

Pilates for Dog Sport Handlers – Dog Agility

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Abstract

Dog Agility is an unrecognised hobbyist sport that involves a handler and a dog successfully completing a course of obstacles within a specified time. The dog is navigated over jumps, through tunnels and on larger equipment and other obstacles. This sport requires the handler to perform multiple changes of direction using a series of handling manoeuvres, at speed, to direct the dog without faults or an elimination. For over six years, Stacy Weeks has been actively researching and evidencing dog sport handler movement, the only person studying this niche sport in the UK, therefore the information and research was limited and the process in part has been experimental, and as such, many sports were drawn upon to support this paper. This case study focusses on the Pilates element of a larger programme, which also included intrinsic biomechanics screenings, base line testing for fitness and handling skills, strength and conditioning, speed agility and quickness drills and plyometrics.

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At an average agility show one dog can enter up to three runs per day, some more, some less, the handler will walk each course first to memorise the route required, both mentally and physically, for themselves to direct the dog along the best line. The runs each handler is scheduled for could be timetabled close together, or spaced out over a whole day, therefore warming up and cooling down for the day, and each run, needs to be part of the handler dog partnership. Many handlers only focus on their dogs rather than themselves which creates a greater propensity for injury and decreases their longevity in the sport, especially when it attracts people of all ages (young children up to 80+). Pilates can be very supportive to many sports and dog agility is not exempt from its benefits. The case study presented here follows one handler competing at the top of her sport.

Anatomical Requirements

The movement required in dog agility is not too dissimilar to that used in sports that require multiple changes of direction, like football and hockey, the lateral dexterity and reaction speed of a tennis player and short bursts of sprinting but only using one arm to stabilize the trunk, similar to that in rugby. Each handler directs their dog differently, some prescribe to specific handling systems, however there are some universal names for some of the movements used in the majority of handling systems:

- Front cross – rotational turn and change of arm
- Pivot – 180 degree turn
- Rear Cross – change of side to dog from behind
- Blind cross – change of side to dog from front (torso rotates, pelvis faces forward)
- Flind – Front Cross into a blind (used on a pull through that requires collection)
- Ketschker – a combination of front and blind cross
- Serpentine and Threadles – small rotations from the torso
- German – Minor rotation from shoulders facing the dog directing with arms, sometimes includes a small weight shift.

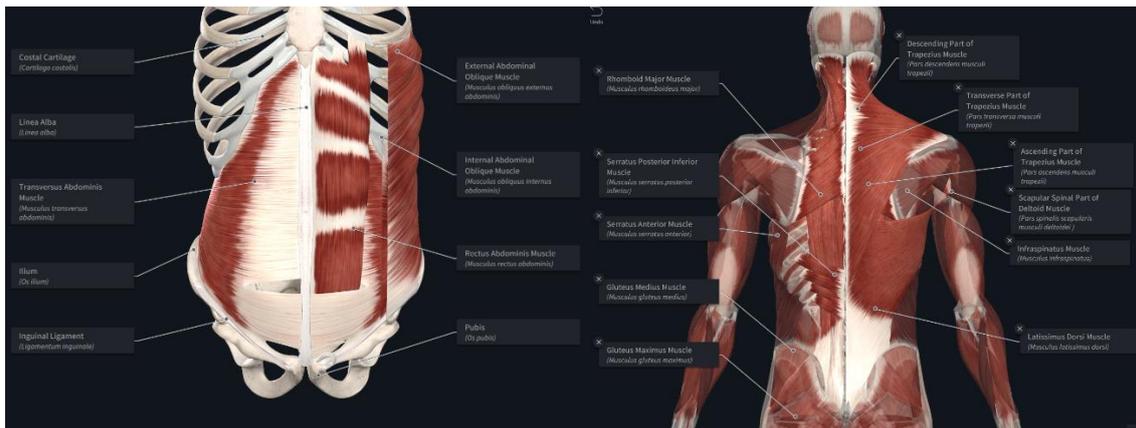


Fig 2 & 3 demonstrating handling

Each one above uses all planes, transverse, sagittal and coronal and is performed as the body moves out of a sprint/run into deceleration, the body then requires collection, to accelerate in the new direction to the next obstacle. This sport therefore requires a 3 dimensional programme for dynamic stability and focussing on maintaining fast

twitch muscles systems. Pilates lends itself very well as all exercises move and very rarely require a static hold. A programme must be constructed to keep muscle groups thinking 'an athlete will have unique levels of eccentric, isometric and concentric strength' (Nimphius, 2014, p187), ensuring the slower twitch fibres are not dominant, with this in mind, sessions need to consist of low repetitions with a greater resistance/load and alternating muscle group focus, the BASI block system enables the latter well. As mentioned in the introduction, dog sport handlers fall in to two categories, those that do very little to no exercise support running a dog, to those working with personal trainers in person and online. Due to the lack of research in this area the majority of dog sport handlers are following HIIT (High Intensity Interval Training) style programmes with little or no relevance to dog agility. Some of these handlers are doing fast and high frequency repetitions within a short time frame of lunges, burpees, butt kickers and squats, they then visually demonstrate exaggerated muscle groups and a decreased mobility making it more difficult to direct the dog. In this case study this candidate is typical of that mentioned above, dominant global musculature with some obvious muscular asymmetry, indicative of compensations from over loading a compromised structure, as in the Gluteal group, and larger Quadriceps in comparison to Hamstrings size/strength.

'The nature of being an athlete demands the unceasing repetition of particular and unique movement patterns' (Isacowitz, 2000, p101), the movement of the body for this sport requires the axial skeleton to have trunk stability and mobility, core muscles need to be strong to reserve energy expenditure and also be responsive in sprint. Strength and flexibility in lateral flexion and rotation allows correct communication to the dog, to improve the mobility of the shoulders for collection and drive of their canine partner.



The musculature and biomechanics of the appendicular skeleton of the dog sport handler require both the left and the right side to be even and equal. This includes, larger muscle groups in adduction, abduction, hip flexion and extension, range of motion for the foot and ankle joint in dorsi and plantarflexion and shoulder range of motion including flexion, extension, circumduction etc.

Injuries or conditions commonly associated with dog agility, include those seen in running, football, basketball and tennis; ankle strains/sprains, plantar fasciitis, achilles tendonitis, piriformis syndrome, sciatica, shoulder rotator cuff injury and various knee and hip injuries, including dislocations. Some of these are due to the poor surface or ground conditions, footwear or weather conditions as well as a lack of physical fitness/conditioning and proprioception.

Case Study

The handler used in this case study will be known as Handler 1 (H1), she is a 48 year old woman who competes at the highest level within the sport, and, at the start of the case study, had qualified for the GB team squad. She is a full time dog trainer and runs her own business, she had previously been involved in nursing and marketing. H1 had a history of recurring injury to her right hip, an old marathon running injury, which was exacerbated after participating in a distance personal training programme. This programme consisted of HIIT and boot camp style exercises. She persevered through the programme despite experiencing pain and discomfort.

After conducting the initial intrinsic biomechanics screenings and fitness tests H1 was advised to see a sports physio who after 6 weeks of treatment referred her back to begin this programme. She identified a repetitive strain injury and corroborated the results found in the handler's biomechanics screening. With the physio's permission to exercise H1 entered a varied movement programme, she advised focussing on short adductors, core work and extension, which again was highlighted in the biomechanics screening and testing.

H1 had no knowledge of Pilates, a fundamental programme was put together and we progressed accordingly, 'each succeeding exercise should be mastered before proceeding progressively with the following exercises' (Pilates, 2012, p39). The fundamental warm up, consisting of Pelvic Curl, Spine Twist Supine, Chest Lift and Chest Lift with rotation, was also set as homework between sessions, with some other pre-Pilates exercises, like knee drops and hip openers. The physio suggested adding a tennis ball between the short adductors so small props were added to assist the

exercises like pelvic curl, initially. The rest of the session followed the BASI Pilates block system paying attention to the what was required for her sport.

Conditioning Programme

The exercises in the conditioning programme below that have been included were followed over approximately 6 months. Some exercises within a set series, for example with arms, Rowing Back 1, Cross Arm Pull, arm circles (up and down), were found to be more useful in regard to imitating the movement required in the sport, but all were found to be useful in a more general overview of performance.

Block	Apparatus	Exercises	Comments
Warm Up	Mat	Roll Down x 5 Pelvic Curl Spine Twist Supine Chest Lift (CL) CL w Rotation <i>Session 1-4 Leg Lifts, Session 4-10 Leg changes</i>	Initially Session 1-4 leg lifts were included then progressed to leg changes until Session 10. These exercises were also set as homework to be completed at home 1 new exercises to do at home a week, when client was feeling confident enough to do unsupervised.
Footwork	Reformer Cadillac Wunda Chair	Footwork series	The objective was to work towards doing footwork on the Wunda Chair so we worked through reformer, then Cadillac to change the load direction, and finally we worked on the Wunda Chair predominantly
		Footwork Series	
		Footwork Series	
Abdominals	Reformer Cadillac Wunda Chair	100 prep Coordination 100 Double Leg Double Leg with rotation	100 prep, mini roll up and st. pike were used to instill the basic understanding of flexion, as sessions progressed we integrated a variety of challenges based on the theme of coordination and balance, or were chosen for their 3 dimensional movement as in double leg with rotation.
		Mini Roll Ups Mini Roll Ups Oblique Breathing with Push Through Bar	
		Standing Pike Cat Stretch Kneeling	
Hip Work	Mat Reformer	Leg Circles	Due to the physio advice and guidance we started
		Supine Leg Series	

	Cadillac	Supine Leg Series Supine Single Leg Series	with some pre Pilates exercises like knee openers and small leg circles with a bent knee. We then worked very diligently on the reformer
Spinal Articulation	Reformer Cadillac	Bottom Lift Bottom Lift with extensions	Hamstrings and spinal mobility
		Monkey Tower Prep Tower	
Stretches	Reformer Ladder Barrel Cadillac Pole	Standing Lunge	Range of motion was important, so we included two stretches or a set of stretches, ie ladder barrel stretches and a shoulder stretch in every session. Pole series was taught as homework to do when competing for long periods of time abroad.
		Shoulder Stretch 1 Shoulder Stretch 2	
		Gluteals Hamstrings Adductors Hip Flexors	
		Shoulder Stretch Pole Series	
FBI 1	Reformer Cadillac	Upstretch 1 Long Stretch Upstretch 2 Upstretch 3 Reverse knee stretch	Working on developing strength in dynamic movement was the goal with FBI. Progressing to Upstretch 3 was important to improve range of motion and control in the scapulars.
		Thigh Stretch with Roll Up Bar	
Arm work	Reformer Cadillac Ped a pul Magic Circle	Supine Arm Series Sitting Arm Series Kneeling Arm Series Arms Kneeling Side Series	This area we wanted to create an independence from the muscles in cervical spine by focussing on training and isolating movement requiring the serratus anterior, rhomboids, mid and lower trapezius and latissimus dorsi. These exercises also allowed for the range of motion required in the shoulder as well as some replicating the arm movement required in handling.
		Arms Standing Series Sitting Side Prep Shoulder Adduction Shoulder adduction Single Arm Butterfly	
		Arms Standing Series	
		Arm Series	
FBI 2	Reformer	Balance Control Back Prep	Shoulder stabilisation and control whilst the body is in motion. Starting with small movements.

Leg Work	Wunda Chair Leg Weights Magic Circle	Hamstrings Frog Front Backward step down	These exercises allowed us to work all muscle actions, with a focus on improving adductor strength (as advised by physio) and looking at abductor and hip extension to ensure the hip flexor (Rectus Femoris) and the other quadriceps were not over dominant.
		Gluteal side lying Gluteals Kneeling Adductor lift Adductor Squeeze	
		Sitting Series Prone series	
Lateral Flexion & Rotation	Reformer Wunda Chair Ladder Barrel	Mermaid	Supporting the handling manoeuvres that require lateral flexion and rotation.
		Side Stretch Side Pike	
		Side Over Prep Side Over	
Back Extension	Mat Reformer Cadillac Ladder Barrel Wunda Chair	Back Extension	Concentrating on improving the stamina of the posterior chain and teaching abdominal control in extension. We also looked at improving her thoracic extension to improve shoulder function in prone lying exercises and working with asymmetry as in back extension single arm
		Pulling Straps 1 Pulling Straps 2 Breastroke	
		Prone 1 Prone 2	
		Swan Prep	
		Swan Basic Back Extension Single Arm	
Closing	Mat	Roll Down x 4	To reassess alignment and spinal mobility at the end of each session

Conclusion

The selection process for the international KC team has a series of basic fitness tests, coupled with the agility specific ones conducted as part of the larger programme H1 went through, progress was measurable at various points. We also had qualifiers and specific competitions that also acted as measurable achievements. Personal goals set by H1 at the beginning of the programme included:

- Team selection for EO and IMCA
- Qualifying for Crufts & Olympia
- Gaining a Championship Certificate (CC)

As quickly as February, improvements had been made in three out of the four tests at selection. Sit and reach improved by 9cm, vertical jump gained 7cm, and the 30m sprint improved by 0.24 seconds. H1 achieved all the goals that were set. She was selected for both a team and individual spot for EO and IMCA, qualified for Crufts and Olympia and achieved the CC. At EO she was placed 21st in the individual final with 5 faults, achieved a bronze, two silvers and two golds making her overall IMCA champion for her height category. Overall H1 found the benefits of Pilates helpful for her sport, with several people, including GB management, commenting on how much better she was moving, as well as having an injury free season.

‘Contrology is designed to give you suppleness, natural grace, and skill’ (Pilates, 2012, p27), Pilates as part of a varied, dog agility specific conditioning programme, can have positive results, supporting both the athletes in everyday movement and competition, to prevent injuries and/or improve performance, as well as helping to rehabilitate pre-existing injuries with the support of a physiotherapist. The physical demands of the handler can be supported by using symmetrical movement for a whole body conditioning approach on the apparatus initially, which can help to even out

asymmetries that are not desired in competition, and then to isolate and focus on specific joint and muscle actions where strength and power are required in finer detail.

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