

Institution: Canterbury Christ Church University		
Unit of Assessment: 4- Psychology, Psychiatry and Neuroscience		
Title of case study: ICS4.02 Transforming the inclusion of people with intellectual disabilities in elite sports across the world.		
Period when the underpinning research was undertaken: 2009-2020		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Prof Jan Burns	Professor of Clinical Psychology, CCCU	2001 ongoing
Dr Fergal Jones	Reader, Applied Psychology, CCCU	2008 ongoing
Period when the claimed impact occurred: 1 August 2013 – 31 December 2020		
Is this case study continued from a case study submitted in 2014? N		
<p>1. Summary of the impact This research impacted upon the increased inclusion of athletes with intellectual disabilities (ID) in elite sport, and made this sustainable through structural and policy changes. Firstly, our research contributed to new protocols concerning Paralympic eligibility and classification which has led to more athletes with ID competing at this elite level and in a wider range of events. Secondly, our research has led to competition classes being broadened to include those with greater intellectual impairments, including those with Down Syndrome, enabling them to compete at international levels. Thirdly, the impact of greater inclusion has changed attitudes, increased professional competencies and unlocked further investment.</p>		
<p>2. Underpinning research This research was led by Professor Jan Burns in Applied Psychology, working with Dr Fergal Jones and Psychology research students, in collaboration with the International Paralympic Committee (IPC), Virtus (World Disability Impairment Sport), and Special Olympics.</p> <p>Demonstrating impact of intellectual disabilities (ID) on cognitive skills related to sports performance Athletes were misrepresented as having ID at the 2000 Sydney Paralympics, resulting in this impairment group being removed from the Paralympic programmes in 2004 and 2008, and only reinstated in the 2012 Games. Re-inclusion required a more robust system of eligibility and sports classification. Whilst this classification framework was provisionally in place for London 2012 (previous REF period), it was fully developed to include additional events, endorsed by the IPC, who subsequently mandated all associated Sports Federations to follow it, in this REF period. This research was part of an international collaboration jointly funded by the IPC and the International Federation for Para-athletes with Intellectual Impairments (INAS now called Virtus). For classification purposes our research needed to demonstrate how having ID impacted on sports performance and how this could be assessed in individual sports. We developed a psychometric battery to test 'generic sports intelligence', and 'sport-specific tests' to show the impact of impaired cognitive skills on the technical and tactical requirements of specific events (e.g. limitations in pacing). Using between group comparisons (ID vs non-ID athletes) the research demonstrated that specific cognitive skills were implicated in specific sports performance skills leading to reduced performance by ID athletes. The IPC-endorsed, evidence-</p>		

based conceptual framework for ID athlete classification was derived from our research, which led to the re-inclusion and expansion of opportunities for ID athletes in Paralympic competition and now underpins all IPC classification for ID athletes (**R1**).

Developing a measure to underpin a performance classification system for ID athletes

Virtus is the International Federation for athletes with ID and works closely with the IPC, who accept Virtus eligibility requirements i.e. if an athlete is deemed eligible by Virtus they are eligible for IPC classification as above. Virtus eligibility is a rigorous process of testing evidence of IQ, adaptive behaviour and age of onset against diagnostic criteria. This involves a panel of 30+ expert psychologists across the world, managed by Professor Burns on behalf of Virtus. Currently, there is only one competition class in both Virtus and the Paralympics meaning that regardless of disability level, all ID athletes compete together. By investigating the relationship between ID and sports performance we aimed to establish how athletes with ID could be categorised into different competition classes. First we investigated the relationship between IQ scores, health status and athletic performance to demonstrate that a simple categorisation according to IQ would not work, as previous research had shown a non-linear relationship between IQ and sports performance. A between-groups design was used to investigate the relationship between global IQ scores, standardised individual sport performance scores and health status using the International Classification of Functioning, Disability, and Health checklist (ICF) (**R2**). We confirmed that functional health status was a better predictor of sports performance than IQ, and that the lower sports performance of Down Syndrome (DS) athletes was due to their increased functional impairments.

The next study developed a more sensitive measure of overall functional health, with the aim of grouping athletes with a similar level of limitation to that experienced by athletes with DS into a class for more severely impaired athletes (sports classification is based on overall functional impairment not on diagnosis). To do this, we developed a bespoke measure from the ICF taxonomy (**R3**), which showed that the ICF-based questionnaire discriminated between three levels of performance, and could predict group membership for elite athletes with ID and athletes with DS. Extrapolating from the results of **R2** and **R3**, Virtus opened a new competition class II2 - Significant impairment, allowing those ID athletes with greater impairments, including DS, to compete internationally.

Demonstrating the benefits of increasing inclusion of ID athletes in sport

We examined the impact of increasing access to sport for athletes with ID, on athlete well-being and audience attitudes towards disability. A project commissioned by Special Olympics International (SOI) investigated the impact of engagement in organised sport on the well-being of ID athletes. A cross-sectional design compared those involved in the Special Olympics (SO), with those involved informally in sport or not at all (**R4**). Those involved in sport had better self-esteem, quality of life, and lower stress and, specifically, being involved in SO was a predictor of higher self-esteem.

One of the outcomes of being involved in elite sport is that participants' performances can be witnessed by billions of people through the media. More than 4.1 billion people watched the Rio 2016 Paralympics, making it the most viewed event in history. We investigated the impact of viewing the sports performance of disabled and non-disabled athletes on the general public using a mixed randomised comparison design measuring implicit attitude change using Paralympic (with ID athletes) and Olympic footage (**R5**). Viewing both sorts of material positively

impacted on the attitudes of the audience towards people with ID. A further longitudinal study pre and post the 2012 Paralympics demonstrated that exposure to Paralympic coverage impacted positively on in-group norms about disabled people's competence and improved intergroup contact quality among both disabled and non-disabled participants (**R6**).

3. References to the research

- ***R1**. Van Biesen, D., Burns, J., Mactavish, J., Van de Vliet, P., & Vanlandewyck, Y. (2021). Conceptual model of sport-specific classification for para-athletes with intellectual impairment. *Journal of Sports Science*. doi: 10.1080/02640414.2021.1881280
- R2**. Gilderthorp, R., Burns, J. & Jones, F. (2018). An investigation of the factors that predict the performance of athletes with Intellectual Disability. *Journal of Clinical Sports Psychology*. 12 (3) p1-31 doi.org/10.1123/jcsp.2017-0018.
- ***R3**. Lemmey, S., Burns, J., & Jones, F. (2021). Developing additional sport classes for athletes with II in VIRTUS: Conceptual approach and efficacy of an ICF derived measure. *Journal of Sports Sciences*. doi: 10.1080/02640414.2021.1881302
- R4**. Crawford, C., Burns, J. & Fernie, B. (2015). Psychosocial impact of involvement in the Special Olympics. *Research in Developmental Disabilities*, 45-46, 93-102. <http://www.sciencedirect.com/science/article/pii/S0891422215000840>
- R.5** Ferrara, K., Burns, J., Mills, H. (2015). Public Attitudes Towards People with Intellectual Disabilities after Viewing Olympic/Paralympic Performance. *Adapted Physical Activity Quarterly*. 32 (1), 19-33. doi: [10.1123/apaq.2014-0136](https://doi.org/10.1123/apaq.2014-0136)
- R.6** Carew, M., Noor, M. & Burns, J. (2019). The Impact of Exposure to Media Coverage of the 2012 Paralympic Games on Mixed Physical Ability Interactions. *Journal of Community and Applied Social Psychology*. 29, 104-120. <https://doi.org/10.1002/casp.2387>

* See attached Covid-19 mitigating statement

Interdisciplinary collaboration – CCCU psychology (Jones, Noor), CCCU sports science (Mills), the NHS (Fernie), IPC (Van Biesen, Mactavish, Van de Vliet, Vanlandewyck) and research students (Gilderthorp, Lemmey, Crawford, Ferrara, Carew).

Quality - R1-6 are all published in international, high-quality journals, with established peer review processes.

Funding - Grants totalling GBP134,000, from the IPC, Virtus and Special Olympics.

4. Details of the impact

Increased Inclusion in elite sport for ID athletes

Our research (**R1-3**) has contributed to a new procedure for sports classification to allow ID athletes to enter Paralympic competition that has been adopted by the IPC for all ID athletes. The research has been described as having led to '*setting the standards for eligibility and classification*' for ID athletes, by the Co-ordinator of the IPC ID Classification Research Centre (**S1**). Following the implementation of a prototype that allowed the re-inclusion of athletes into the London 2012 Paralympics, further evaluation and significant development (**R1**) extended implementation in the Rio 2016 Paralympics, with an increase of five additional events in swimming and athletics. Consequently, ID athletes can now compete in the Paralympic games and all qualifying events at Regional and International Championships. From 2013-2020 this has included new access to 17 athletics, 9 swimming, and 5 world or regional IPC-sanctioned events. In the London 2012 games, 112 ID athletes competed from 12 nations, in Rio 2016 124 ID athletes competed from 16 nations, and for Tokyo there are 140 places available. Since 2013,

over 1,089 athletes have completed the classification system, from 89 countries, and are now eligible for Paralympic competition, with increasing growth year-on-year. The IPC has mandated that all International Sports Federations should develop their athlete classification systems to include ID athletes, using the framework developed from our research. This work is nearly completed for Nordic skiing and ID skiers will now be included in the winter Paralympic programme after 2024, with rowing likely to follow.

International organisations working with ID athletes have also benefitted due to increased membership, reach and sustainability through income growth e.g. the CEO of Virtus comments *'Such growth has been unprecedented and has seen our athlete reach more than double over the past 5 years Virtus as an organisation has been strengthened, as have those organisations who are members of Virtus. This is both in terms of attracting additional revenue through membership, and through the links then being made with other organisations servicing this population.'* (S2). An example is Sport Inclusion Australia, who report *'extended opportunities and pathways for athletes with an intellectual impairment within Athletics Australia, Swimming Australia and Table Tennis Australia due to the expansion in Paralympic events.'* (S3).

Broadening inclusion in elite sport for ID

Our research on the relationship between IQ, health and sports performance has provided the basis to widen competition classes at an international level from one to two, allowing those with more significant impairments to compete. This has made elite competition for ID athletes fairer and more representative, but also increased access to elite sporting opportunities for athletes with greater disabilities, especially those with Down Syndrome (DS). Previously, athletes with DS would be out-performed by ID athletes without DS, and would not qualify for international competition. Our research informed the Virtus eligibility criteria to develop a new international class for competition (I12), significantly widening elite sporting opportunities for DS and more impaired ID athletes. The Virtus CEO testifies that this research *'has resulted in a major step forward for intellectual impairment sport, increasing opportunities and raising the profile of those with more significant disabilities.'* (S2). As a result, 186 athletes with DS from 31 countries are now registered to compete internationally in Virtus events. The Virtus Global Games, the pinnacle of the ID sports calendar, occurs every four years and in 2019, 67 athletes with DS from 13 countries competed in this event for the first time. The CEO of the Global Games reported a 41% increase in country participation due to these increased pathways (S3). The father of a DS athlete commented that the impact of the new classification structure was *'.....allowing fair competitions, but beyond sports such achievements bring more justice, equality, good opportunities in our world'* (S4). Resulting from the successful participation in the Global Games his son with DS was voted *'all-round sport personality of the year in Tuscany'*.

The new classification criteria have been adopted by other sports (Taekwondo, Judo, Golf, Hockey, Equestrian, Athletics, Swimming), resulting in widened inclusion of ID athletes. Organisations have been able to use this evidence of greater inclusion to then leverage increased competition opportunities, e.g. the US Rowing Association have now adopted the new class for all events and described the new class as being *'a key lever in getting US Rowing to include IDD as part of their recognized program.'* (CEO Athletes without Limits, US) (S5).

Impact on attitudes, professional competencies and unlocking further investment

The ability to place ID athletes on the highest sporting podiums performs an important function of changing attitudes (**R6 & 7**). Referring to the impact of the inclusion of athletes with ID within the media, the IPC Chief Brand and Communications Officer described the consequent media and broadcast coverage as having '*contributed to a seismic shift in attitudes*' toward athletes with ID and '*a greater recognition of their achievements and undoubtedly attitude change.*' (**S6**). In 2013, our classification research was chosen by the then Department of Trade and Investment as a case study to highlight collaborative partnerships and the impact of UK universities (**S7**).

Resulting from the research developing the new Virtus competition class, the Agitos Foundation (the charitable arm of the IPC) awarded Virtus two grants to build on the widening participation of the new classification system by delivering training in two economically-disadvantaged regions. This training was delivered by Professor Burns in Egypt and Puerto Rico, in addition to five other nations who commissioned it directly during 2015-2017. The impact of the workshops is demonstrated by the increase in athletes from these nations registered to compete, with 34 in total before, and in the year post-delivery 124, with year on year growth (prior to Covid). The workshops resulted in over 120 psychologists, sports scientists and sports organisations developing competencies in this area. It also allowed psychologists to be trained as National Eligibility Officers (NEO), who then improved eligibility processes in their countries and provided training to others. This widened the reach of the training, including in harder-to-reach nations e.g. the Mexican NEO reported sharing this work with Colombia, Dominican Republic and Guatemala (**S8**). This NEO reported that the training based on our research had facilitated her organisation to '*create platforms for objective, evaluation, generate participation, community among the athletes, increase opportunities*', and to develop a national plan of sport for ID athletes. To further increase access, the eligibility guidance has been translated into Spanish, Chinese and Arabic.

The combination of increased pathways, broader inclusion and enhanced educational material has enabled organisations to gain recognition and, as a result, new sources of funding e.g. '*Not only have National sport organisations in Australia commenced inclusion of events for the I12 classification, but it is also easier to gain financial support from Governments for their involvement, now they are recognised by the National bodies.*' (CEO Sport Inclusion Australia, (**S3**))

5. Sources to corroborate the impact (indicative maximum of 10 references)

- S.1** Coordinator - Research and Development Centre for Classification of Elite Athletes with Intellectual Impairment, IPC/KU Leuven
- S.2** CEO Virtus: World Intellectual Impairment Sport (previously called INAS - International Federation for Athletes with Intellectual Impairments).
- S.3** CEO Sport Inclusion Australia and Director of the Global Games 2019, testimonial about the impact of the research to get DS athletes to the GG.
- S.4** Testimonial from father of Down Syndrome athlete re: inclusion in Virtus new class
- S.5** CEO Athletes without Limits, USA, email testimonial about impact on other organisations
- S.6** Testimonial from Chief Brand and Communications Officer, IPC
- S.7** UK Trade and Investment Case Study: Canterbury Christ Church University – Facilitating Inclusion.
- S.8** Testimonials from NEOs and Psychologists attending the Agitos training workshop.