

Case study Rehabilitation

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All the staff at Perform have been extremely professional and accommodating and thanks to their dedication and encouragement it has filled me with every confidence that I will return to sport in the near future – Perform has helped me get my life back on track!

Alex Wallis

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The Patient

Engineer Alex Wallis, 26, from Burton-upon-Trent was involved in a road traffic accident on 7th September 2012. Mr Wallis underwent four major surgeries to his right knee between 23rd September 2012 and 30th May 2013 including Posterior-corner reconstruction PLC and an ACL reconstruction.

Alex was referred to Perform St. Georges Park for physiotherapy following the first surgery for rehabilitation and preparation for the second scheduled surgery. Alex had endured a significant

amount of rehabilitation during this period to regain knee range of movement, lower limb strengthening, control and power. Additionally he completed a phase of return to sport/work rehabilitation due to the nature of his job. Perform assessed Mr Wallis during this period to ensure he achieved all criterion-based markers before progressing. His ultimate aim was to be able to run and return to football in some capacity, plus return to winter activities as he is a keen snowboarder.



The Hilton hotel and Perform centre at St Georges Park

Assessment

Mr Wallis came to Perform at St. George's Park and was assessed by Paul Williamson, Perform Physiotherapy Lead. Due to the multiple surgeries and long period of recovery required, Mr Wallis found it difficult to regain his pre-accident leg strength. An isokinetic strength assessment for quadriceps/hamstring ratios was undertaken on the 4th December 2013. Mr Wallis still displayed a quadriceps deficiency within the right side (concentric 20% and eccentric 26% deficit respectively) when compared to the left side. Although hamstring ratios were within limits, both sides were notably weak. Using this data Paul ensured that Mr Wallis continued with hypertrophy, strength and power training to improve overall hamstring strength and improve quadriceps ratios.

Functional leg strength was also measured as a marker for return to running. A single leg press of 3reps at 1.5 x body weight was used, this produces the same forces through the patella-femoral joint during running. Mr Wallis pushed 10 reps at 135KG, given Mr Wallis's body mass of 90K he achieved the standard to initiate running.

Treatment

Paul supervised Mr Wallis through a progressive running protocol, which began with use of the Hydroworx underwater treadmill. Time duration and speed was increased through sagittal planes, then a variety of movement patterns in frontal and finally transverse planes were introduced. Additionally early plyometric exercise following the same format of sagittal, frontal and transverse planes was introduced in this partial weight-bearing medium.

Once happy with leg strength, Paul initiated running on a treadmill, building up to 30 minutes at 10KPH twice weekly. Paul then introduced track running in a linear direction, progressing to acceleration, deceleration, multi-directions, change in direction, pivoting and finally ball striking. This was progressed from fresh to a fatigued status. Paul did include decision-making with fit-lights, perturbations, contact and competition to ensure Mr Wallis could return to football if desired.

"I have been receiving treatment at Perform for the past 10 months treating a multi-ligament knee injury following a motorcycle accident. During this time I have received many types of treatments including hydrotherapy, acupuncture, muscle stimulation and good old-fashioned weight training."

Alex Wallis

In order for Mr Wallis to return to snowboarding, Paul needed to assess his capabilities during deep squatting. For this Paul included in his strength training programme a series of deep double and single leg squats, lunge walking, additionally Paul spent a considerable time working on gluteal activation, strength; functional motor control, proprioception, on stable and unstable surfaces to ensure Mr Wallis could control his lower limbs in any possible position.

Throughout rehabilitation Mr Wallis completed a variety of plyometric exercises to maximise performance. During this final phase Paul assessed Mr Wallis's ability to jump and land with control.

Single leg hop showed a 12.5% deficit right compared to left, correlating with a reduced power output on this side. Interestingly on triple hop assessment Mr Wallis achieved 99% right compared to left suggesting although Mr Wallis was unable to generate the same power at that time he could control landings very well, having a stable knee and high-self confidence in this.

Post-treatment

Mr Wallis made excellent recovery from the multiple surgeries, he regained full functional range of movement and confidence in his now strong and stable knee. He was able to return to full working duties, which included heavy manual labour, and to all sporting activities.