amount varying based on the degree of CP. Training programmes, therefore cannot be a “one size fits all” glove but, rather, must be individually customised.

The point is that every athlete, with or without some sort of impairment, is an individual first. The question becomes ‘What special considerations does the coach make for *any* athlete within his/her training group?’ The answer will be based on multiple considerations: What are the athlete’s strengths and weakness? Does he/she have an injury history? Is he/she moving inefficiently? What is the range of mobility in his/her hips? These and the others that must be pondered are not ‘Paralympic’ specific questions.

The answers, however, may well be unique to an athlete with a disability. For example, if an able-bodied athlete is moving inefficiently the reason might be poor lower limb mechanics whereas for a visually impaired athlete it could be the same but it could also involve poor synchronisation with the guide runner. In another case, a significant discrepancy in push off and stride length for an able-bodied run-

ner might call for physiotherapy and or work in the weights room whereas for a CP athlete the coach might consider muscle stimulation.

Sport Psychology

I haven't just been out here training for the last month on the gold coast, I've been training hard for four years: it's the mentally toughest athlete that will win gold, and I know I am the mentally toughest

(Simon Jackson, Paralympic gold medalist-Judoka)

The theory of self-determination emphasises three basic psychological needs: the feeling of competence, a sense of autonomy, and relatedness. Research on the identity of the Paralympic athlete, has demonstrated that although these athletes view themselves as committed and serious, they typically feel that the public does not view them as legitimate athletes⁵. On top of that, disabled athletes and their coaches are faced with other concerns relative to the athlete’s medical status and disability. It would, therefore, be understandable if their dependency on equipment, personal, and technical support fostered a feeling of inadequacy and added to the sport psychological concerns that must be addressed by able-bodied athletes (positive attitude, motivation, confidence, concentration/focus, etc.). In fact, our experience suggests that athletes who have learnt to accept their reality (i.e., disability) are very resilient in terms of dealing with the challenges. This attitude and mental toughness is articulated within the “growth through adversity” hypothesis, which suggests that having to cope with adverse events allows the individual to learn strategies enabling them to adapt more effectively to environmental and situational demands⁶.

One often referenced example of the psychological resilience and fortitude in disabled athletes involves a blind Paralympic long jumper. Despite the athlete’s guide shouting the directions, the jumper veered off course, missed the pit, and landed on his tailbone. Although the spectators were horrified, this mishap may have had a greater impact on them than

the athlete. If any experience, good or bad, is outside of a person's paradigm, they tend to view it as foreign and react on an emotional level, which was almost certainly the case for the spectators of this incident. However, not to understate the pain of landing on the track, what happened is a normal occurrence for a Paralympic athlete. The jumper veering off the course approaching the pit, a wheelchair crash, a prosthetic break, or a visually impaired athlete stepping on the line and getting disqualified, are all part of disabled athletics and therefore within the paradigm of the athletes. Such a bad landing probably happened to the jumper involved, or certainly someone he knew, before. It was therefore within his paradigm and in all likelihood mentally filed as "just one of those things".

Facilities and Equipment

Disabled athletes and their coaches are faced with issues around facilities and specialised equipment. A study of 76 Dutch Paralympic athletes found that the most frequently mentioned environmental barriers were the lack of sports facilities and accessibility issues⁷. Similar to any training environment, good planning is a must and creative solutions are almost always necessary. In Canada, for example, warm weather camp locations for Paralympic athletes are carefully scouted for things like vehicle-free paved pathways and Mondo tracks (the surface of choice for wheelchair athletes or "wheelies"). But unless a facility or track time can be reserved solely for disabled athletes – an ideal world situation that can rarely be achieved on a long-term basis – coaches will have to contend with integrating the various speeds, technical needs, and training volumes for each group on site. Although a challenge, it is possible to have athletes of different physical abilities train at the same facility at the same time. One model we've seen has the distance runners in lane 1, the wheelies in lanes 2 and 3, hurdles set up in lanes 7 and 8 and all other athletes using lanes 4 to 6. The key is making sure that all the athletes observe rules of the track, whatever they are.

Equipment for disabled athletes is a small industry in itself and the main point coaches should be aware of is that in most cases the athletes are responsible themselves for the costs of what they need to train and compete. The price tag can be very high, for example a good quality racing wheelchair sells for between 4,000 and 10,000 US dollars while a fully carbon fibre chair can cost up to 20,000. Occasionally in some countries, grants are available to purchase equipment and more rarely top performers may be sponsored by the manufacturers.

Since wheelies go about their daily lives in different chairs than those in which they train and compete, chair transportation management and maintenance are also issues. For example, a camp with 15 wheelchair athletes translates to 30 or more chairs, with coaches, transport drivers and facility staff dealing with the loading and unloading multiple times per day. Although athletes with prosthetics do not present the same space challenge as wheelchair bound athletes, they do have to deal with many moving parts requiring daily repairs since these are stressed at a high level. In our experience, Paralympic athletes often become mechanical experts with their own equipment, allowing them to be self-reliant and providing them with a better sense of control.

Case Study 1

Coaching A Blind 400m Runner by *Laurier Primeau*

Dustin Walsh is a Canadian Paralympic athlete and record holder for the T11 400m whose international achievements include a fifth place at the 2004 Paralympic Games and a fourth place in the 2011 IPC World Championships. Completely blind since the age of 12 he has been coached by Don Steen (1997-2011) and myself (2011-present).

A critical success factor for visually impaired athletes is the quality of the working relationship with the guide runner. I have seen former

Table 1: Training programme for Dustin Walsh / Dylan Williamson - 14 to 20 May 2016

DATE	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
	14	15	16	17	18	19	20
Warm-up	Competition warm-up	Competition warm-up	Competition warm-up	Competition warm-up	Competition/ warm-up	Competition/ warm-up	OFF
Technical Emphasis	Accell, sprint mechanics			Accell, sprint mechanics		Accell, sprint mechanics	
Speed Volumes, Recoveries	4x40m (up to 4 min rest) 1x80m (8 min rest) 2x(350m/90 sec/160m) up to 40 min between sets			4x30m (up to 3 min rest) 4x40m blocks on corner (4 min rest) 3x80m (minimum 8 min rest)		1x40m (4 min rest) 1x80m (5min rest) 1x60m (6min rest) 1x600m	
Plyos				3x20m bounds			
Throws – 4k med ball		2x6 diving chest heave, back heave			2x0 diving chest heave, back heave		
Recovery / Tempo		10x200m on grass, 90 sec between reps @70% No run	15x100m on grass, 45 sec between reps @ 70% 15min run		8x300m on grass, 3 min between reps @ 85% No run		
Injury Prevention	Stretching protocol as assigned by coach – 15 min	3x10 bent leg hamstring lifts (end of therapy table)		Stretching protocol as assigned by coach – 15 min	Low amplitude exercises Hurdle mobility – over-under (8 hurdles)	3x10 bent leg hamstring lifts (end of therapy table)	

Core / Abq			Abdominal series – 12 min circuit		Abdominal series – 12 min circuit		OFF
Event Specific, Lifting	3x10 bent leg dumbbell deadlifts 3x0 Jefferson deadlift			3x10 bent leg dumbbell deadlifts 3x0 Jefferson deadlift			
Ancillary			General strength circuit assigned by coach (8-8 exercises done 3-4 times @ approximately 10 – 14 reps)		General strength circuit assigned by coach (8-8 exercises done 3-4 times @ approximately 10 – 14reps)		
Warm-down	5x50m strides skip jog, easy stretch	5x50m strides skip jog, easy stretch	5x50m strides skip jog, easy stretch	5x50m strides skip jog, easy stretch	5x50m strides skip jog, easy stretch	5x50m strides skip jog, easy stretch	
Athlete Feedback							
Coach Notes							

*Accell sprint mechanics = technical work for that particular day

national team athletes-come-guides who simply haven't had to work very hard to maintain a velocity that was 'good enough' to do the job. But when they're not invested to the same level as the Paralympic athlete, problems occur. Synchronicity, as you might expect, is very important and can only be perfected through highly focused repetition. When the guide doesn't value the training as much as the athlete, that syn-

chronicity is difficult to achieve because there is an unequal focus on the task. I have seen guides go out the night before a major competition because they knew that they didn't have to be at their best to guide the Paralympic athlete. It's insulting and unfair, especially if they're sharing a hotel room and the guide comes home late and awakens the athlete.

Steve Walters did an incredible job with Dustin for a lot of years, and he is exactly the kind of guide I think we should be looking for. He was faster than Dustin, but he wasn't an international-calibre runner. In the latter part of Steve's career we introduced the idea of a back-up guide and brought Dylan Williamson on board for a couple of reasons – first, we knew that Steve was going to retire sometime after the London Games, and second, because I felt that the training modifications (mostly treadmill running) that were being employed when Steve got injured were negatively affecting Dustin's progress.

I think Dustin was initially doubtful that Dylan would be a good guide. Dylan's 400m personal best in high school (the highest level he'd ever run at) was only about a second faster than Dustin's and to make matters worse, Dylan hadn't run for about a year. But it was for precisely these reasons that I believed Dylan would be excellent – his investment in training had to be as high as Dustin's or else he would be getting dragged down the track. As it turned out, a few months after Dylan started Steve had a partial Achilles tear and would not recover in time to guide Dustin in London so Dylan jumped in and did the job. We are now in the fifth year of this partnership.

Table 1 is a sample training week for Dustin and Dylan from May, 2012. Approximately three weeks after this microcycle Dustin broke the Canadian record in the 400m.

For the purpose of this submission the material for the bottom two rows of the table have been deleted. However, it is worth noting that for each day of the week, a place in the table allows me to record how the athletes felt, and my observations about respective sessions. In order to make good decisions about training going forward it is imperative to be able to recall times, the technical cues used, as well as the athlete's fatigue levels. I have found this to be a simple but effective way to record this information against specific sessions each week.

It is important to recognise that these workouts are assigned with little consideration for Dustin's visual impairment. One of the few areas in which a modification was made is plyometrics – there are no hurdle hops or stair jumps in his assignments. We keep our reactive strength exercises fairly simple – bounding, two foot jumps for distance, hopping and tuck jumps for example. The rest of the week, from sprinting, to tempo, to lifting, to injury prevention, is based on my observations of Dustin's specific needs at the time of the programme planning. Even what we do in the weight room remains unmodified – he is skilled at complex lifts such as cleans, so if we determine that cleans is an exercise that will benefit him, we include it in his protocol.

As a general rule speed, speed endurance, and specific endurance training are done at high intensities, with significant recoveries between runs to ensure that we maintain quality throughout the session. This is not a new methodology, and it is certainly not the only approach to 400m training, but it has worked well for both Dustin and Dylan.

When trying to explain exercises or technique – for example, teaching a blind athlete to A-skip – I use two techniques. First I am very careful to articulate the words in order to elicit the desired response. "Lift your femur to a 90 degree position from your torso, and allow your foot to follow a pathway that places it directly under your knee". We then play with this using 'over' and 'under' cues. For example, if the foot was in front of the knee on the first effort I might suggest that the athlete try to feel the foot slightly behind the knee when the femur is perpendicular to the torso – this, in an effort to get it directly under the knee as first described.

Second, if the athlete is unable to comprehend the task at hand with the use of words, I will physically guide the limb through the space that I want it to travel. This kinesthesia approach helps to develop a neurological pattern within the body. Then we go back to using more words. Like any coaching situation, dif-

ferent language resonates with different athletes – even though I’m trying to say the same thing in different ways, it matters only what the athlete understands.

Case Study 2

Coaching Disabled Sprinters by Femi Akinsanya

One of the difficulties with coaching Paralympic athletes is planning a year’s training programme when their major event – normally the Paralympic Games or the IPC World Athletics Championships – is very late in the season (September/October). This is made even more difficult when athletes need to come out early and show form for selection and then go

back into training to get ready for the championships. In addition, there is the possibility for some athletes to compete indoors. One can view the yearly training plan as consisting of a triple periodisation (indoors, outdoor and the major championships (when they occur)). It should be noted that after the international circuit and the major championships, a gap exists between competitions for Paralympic athletes.

My view over the years has been to keep the programme simple. We follow a basic pattern leading into the indoor season that consists of general conditioning (still maintaining technical elements of the event during this period), special prep, pre-comp and competition. After the indoor season I try and mix up the conditioning of the athlete with a special prep phase,

Table 2: Training programme for Paralympic sprinter - 22 February to 2 April 2016

ATHLETE NAME:						
MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
22.02.2016	23.02.2016	24.02.2016	25.02.2016	26.02.2016	27.02.2016	28.02.2016
TRACK	WEIGHTS	TRACK	CIRCUITS	TRACK	WEIGHTS	REST
200m down to 100m in 20m, walk back recovery @70% / Core	Gym A - strength phase	Blocks - 6 x 40m / Glute and hamstring work out	30 sec on 20 sec off x 3, 4 min between sets / Hurdle mobility	2 x 20m, 2 x 30m, 2 x 40m, 2 x 50m, 1 x 60m @ 85%	Gym B - strength phase	
29.02.2016	01.03.2016	02.03.2016	03.03.2016	04.03.2016	05.03.2016	06.03.2016
WEIGHTS	REST	TRACK	REST	TRACK	CIRCUITS	REST
Gym A - strength phase.		Blocks - 3 x 30m, 3 x 40m / Glute and hamstring work out		300m - 150m, 90 sec between runs, 0 min between sets / core	30 sec on 20 sec off x 3, 4 min between sets / Hurdle mobility	
07.03.2016	08.03.2016	09.03.2016	10.03.2016	11.03.2016	12.03.2016	13.03.2016
TRACK	WEIGHTS	TRACK	CIRCUITS	TRACK	WEIGHTS	REST
150m walk back 80m x 4, 4 min between sets / core	Gym A - strength phase	Blocks - 6 x 40m from 200m start / Glute and hamstring work out	30 sec on 20 sec off x 3, 4 min between sets / Hurdle mobility	Sledge pulls 6 x 40m and plyos	Gym B - strength phase	
14.03.2016	15.03.2016	16.03.2016	17.03.2016	18.03.2016	19.03.2016	20.03.2016
TRACK	WEIGHTS	TRACK	CIRCUITS	TRACK	WEIGHTS	REST
150m walk back 80m x 4, 4 min between sets / core	Gym A - strength phase	Blocks (3x30m, 3x40m from 200m start) & Glute and hamstring work out	30 sec on 20 sec off x 3, 4 min between sets / Hurdle mobility	Sledge pulls 6 x 40m and plyos	Gym B - strength phase	
21.03.2016	22.03.2016	23.03.2016	24.03.2016	25.03.2016	26.03.2016	27.03.2016
TRACK	WEIGHTS	TRACK	CIRCUITS	TRACK	WEIGHTS	REST
200m - 150m x 3, 3 min between runs, 6 min between sets / Core	Gym A - strength phase	Blocks - 6 x 40m / Glute and hamstring work out	30 sec on 20sec off x 3, 4min between sets / Hurdle mobility	Sledge pulls 6 x 40m and plyos	Gym B - strength phase	
28.03.2016	29.03.2016	30.03.2016	31.03.2016	01.04.2016	02.04.2016	03.04.2016
WEIGHTS	REST	TRACK	REST	TRACK	CIRCUITS	REST
Gym A-strength phase		Blocks - (4x60m) / Glute and hamstring work out		200m - 150m x 3, 3 min between runs, 6 min between sets / core	30 sec on 20 sec off x 3, 4 min between sets / Hurdle mobility	

Key: Plyos = plyometrics

which takes me into warm weather training (see Table 2). The aim here is to be ready for the pre-comp and comp phase once we return from warm weather training. Once the outdoor season has finished, we need to look at how much time we have in order to put some money back in the bank to be ready for the major championship, following the same pattern of general conditioning, special prep, pre comp and competition phase.

From a training point of view, I have always tried to treat all disabled athletes as able-body athletes. What makes an athlete run fast, jump far, or throw far is the same and what is important to understand the disability and the limiting factors he/she has. From that you can modify the technical model to suit the individual athlete.

For instance, working with one of my T44 sprinters (fused ankle) I looked at the correct height in the set position that would maximise the right stride length for her first foot contact. I found that we had to make the set position lower and shorten the first stride more than I would normally have for an abled-body athlete. Personally I would recommend if possible for coaches to try to mimic as close as possible the disability. This will enable them to gain a better understanding of how the athlete completes a movement. When working with this particular athlete, I bandaged my ankle to limit my movement in order to feel how he runs.

Conclusion

Integrating disabled athletes in able-bodied training groups is a major challenge for coaches who have previously only worked with able-bodied athletes. There are a number of possible benefits to the coach and his/her athletes from such an arrangement but there are also significant challenges. In this article we have shared some of our thoughts and experiences on these that may be of value to coaches considering this path. It is our hope that the information presented here will be food for thought and an inspiration for others to become involved in this increasingly important aspect of athletics.

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