



WELSH INSTITUTE
OF PERFORMANCE SCIENCE
SEFYDLIAD GWYDDORAU
PERFFORMIO CYMRU



**OVERVIEW AND
ANNUAL REPORT
ON ACTIVITIES**

MARCH 2019

INTRODUCTION

To improve Wales' Commonwealth Games performance further and to increase the number of Welsh athletes winning medals at Olympic and Paralympic Games there is a critical need to match and even exceed the performance research capacity of our competitors in other nations.

To this end, the Welsh Institute of Performance Science (WIPS) was developed to enable necessary and important research to be conducted. WIPS is a three-way partnership between Sport Wales, Wales' leading academic sport scientists, and relevant industry partners. WIPS provides the capacity for Sport Wales Institute to conduct research that dovetails with the Institute's medal-winning, system building and workforce development strategies and can be implemented with athletes and wider support teams for immediate performance impact.

In addition, our agile research group is well placed to take advantage of the significant strength of expertise in Welsh industry and academia in the areas of sport science, medicine, science, and engineering to develop, test, and deliver innovations that have performance benefits within elite sport, sport system-building, development of Sport Wales workforce, and in wider domains (e.g., health, medicine).

STATEMENT OF PURPOSE

The purpose of the Welsh Institute of Performance Science is to conduct multi-disciplinary, world-leading, applied performance science projects that enhance the performance of Welsh athletes and businesses, improves the performance pathway, and builds capacity in these areas for the future. Additionally, WIPS aims to train future scientists and increase strategic collaboration between Welsh sport, academia and business.



FUNCTION AND PROCESS

The Welsh Institute of Performance Science work to enhance performance in Welsh sport and increase links between sport, academia and business in the following ways.

Priority will be given to the first three approaches:

1. Performance Driven Questions, Science Driven Answers

Following evaluation of Welsh Sport performances and systems, performance issues or areas to improve are identified; the Research Steering Group and Sport Wales' representatives then discuss and seek out potential strategies, leading to projects being conducted to address the question or issue.

2. Performance Driven Questions, Industry Driven Answers

Following evaluation of Welsh Sport performances and systems, performance issues or areas to improve are identified; the Research Steering Group then discuss and seek out potential strategies, leading to collaboration with appropriate industry partners to answer the performance question.

3. Performance Driven Questions, Science and Industry Driven Answers

Following evaluation of Welsh Sport performances and systems, performance issues or areas to improve are identified; the Research Steering Group discuss and

seek out potential strategies, leading to research being conducted in conjunction with industry partners to answer the performance question/issue.

4. Science Driven Performance Applications to Enhance Performance

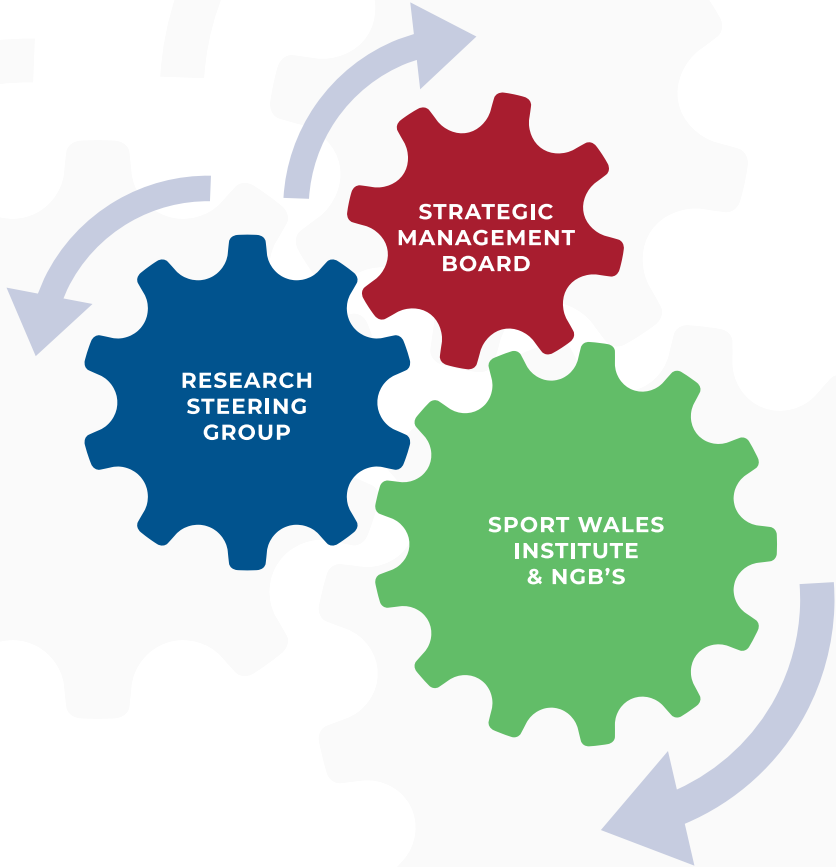
Based on current research findings, Research Steering Group members can make suggestions to the wider Research Steering Group regarding potential performance enhancing strategies. If the Research Steering Group deem it appropriate, research and discussion examining the feasibility and applicability of these strategies to Welsh sport performance will be conducted. If the findings yield positive outcomes these strategies may be implemented within Welsh Sport via Sport Wales Institute.

5. Industry Driven Performance Applications to Enhance Performance

Industrial partners (and other innovation specialists) can approach the Research Steering Group regarding technological or industrial advances that might enhance sporting performance.

If deemed appropriate by the Research Steering Group, research and discussion examining the feasibility and applicability of these strategies to Welsh Sport performance are conducted. If the findings yield positive outcomes these strategies may be implemented within Welsh Sport via Sport Wales Institute.

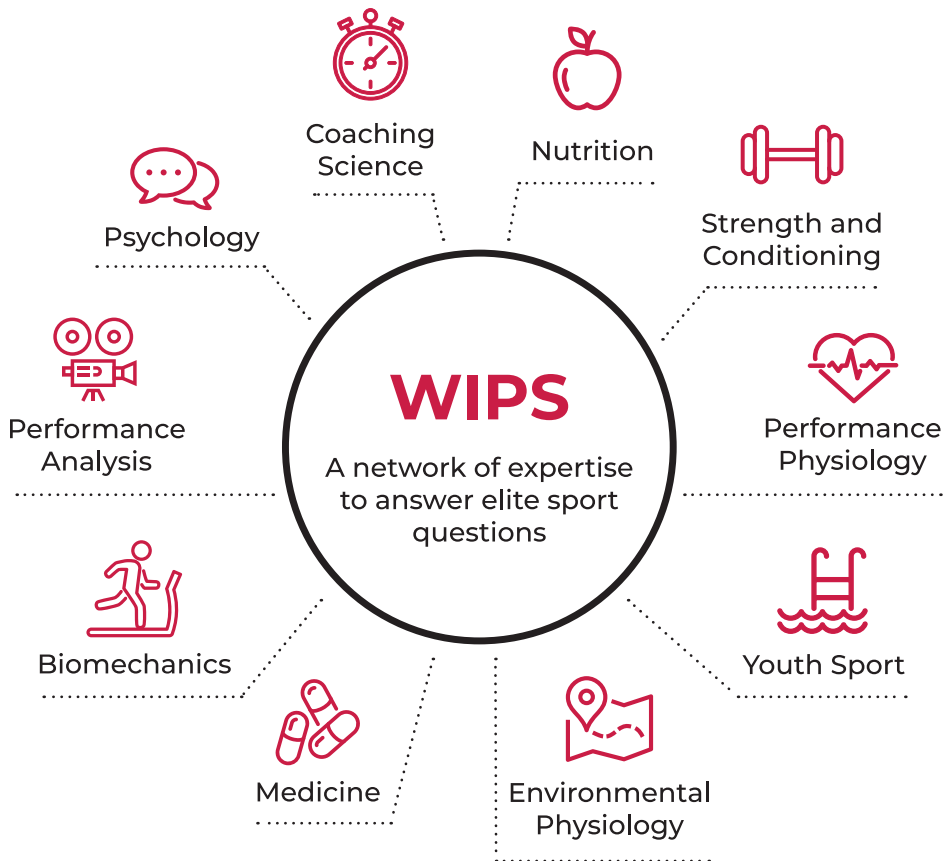
ORGANISATIONAL STRUCTURE



STRATEGIC MANAGEMENT BOARD COMPOSITION



RESEARCH STEERING BOARD COMPOSITION



EXAMPLES OF WIPS SUPPORTED PROJECTS

DISCIPLINE	PROJECT
Psychology and Coaching Science	Psychophysiological profiling of gymnasts
	Monitoring respiration in rhythmic gymnasts
	Competition coping skills for coaches
	Pressure management and decision-making training in elite coaches and performance directors using HRV biofeedback
System-building/ Youth Sport	Review of the benefits of involvement in elite development pathways
	Impact of medal winning on elite development and sport participation
	Identification of psychological skills and characteristics used by youth elite athletes
Biomechanics and Performance Analysis	A review of what it takes to win for throw events
Physiology/ Strength & Conditioning	Cooling strategies for competition in heat
	Underwater kicking in elite swimming
	Optimising athletic development in adolescents
	Use of warm baths for heat acclimation
Nutrition	A comparative analysis of global management competencies in podium level sports nutrition services provision
	Biochemical effect of vitamin D in elite athletes
	Who tweets, posts, snaps and pins
	Screening, interpretation & management of iron insufficiency in elite athletes

SPOTLIGHT ON PROJECTS: STRESS MANAGEMENT FOR THE GOLD COAST WEIGHTLIFTING TEAM

**WIPS and SWI contributors:
Mike Goss (WIPS Research Assistant),
Prof. David Shearer (WIPS Psychology
lead) and Louise Jones (SWI
Psychology Practitioner)**

Rationale:

All weightlifters, their coaches and their managers are likely to experience stress in the lead up to and during the Gold Coast Commonwealth Games. Providing these personnel with individualised stress management techniques will help to promote their health and wellbeing and reduce the likelihood of negative impacts from excessive stress such as interpersonal disputes and sub-optimal performance behaviours.

Further, the ability to manage stress on-demand may enhance recovery from both training and competitions and improve performance in those who suffer from debilitating effects of pre-performance anxiety.

Methods:

One 1-hour team presentation and discussion session during a squad training weekend followed by a one-hour individual session with all personnel to teach HRV biofeedback stress management.

Impact for Sport Wales:

Supporting Gold Coast performances:

This project had a positive impact on performances at the Gold Coast 2018 Games. Gareth Evans won Wales' first gold, he used his breathing technique to enhance recovery during pre-competition training and to aid post competition sleep. At least three of the team performed personal-best lifts at the Games, using their breathing paces to manage pre-competition stress and pre-lift arousal.

Supporting health and wellbeing:

This project provided the entire team with an on-demand stress reduction tool, and most used it to manage the effects from stressors such as being away from home, disagreements, and poor sleep.



This project highlighted the value of an on-site stress management tool for athletes, coaches and support staff to use at competitions.



OPTIMISING ATHLETIC COMPETENCE AMONG ADOLESCENTS THROUGH A SCHOOL INTERVENTION

WIPS and SWI contributors: Dr. Jon Oliver (WIPS Strength and conditioning research lead), Dr. Camilla Knight (WIPS Youth Sport Research Lead), Prof. Nicola Phillips (WIPS Medical and Physiotherapy lead), and Owen Lewis (Sport Wales Institute)

Rationale:

Sport Wales practitioners in strength and conditioning and physiotherapy identified that athletes were entering into the high-performance system with poor movement competency and a tendency to break down easily. Available data from the general population of secondary school children in Wales and research in elite youth sport in Wales also supported the suggestion that Welsh children had low levels of athletic movement competency.

Owen Lewis, Head of Elite Performance Pathways at Sport Wales, proposed the idea to provide introductory strength and conditioning to secondary school children, to develop movement competency while the neuromuscular system is still maturing. This would have benefits for the general population but also help in the development of those youth following performance pathways, allowing them to undertake more advanced training and making them more robust to resist injury.

Methods:

A Knowledge Economy Skills Scholarship (KESS) to fund a PhD student to the project, titled "Optimising Athletic Development", was successfully secured and the student (Ben Pullen) enrolled in September 2017. A multidisciplinary team contribute to the project with academic experts in youth strength and conditioning (Dr Jon Oliver and Dr Rhodri Lloyd) and adolescent psychosocial development (Dr Camilla Knight) working with practitioners in strength and conditioning (Matt Archer, Sport Wales) and physiotherapy (Adam Rattenberry, Welsh Athletics) to develop an intervention that could be delivered to secondary school children in Wales.

The first trial of the intervention was piloted with year 7-9 boys and girls at Cyfartha High School in the summer term of 2018 and results are currently being analysed. Following evaluation the intervention has been further developed, and is currently being implemented with a different cohort. This will eventually be rolled out to more school children using strength and conditioning coaches and/or by upskilling teachers and coaches.



Impact for Sport Wales:

The project will provide wide ranging benefits to both the general population and to those youth that follow a performance pathway. Ensuring youth athletes have developed strength and can move well will better equip them to cope with the demands of training and competition.

It will help protect athletes from injury and enable them to undertake more advanced training as they progress through performance pathways.

It will also help ensure young athletes develop the variety of physical skills that would better allow them to transfer their talent across different sports.

The full benefits of the project will take time to realise, but if successful the project will help contribute to the development of a bigger and better equipped pool of talent to be selected into elite sport.

PSYCHOLOGICAL ASPECTS OF THE TAPER IN ELITE WELSH SWIMMERS

WIPS and SWI contributors: Prof. Dave Shearer (WIPS Sport psychology lead), Dr. Camilla Knight (WIPS Youth Sport lead), and Catherine Shearer (SWI Psychology Practitioner)

Rationale:

In 2016, Swim Wales and the squad sport psychologist (Cath Shearer) contacted WIPS, suggesting that swimmers were often susceptible to negative psychological effects during the taper period, and that this had resulted in poor performances at major international competitions. The taper most commonly requires athletes to reduce their training volume, while maintaining training intensity.

During this period, there are anecdotal reports of the 'Taper Blues', and the period is filled with psychological uncertainty. For example, the Swim Wales support team suggested that athletes commonly question whether the exact taper strategy deployed by their coaching team is 'working', and become anxious both during the taper itself, and then during the final lead-in to their races. Swim Wales wanted to better understand the perception of swimmers and coaches during this taper period, with a view to testing and implementing strategies that could facilitate a more productive approach to taper.

Methods:

A Knowledge Economy Skills Scholarship (KESS) to fund a PhD student to the project was successfully secured and the student (Max Stone) enrolled in April 2016. This project is on-going. In phase one, we have identified both the understanding of what swimmers and coaches believe the taper to be, and the psychological consequences of the taper itself. What we now know is that coaches and swimmers perceive taper to be a multifaceted training phase aiming to develop physiological, psychological, and technical excellence.

Despite this, it is clear there is a degree of mystery surrounding taper, possibly underpinned by the belief that taper is fallible, unpredictable and lacking thorough scientific support.

In phase 2, we are examining what psychological characteristics are related to confidence during the taper, and then how we can intervene to ensure confidence remains high in the lead in to competition and that negative emotions are kept under control. We will test a biofeedback intervention during taper to address some of the issues identified.



Impact for Sport Wales:

Considerable effort is made by coaches and other practitioners to design training programmes which optimally prepare swimmers for competition. Sport Wales practitioners suggest that all this 'good training' can be undone during the taper and immediately before the race by psychological factors that impinge on performance.

Our aim is to provide Swim Wales with simple practical guides that educate coaches and swimmers of the best way to approach taper and provide interventions that will counteract some of the negative affect experienced by athletes. Other elite Welsh athletes who compete in endurance-based events and complete tapers during their pre-competition phase will benefit from this research.

Furthermore, by testing the use of specific emotion-focused strategies as a more general pre-competition strategy, the impact of this programme of research could extend across the entire Sport Wales portfolio of priority sports.

The initial aim for this project was to develop the underwater kick ability of selected athletes via strength and conditioning and technical drills.

SWIM KICK DEVELOPMENT

WIPS and SWI contributors:

Dr. Anthony Blanchfield (WIPS Performance physiology lead), Prof. Liam Kilduff (WIPS lead), Charlie Finn (Research Assistant, WIPS), Spencer Fuge (SWI Strength & Conditioning Practitioner), Dr Ross Nicholas (Swim Wales Performance Director)

Rationale:

The underwater kick phase is a key determinant of successful performance in swimming, Swim Wales identified this phase as an area where significant gains in performance could be harnessed if this area was better understood and key determinants developed through focused strategies. The initial aim for this project was to develop the underwater kick ability of selected athletes via strength and conditioning and technical drills.

Method:

Sport Wales identified 2 key athletes that, based on their performance analysis data, would benefit significantly from a focused strategy around the underwater kicking phase. WIPS performed a review of literature to develop a deterministic model of the underwater kicking phase from both a technical and physiological perspective. Following this the two key athletes were mapped against these models using existing data to identify the areas where the coaches felt significant gains could be made. On completion of this mapping exercise both a strength and conditioning (focused on lower body power) and a coaching science (focused on the key technical elements) intervention was put in place. Both the design and implementation was driven by Swim Wales staff.

Impact:

Both athletes qualified for the Commonwealth games and set personal bests. Swim Wales now have a deterministic model for the underwater kick phase and a number of focused interventions that can be utilised to improve this component of swim performance for future individual profiling.

NUTRITIONAL AND PSYCHOLOGICAL-BASED INJURY PREVENTION STRATEGIES

WIPS and SWI contributors: Dr. Thomas Love (WIPS Nutrition Lead), Dr. Camilla Knight (WIPS Youth Sport Lead), Dr. Joy Bringer (SWI Psychology Practitioner and WIPS lead for Sport Wales)

Rationale:

Injury is one of the greatest risks to athlete health. The financial burden of injury negative long-term health implications, and more immediate negative impact on performance are just some of the negative consequences of injury.

As a result, injury prevention is critical. However, the success of injury prevention interventions is limited by various factors, including poor adherence a lack of sport-specific programming, and reliance upon exercise-based strategies despite the potential benefits of integrating non-exercise based (e.g., nutritional and psychological strategies). The objective of this study was to understand the injury prevention strategies in a wide range of Olympic sports and identify barriers to implementation. This project received funding from the International Olympic Committee.

Method:

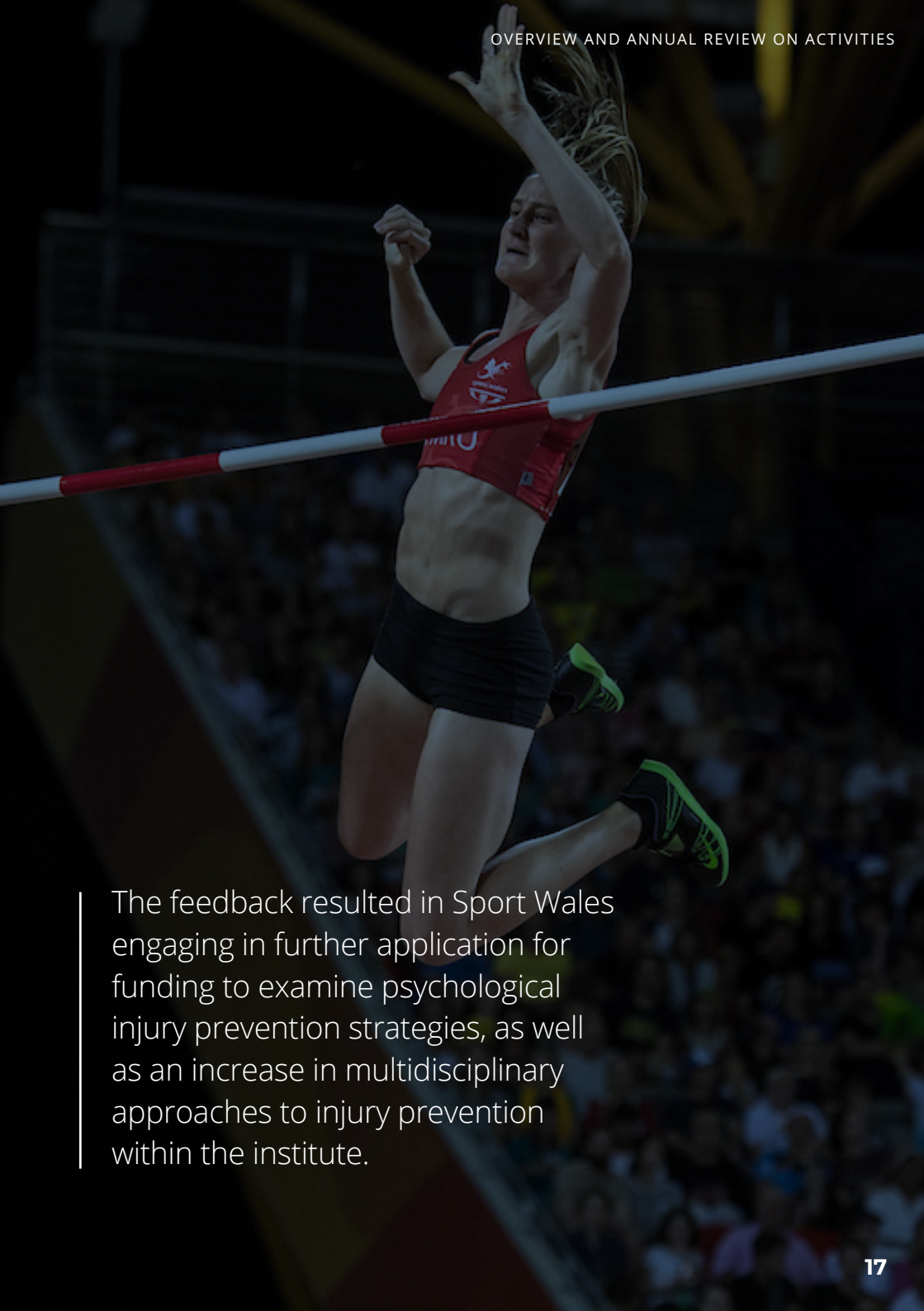
Sixty nine International/National athletes (30 male, 39 female) from 12 sports completed the survey. All athletes were affiliated with a high-performance sport institute. The survey comprised 11 sections: injury history, perceived risk of injury, cause of injury, risk factors, injury prevention beliefs, injury prevention strategy use, injury prevention strategy target, perceived benefit, barriers and facilitators, source of information and method

of acquiring information. Questions were guided by IOC multi-sport injury report form and theories of behaviour change. Data were analysed using a one sample binomial test.

Overall, the findings indicate that the majority of athletes have incurred an injury and ~50% of athletes' believe a specific type of injury or injury to a specific region can be prevented. Athletes used a wide range of different injury prevention strategies but identified numerous barriers particularly to psychological strategies and numerous facilitators particularly to exercise strategies. Athletes gave clear indications of how and from whom they would like to receive injury prevention information. Using such findings may be fruitful in enabling more effective education about, and dissemination of, injury prevention programmes. The overall results of this study have been fed back to the practitioners at Sport Wales to help enhance the support available.

Impact for Sport Wales:

A number of feedback sessions were delivered to practitioners across disciplines, with a series of recommendations provided regarding issues such as how to overcome barriers to implementing injury prevention strategies and how to enhance facilitators. Further, information pertaining to the dissemination of information and the sources of information athletes use were provided. The feedback resulted in Sport Wales engaging in further application for funding to examine psychological injury prevention strategies, as well as an increase in multidisciplinary approaches to injury prevention within the institute.

A female high jumper is captured in mid-air, clearing a bar. She is wearing a red sports top with a logo and black shorts. Her hair is flying, and her expression is one of intense focus. The background is a blurred stadium filled with spectators.

The feedback resulted in Sport Wales engaging in further application for funding to examine psychological injury prevention strategies, as well as an increase in multidisciplinary approaches to injury prevention within the institute.

RESEARCH IMPACT SEMINARS

WIPS and SWI contributors: Dr. Stuart Beattie (WIPs Coaching Science Lead), Dr. Sam Oliver, (WIPS Environmental Physiology Lead), Dr. Anthony Blanchfield (WIPS Physiology Lead), and Dr. Joy Bringer (SWI Psychology Practitioner and WIPS lead for Sport Wales)

Rationale:

£5,000 Economic & Social Research Council (ESRC) Bangor University Impact Acceleration Account (IAA) award to complete five collaborative knowledge transfer workshops between May and November 2017 by staff at the School of Sport, Health, and Exercise Sciences at Bangor University. Five seminars were delivered under the four planned themes of Performing with anxiety, Performing in the Heat, Mental Toughness, and Talent Development. Overall, there were more than 60 attendees, from Sport Wales, Team Wales, Sport National Governing Bodies, and Welsh Government. The information from the workshops was shared to all sports via Dartfish.

Method:

A performing with anxiety and mental toughness workshop was held on 6th June 2017. This included 3 separate presentations from Bangor University (Stuart Beattie, Gavin Lawrence and Andrew Cooke) to 9 Sport Wales and Team Wales staff. Feedback from Sport Wales and Team Wales staff was used to amend the presentations that Bangor University and SW staff then delivered on 7th June to 22 sport science practitioners, coaches, medical staff and team managers from sport National Governing Bodies including athletics, swimming, gymnastics, judo, weightlifting, cricket, sailing, football and triathlon. Additional attendees included Welsh Rugby Union


and disability sport. Stuart Beattie has had subsequent follow-up meetings with Sport Wales (Joy Bringer) and Welsh gymnastics. This had led to profiling and implementation of mental toughness training for Welsh gymnasts.

A Performing in the Heat workshop was held on 12th September 2017 and was co-produced between Sport Wales (Vanessa Davies, Robert Condliffe) and Bangor University (Neil Walsh, Sam Oliver). This workshop focussed on providing guidelines to prepare Welsh athletes for the heat stress of the Commonwealth Games, Australia. 18 sport practitioners and coaches attended. The workshop discussed the novel hot bath strategy, developed by Neil Walsh, for heat acclimation and improving athletic performance in the heat.

A Talent Development workshop was held 8th November 2017. This was co-produced by Sport Wales (Joy Bringer) and Bangor University (Lew Hardy and Karen Williams; UKSport). The workshop included 10 delegates from Sport Wales and Welsh Government.

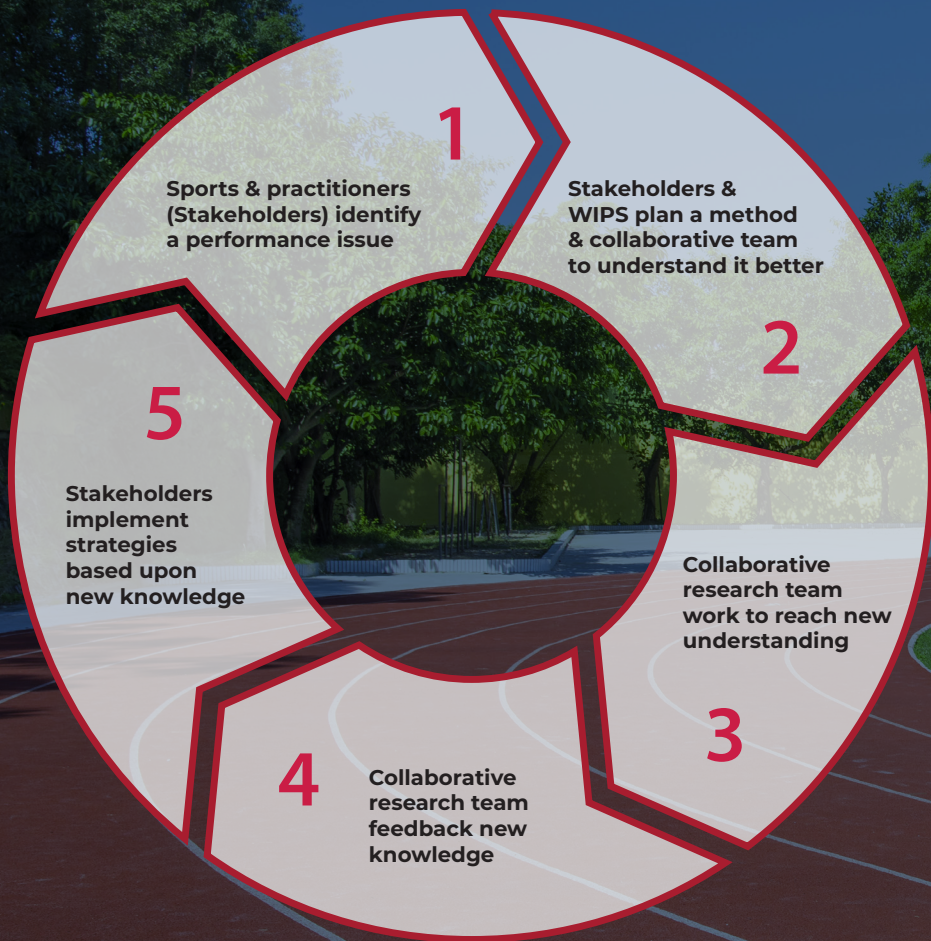
Impact for Sport Wales:

The IAA award helped to facilitate the knowledge transfer to Sport Wales staff. For example, Rob Condliffe used the hot bath strategy with athletes, coaches and team managers that attended the Youth Commonwealth Games in Bahamas in July 2017 and to help prepare medal winner Bethan Davies for Commonwealth Games in Australia. The press release detailing this is: www.bangor.ac.uk/news/latest/hot-baths-help-to-prepare-team-wales-for-the-heat-of-the-australian-commonwealth-games-36314

A man wearing a black hooded jacket with a red logo on the chest is pointing his right hand towards the left. The background is a blurred green field, possibly a sports field. The lighting is dramatic, with the man's face and jacket highlighted against a dark background.

Overall, there were more than 60 attendees, from Sport Wales, Team Wales, Sport National Governing Bodies, and Welsh Government. The information from the workshops was shared to all sports via Dartfish.

HOW WIPS PROJECTS WORK



MANY THANKS TO THE RESEARCH STEERING GROUP FOR THEIR CONTRIBUTIONS:

Anthony Blanchfield

(Physiology Lead, Bangor University)

Joy Bringer

(Co-Chair Research Steering Group, Sport Wales Institute)

Peter Brown

(English Institute of Sport)

Natalie Brown

(WIPS research assistant)

Dan Cunningham

(WIPS research assistant)

Malcolm Fairweather

(Sport Scotland)

Charlie Finn

(WIPS research assistant)

Mike Goss

(WIPS research assistant)

Brian Hughes

(Sport Wales Institute)

Gareth Irwin

(Biomechanics Lead, Cardiff Metropolitan University)

Liam Kilduff

(Co-Chair Research Steering Group, Swansea University)

Camilla Knight

(Youth Sport Lead, Swansea University)

David Lasini

(Sport Northern Ireland)

Thomas Love

(Nutrition Lead, Swansea University)

Peter O'Donoghue

(Performance Analysis Lead, Cardiff Metropolitan University)

Jon Oliver

(Strength and Conditioning Lead, Cardiff Metropolitan University)

Sam Oliver

(Extreme Environments, Physiology Lead, Bangor University)

Nicola Phillips

(Medical and Physiotherapy Lead, Cardiff University)

David Shearer

(Psychology Lead, University of South Wales)


Also, a huge thank-you to all the athletes, coaches and practitioners who have supported WIPS over the last three years.



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**TROSOLWG AC
ADRODDIAD
BLYNYDDOL AR
WEITHGAREDDAU**

MAWRTH 2019

CYFLWYNIAD

Er mwyn gwella perfformiad Cymru yng Ngemau'r Gymanwlad ymhellach, a chynyddu nifer yr athletwyr o Gymru sy'n ennill medalau mewn Gemau Olympaidd a Pharalympaidd, mae gwir angen am gyfateb a hyd yn oed rhagori ar allu ymchwil perfformiad ein cystadleuwyr ni mewn gwledydd eraill.

I'r diben hwn, mae Sefydliad Gwyddorau Perfformio Cymru (SGPC) yn bartneriaeth tair ffordd rhwng Chwaraeon Cymru, gwyddonwyr chwaraeon academaidd blaenllaw Cymru, a phartneriaid perthnasol yn y diwydiant. Mae SGPC yn sicrhau bod modd i Athrofa Chwaraeon Cymru gynnal ymchwil sy'n plethu gyda strategaethau ennill medalau, adeiladu systemau a datblygu gweithlu llwyddiannus yr Athrofa ac y gellir eu gweithredu gydag athletwyr a thimau cefnogi ehangach ar gyfer effaith ar unwaith ar berfformiad.

Hefyd, mae ein grŵp ymchwil hyblyg mewn sefyllfa dda i fanteisio ar gryfder arbenigol arwyddocaol diwydiant ac academia Cymru ym maes gwyddoniaeth chwaraeon, meddygaeth, gwyddoniaeth a pheirianeg er mwyn datblygu, profi a chyflwyno datblygiadau arloesol sydd â manteision i berfformiad mewn chwaraeon elitaidd, adeiladu systemau chwaraeon, datblygu gweithlu Chwaraeon Cymru, ac mewn meysydd ehangach (e.e., iechyd, meddygaeth).

DATGANIAD O BWRPAS

Pwrpas Sefydliad Gwyddorau Perfformio Cymru yw cynnal prosiectau gwyddorau perfformio aml-ddisgyblaethol, blaenllaw yn y byd, sy'n gwella perfformiad athletwyr a busnesau Cymru, yn gwella'r llwybr perfformio ac yn creu gallu yn y meysydd hyn ar gyfer y dyfodol. Hefyd, mae SGPC eisiau hyfforddi gwyddonwyr y dyfodol, a chynyddu'r cydweithredu strategol rhwng chwaraeon, academia a busnes yng Nghymru.



SWYDDOGAETH A PHROSES

Bydd Sefydliad Gwyddorau Perfformio Cymru yn gweithio i wella perfformiad yn y byd chwaraeon yng Nghymru a gwella'r cysylltiadau rhwng chwaraeon, academia a busnes fel a ganlyn.

Rhoddir blaenoriaeth i'r tri dull cyntaf o weithredu:

1. Cwestiynau a Sbardunir gan Berfformiad, Atebion a Sbardunir gan Wyddoniaeth

Ar ôl gwerthuso perfformiadau a systemau chwaraeon yng Nghymru, bydd materion perfformio neu feysydd i'w gwella'n cael eu nodi; wedyn bydd y Grŵp Llywio Ymchwil a chynrychiolwyr Chwaraeon Cymru yn trafod ac yn ceisio strategaethau posib, gan arwain at gynnal prosiectau i roi sylw i'r cwestiwn neu'r mater.

2. Cwestiynau a Sbardunir gan Berfformiad, Atebion a Sbardunir gan Ddiwydiant

Ar ôl gwerthuso perfformiadau a systemau chwaraeon yng Nghymru, bydd materion perfformio neu feysydd i'w gwella'n cael eu nodi; wedyn bydd y Grŵp Llywio Ymchwil yn trafod ac yn ceisio strategaethau posib, gan arwain at gydweithredu â phartneriaid diwydiant priodol i ateb y cwestiwn perfformiad.

3. Cwestiynau a Sbardunir gan Berfformiad, Atebion a Sbardunir gan Wyddoniaeth a Diwydiant

Ar ôl gwerthuso perfformiadau a systemau chwaraeon yng Nghymru, bydd materion perfformio neu feysydd i'w gwella'n cael eu nodi; wedyn bydd y Grŵp Llywio Ymchwil yn trafod ac yn ceisio

strategaethau posib, gan arwain at gynnal ymchwil ar y cyd â phartneriaid diwydiant i ateb y cwestiwn/mater perfformiad.

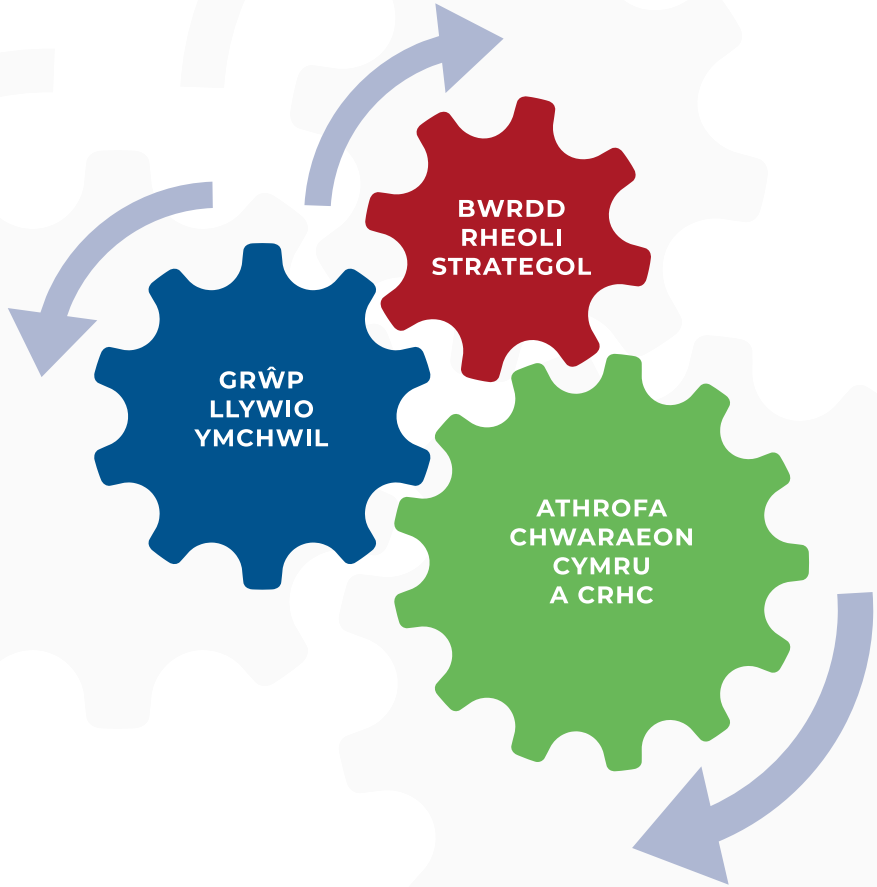
4. Rhaglenni Perfformio a Sbardunir gan Wyddoniaeth i Wella Perfformiad

Yn seiliedig ar ganfyddiadau ymchwil cyfredol, gall aelodau'r Grŵp Llywio Ymchwil gyflwyno awgrymiadau i'r Grŵp Llywio Ymchwil ehangach ynghylch strategaethau gwella perfformiad posib. Os yw'r Grŵp Llywio Ymchwil yn credu bod hynny'n briodol, bydd ymchwil a thrafodaeth sy'n edrych ar ymarferoldeb a pherthnasedd y strategaethau hyn i berfformiad chwaraeon yng Nghymru'n cael eu cynnal. Os bydd y canfyddiadau'n dangos canlyniadau positif, efallai y gweithredir y strategaethau hyn mewn chwaraeon yng Nghymru drwy Athrofa Chwaraeon Cymru.

5. Rhaglenni Perfformio a Sbardunir gan Ddiwydiant i Wella Perfformiad

Gall partneriaid diwydiannol (ac arbenigwyr arloesi eraill) ofyn i'r Grŵp Llywio Ymchwil am ddatblygiadau technolegol neu ddiwydiannol a all wella perfformiad chwaraeon. Os yw'r Grŵp Llywio Ymchwil yn credu bod hynny'n briodol, bydd ymchwil a thrafodaeth sy'n edrych ar ymarferoldeb a pherthnasedd y strategaethau hyn i berfformiad chwaraeon yng Nghymru'n cael eu cynnal. Os bydd y canfyddiadau'n dangos canlyniadau positif, efallai y gweithredir y strategaethau hyn mewn chwaraeon yng Nghymru drwy Athrofa Chwaraeon Cymru.

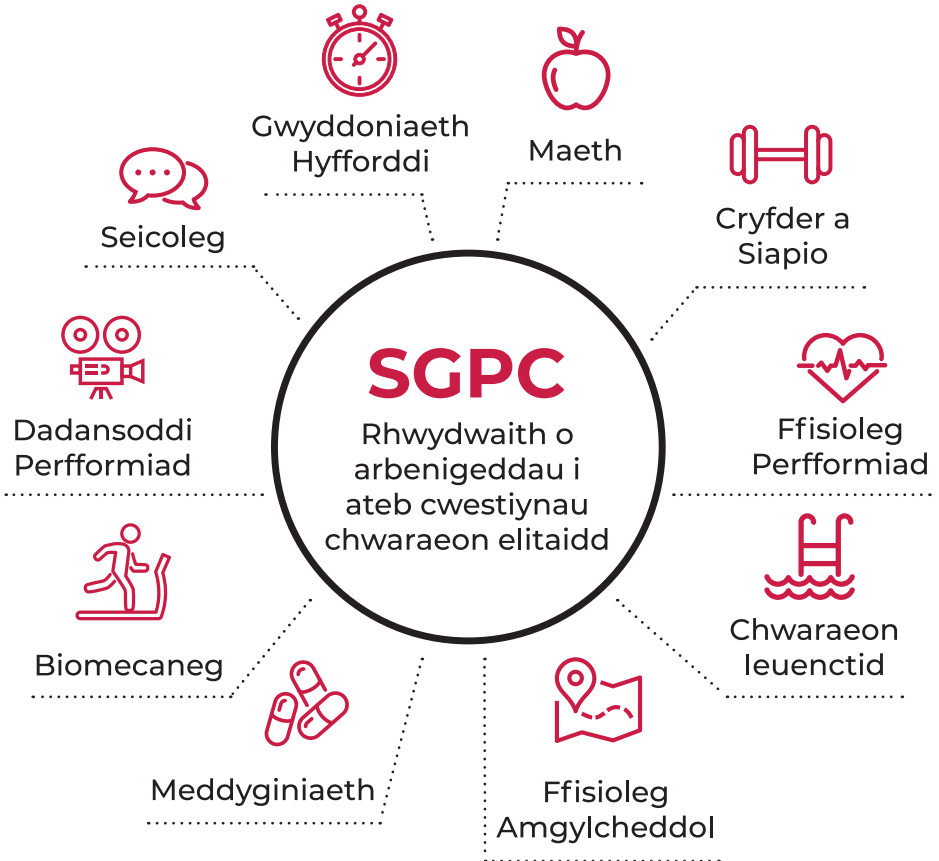
STRWYTHUR TREFNIADAETHOL



CYFANSODDIAD Y BWRDD RHEOLI STRATEGOL



CYFANSODDIAD Y BWRDD LLYWIO YMCHWIL



ESIAMPLAU O BROSIECTAU SYDD WEDI'U CWBLHAU GAN SGPC NEU GYDA'I GEFNOGAETH

DISGYBLAETH	PROSIECT
Seicoleg a Gwyddoniaeth Hyfforddi	Proffil gymnastwyr yn seicoffisiolegol
	Monitro resbiradaeth mewn gymnastwyr rhythmig
	Sgiliau ymdopi mewn cystadlaethau ar gyfer hyfforddwyr
	Rheoli pwysau a hyfforddiant gwneud penderfyniadau i hyfforddwyr elitaidd a chyfarwyddwyr perfformio gan ddefnyddio bioadbornth HRV
Adeiladu Systemau/ Chwaraeon Ieuenctid	Adolygu manteision ymwneud â llwybrau datblygu elitaidd
	Effaith ennill medalau ar ddatblygiad elitaidd a chyfranogiad chwaraeon
	Adnabod nodweddion a sgiliau seicolegol a ddefnyddir gan athletwyr ifanc elitaidd
Biomecaneg a Dadansoddi Perfformiad	Adolygiad o beth sydd ei angen i ennill cystadlaethau taflu, athletau
Ffisioleg/Cryfder a Siapio	Strategaethau oeri ar gyfer cystadlu mewn lleoliad poeth
	Cicio tanddwr mewn nofio elitaidd
	Sicrhau'r datblygiad gorau posib mewn athletwyr yn eu harddegau
	Defnyddio bath cynnes i gynefino â gwres
Maeth	Dadansoddiad cymharol o raglenni rheoli byd-eang mewn darpariaeth Gwasanaeth Maeth Chwaraeon lefel podiwm
	Effaith biogemegol Fitamin D mewn Athletwyr Elitaidd
	Pwy sy'n trydar, tynnu lluniau ac anfon negeseuon o bob math
	Sgrinio, dehongli a rheoli diffyg haearn mewn athletwyr elitaidd

SYLW I BROSIECTAU: RHEOLI STRAEN AR GYFER TÎM CODI PWYSAU'R ARFORDIR AUR

Cyfranwyr SGPC ac AChC: Mike Goss (Cynorthwy-ydd Ymchwil SGPC), Yr Athro David Shearer (Arweinydd Seicoleg SGPC) a Louise Jones (Ymarferydd Seicoleg AChC)

Rhesymeg:

Mae pob codwr pwysau, eu hyfforddwyr a'u rheolwyr yn debygol o brofi straen yn ystod y cyfnod sy'n arwain at, ac yn ystod, Gemau Cymanwlad yr Arfordir Aur. Bydd darparu i'r personél hyn dechnegau rheoli straen unigol yn helpu i hybu eu hiechyd a'u lles a lleihau'r tebygolrwydd o effeithiau negyddol straen gormodol, fel anghydfod rhyngberonol a pherfformiad salach na'r disgwyl. Hefyd, gall y gallu ar-alw i reoli straen wella adferiad ar ôl hyfforddi a chystadlu, a gwella perfformiad ymhlith y rhai sy'n dioddef o effeithiau niweidiol pryder cyn perfformiad.

Dulliau:

Un cyflwyniad tîm am awr a sesiwn trafod yn ystod penwythnos hyfforddiant sgwad ac wedyn sesiwn awr unigol gyda'r holl bersonél i addysgu rheoli straen bioadbornth HRV.

Effaith ar gyfer Chwaraeon Cymru:
Cefnogi perfformiadau'r Arfordir Aur:

Mae'r prosiect hwn wedi cael effaith bositif ar berfformiadau Gemau 2018 yr Arfordir Aur. Enillodd Gareth Evans aur cyntaf Cymru a defnyddiodd ei dechneg anadlu i wella'i adferiad yn ystod yr hyfforddiant cyn cystadlu ac i helpu gyda chysgu ar ôl cystadlu. Cododd o leiaf dri o'r tîm eu gorau personol yn y Gemau, gan ddefnyddio eu camau anadlu i reoli straen cyn cystadlu ac i ddefro cyn codi pwysau.

Cefnogi iechyd a lles:

Darparodd y prosiect hwn adnodd lleihau straen ar-alw i'r tîm cyfan, a defnyddiodd y rhan fwyaf ef i reoli effeithiau straen fel bod oddi cartref, anghytuno a chysgu gwael.



Tynnodd y prosiect hwn sylw at werth adnodd rheoli straen oddi ar y safle i athletwyr, hyfforddwyr a staff cefnogi i'w ddefnyddio mewn cystadlaethau.



SICRHAU'R MEDRUSRWYDD ATHLETIG GORAU POSIB YMHLITH POBL IFANC YN EU HARDDEGAU DRWY YMYRIADAU MEWN YSGOLION

Cyfranwyr SGPC ac AChC: Dr Jon Oliver (Arweinydd Ymchwil Cryfder a Siapio SGPC), Dr Camilla Knight (Arweinydd Ymchwil Chwaraeon Ieuentid SGPC), ac Owen Lewis (Athrofa Chwaraeon Cymru)

Rhesymeg:

Gwelodd ymarferyddion cryfder a siapio a ffisiotherapi Chwaraeon Cymru bod medrusrwydd yr athletwyr sy'n dod yn rhan o'r system perfformiad uchel yn wael o ran symud, gyda thuaddiad i dorri i lawr yn rhwydd. Hefyd roedd y data oedd ar gael am y boblogaeth gyffredinol o blant ysgolion uwchradd yng Nghymru, a'r ymchwil i chwaraeon ieuentid elitaidd yng Nghymru'n cefnogi'r awgrym bod gan blant Cymru lefelau isel o fedrusrwydd o ran symudiad atletig. Cynigiodd Owen Lewis, y Pennaeth Llwybrau Perfformio Elitaidd yn Chwaraeon Cymru, y syniad o ddarparu cryfder a siapio cyflwyniadol i blant ysgolion uwchradd, i ddatblygu medrusrwydd symud tra mae'r system niwrogryhyrol yn dal i aeddfedu. Byddai i hyn fanteision i'r boblogaeth gyffredinol a hefyd byddai'n helpu gyda datblygu'r ieuentid hynny sy'n dilyn llwybrau perfformio, fel eu bod yn gallu dilyn hyfforddiant uwch a'u gwneud yn gryfach i wrthsefyll anafiadau.

Dulliau:

Sicrhawyd Ysgoloriaeth Sgiliau'r Economi Wybodaeth (KESS) i gyllido myfyriwr PhD ar gyfer y prosiect, gyda'r teitl "Sicrhau'r Datblygiad Gorau Posib Mewn Athletwyr", a chofrestrodd y myfyriwr (Ben Pullen) ym mis Medi 2017. Mae tîm amlddisgyblaethol yn cyfrannu at y prosiect gydag arbenigwyr academiaidd mewn cryfder a siapio ieuentid (Dr Jon Oliver a Dr Rhodri Lloyd) a datblygiad seicolegol pobl ifanc yn eu harddegau (Dr Camilla Knight), gan weithio gydag ymarferyddion mewn cryfder a siapio (Matt Archer, Chwaraeon Cymru) a ffisiotherapi (Adam Rattenberry, Athletau Cymru) i ddatblygu ymyriad y gellid ei gyflwyno i blant ysgolion uwchradd yng Nghymru.

Treialwyd yr ymyriad am y tro cyntaf gyda bechgyn a merched blynyddoedd 7 i 9 yn Ysgol Uwchradd Cyfarthfa yn nhymor yr haf 2018 ac mae'r canlyniadau'n cael eu dadansoddi ar hyn o bryd. Ar ôl ei werthuso mae'r ymyriad wedi cael ei ddatblygu ymhellach ac mae'n cael ei weithredu gyda grŵp gwahanol ar hyn o bryd. Caiff ei ehangu yn y diwedd i gynnwys mwy o blant ysgol gan ddefnyddio hyfforddwyr cryfder a siapio a/neu wella sgiliau athrawon a hyfforddwyr.



Effaith ar gyfer Chwaraeon Cymru:

Bydd y prosiect yn darparu manteision eang i'r cyhoedd ac i'r ieuencid hynny sy'n dilyn llwybr perfformiad. Bydd sicrhau bod athletwyr ifanc wedi datblygu cryfder ac yn gallu symud yn dda'n eu paratoi'n well i ymdopi â gofynion hyfforddi a chystadlu. Bydd yn helpu i'w gwarchod rhag anafiadau ac yn eu galluogi i ddilyn hyfforddiant uwch wrth iddynt wneud cynnydd drwy'r llwybrau perfformio. Hefyd bydd yn helpu i sicrhau bod athletwyr ifanc yn datblygu'r amrywiaeth o sgiliau corfforol a fydd yn eu galluogi'n well i drosglwyddo

eu talent ar draws gwahanol chwaraeon.

Bydd yn cymryd amser i wireddu manteision llawn y prosiect ond, os bydd yn llwyddiannus, bydd yn helpu i gyfrannu at ddatblygu cronfa fwy o dalent sydd wedi'i pharatoi'n well i gael ei dewis ar gyfer chwaraeon elitaidd.

AGWEDDAU SEICOLEGOL AR Y CYFNOD LLEIHOU YMARFER YMHLITH NOFWYR ELITAIDD O GYMRU

Cyfranwyr SGPC ac AChC: Yr Athro

Dave Shearer (arweinydd Seicoleg

Chwaraeon SGPC), Dr Camilla

Knight (arweinydd Chwaraeon

Ieuencid SGPC), a Catherine Shearer

(Ymarferydd Seicoleg AChC)

Rhesymeg:

Yn 2016, cysylltodd Nofio Cymru a'r seicolegydd chwaraeon sgwad (Cath Shearer) â SGPC yn awgrymu bod nofwyr yn aml yn agored i effeithiau seicolegol negyddol yn ystod y cyfnod lleihau ymarfer, a bod hyn wedi arwain at berfformiadau gwael mewn cystadlaethau mawr rhyngwladol. Mewn cyfnod lleihau ymarfer, mae gofyn i athletwyr leihau eu hymarfer ond eto cynnal y dwysedd.

Yn ystod y cyfnod hwn, ceir adroddiadau am 'Iselder Lleihau' ac mae'r cyfnod yn llawn ansicrwydd seicolegol. Er enghraifft, awgrymodd tîm cefnogi Nofio Cymru bod yr athletwyr yn cwestiynu a yw'r strategaeth lleihau ymarfer sy'n cael ei defnyddio gan eu tîm hyfforddi 'yn gweithio' ac maent yn pryderu yn ystod y cyfnod ei hun ac yn ystod y cyfnod terfynol sy'n arwain at y rasys. Roedd Nofio Cymru eisiau deall yn well deimladau'r nofwyr a'r hyfforddwyr yn ystod y cyfnod lleihau yma, er mwyn profi a gweithredu strategaethau a allai hwylyso dull mwy cynhyrchiol o leihau ymarfer.

Dulliau:

Sicrhawyd Ysgoloriaeth Sgiliau'r Economi Wybodaeth (KESS) i gyllido myfyriwr PhD ar gyfer y prosiect a chofrestrodd y myfyriwr (Max Stone) ym mis Ebrill 2016. Mae'r prosiect hwn yn parhau. Yng ngham 1, rydym wedi dod i ddeall beth mae nofwyr a hyfforddwyr yn ei ystyried yw'r cyfnod lleihau ymarfer, a'i ganlyniadau seicolegol. Yr hyn rydym yn ei wybod yn awr yw bod hyfforddwyr a nofwyr yn edrych ar y cyfnod lleihau ymarfer fel cam hyfforddi aml-elfen sy'n ceisio datblygu rhagoriaeth ffisiolegol, seicolegol a thechnegol.

Er gwaethaf hyn, mae'n glir bod cryn dipyn o ddirgelwch yn gysylltiedig â hyn, yn seiliedig efallai ar y gred bod lleihau ymarfer yn ffaeledig ac anhagweladwy, heb gefnogaeth wyddonol drwyadl.

Yng ngham 2, rydym yn edrych ar y nodweddion seicolegol sy'n gysylltiedig â hyder yn ystod y cyfnod hwn, a sut gallwn ymyrryd i sicrhau bod yr hyder yn parhau'n uchel yn ystod y cyfnod sy'n arwain at gystadlu, gan reoli'r emosiynau negyddol. Wrth ysgrifennu'r adroddiad hwn, mae'n debygol y byddwn yn profi ymyriad bioadbornth yn ystod cyfnod o leihau ymarfer i roi sylw i rai o'r problemau a nodwyd.



Effaith ar gyfer Chwaraeon Cymru:

Mae hyfforddwr ac ymarferyddion eraill yn gwneud ymdrech fawr i gynllunio rhaglenni hyfforddi sy'n paratoi nofwyr yn y ffordd orau bosib ar gyfer cystadlu. Mae ymarferyddion Chwaraeon Cymru'n awgrymu y gall yr holl 'hyfforddiant da' hwn yn ystod y cyfnod lleihau ymarfer ac yn syth cyn y ras gael ei ddad-wneud gan ffactorau seicolegol sy'n amharu ar berfformiad.

Ein nod yw darparu i Nofio Cymru ganllawiau ymarferol syml sy'n addysgu hyfforddwr a nofwyr am y ffordd orau o leihau ymarfer a darparu ymyriadau i weithio'n erbyn rhai o'r effeithiau negyddol a brofir gan athletwyr.

Bydd athletwyr elitaidd eraill Cymru sy'n cystadlu mewn digwyddiadau dygnedd ac yn cael cyfnod o leihau ymarfer cyn cystadlu'n elwa o'r ymchwil hwn. Hefyd, drwy brofir defnydd o strategaethau penodol â'u ffocws ar emosiynau fel strategaeth fwy cyffredinol cyn cystadlu, gallai effaith y rhaglen hon ymestyn ar draws portffolio cyfan Chwaraeon Cymru o chwaraeon blaenoriaeth.

Y nod cychwynnol ar gyfer y prosiect hwn oedd datblygu gallu athletwyr dethol mewn cicio tanddwr drwy ymarferion technegol a chryfder a siapio.

DATBLYGIAD CICIO MEWN NOFIO

Cyfranwyr SGPC ac AChC: Dr. Anthony Blanchfield (arweinydd Ffisioleg Perfformiad SGPC), Yr Athro Liam Kilduff (arweinydd SGPC), Charlie Finn (Cynorthwy-ydd Ymchwil SGPC), Spencer Fuge (Ymarferydd Cryfder a Siapio AChC), Dr Ross Nicholas

Rhesymeg:

Mae'r cam cicio tanddwr yn elfen allweddol o berfformiad llwyddiannus mewn nofio. Mae Nofio Cymru wedi nodi'r cam hwn fel cam lle gellid ffrwyno mantais sylweddol mewn perfformiad o'i ddeall yn well ac o ddatblygu elfennau allweddol drwy strategaethau ffocws. Y nod cychwynnol ar gyfer y prosiect hwn oedd datblygu gallu athletwyr dethol mewn cicio tanddwr drwy ymarferion technegol a chryfder a siapio.

Dulliau:

Yn seiliedig ar eu data dadansoddi perfformiad, dewisodd Chwaraeon Cymru 2 athletwr allweddol a fyddai'n elwa'n fawr o strategaeth â'i ffocws ar y cam cicio tanddwr. Cynhaliodd SGPC adolygiad o lenyddiaeth i ddatblygu model penderfyniadol o'r cam cicio tanddwr o bersbectif technegol a ffisiolegol. Wedyn, mapiwyd y ddau athletwr allweddol yn erbyn y modelau hyn gan ddefnyddio data presennol i nodi'r meysydd lle roedd yr hyfforddwr yn teimlo y gellid ennill mantais sylweddol. Ar ôl cwblhau'r ymarfer mapio hwn, gweithredwyd ymyriad Cryfder a Siapio (yn canolbwyntio ar bŵer rhan isaf y corff) ac ymyriad gwyddoniaeth hyfforddi (â'i ffocws ar elfennau technegol allweddol), gyda'r cynllun a'r gweithredu'n cael eu sbarduno gan staff Nofio Cymru.

Effaith:

Cymhwysodd y ddau athletwr ar gyfer Gemau'r Gymanwlad a nofio goreuon personol. Erbyn hyn mae gan Nofio Cymru fodel penderfyniadol ar gyfer y cam cicio tanddwr a nifer o ymyriadau ffocws y gellir eu defnyddio i wella'r elfen hon mewn perfformiad Nofio ar gyfer proffilio unigol yn y dyfodol.

STRATEGAETHAU ATAL ANAFIADAU SEILIEDIG AR FAETH A SEICOLEG

Cyfranwyr SGPC ac AChC: Dr. Thomas Love (Arweinydd Maeth SGPC), Dr. Camilla Knight (Arweinydd Chwaraeon Ieuencid SGPC), Dr. Joy Bringer (Ymarferydd Seicoleg AChC ac Arweinydd SGPC ar gyfer Chwaraeon Cymru)

Rhesymeg:

Anafiadau yw un o'r risgiau mwyaf i iechyd athletwr. Mae baich ariannol anaf, y goblygiadau tymor hir negyddol, a'r effaith negyddol ar unwaith ar berfformiad ymhlith rhai o ganlyniadau negyddol anaf. O ganlyniad, mae atal anafiadau'n hanfodol. Fodd bynnag, mae llwyddiant ymyriadau atal anafiadau'n cael ei gyfyngu gan ffactorau amrywiol, gan gynnwys methu cadw at yr ymyriadau, diffyg rhaglenni chwaraeon-benodol, a dibyniaeth ar strategaethau seiliedig ar ymarfer er gwaethaf manteision posib integreiddio strategaethau heb fod yn seiliedig ar ymarfer (e.e., strategaethau maeth a seicolegol). Nod yr astudiaeth hon oedd deall y strategaethau atal anafiadau mewn amrywiaeth eang o chwaraeon Olympaidd a nodi'r rhwystrau sy'n atal eu gweithredu. Cafodd y prosiect gyllid gan y Pwyllgor Olympaidd Rhyngwladol.

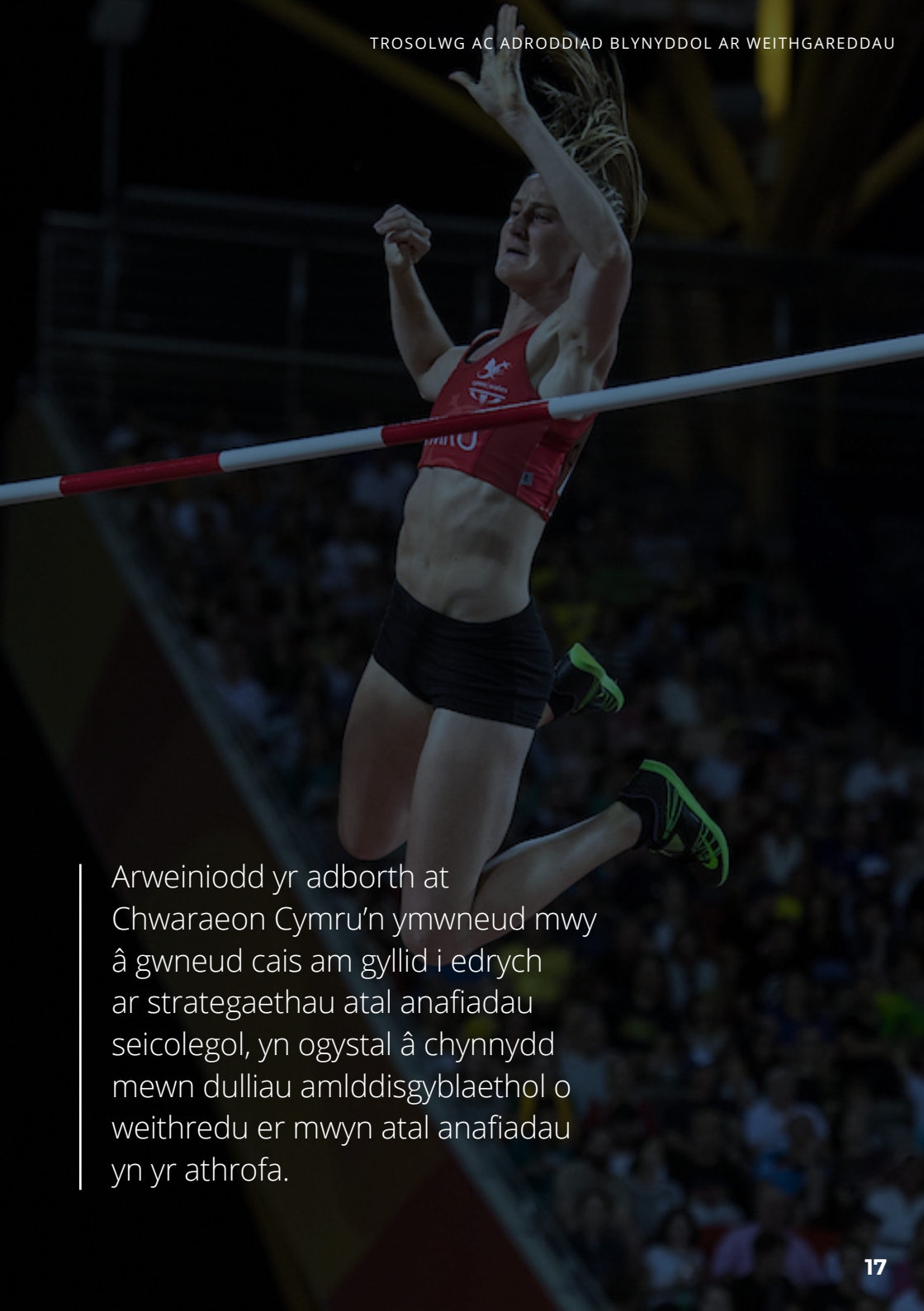
Dulliau:

Cwblhaodd chwe deg naw o athletwr Rhyngwladol/Cenedlaethol (30 gwryw, 39 benyw) yr arolwg. Roedd yr athletwr i gyd yn aelodau o athrofa chwaraeon perfformiad uchel. Roedd yr arolwg yn cynnwys 11 adran: hanes am anafiadau, risg ymddangosiadol o anafiadau, achos anafiadau, ffactorau risg, credoau atal anafiadau, defnydd o strategaeth atal anafiadau, targed strategaeth atal anafiadau, mantais ymddangosiadol, rhwystrau a hwyluswyr, ffynhonnell o wybodaeth a dull o sicrhau gwybodaeth.

Cafodd y cwestiynau eu llywio gan ffurflen cofnodi anafiadau aml-chwaraeon y Pwyllgor Olympaidd Rhyngwladol a damcaniaethau am newid ymddygiad. Dadansodwyd data gan ddefnyddio prawf binomaidd un sampl. Yn gyffredinol, mae'r canfyddiadau'n dangos bod mwyafrif yr athletwyr wedi cael anaf a bod '50% o athletwyr' yn credu y gellir atal math penodol o anaf neu anaf i ran benodol o'r corff. Defnyddiodd yr athletwyr amrywiaeth eang o wahanol strategaethau atal anafiadau ond nodwyd rhwystrau niferus ganddynt, yn enwedig i strategaethau seicolegol, a hwyluswyr niferus, yn enwedig i strategaethau ymarfer. Nododd yr athletwr yn glir sut a chan bwy y byddent yn cael gwybodaeth am atal anafiadau. Gall defnyddio canfyddiadau o'r fath fod yn gyfrwng i alluogi addysg mwy effeithlon am raglenni atal anafiadau, a'u dosbarthu. Mae canlyniadau cyffredinol yr astudiaeth hon wedi cael eu bwydo'n ôl i'r ymarferyddion yn Chwaraeon Cymru i helpu i wella (os oes angen) y gefnogaeth sydd ar gael.

Effaith ar gyfer Chwaraeon Cymru:

Cyflwynwyd sawl sesiwn adborth i'r ymarferyddion ar draws y disgyblaethau, gyda chyfres o argymhellion wedi'u darparu ynghylch materion fel sut i oresgyn rhwystrau sy'n atal gweithredu strategaethau atal anafiadau a sut i wella hwyluswyr. Hefyd darparwyd gwybodaeth berthnasol i ddsbarthu gwybodaeth a'r ffynonellau o wybodaeth mae athletwr yn eu defnyddio. Arweiniodd yr adborth at Chwaraeon Cymru'n gwneud ceisiadau pellach am gyllid i astudio strategaethau atal anafiadau seicolegol, yn ogystal â chynnydd mewn dulliau amlddisgyblaethol o atal anafiadau yn yr athrofa.



Arweiniodd yr adborth at Chwaraeon Cymru'n ymwneud mwy â gwneud cais am gyllid i edrych ar strategaethau atal anafiadau seicolegol, yn ogystal â chynnydd mewn dulliau amlddisgyblaethol o weithredu er mwyn atal anafiadau yn yr athrofa.

SEMINARAU EFFAITH YMCHWIL

Cyfranwyr SGPC ac AChC: Dr. Stuart Beattie (Arweinydd Gwyddoniaeth Hyfforddi SGPC), Dr. Sam Oliver, (Arweinydd Ffisioleg Amgylcheddol SGPC), Dr. Anthony Blanchfield (Arweinydd Ffisioleg SGPC), a Dr. Joy Bringer (Ymarferydd Seicoleg AChC ac Arweinydd SGPC ar gyfer Chwaraeon Cymru)

Trosolwg:

Dyfarniad o £5,000 gan y Cyngor Ymchwil Economaidd a Chymdeithasol (ESRC) i Gyfrif Cyflymu Effaith (IAA) Prifysgol Bangor i gwblhau pum gweithdy trosglwyddo gwybodaeth cydweithredol rhwng misoedd Mai a Thachwedd 2017 gan staff Ysgol Chwaraeon, lechyd a Gwyddorau Ymarfer Prifysgol Bangor. Cyflwynwyd pum seminar o dan bedair thema, Perfformio gyda Phryder, Perfformio mewn Gwres, Caledi Meddyliol a Datblygu Talent. Yn gyffredinol, roedd mwy na 60 yn bresennol, o Chwaraeon Cymru, Tîm Cymru, Cyrff Rheoli Chwaraeon Cenedlaethol, a Llywodraeth Cymru. Rhannwyd gwybodaeth y gweithdai gyda phob camp ar Dartfish.

Cynnwys:

Cynhaliwyd gweithdy Perfformio gyda Phryder a Chaledi Meddyliol ar 6ed Mehefin 2017. Roedd yn cynnwys 3 chyflwyniad ar wahân gan Brifysgol Bangor (Stuart Beattie, Gavin Lawrence ac Andrew Cooke) i 9 o staff Chwaraeon Cymru a Tîm Cymru. Defnyddiwyd adborth staff Chwaraeon Cymru a Tîm Cymru i ddiwygio'r cyflwyniadau a gyflwynwyd gan staff Prifysgol Bangor a Chwaraeon Cymru a gyflwynwyd ar 7fed Mehefin i 22 o ymarferyddion gwyddoniaeth chwaraeon, hyfforddwyr, staff meddygol a rheolwyr timau Cyrff Rheoli Chwaraeon Cenedlaethol, gan gynnwys athletau, nofio, gymnasteg, jiwdo, codi pwysau, criced, hwylio, pêl droed a thriathlon.


Roedd Undeb Rygbi Cymru a chwaraeon anabledd yn bresennol hefyd. Mae Stuart Beattie wedi cael cyfarfodydd dilynol gyda Chwaraeon Cymru (Joy Bringer) a Gymnasteg Cymru. Mae hyn wedi arwain at broffilio a gweithredu hyfforddiant caledi meddyliol i gymnastwyr Cymru.

Cynhaliwyd gweithdy Perfformio mewn Gwres ar 12fed Medi 2017 a chafodd ei drefnu ar y cyd gan Chwaraeon Cymru (Vanessa Davies, Robert Condliffe) a Phrifysgol Bangor (Neil Walsh, Sam Oliver). Canolbwyntiodd y gweithdy hwn ar ddarparu canllawiau i baratoi athletwyr Cymru ar gyfer straen gwres Gemau'r Gymanwlad yn Awstralia. Roedd 18 o ymarferyddion a hyfforddwyr chwaraeon yn bresennol. Trafododd y gweithdy'r strategaeth bath poeth newydd, sydd wedi'i datblygu gan Neil Walsh, ar gyfer cynefino â hinsawdd a gwella perfformiad athletig mewn gwres.

Cynhaliwyd gweithdy Datblygu Talent ar yr 8fed Tachwedd 2017. Cafodd ei drefnu ar y cyd gan Chwaraeon Cymru (Joy Bringer) a Phrifysgol Bangor (Lew Hardy a Karen Williams; UKSport). Roedd y gweithdy'n cynnwys 10 cyfranogwr o Chwaraeon Cymru a Llywodraeth Cymru.

Effaith ar gyfer Chwaraeon Cymru:

Helpodd dyfarniad IAA i hwyluso trosglwyddo gwybodaeth i staff Chwaraeon Cymru. Er enghraifft, defnyddiodd Rob Condliffe y strategaeth bath poeth gyda'r athletwyr, yr hyfforddwyr a'r rheolwyr timau aeth i Gemau Ieuentid y Gymanwlad yn y Bahamas ym mis Gorffennaf 2017 ac i helpu i barato'r enillydd medal, Bethan Davies, ar gyfer Gemau'r Gymanwlad yn Awstralia. Y datganiad i'r wasg yn manylu ar hyn yw: www.bangor.ac.uk/news/latest/hot-baths-help-to-prepare-team-wales-for-the-heat-of-the-australian-commonwealth-games-36314

A man with dark skin and short hair is wearing a black hooded jacket with a red logo on the chest. He is pointing his right hand towards the left. The background is a blurred green field, possibly a sports field, under a dark sky.

Yn gyffredinol, roedd mwy na 60 yn bresennol, o Chwaraeon Cymru, Tîm Cymru, Cyrff Rheoli Chwaraeon Cenedlaethol, a Llywodraeth Cymru. Rhannwyd gwybodaeth y gweithdai gyda phob camp ar Dartfish.

SUT MAE PROSIECTAU SGPC YN GWEITHIO



LLAWER O DDIOLCH I'R GRŴP LLYWIO YMCHWIL AM EU CYFRANIADAU:

Anthony Blanchfield

(Arweinydd Ffisioleg, Prifysgol Bangor)

Joy Bringer

(Cydgadeirydd y Grŵp Llywio Ymchwil, Athrofa Chwaraeon Cymru)

Peter Brown

(English Institute of Sport)

Natalie Brown

(Cynorthwy-ydd ymchwil SGPC)

Dan Cunningham

(Cynorthwy-ydd ymchwil SGPC)

Malcolm Fairweather

(Sport Scotland)

Charlie Finn

(Cynorthwy-ydd ymchwil SGPC)

Mike Goss

(Cynorthwy-ydd ymchwil SGPC)

Brian Hughes

(Athrofa Chwaraeon Cymru)

Gareth Irwin

(Arweinydd Biomecaneg, Prifysgol Metropolitan Caerdydd)

Liam Kilduff

(Cydgadeirydd y Grŵp Llywio Ymchwil, Prifysgol Abertawe)

Camilla Knight

(Arweinydd Chwaraeon Ieuencid, Prifysgol Abertawe)

David Lasini

(Sport Northern Ireland)

Thomas Love

(Arweinydd Maeth, Prifysgol Abertawe)

Peter O'Donoghue

(Arweinydd Dadansoddi Perfformiad, Prifysgol Metropolitan Caerdydd)

Jon Oliver

(Arweinydd Cryfder a Siapio, Prifysgol Metropolitan Caerdydd)

Sam Oliver

(Amgylcheddau Eithafol, Arweinydd Ffisioleg, Prifysgol Bangor)

Nicola Phillips

(Arweinydd Meddygol a Ffisiotherapi, Prifysgol Caerdydd)

David Shearer

(Arweinydd Seicoleg, Prifysgol De Cymru)

Hefyd, diolch enfawr i'r holl athletwyr, hyfforddwyr ac ymarferwyr sydd wedi cefnogi SGPC yn ystod y tair blynedd diwethaf.

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