Hampshire Institute of Sport (Pilot) evaluation

Fine-tuning athlete performance and boosting student employability
Energise Me, Hampshire County Council and University of Winchester embraced innovation to launch the Hampshire Institute of Sport pilot in January 2018.

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The Hampshire Institute of Sport had been in concept phase for a long time. To test it, we delivered a 4-month pilot involving 17 athletes from 4 different sports.

The pilot included psychological, physiological and biomechanical support.

9 University of Winchester students were involved, under the supervision of senior lecturers and technicians.

Due to the nature of performance sport, significant improvements in performance cannot be attributed to the pilot.

However, the athletes reported an improvement in their knowledge of sports science and the data they have acquired from the pilot will help them and their coaches shape training in future months.

EXECUTIVE SUMMARY

The Hampshire Institute of Sport Pilot grew out of the Hampshire Talented Athlete Scheme and a need to provide bespoke support for athletes.

The Hampshire Talented Athlete Scheme (HTAS) is funded by Hampshire County Council and managed and delivered by Energise Me. The breadth and depth of support the scheme offers to athletes has grown considerably over time.

Initially, athletes could receive grant funding and access to local leisure centres. More recently, we’ve added fast-track physiotherapy, free bus travel and sport science and lifestyle workshops.

Athletes are also trained in presentation skills so they can deliver talks to primary schools and encourage local children to pursue their goals.

Although the level of support has grown significantly, there were emerging gaps regarding individualised:
- physiological testing
- biomechanical analysis
- psychological support
- strength and conditioning training

This kind of support can identify areas for improvement to boost performance and help prevent injury.

Our partnership with University of Winchester enables us to provide individualised testing and support. Equally, it gives their students the chance to engage with development opportunities, build their CVs and gain practical experience which could aid future employment. The Department of Sport, Exercise and Health can therefore offer their support at a reduced rate.

Students from two different degree courses — Sports Psychology and Sport and Exercise Science — contributed to the pilot, under the supervision of their senior lecturers. Due to the differing nature of the services provided, under the headings of psychology and physiology, it is best to explain methodology and findings separately.

INTRODUCTION
EVALUATION OBJECTIVES

To help evaluate the pilot effectively, the following evaluation objectives were agreed by Energise Me, University of Winchester and Hampshire County Council.

- **AIM:** To create a Hampshire Institute of Sport that services Hampshire Talented Athletes to improve knowledge and performance using sport science techniques relevant to their sport.

- **OBJECTIVE 1:** To improve coach and athlete knowledge of sports science and data interpretation following the 4-month pilot.

- **OBJECTIVE 2:** To see improvements in over half of athletes receiving physiological, psychological and biomechanical support following the 4-month pilot.

- **OBJECTIVE 3:** To improve athlete knowledge of sports psychology, by understanding 2 psychological techniques to implement following the 4-month pilot.

- **OBJECTIVE 4:** To ensure 80% of athletes, coaches and parents are satisfied with the process.

- **OBJECTIVE 5:** To improve University of Winchester students’ experience and ability in the practical application of sport science support techniques.

The objectives were evaluated using questionnaires and interviews.

THE UNIVERSITY OF WINCHESTER PERSPECTIVE

“The collaboration with Energise Me and Hampshire County Council on the Hampshire Institute of Sport project provides our students with valuable practical experience, working with athletes in the Hampshire area. This complements their learning experience at the University and gives them an opportunity to apply the concepts they learn in the classroom to an applied setting.”

Ed Tasker MSc, BSc (Hons), Senior Physiology Laboratory Technician

“Supervising the HIS pilot has been a rewarding experience, seeing how our students learn and adapt in an applied environment. Throughout the pilot there have been occasions where our students have shown their ability to cope with real-world problems exceptionally well. It has been great to connect with new local teams and coaches and hope that these links will continue to grow in the future.”

Amy Wright MSc, BSc (Hons), Senior Biomechanics Laboratory Technician
SELECTING CLUBS AND PARTICIPANTS

The current cohort of HTAS athletes, and our knowledge of clubs and coaches, provided opportunities for athlete and coach selection. We identified three coaches who each work with a cluster of HTAS athletes. Energise Me and University of Winchester staff met with these coaches to establish interest and gain an understanding of the types of tests and support that would be useful for their athletes.

We selected:
- Westgate Performance Centre (Badminton)
- Southampton Diving Academy
- Winchester City Penguins (Swimming)

PHYSIOLOGY/BIOMECHANICS TESTING

For diving, we planned:
- Biomechanical support: Full video recordings of the dives, allowing for the athlete and coach to re-watch several times (in addition to the TIVO system). This also allowed for entry angle analysis.
- On land Electromyography (EMG) analysis to provide in depth information on muscle firing patterns.

For swimming, we planned:
- Biomechanical support: Poolside start analysis, allowing the athlete and coach to re-watch several times. Underwater turn analysis, allowing athletes to look at technique and speed in and out of the wall.
- Lactate threshold testing: Incremental 200m efforts at increasing speeds. Fingertip capillary blood sample taken after each effort. Results plotted on a graph to determine threshold. Useful for prescribing training intensities and to demonstrate improvements in performance with training.

For badminton, we planned:
- Biomechanical support: Foot pressure analysis to give athletes information on arch height.
- Continued undertaking of current fitness tests (vertical jump, sprint speed, agility etc.) but with more accurate results through provision of technology (jump mat, light gates etc.).

For psychology:
3 additional HTAS athletes competing in Badminton, Javelin and Shot Put were invited to take part in the pilot following their engagement in previous sport psychology group workshops.

The University recruited three MSc students who were paired with the athletes when they met to discuss the process. Following safeguarding protocol, the initial plan was for all six sessions to take place at the University campus with Jo Batey (Senior Lecturer, Sport and Exercise Psychology) present in the building. The MSc students planned to work through two psychological techniques that athletes could utilise in training and competition.
DIVING

All athletes selected for the pilot took part in EMG testing through a range of on land exercises to establish any imbalances and muscle firing patterns.

Following analysis of the results, the MSc students created personalised reports for the divers with recommendations to improve performance (e.g. strength and conditioning programme).

The plan was to conduct video analysis but due to the environment that the divers train in, we were unable to get the drone to remain still to take high quality footage. There are other options available to enable us to film the divers in the future should the Hampshire Institute of Sport continue.

OUTPUTS AND OUTCOMES

SWIMMING

Initial blood lactate testing was conducted where athletes completed incremental 200m efforts at increasing speeds. Fingertip blood samples were taken after each effort and plotted on a graph to show the threshold.

The athletes received a brief explanation poolside but were sent comprehensive reports to share with their coaches. Re-testing took place at the end of the pilot.

Coach consultation also highlighted the need for video analysis to help improve the swimmers’ technique with their turns and starts. The pools that Winchester Penguins use do not have official starting blocks and we were unable to access other local pools to conduct start analysis. However, we were able to conduct turn analysis and provide the swimmers and coaches with video content to look at to identify any potential technical improvements.

We faced a challenge that was out of our control, as mid-way through the pilot the head coach moved on and was replaced by an interim head coach. There was a short gap before a new coach was appointed which would have affected the way the results from the report could be considered when it came to their training.
BADMINTON

Athletes received the planned fitness tests with the addition of a couple more based on some coach consultation.

The coach was keen to utilise the technology available through the University to run the types of testing that Badminton England do at national training camps.

On-court anaerobic and agility testing, shoulder flexibility, jump performance, grip strength. Foot pressure measurements taken to determine foot arch height.

EVALUATION

A PARENT’S PERSPECTIVE

“The first set of testing has provided the scientific data that will allow Charlotte’s coaches to precisely tailor training programmes to the abilities of each athlete. There is no way that we would have access to this kind of information, so vital in performance sport, without the expertise and support of the University of Winchester team.”

Parent of swimmer

“The Hampshire Institute of Sport pilot has got off to a great start for my daughter. The lactate testing session has given her so much more information about her thresholds and how to train to improve this, plus also how to manage her racing schedule at swim meets. This information will undoubtedly shape her training and performance in years to come. It is incredibly well run and the team are really professional and enthusiastic. It is such a great opportunity for my daughter and we look forward to progressing further with the pilot. No doubt we will learn a lot more and thanks to all the team for their time and effort.”

Parent of swimmer
A COACH’S PERSPECTIVE

“The Hampshire Institute of Sport provides another voice telling them vital information. The more people that are involved in their support network the better because they can access more knowledge, more opinions, more personalities and all the things they need to come into contact with to deal with elite level sports. It’s just fantastic for them to get other people that are experts in these areas helping them.”
Kat Hurrell, Badminton Coach, Westgate Badminton Centre

UNIVERSITY OF WINCHESTER PERSPECTIVE

“(The Hampshire Institute of Sport) allows our students an opportunity to gain additional experience to their studies. (It allows) them to have that real world experience so when they’re applying for jobs and going for interviews their CV is looking really good and people from other Institutes and employers can look at their CV and go wow Winchester really do allow their students other opportunities, this is great. Employability is a massive thing for us and allowing our students to be completely whole and not just about their studies.”
Amy Wright, MSc, BSc (Hons) Senior Biomechanics Laboratory Technician, The University of Winchester

“I am really enjoying the HIS pilot so far. It’s good to be able to apply what I have learnt at university into the ‘real world’. Working with the swimmers has been great as they are really interested in what we are doing and how it can help them. I am looking forward to the following sessions. The reason I applied to take part was so I could gain experience within the field of sports science. Also, the thought of helping the athletes achieve in a sports science setting really interested me. Working with athletes has always been something I’d like to do so I thought it was a great opportunity.”
MSc Student
RECOMMENDATIONS & FUTURE CONSIDERATIONS

RECOMMENDATIONS

Add a part-time co-ordinator role (University of Winchester):
Energise Me and University of Winchester agree some funding should be ringfenced for a part-time role to ensure good communication and co-ordination of the Hampshire Institute of Sport.

This role would involve liaison with Harry Stow from Energise Me, the coaches, MSc students and athletes to organise testing dates and, where necessary, bring in the support of the senior lecturers regarding certain tests.

Ideally this role (1 day per week) would be undertaken by a PhD student who would have detailed working knowledge of the sports department.

Conduct a mix of testing at the University and at training venues:
During the pilot, testing took place entirely at training venues.

The University has high quality sport science labs with an extensive list of equipment to test athletes from a wide variety of sports.

Going forward, as well as continuing to test at training venues, we would want to encourage athletes and coaches to experience this.

From a University perspective, it would be great for the athletes to see the facilities the University has on campus. This would also be more time efficient if we have athletes coming from a wider range of sports and clubs.

Future considerations:
- Diversifying the range of sports and athletes accessing the programme
- Ensuring athlete coaches are connected to wider HTAS workshop offers

Thank you to all our partners.

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