

STUDENT ACTIVITY AND SPORTS STUDY IRELAND



Student Activity and Sports Study Ireland (SASSI)

Commissioned and Published by Student Sport Ireland

2016

Acknowledgements

This study consisted of three phases of data collection conducted in the following 36 higher education colleges across the island of Ireland.

Belfast Metropolitan College	Maynooth University
Coláiste Mhuire, Marino	National College of Ireland
Cork IT	North West Regional College
Dublin City University	Northern Regional College
Dublin IT	NUI Galway
Dun Laoghaire IADT	Queen's University Belfast
Dundalk IT	South Eastern Regional College
Galway Mayo IT	South West Regional College
Griffith College, Dublin	Southern Regional College
IT Blanchardstown	St. Angela's College, Sligo
IT Carlow	St. Patrick's College, Drumcondra
IT Letterkenny	Stranmillis University College
IT Sligo	Trinity College Dublin
IT Tallaght	Ulster University
IT Tralee	University College Cork
Limerick IT	University College Dublin
Mary Immaculate College	University of Limerick
Mater Dei Institute of Education	Waterford IT

Given the extent of the study, the geographical spread of the colleges, the need for local institutional involvement and the extent of resources available to complete the study, the research team relied heavily upon the contribution of institutional "Champions". Thank you to all the following Champions who assisted in this research – without their huge effort this study would not have been possible:

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The SASSI Research Team was:

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Contents

Acknowledgements	i
Glossary	1
Forewords	3
Background	5
Executive Summary	6
Introduction	11
Phase 1: Self - Assessment Review (SAR)	13
1.1 SAR Introduction	13
1.2 SAR Purpose	13
1.3 SAR Sampling	13
1.4 SAR Results	13
1.4.2 Section 2 Institutional Staffing Structures Supporting Sport and Physical Activity	14
1.4.3 Section 3 Facilities Audit	15
1.4.4 Section 4 Investment in Sport and Physical Activity	16
1.4.5 Section 5 Student Sport and Physical Activity Participation Provision	19
1.4.6 Section 6 High Performance Athletic Support	22
1.4.7 Section 7 Institutional Ethos and Prioritisation for Sport and Physical Activity	24
1.5 SAR Conclusions	25
Phase 2 - Student Survey	29
2.1 Survey Introduction	29
2.2 Survey Sampling	29
2.3 Survey Results	30
2.3.1 Section 1. Response Rate, Characteristics of Irish Students and Sample Representativeness	31
2.3.2 Section 2. Physical Activity Levels of Students and Meeting Physical Activity Guidelines	31
2.3.3 Section 3. Sports Participation In and Outside College, the Effect of College on Transitions into and out of sport, and Determinants of Sport and Physical Activity	35
2.3.4 Section 4. Coaching, Volunteering and other Social Aspects of Sport in College	44
2.3.5 Section 5. Other health related characteristics of students	45
Phase Three - Physical Activity and Health Measures	48
3.1 Physical Activity and Health Measures Introduction	48
3.2 Physical Activity and Health Measures Results	48
3.2.1 Participant Characteristics	48
3.2.2 Physical Health Data	48
3.2.3 Physical Activity Data	49
3.2.4 Comparison between subjective self - report and objective accelerometer physical activity	50
3.3 Physical Activity and Health Measures Conclusions	50
4. Summary and Conclusions	53
5. Case Studies	58
6. References	62

Glossary

20 - MST	The 20m shuttle run test or 'bleep test' is a field measure of estimated aerobic fitness
Accelerometer	A motion sensor, used to measure the acceleration of a moving or vibrating body
BMI	Body Mass Index= weight (kg)/height (m ²)
BP	Blood Pressure
College	College or University of Institute of Technology or other Third Level Institution
Comparable employee	A full - time employee to whom a part - time employee compares himself/herself
CSO	Central Statistics Office
HEA	Higher Education Authority (Ireland)
HEI	Higher Education Colleges (Northern Ireland)
HP	High Performance
HPA	Habitual Physical Activity
Institution	Third Level College, Institute of Technology or University
Institution 'Champion'	An institutional stakeholder who acts as the key liaison within each institution. The champions facilitate access to data, internal stakeholders and students, and promote the research within the institution
IPAQ	International Physical Activity Questionnaire
ISC	Irish Sports Council
mmHg	Millimetre of Mercury
Moderate intensity physical activity	The effort makes you warmer and your heart rate and breathing rate will be faster than normal. You may also sweat a little, but will still be able to carry on a conversation.
MVPA	Moderate to Vigorous intensity physical activity
NGBs	National Governing Bodies of Sport
Part-Time Employee	An employee whose normal hours of work are less than the normal hours of work of a comparable employee

Physical activity (PA)	Any bodily movement resulting in energy expenditure greater than when at rest. PA in daily life results from occupational activities, sports activities, physical conditioning, organised exercise, active transport, or other activities
SAR	Self - Assessment Review
SASSI	Student Activity and Sport Study Ireland
SI	Sport Ireland
SNI	Sport Northern Ireland
Sport	An activity involving physical exertion and skill in which an individual or team is involved in organised competition against another or others. Sport is governed by a set of rules or customs, which serve to ensure fair competition, and allow consistent adjudication of the winner. Training and preparation for competition is also an aspect of sport.
SPSS	Statistical package for social sciences; a software package used for statistical analysis
SSI	Student Sport Ireland
Survey Monkey	Online data collection tool
Vigorous intensity physical activity	The effort makes your heart beat much faster and you have to breath deeper and faster than normal. You will probably sweat
V02	Millimetres of oxygen per body weight per minute utilized during exercise
Volunteers	Individuals involved in the organisation, administration or coaching of sport and PA on behalf of the institution without pay.

Forewords

Carmel Lynch

Hon. Chairperson, Student Sport Ireland

On behalf of Student Sport Ireland I welcome the opportunity to contribute to the foreword to the Student Activity and Sports Study (SASSI) Report 2016. I wish to commend all parties associated with the creation of this landmark research study which examines third level student's physical activity behaviour patterns and attitudes.

The realisation of this ambitious project, the first of its kind undertaken on an all island basis, is the culmination of a four year alliance between Sport Ireland, Sport Northern Ireland and Student Sport Ireland's Research Steering Group which together with the Research Team have produced a robust piece of work, the findings of which will influence policy makers within the third level colleges and universities sports sector into the future. I would like to acknowledge the entire research team's unflagging commitment to this significant project over the last four years and I thank them sincerely for their dedication and painstaking efforts to ensure the accumulated data is presented in a detailed yet meaningful manner.

I would like to acknowledge and thank the Champions in all the colleges and universities who undertook the data collection on the ground, without their cooperation and input the study would not have been completed in such a precise and timely manner.

Student Sport Ireland's membership body is dedicated to the expansion of sport and physical recreation activities in colleges and universities and welcomes the establishment of solid baseline information in this comprehensive report to benchmark future physical activity and healthy lifestyle initiatives. In terms of exercise and physical activity as contributors to the holistic student experience, the publication of this Research Study and Report will galvanise Student Sport Ireland's strategic direction for the next three to five years and stimulate within the organisation a remit of research continuing well into the future.

Brian Mullins

Chairperson, SSI Research Monitoring Group

It gives me great pleasure to write an introduction to the SASSI Study Report 2016. In terms of milestones for Student Sport Ireland this report realises a significant ambition of our membership to have to hand relevant and accurate data on the Irish third level education sector sport and physical activity environment. In setting out four years ago to benchmark resources and behaviour in this domain we were determined to progress the project through robust interrogation and realistic endeavour on behalf of the SSI Board and the organisation in general.

The commitment to establishing sound methods of data collection in both the SAR and SASSI surveys was one of meticulous attention to detail. This involved input from colleagues all across the universities and colleges sector on the Island of Ireland and a huge depth of gratitude is due to the sports officers and champions who supported with huge passion our efforts from the outset on this project. The Research Monitoring Group in managing the project and collaborating with the Research Team strived for best practice and in association with Sport Northern Ireland and Sport Ireland – our significant partners in this endeavour - has delivered on an outcome which provides rich and noteworthy information.

This is not only very relevant in the current economic recovery climate but also provides for a very formidable platform for ongoing and additional interrogation of the Irish third level sector, and also of the age group of young Irish adults in a 'new age' environment who are not necessarily engaged by and interested in following the traditional avenues into sport, exercise and physical activity in their pursuit of a healthy and balanced lifestyle.

My sincere thanks to each member of the Research Monitoring Group and the Research Team in their unstinting support of the project and for their immense commitment throughout the process, when each individual had significant other pressures, to completing the various stages and making sure we overcame all hurdles and challenges, in order to successfully complete this important piece of work.

SASSI Research Team

Professor Marie Murphy (Ulster University)

Dr Niamh Murphy (Waterford Institute of Technology)

Dr Catherine Woods (Dublin City University)

Dr Ciaran MacDonncha (University of Limerick)

Third level students comprise a sizeable proportion of the population with the potential to influence the future of Irish society. Gaining a better understanding of their physical activity and sporting behaviours and the factors that promote long-term engagement will provide for evidence-informed practice and improved service provision in the future.

The Student Activity and Sports Study Ireland (SASSI) was led by a consortium of sport and physical activity researchers from Ulster University (UU), Dublin City University (DCU), University of Limerick (UL) and Waterford Institute of Technology (WIT). A unique multi-centre study, this extensive and ambitious research project, includes a detailed audit of provision for sport and physical activity in most third level institutions across the island of Ireland. Additionally, a survey of over 8,000 students provides an insight into the key factors influencing participation in sport and physical activity. This research establishes baseline information for monitoring and surveillance in line with Ireland's recently published first National Physical Activity Plan and should inform future physical activity targets for this population.

The research team is indebted to the Champions across each of the thirty-six institutions involved, and the postgraduate students in UU, DCU, WIT and UL without whose commitment a project of this scale and ambition of could not have been completed. We would also like to acknowledge Professor Alan Nevill, biostatistician Wolverhampton University for his expert statistical advice; Professor Adrian Bauman (University of Sydney) and Professor Stuart Biddle (Victoria University) for their guidance in the development of the online survey, and Neal Byrne (WIT), Kyle Ferguson (UU) and Joey Murphy (DCU) for day-to-day management of the study over the past two years.

The results presented in this report are a mere snapshot of the available data. We are confident that the robust dataset we have produced will be interrogated further to help inform future provision and policy for physical activity and sport.

Background

The capacity of the third level education sector to impact on a wide range of aspects of sport and physical activity on the island of Ireland has been transformed in a relatively short period. Since the 1990s provision for sport began to emerge as a significant element of the promotion of some colleges. National sports organisations, led by the Gaelic Athletic Association (GAA), appointed part-time and later full-time development staff to colleges. There was a significant expansion of sports scholarship programmes, initially in the universities and then in other colleges. Colleges now compete at regional or national level either alone or with external clubs. A significant number of colleges across the island of Ireland have developed academic programmes in sport science, physical education, exercise science, sports management, etc. In terms of the quality of facilities and personnel resources, there is considerable potential within the sector to have a major impact on the sport and health of the community at institutional and wider society level.

Student Sport Ireland (SSI) is the governing body of third level sport. Its aim is to promote and develop sport and physical activity in all third level colleges on the island of Ireland. It seeks to achieve this by promoting better planning and administration of sports events, training volunteers, providing opportunities for talented athletes to compete at international student level, representing Ireland in European and World student sports organisations, organising and administering a range of student sports league and cup competitions, and promoting the improvement of linkages and co-operation between the third level sector and NGBs of sport. The work of the organisation is guided by the agreed strategic plans 2007 – 2011 and 2012- 2016. The current plan has committed SSI to the development and implementation of evidence led programmes and initiatives to:

- increase the number of students who regularly participate in physical activity and sport;
- improve the quality and quantity of provision for sport and physical activity across all member colleges; and
- increase the contribution of the third level sector to sport and physical activity development at local and national levels.

In developing the 2012 strategic plan it became obvious that there were major gaps in the data available on the sector. While there is a long history of engagement by colleges in joint action related to the organisation and administration of competitive sports activity, there is no history of research to inform the planning or development of third level sport in Ireland. The Student Activity and Sport Study Ireland (SASSI) is therefore a direct response to SSI's recognition of the lack of a robust and reliable evidence base to inform policy, strategy and practice.

Some of the current challenges facing third level sport and SSI were identified in a 2013 consultation process with SSI members. These included the difficulty of planning for a very diverse sector, recognition of the different levels of staffing and resources available in different colleges, and the difficulties for SSI in identifying initiatives and delivering programmes in partnership with other agencies across this diverse sector. This study is a response to these concerns and challenges and provides the data necessary for Irish third level colleges to plan for the future.

Executive Summary

The Student Activity and Sport Study Ireland (SASSI) was commissioned by Student Sport Ireland to investigate sports and physical activity participation, preferences and provision in third level colleges on the island of Ireland. Colleges have invested significantly in sports provision over the past 20 years and the sector has considerable potential to impact on physical activity and health at an institutional and wider community level. However, there is a lack of information available about the participation levels of students as they progress through college and the factors within the college environment which impact on participation.

Physical activity includes sport, exercise, occupational and domestic activity and personal transport (WHO, 2004), and has been shown to enhance quality of life and health (Joseph et al., 2014). Adults should do at least 150 minutes of moderate intensity aerobic physical activity per week (WHO, 2014). Although the physical activity levels of children and adults across Europe are well established, information specifically on engagement of third level students is lacking or inconclusive. Although there is some evidence from small scale studies to suggest that time spent in third level is associated with significant declines in physical activity (Joseph et al., 2014) in general there is a lack of information on third level students' physical activity engagement and subsequent attitudes formed and reinforced during their third level experience, particularly in representative or random samples (Irwin, 2004; Wallace et al., 2000; Keating et al., 2005). Given that large proportions of young adults on the island of Ireland now progress to third level education, the potential of these colleges to influence uptake and maintenance of physical activity behaviours is vast.

The research consisted of three phases.

In **Phase 1**, a Self-Assessment Review (SAR) was conducted in 33 colleges (9 Universities, 12 Institutes of Technology and 12 Colleges) to describe the environment, provision and support for student participation in sport and physical activity. The SAR included a review of organisational structures, staffing, facilities, investment, institutional ethos towards and opportunities for recreational and elite level participation in sport.

In **Phase 2**, 31 colleges and over 9,000 students participated in an online survey. The survey included self-reported participation in sport and domain specific physical activity within and outside the college, and the determinants, motivators and barriers to participation and a number of health-related behaviours and outcomes. Slightly more male students (51%) than female students (49%) participated in the survey whereas in Ireland the third level population is 49% male and 51% female. 9,197 survey responses were collected (87% of the total target quota). The sampling method recruited more undergraduate students than the national average. The sample was weighted to account for these and other variations from national figures. Following data cleaning and weighting, analysis was performed on responses from 8,122 students (*See 2.3.1 Section 1*).

In **Phase 3** objectively measured physical activity, cardiovascular fitness and a range of health-related factors were gathered in 463 students in 5 colleges (3 Universities and 2 Institutes of Technology). This phase helped provide a greater understanding of the physical health, fitness and physical activity levels of third level students as well as testing the validity of the self-reported physical activity measures used in the survey.

All three phases of the study relied heavily upon the cooperation of key individuals in each institution or "Champions". These Champions coordinated the provision of the data for the SAR, administered the student survey according to predetermined quotas and facilitated the health and fitness measurement.

Understanding the Environment and Provision in Third Level

The SAR indicates a wide diversity of organisational structures and internal partnerships for the provision of sport and physical activity opportunities, facilities and services within colleges. The sporting workforce of over 2,000 individuals in full-time (504), part-time (588) or voluntary (944) posts are employed in delivering

opportunities for sport and physical activity. Over 50% of colleges reported an increase in staff in the last five years. Given the period that was in it, this is positive and suggests a strong commitment of third level colleges to providing opportunities for sport and physical activity participation. When colleges are ranked per 100 students, no significant difference in staff provision was found across small, medium and large colleges (large $\geq 11,000$ students, medium 4,000 to 10,999 students and small ≤ 3999 students).

Many colleges report an impressive stock of sports facilities, although fewer colleges reported direct access to track and field facilities, tennis courts and synthetic outdoor surfaces. The majority (64%) of all facilities are institution owned, and 36% are hired. (*See Appendix 1, Table 1.6*).

Current spending of over €11 million per annum is invested in the third level sector in the provision of sports and physical activity opportunities (through personnel, equipment, capitation or grant funding). On the capital side, a steady increase has been seen in investment for indoor and outdoor facilities between 1995 and 2014. Over the next four years an investment of almost €55million in facilities is planned, with large colleges more likely to make greater investments.

Total sports club membership in excess of 32,000 students across 847 clubs was observed (30 colleges provided data). Club membership is male dominated. Males accounted for 66% (n=21,282) and females accounted for 34% (n=10,946) of the total club numbers. There were comparable numbers of clubs per 100 student population across small, medium and large colleges. The following sports clubs were ranked in the top ten for both men and women based on the reported number of participants: Gaelic Football, Soccer 11-a-side, Hurling / Camogie, Rugby Union and Badminton, Trampolining, Cycling and Rugby League.

Provision of sporting opportunities for individuals with a disability remains a challenge for third level colleges with 58% of sports facilities noted as accessible for disabled students and 42% of sports clubs reporting provision for individuals with a disability (*See Appendix 1, Table 1.6 and 1.17*).

In high performance sport 83% of colleges reported scholarship programmes for elite athletes. An impressive network of external institution links exists with external clubs, National Governing Bodies (NGBs) and Sports Councils particularly for athletes competing in Gaelic Football, Soccer and Rugby Union (*See Appendix 1, Table 1.21 and 1.22*).

Understanding Student Engagement in Sport and Physical Activity

Physical Activity and Health

The seven day test-retest reliability of the physical activity instrument used in the survey, the International Physical Activity Questionnaire (IPAQ) short form, was strong (0.7), showing consistency in the data obtained and providing evidence of the instrument's reliability for this study. 64% of respondents were 'high active', and deemed sufficiently active to meet the Department of Health guidelines (*2.3.2 Section 2*).

40% engaged in active commuting (Walking 34%; Cycling 6%) to college (*2.3.2 Section 2*). Active commuting programmes for students appear to be a low priority across most colleges with only 28% of colleges responding to the item in the SAR regarding provision for or encouragement of active transport for students. Also, active commuting programmes accounted for less than 3% of total current investment in sport and physical activity between 2009 and 2013. Given that 79% of students classified as "inactive" use motorised transport to travel to college there is considerable scope to promote active transport as a viable way of increasing daily physical activity among students.

Significantly fewer males (24%) than females (39%) felt that they 'do not take enough physical activity to keep healthy'. Most students indicated that they would like to do more physical activity in the next 12 months.

The majority of students were categorised as healthy weight (65%). This is a similar weight profile to the age matched overall population, according to the 2007 SLAN data (age category 18 - 29 years; 63% of men and 71% of women were normal weight) and to the 2015 Healthy Ireland Survey (age category 15 - 24 years; 64% of women and 64% of men were normal weight). Twenty eight percent of students fell into overweight or obese categories. Objectively measured Body Mass Index (BMI) from the sub-sample of students in Phase 3 substantiated these figures, with 25% overweight and 3.6% obese.

Binomial logistic regressions were used to establish which variables were the strongest predictors of sufficient physical activity to meet the national physical activity guidelines. Controlling for variables such as institution size, gender, age, year of study, and health status (*See 2.3.2 Section 2*),

- Males are 54% more likely to be in a high active group than females;
- Students are 3% less likely to be in a high active group with each additional year of age;
- Students are 102% more likely to be in a high active group with each unit increase in determinant score; and
- The chances of being in a high active group are 25% lower for those who perceived their health as good as opposed to very good, 29% lower for those who perceived their health as average as opposed to very good, and 44% lower for those who perceived their health as poor/very poor as opposed to very good.

Sports Participation

Participation In versus Outside college sport or physical activity

In addition to overall physical activity across all domains, the survey examined levels of participation in structured sport and physical activity. Sixty five percent of students reported participation in sport/activity in the past 4 weeks. Fourteen percent participated only within college, 18% participated inside and outside of college and 33% reported participating only through outside organisations and facilities. The top 3 reasons for participating only in college were to improve fitness, health and physical appearance. Excluding those who didn't know, the top 3 reasons for participating only outside college /university were "Not convenient" (58%), "Already involved in an outside club" (38%), and "Not easy to get involved in college sport / PA" (23%).

Key individual factors influencing participation only in college were age and the determinants of physical activity. The odds of students participating only within their institution are 7% lower with each additional year of age and 19% lower with each unit increase in determinant score. Key institutional factors influencing participation only in college are summarised below. The odds of students opting to participate only in college are:

- 58% lower for colleges with moderate staff numbers compared to those with high staff numbers;
- 43% lower for colleges with low staff numbers compared to those with high staff numbers;
- 18% lower for colleges with moderate indoor facilities (M^2) compared to colleges with high indoor facilities;
- 49% lower for colleges with low indoor facilities (M^2) compared to colleges with high indoor facilities;
- 41% higher for colleges with moderate outdoor facilities (M^2) compared to colleges with high outdoor facilities;
- 17% lower for colleges where perceived quality of provision for sport is moderate rather than high;
- 57% lower for colleges where perceived quality of provision for sport is low rather than high;
- 44% lower for colleges where perceived quality of provision for physical activity is moderate rather than high;
- 83% lower for colleges where perceived quality of provision for PA is low rather than high;
- 48% lower for colleges where sports club participation is low rather than high;
- 36% lower for colleges where exercise and fitness sessions are moderate rather than high; and
- 61% lower for colleges where exercise and fitness sessions offered are low rather than high.

Participation in Sport and Physical Activity in General

Among those who reported playing sport / activity within and outside college the main motives given were fitness, health, enjoyment, performance and fun (*See Appendix 2, Figures 2.5 and 2.6*). Strength training and cardio workouts in the gym were the most popular activities for students within college (*See Figure 2.2*). Of the 65% of students who reported participating in sport, three in four of them were deemed to be taking sufficient physical activity measured using the IPAQ instrument. This reflects the important contribution of sport in helping students to be active enough to benefit their health significantly.

The remaining 35% who reported that they did not participate in any sports/activity in the last 4 weeks identified lack of time, tiredness, lack of interest, confidence and other leisure time activity preferences as their primary reasons for non-participation.

The top two strategies to encourage non-participants to participate either within or outside of college in the future were 'cheaper admission prices' and 'people to go with' and 'access to coaching' was also cited as an important strategy for non-participants within college (*See Figure 2.1.1*).

In line with other international studies, increasing age was associated with increased odds of being physically inactive. Regression analyses showed that the odds of students not participating in sport/activity are 4% higher with each additional year of age, 30% lower for males than females and are 68% lower with each unit increase in determinant score (*see Appendix 7, Section C*).

From an institutional perspective, the odds of students being in the non-participant group are 29% higher for students attending colleges with low indoor facilities (M^2) in comparison to those with high indoor facilities, 34% higher for colleges where the perceived quality of provision for physical activity is low compared to high, 25% higher in colleges with moderate compared to high numbers of staff and 29% lower for colleges with moderate outdoor facility space (M^2) in comparison to those with high outdoor facility space (M^2).

Coaching

Of the 56% of participants in receipt of formal coaching, 21% of them received this coaching as part of their college sporting experience (*See 2.3.4 Section 4*).

High Performance

6% of current participants reported playing at an elite level (regional, national, or international level). Two thirds of these elite competitors were male. Overall, 11% of elite athletes indicated that they were in receipt of a scholarship / bursary from their institution (*See 2.3.3 Section 3*).

Student Satisfaction / Importance of Sport in Student Choice of College

Student satisfaction was associated with the quality of indoor facility provision, the quality of sports club and quality of exercise and fitness opportunities. Levels of satisfaction were lower among the 6% participating at elite level than among those participating at a lower level. These elite athletes rated sporting opportunities and facilities as important when choosing their college, whereas this was not the case among the general student body (*See Figure 2.14*).

Determinants of Student Participation

Students were asked a series of questions relating to psychological, social and environmental factors which might influence their participation in, or avoidance of, sport and physical activity (*See 2.3.3 Section 3*). Three key individual determinants and one institutional determinant were found to be significantly associated with an increased likelihood of being in the high active group thereby meeting the national physical activity guidelines. In summary, the odds of students being in the high active group were:

- 52% higher for those who responded that they had read the physical activity guidelines than those who had not;
- 303% higher for students who were motivated to do physical activity in comparison to those who were unmotivated;
- 707% higher for students who felt they had coping skills to help them navigate obstacles that might otherwise have prevented them participating in physical activity than those who felt they had no coping skills; and
- Social influence was the main institutional determinant of participation. The odds of students participating in sport and physical activity in their college were 57% lower if they felt that they 'did not have anyone to do physical activity with', in comparison to those who strongly disagreed with this statement (*see Appendix 7, binomial regression analysis, sub-item analysis*).

This is useful information for SSI and colleges' staff responsible for developing physical activity programmes. If students are encouraged to read about physical activity and in particular the national physical activity guidelines, if they can be helped to set goals and gain coping skills that help work around obstacles preventing activity, and if they are encouraged to develop a social network to support their activity choices, then there is significant potential to increase physical activity levels within colleges and universities.

Volunteering

15% of students volunteer for sport and physical activity. Male students are 29% more likely to volunteer than females. The odds of having volunteered are 40% higher for students in medium sized colleges and 50% higher for students in small colleges compared to large colleges (*See 2.3.4 Section 4*). Students are 32% less likely to have volunteered in colleges with low current investment in sport than in colleges with high investment.

Relationship between Physical Health, Health Behaviours and Physical Activity

Physical activity and physical fitness are strong determinants of health. The relationship between the physical health of students and their level of engagement in physical activity was examined in SASSI phase 3 (*See Section 3.2*). Results showed that the physical activity levels of students, irrespective of mode of measurement (objective or subjective), was moderately related to their cardiorespiratory fitness - the more minutes spent being active, the higher their level of fitness.

In terms of other health related behaviours, 13% of students surveyed reported being non-drinkers with almost 80% non-smokers and a similar proportion reporting never having used non-prescribed drugs. Students who are underweight or obese are significantly less likely to play sport than normal weight or overweight students (*See 2.3.5 Section 5*). On weekdays over 70% of students spent more than 7 hours sitting per day. Accelerometer measurements in a subsample of students showed that third level students, though highly active, spend 86% of their time in sedentary behaviour.

Introduction

Physical inactivity is one of the most important public health challenges of the 21st century. Although physical activity levels of children and adults across Europe are well established there is little information specifically on engagement in physical activity and sport by third level students, particularly in representative or random samples (Irwin, 2004; Wallace et al., 2000; Keating et al., 2005). An investigation of leisure time physical activity in university students from 23 countries found that physical activity was below recommended levels in a substantial proportion of students, and was related to cultural factors and stage of national economic development (Haase, Steptoe, Sallis and Wardle, 2004). A recent study in universities in low, middle and high income countries found that males generally had significantly higher physical activity levels than females and that increasing age was associated with increased odds to be physically inactive (Pengpid et al, 2015), a finding also confirmed by Sinclair (2005). In Ireland, there is a lack of information available on physical activity levels and sports participation habits among this cohort. Also the correlates of physical activity (factors associated with higher or lower participation) in this population are poorly understood.

With the number of applications for and admissions to undergraduate courses in Irish and Northern Irish Higher Education Colleges on the rise, the student population now represents a large cohort of the young adult population. Approximately 62% of the final year second level cohort transfer to a HEA funded third level institution before reaching the mature student age of 23. The numbers entering third level are projected to rise continuously up to 2026. In 2012, 46.9% of the population aged 25- 34 (40.4% of males, 53% of females; CSO, 2012) in Ireland had third level education, which was the fourth highest rate in the EU and compares with 34.8% across the EU as a whole. In 1980 there were just under 15,000 new entrants to full-time undergraduate higher education; by 2009 this had almost tripled to 42,500. Total third level education student population figures on the island of Ireland for 2013/14 were 275,469 (Source: Central Statistics Office (CSO), Higher Education Statistics Agency (HESA) and Department for Employment and Learning (DEL).

Third level education is a time of transition where a significant opportunity for influencing adult behaviour exists. Behaviours and attitudes formed and reinforced during the years in third level education may be sustained through adulthood and the college campus environment and student living and working conditions have been shown to be important influences on student physical activity (Miller et al., 2005). Young adulthood is a time where risky health behaviours are initiated. Smoking, excessive drinking, and physical inactivity often become established in early adulthood (Bonevski et al., 2013). Exercise and sports participation has traditionally been regarded as a means of encouraging the development of healthy habits and deterring health risk behaviours (Pate et al., 1996). Some studies have found that cigarette smoking and drug use is related to physical inactivity, or inversely related to physical activity (Burke et al.1997; Pate et al.1996). Previous research has considered different risky health behaviours separately as a predictor of health. However, Dinger et al. (2014) found that among college students, positive health behaviours are often clustered with physical activity.

In addition to the general benefits attributed to participation in physical activity for adults, physical activity in students has been associated with more favourable blood lipid levels (Sacheck et al., 2010) reduced anxiety and depression (Petruzzello and Motl, 2006) and improved cognitive function (Wald et al., 2014). Although the importance of health – enhancing physical activity is well established, current levels of engagement in physical activity and sport (including participation, volunteering, and competing) and the factors which influence this engagement are not well understood amongst third level students in Ireland. This study aims to address that deficit and to provide baseline information on which to base future policy, strategy, provision and practice to promote participation.

Policy Context

The Student Activity and Sports Study Ireland (SASSI) research project was commissioned by Student Sport Ireland (SSI), the governing body for third level sport in Ireland and is supported by SSI member colleges, Sport Ireland¹ (SI) and Sport Northern Ireland (SNI). SSI's mission is to promote and develop third level sport and physical activity in Ireland. SSI work in partnership with national and international bodies identifying pathways for university and college communities to participate, compete and develop through sport and physical activity. The Association's 29 member colleges provide for the sport and recreation needs of more than 200,000 full-time undergraduate and postgraduate students.

In Northern Ireland and the Republic of Ireland several strategy documents aim to promote physical activity including sport, active transport and occupational activity (e.g. the ISC's Sports Participation Strategy, the Dept. of Transport, Tourism and Sport Smarter Travel Initiative, SNI's Sport Matters strategy and most recently the Department of Health National Physical Activity Plan). Information about student sport and physical activity prevalence, preferences and provision is important to inform such strategies and ensure resources are directed towards increasing physical activity among this cohort.

This research was prompted by the lack of information available on the participation levels of students as they progress through third level colleges on the island of Ireland. There are no data available as to how the policies and programmes of individual colleges / universities compare with others or how levels of participation vary across the sector. This study sought to ascertain current levels of participation and provision in physical activity and sport across third level colleges in Ireland.

¹ Established on 1 October 2015 following the merger of Irish Sports Council and National Sports Campus Development Authority

Phase 1: Self - Assessment Review (SAR)

1.1 SAR Introduction

To date, no comprehensive analysis has been completed of the environment and provision by third level colleges on the island of Ireland to support student participation in sport and physical activity. Significant investment is made by many third level colleges in staffing, indoor and outdoor facilities and the provision of sport and physical activity participation opportunities. Often third level colleges promote facilities for sport and physical activity and success in sport as a cornerstone of marketing the institution to new entrants. However, the relationship between provision for sport and physical activity in the third level setting and student behaviour and attitude towards participation has not been investigated. An examination of the level of provision and the relationship with such factors as institution size, number of students attending and student behaviour will provide valuable information to decision makers within the third level sector. A detailed methodological overview can be found in *Appendix 8: Technical Protocols*.

1.2 SAR Purpose

The purpose of the SAR was to provide an analysis of the environment and provision made by third level colleges to support student participation in sport and physical activity (PA). The SAR analysed the following aspects of environment and provision in each participating institution:

- 1) Organisational structures to support sport and physical activity participation;
- 2) Staffing to support sport and physical activity participation;
- 3) Facilities to support sport and physical activity participation;
- 4) Investment to support sport and physical activity participation;
- 5) Opportunities for sport and physical activity participation;
- 6) High performance athletic support; and
- 7) Institutional ethos, prioritisation and quality of provision.

The aims of the SAR were:

- 1) To describe the environment and provision by third level colleges to support sport and PA;
- 2) To compare provision for sport and PA by individual colleges with all third level colleges;
- 3) To analyse the relationship between provision and participation in sport and PA; and
- 4) To develop a comprehensive SAR instrument that could continue to be used to quantify and evaluate the environment and provision by colleges to support participation in sport and PA.

The focus of the SAR was on provision for undergraduate and postgraduate students; aspects such as community engagement, commercial and staff related activities and the environment for sport and physical activity outside the college were not examined as they were outside the scope of the study.

1.3 SAR Sampling

All third level education colleges on the island of Ireland were invited to participate in the SAR. The main findings of this SAR are described below, and full results related to specific aspects of the SAR and student participation in sport and physical activity are included in *Appendix 1 and 1a*. Further details regarding the SAR methodology are available in *Appendix 8*.

1.4 SAR Results

1.4.1 Section 1. Response Rate Key Findings - Response Rate:

- 33 colleges responded (Response Rate $33/41 = 80\%$) to the SAR. In total 70 individual respondents contributed to the SAR across all 33 colleges. In 14 colleges (42.4%) the SAR was completed by 1 individual only (*see Appendix 1, Table 1.1*).

- For the purposes of the report, the following institution size classification was used: 1) Large \geq 11,000 students; 2) Medium 4,000 to 10,999 students and 3) Small \leq 3,999 students Table 1.1 shows the distribution of institution size of those who responded. Institution size was based on full-time undergraduate and postgraduate students enrolments reported in the academic year 2013/14. (Note: NI Regional Colleges Full-Time enrolments include all enrolments whose attendance is: full-time (for at least 15 hrs. and at least 7 sessions/ week, or for more than 21 hours / week with no sessional requirement).

Table 1.1 Distribution of institution size

Large	Medium	Small	Total
7	11	15	33

1.4.2 Section 2 Institutional Staffing Structures Supporting Sport and Physical Activity

The SAR online instrument included questions regarding: 1) the number of full-time employees, part-time employees and volunteers supporting sport and PA participation in 2009 and 2014 (*See Appendix 1, Table 1.2) and 2) the relevant staff titles e.g. "Director of Sport"*.

Key Findings - Staffing Structures:

- n=32 colleges provided data, 7 large size, 10 medium and 15 small.
- There was a significant increase in full-time staff between 2009 and 2014. A 26.6% increase in full-time staff across all colleges was noted; however, 72.6% (77 of 106 additional staff) of this increase was accounted for by only 4 colleges (2 large, 2 small). 2 colleges reported a decrease of 1 full-time staff. 14 (44%) colleges reported no change in full-time staff (*See Appendix 1, Table 1.2*).
- 16 colleges reported an increase in full-time staff as follows: 6 colleges reported an increase of 1 full-time staff member; 6 colleges reported increases ranging from 2 to 8 staff; the remaining 4 colleges reported increases of 12, 14, 23 and 28, respectively.
- There was a significant increase in part-time staff between 2009 and 2014. A 52.7% increase in part-time staff between 2009 and 2014 was noted; however, similar to the full-time staff analysis, 77.8% (158 of 203 additional staff) of this increase was accounted for by only 4 colleges (3 medium, 1 large). 4 colleges reported a mean decrease of 2.5 staff. 6 (19%) colleges reported no change in part-time staff levels (*See Appendix 1, Table 1.2*).
- 22 colleges reported an increase in part-time as follows: 5 colleges reported an increase of 1 part-time staff member; 13 colleges reported increases ranging from 2 to 7 staff; the remaining 4 colleges reported increases of 14, 23, 33 and 88, respectively.
- 11 (34%) colleges did not have any volunteers involved. 5 of these were categorised as small, 5 as medium and 1 as large. 4 colleges had small total staff numbers (0 to 3), 5 colleges employed mainly full time staff (>60%) and 2 had a high % of part-time staff.
- 21 (66%) colleges involved volunteers as follows: 8 colleges had between 1 and 8 volunteers. 5 colleges reported between 20- 45 volunteers, 5 colleges reported between 60 and 70 and the remaining 3 reported 95, 132 and 207 volunteers.
- 7 large colleges accounted for 46.6% and 15 small colleges accounted for 20.4% of total staff in 2014.
- 6 of 7 (86%) large colleges have a Head/Director of Sport appointed. 6 of 10 (60%) medium size colleges have a Director of Sport/Sports Officer/Manager appointed. 6 of 15 (40%) small colleges have a Director of Sport/Sports Officer/Dev Officer/Manager.

Analysis by Institution Size

To examine the relationship between staffing provision and institution size (small, medium, large size), a total staff provision score and institution rank relative to 100 students was calculated for each participating institution. The analysis indicated that a significant difference for the total staffing score existed between smaller and larger colleges, with, as expected, larger colleges having a higher level of staffing. However, when institutional combined rank was considered, no significant difference across size was found (*Appendix 1, Table 1.3*).

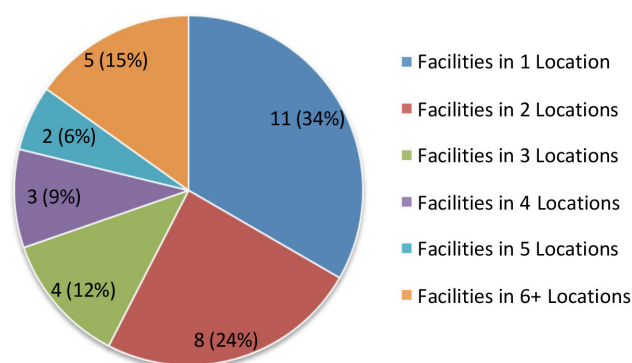
1.4.3 Section 3 Facilities Audit

The SAR online instrument included questions regarding the extent and nature of both indoor and outdoor facilities available to each institution at all locations available. Information regarding size, ownership and accessibility for individuals with a disability was also gathered. *See Appendix 1, Tables 1.4 and 1.5* for facilities available (owned or hired) to colleges at their primary location, and facilities owned at all other locations (primary location is the 1st location reported in the SAR response). *Appendix 1, Table 1.6* presents analysis of all facilities (owned and hired) reported by colleges at all facility locations. 33 colleges provided information regarding facilities.

Key Findings - Facilities:

1. Facilities owned at all locations and facilities hired only at primary location:
 - **Indoor Facilities:** The majority of Colleges (82%, 27 of 33) owned an indoor sport and PA facility. The most frequently reported owned (and hired only at primary location) indoor facilities were 1) Fitness Suites (85% of Colleges), 2) Sport Halls (82%) and 3) Free Weights (64%) (*Appendix 1, Table 1.4*). Swimming Pools were the most frequently hired facility at the institution primary location, 44% (7 of 16) of swimming pools were hired.
 - **Outdoor Facilities:** The most frequently reported owned (and hired only at primary location) outdoor facilities were 1) Grass Pitch GAA (73%), 2) Grass Pitch Soccer (73%) and 3) Grass Pitch Rugby and Walking Trails (61% each) (*Appendix 1, Table 1.5*).
2. Facilities owned and hired across all locations.
 - 70% of participating Colleges (23/33) reported having access to facilities (owned or hired) at 1, 2 or 3 locations (34%, 24% and 12%, respectively). The remaining 30% reported having access to facilities at 4, 5 or 6 or more locations (9%, 6% and 15%, respectively) (*Figure 1.1*).
 - 472 facilities either owned or hired were reported across all locations available. 304 (64%) of these were reported as owned and 168 (36%) as hired. 275 (58%) facilities were reported to be accessible for individuals with disabilities (Range 30 to 85%; Mean 56%). 230 (49%) facilities were classified as indoor and 242 (51%) as outdoor (*Appendix 1, Table 1.6*).

Figure 1.1 Number of facility locations reported by Colleges (n=33)



Analysis by Institution Size

To examine the relationship between facility provision and institution size (i.e. small, medium, large size), a M^2 total score was calculated for all indoor and outdoor facilities. Composite scores for all indoor and all outdoor facilities were then calculated and each institution was ranked 1) by total M^2 for indoor and outdoor facilities and 2) indoor and outdoor facilities relative to 100 students. The overall rank assigned gave consideration to both of these aspects. The M^2 values used to calculate the facilities provision scores are provided in *Appendix 1, Table 1.4a and 1.5b*. These values were based on both national and international recognised dimensions for the relevant facility.

As expected the analysis indicated that a significant difference for the total M^2 provision across institution size existed for both indoor and outdoor facilities. For both indoor and outdoor facilities small colleges had significantly less M^2 of facilities when compared to medium and large colleges. When institution rank was analysed a significant difference remained, between small and medium colleges for outdoor facilities only, with small colleges having a lower rank (*See Appendix 1, Table 1.7*).

1.4.4 Section 4 Investment in Sport and Physical Activity

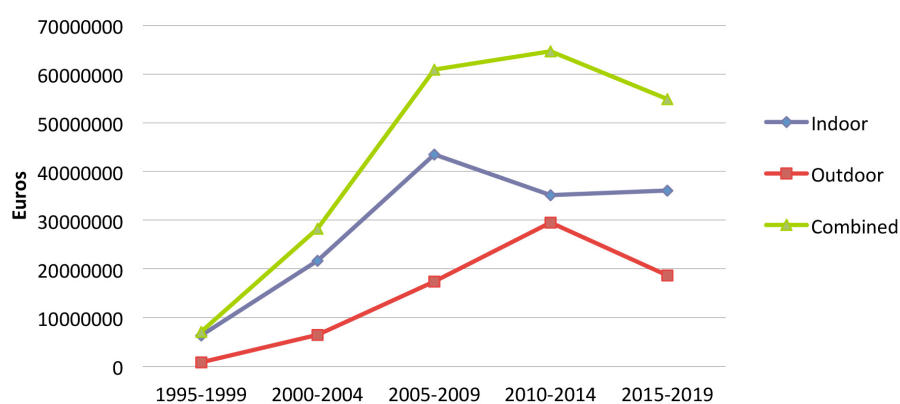
Within this section previous, current and planned investment in sport and physical activity (PA) reported by third level colleges is analysed. Capital investment refers to investment in indoor and outdoor sport and PA facilities by colleges (1995 - 2014). Current investment refers to non - capital investment in sport and PA provision by colleges in the past 5 years. Respondents were asked to select from 14 possible investment ranges (€/\$). For the purpose of the analysis the mid - points of the investment ranges (e.g. Investment range 4 = 50,001 to 100,000: mid-point = 75,000) were used with the exception of the first and last where the maximum value of 25,000 and 5 million+, respectively were used. To provide an overview for all colleges data is presented as euro unless otherwise indicated. An average sterling to euro conversion for each of the four time periods was used. The average for 2015 was used for planned investment 2015 to 2019. Irish punt values for 1995-1999 were converted to euro. 32 colleges responded to this aspect; variations in the response rate exist for different components. Information regarding 1) Sport Club Capitation Grant and Method of Distribution and 2) Fees and Charges for Participation in Sport and Physical Activity are found in *Appendix 1a*.

Key Findings - Investment:

1. Capital Investment – Indoor and Outdoor Facilities

On average 50% of colleges provided information on capital investment for sports facilities. *Figure 1.2* demonstrates a consistent increase in both indoor and outdoor and combined (indoor and outdoor) capital investment in facilities since the period 1995 – 1999. Additionally, planned capital investment for 2015 to 2019 in indoor facilities remains high relative to 2010 – 2014 levels. Planned investment in outdoor facilities is 63% of 2010 - 2014 levels. Colleges continued to invest in sports facilities during the recent recession. All colleges who responded indicated planned investment in both indoor (16/32 colleges - total €36 million) and outdoor facilities (12/32 colleges - total €18.7 million) between 2015 and 2019 (*Fig 1.2*).

Figure 1.2 Capital Investment in indoor and outdoor and combined from 1995 to 2014 and planned capital investment for 2015 – 2019.



A combined investment of almost €55 million is planned in the next 4 years (*Fig 1.2*). Capital investment in indoor facilities increased dramatically between the time periods 1995 – 1999 and 2005 – 2009, from €6.3 million to €43.4 million. Investment decreased in the recessionary period in excess of €8 million. A very positive finding is that planned investment indoor facilities for 2015 - 2019 (€36m) is similar to the investment made in 2010 – 2014 (€35). Total investment in outdoor facilities showed a steady increase from 1995 – 2014, from ≈€800,000 to €29,500,000. Detailed information on indoor and outdoor capital investment ranges reported for Irish and Northern Irish (NI) colleges are included in *Appendix 1 (Tables 1.8 and 1.9)*. Colleges invested in different ranges with a high percentage of colleges investing in excess of €/£500,000 during the time periods in question (excepting 1995 - 1999).

2. Current Investment

Colleges recorded current investment from 2009 to 2013 under the following headings: facility hire, sports clubs, non - club sport, exercise and fitness and active commuting. Current spending included such costs as personnel, equipment, capitation or grant funding. Current investment in sport and physical activity (PA) in the past 5 years has been consistent and has increased (*Table 1.2*). In 2009 the total estimated current investment was €10,623,760 which increased in small amounts annually to €11,152,985 by 2013 (5% increase). *Table 1.2* also shows that the % of total current investment between 2009 and 2013 in sports clubs physical activity/recreational sports, non – club sport, exercise and fitness and active commuting programmes was 48%. This indicates a balanced investment between representative sports clubs (43.7% of total) and physical activity opportunities. Facility hire accounted for 8.3% of total. See *Appendix 1 Tables 1.10 – 1.15* for additional investment details for Irish and NI colleges.

Table 1.2 Overview of estimate of total current investment 2009 - 2013

	Facility Hire	Sport Clubs (Rep Sport)	Sport Clubs (PA Rec Sport)	Non Club Sport (PA, Rec Sport)	Exercise & Fitness Programmes	Active Commuting Programmes	Total Current Investment
2009	€842,821	€4,542,179	€933,435	€3,354,213	€692,812	€258,300	€10,623,760
2010	€812,821	€4,747,179	€945,935	€3,331,714	€715,313	€212,810	€10,765,772
2011	€919,957	€4,647,179	€978,435	€3,371,713	€700,314	€297,874	€10,915,472
2012	€962,457	€4,847,179	€1,003,435	€3,578,972	€852,814	€312,509	€11,557,366
2013	€1,013,311	€5,243,529	€1,078,435	€2,567,022	€952,814	€297,874	€11,152,985
5 Year	€4,551,369	€24,027,246	€4,939,676	€16,203,635	€3,914,067	€1,379,368	€55,015,361
% of Total	8.3%	43.7%	9%	29.4%	7.1%	2.5%	

- **Investment in Facility Hire**

Total investment in facility hire showed a 20.2% increase between 2009 and 2013 (Table 1.2). Response rate exceeded 70%.

- **Investment in Sports Clubs: (i) Representative Sport (ii) Physical Activity Recreational Sport**

There has been a 15.4% increase in estimated total investment in representative sport clubs, from €4.5 million in 2009 to €5.2 million in 2013. There was a high response rate with over 80% of colleges providing information (*See Appendix 1, Table 1.11*). In comparison, investment in physical activity recreational sport clubs increased at a similar rate of 15.5% from 2009 – 2013, however, at much lower levels of investment, €0.9 to 1 million. Response rate was 72% (*See Appendix 1, Table 1.12*). Very large differences between colleges in level of spending on representative sport were found. The minimum investment band of up to 25,000 per annum accounted for 35% of all investment bands selected between 2009 and 2013; investment between 25,000 and 100,000 per annum was selected on 21% of occasions; 100,001 - 250,000 per annum was selected on 13% of occasions; 250,001 – 500,000 per annum on 26% and between 500,001 and 750,000 per annum on 6% of occasions (*See Appendix 1, Table 1.11*).

- **Overview of Investment in Non - Club Sport (Physical Activity, Recreational Sport)**

Estimated total investment in non – club sport remained consistent from 2009 to 2012 following which a drop in investment was then noted. However, this drop was accounted for by only two colleges. The response rate is lower than in previous aspects, between 50% and 59%.

- **Overview of Investment in Exercise and Fitness Programmes**

Total investment in exercise and fitness programmes showed a steady increase over the five years considered from €692,812 to €952,814 (response rate 60%). The majority of respondents selected the lowest investment range of up to 25,000 (*see Appendix 1, Table 1.14*). Exercise and fitness programmes account for 7.1% of total current investment between 2009 and 2013. This seems a modest amount, but should be considered in the context of total investment in PA and recreational opportunities which stands at 48% (sports clubs physical activity/recreational sports + non – club sport + exercise and fitness + active commuting; *Table 1.2*).

- **Overview of Investment in Active Commuting Programmes (Physical Activity)**

Total Investment in active commuting programmes remained stable from 2011 to 2013 at ≈€300,000 per annum. The response rate was low (28%). Active commuting programmes accounted for only 2.5% of total current investment between 2009 and 2013. The further development of active commuting programmes in conjunction with local authorities should be given greater priority. Such opportunities may be availed of by those who are non – participants or less active as a first step in increasing activity levels.

Analysis by Institution Size

To examine the relationship between investment and institution size (i.e. small, medium and large), a total indoor and outdoor facilities capital investment provision score and a total current investment provision score was calculated. Indoor and outdoor capital investment scores include total investment between 1995 and 2014. Current investment was a combined score of total investment from 2009 to 2013 in: 1) facility hire; 2) representative sports clubs; 3) physical activity, recreational sport clubs; 4) Non – Club Sport; 5) Exercise and fitness programmes and 6) active commuting programmes. An institution rank score for capital and current investment was calculated; this considered both total investment and investment relative to 100 students. The analysis indicated that total current investment in small and medium sized colleges was significantly less

($P = .000$) than in large colleges. When colleges current investment scores were ranked relative to provision (Total and per 100 students) a significant difference between medium and large colleges remained, with larger colleges scoring a higher rank. No significant differences in total capital investment and institution rank score for capital investment were noted (*Appendix 1, Table 1.16*).

1.4.5 Section 5 Student Sport and Physical Activity Participation Provision

The SAR instrument included questions regarding: 1) The number of sports clubs provided in 2013 - 2014; 2) the nature of sports clubs provided (named sport, male and female participation, provision for individuals with a disability); 3) number of male and female participants in each sport club reported; 4) description of link between sport clubs and the institution management structures for sport and 5) participation in exercise and fitness opportunities. While 33 colleges provided data, response rate varied across the questions posed.

Key Findings – Participation Sport Clubs:

- The SAR requested that colleges provided specific information regarding 54 named sports clubs (*See Appendix 1, Table 1.17*). This list was developed in consultation with key stakeholders in sport and physical activity provision in third level education colleges. Table 1.3 indicates that large colleges provided significantly more clubs than medium and small colleges. However, when total club provision and club provision per 100 students was ranked no difference across institution size was found. This finding suggests that small and medium colleges can keep pace relatively with large colleges in the provision of sports clubs.

Table 1.3 Institution size across total number of clubs and rank for club provision (M ± SD)

	Total	Small	Medium	Large	Sig	Post - Hoc
Number of Sports Clubs Reported by Colleges	847 (25.7 ± 19.4)	14.3 ± 12.3	24.9 ± 16.2	51.1 ± 12.1	$P = .000$	Small, Medium < Large
Institution Rank		17.1 ± 10.2	18.8 ± 10.5	13.9 ± 7.1	NS	NS

- Appendix 1 Table 1.17 provides the following information: 1) Ranking of sports clubs based on the % of colleges providing and not providing that club; 2) % of colleges making club provision for both males and females, males only and females only; 3) % of colleges reporting provision for individuals with a disability and 4) the employment of a full/part-time development officer to support provision. Provision of the 54 listed clubs varied widely across colleges. Provision ranking of the top ten sport clubs was: Joint 1st = Gaelic football and 11-a-side soccer (94% of colleges); Joint 2nd = badminton, basketball and hurling (76%); Joint 3rd = camogie, rugby union (70%); Joint 4th = athletics, golf (64%) and 5th = volleyball (61%). Team games dominated the top 10 ranked clubs (*Appendix 1, Table 1.17*).
- Male and female provision (analysis considers only colleges which provided sport in question): Gaelic football was provided only to males in 13% ($n=4$) of colleges; the equivalent value for 11 – a side Soccer was 30% ($n=9$); both males and females participated in Rugby Union in 61% ($n=14$) of colleges, males only in 39% ($n=9$); Golf was provided to males only in 19% ($n=4$); Boxing was provided to males and females in 79% ($n=15$) of colleges (*Appendix 1, Table 1.17*).
- Reported provision for individuals with a disability across the top 10 sport clubs ranged from 19 to 48%; provision reported by the field sports in the top 10 was low < 30%; the average provision across all sports clubs was $42.0 \pm 17.0\%$; there was a significant difference ($P = .025$) in provision between team ($34.0 \pm 16.1\%$) and non - team sports ($45.5 \pm 16.4\%$) (*Appendix 1, Table 1.17*)

- A total of 24 different types of sports clubs across all colleges reported that they had the support of a Full-Time or Part-Time Development Officer, a within sport range of from 5% to 88%. The level of development officer support for team sports is particularly substantial. Gaelic sports have invested significantly in such personnel and this is reflected in the finding that in Gaelic Football 74% of colleges that provide this sport have development officers available to them, Hurling (80%), Camogie (87%), and Handball (88%). Other notable findings include reported support for Soccer (42% - 47%), Rugby Union (48%) and Rugby League (67%). (It should be noted that the total provision of Rugby League clubs across all colleges was 6 and that 4 reported having development officer support for their activity) (*Appendix 1, Table 1.17*).
- Colleges were asked to select a specific range which best represented male and female participation number for each of the 54 clubs listed, the mid – point of each range was used to represent the number of participants. *Appendix 1, Table 1.18* provides the following information regarding student participation in sport clubs: 1) Total number of participants per club 2) club popularity rank for males and for females based on total number of participants per club (*Rank 1 column in Table 1.18*) and 3) club popularity rank based on the number of participants per club relative to the total number of that particular club reported across all colleges (*Rank 2 column in Table 1.18*).
- 18,759 male and 9,948 female participants were reported across the 54 listed sports clubs, 35% of total membership was female (*Appendix 1, Table 1.18*). 56% of clubs reported \leq 50% female membership relative to males (e.g. Soccer 11 a- side Males = 1,888 vs. Females = 692 (Female membership is 37% of Males). Only 7 clubs reported \geq 100% female participation in comparison to male participation (Chinese Martial Arts, Gymnastics, Hill Walking, Hockey, Triathlon, Volleyball and Walking).
- When clubs were ranked using the total number of participants reported, the following clubs were ranked in the top 10 for both men and women: Gaelic Football, Soccer 11 – a side, Hurling/Camogie, Rugby Union and Badminton. Additional analysis using the number of participants per club related to the provision of that particular club across all colleges revealed that in addition to those mentioned previously, Trampolining, Cycling and Rugby League were also ranked in the top 10 for both genders (*Appendix 1 Table 1.18*). The analysis in *Appendix 1, Table 1.18* contains gender specific information and thus provides valuable guidance for third level colleges about which sports that they should initially target to promote participation among males and females. The top 10 clubs ranked based on total participation accounted for 52% of all male participants reported (9,730 out of 18,759). The top 10 clubs ranked based on total participation accounted for 57% of all female participants reported (5,753 out of 9,948).
- 41% of colleges reported that the planning and organisation of sports clubs was undertaken jointly by sports officers and the sports department, 22% reported that this task was exclusively the role of sports club officers, 16% reported exclusively the role of the sports department and 16% reported that the task was primarily that of the club development officer/sport coach who liaised with and reported to the sports department (see *Appendix 1, Table 1.20*).

Analysis by Institution Size

To examine the relationship between institution size (i.e. small, medium and large) and student participation numbers in sports clubs and institution rank for that provision, a total participation score was calculated for all clubs reported². Colleges were asked to select a specific range which best represented male and female participation, the mid – point of each range was then used to represent the number of participants in each club. A combined institution rank score considering both total participation levels and participation relative to

² This analysis also includes data provided on participation in other clubs in addition to the 54 listed clubs

100 students was subsequently calculated. **Table 1.4** indicates that no significant difference was found for total number or institution rank across small, medium and large colleges. This finding indicates that small and medium size colleges achieve an equivalent rank for participation numbers in sports clubs relative to large colleges. Considering total number of participants, a higher mean is reported for larger colleges. However, the standard deviation indicates that some small and medium size institution report similar participation numbers as larger colleges, this characteristic of the data explains the non – significant findings.

Table 1.4 Number of participants in sport clubs by institution size and institution rank for this provision (M ± SD).

	Small	Medium	Large	Sig	Post - Hoc
Number of Participants	554.0 ± 648.8	906.1 ± 895.9	1067.0 ± 634.9	NS	NS
Institution Rank	15.6 ± 8.8	16.5 ± 9.8	16.1 ± 6.3	NS	NS

- Total participation numbers reported across the 54 listed clubs and all other clubs reported by colleges (n=30) was n=32,228; males accounted for 66% (n=21,282) and females accounted for 34% (n=10,946) of the total. 50% of colleges reported total participation rates in sports clubs greater than 400 and 25% reported a rate greater than 1,320. Other clubs reported, outside of the 54 listed clubs, are presented in *Appendix 1, Table 1.19*.

Key Findings – Participation Exercise and Fitness Sessions:

- Participation in exercise and fitness sessions - Colleges were asked to report participation rates across a range of exercise and fitness opportunities. Colleges were asked to select a specific range which best represented male and female participation, the mid – point of each range was then used to represent the number of participants. 32 colleges provided data. **Table 1.5** describes participation numbers for males and females across the different opportunities. Total levels for each opportunity are provided. Participation numbers totaled 16,330, of which females accounted for 58%. 50% of colleges reported a one week participation rate greater than 120 and 25% reported a rate greater than 740. Weight training (36% of total) was the most popular exercise and fitness opportunity for males and exercise to music was the most popular with females (34%).

Table 1.5: Participation in Exercise and Fitness Sessions during ONE week in Mid - Spring Semester

	Exercise to Music	Circuit Training	Weight Training	Dance	Other ¹	Total
Male Total	1,392 (21%)	942 (14%)	2,465 (36%)	658 (10%)	1,329 (20%)	6,786
Female Total	3,212 (34%)	1,282 (13%)	1,866 (20%)	1,205 (13%)	1,979 (21%)	9,544
Total	4,604 (28%)	2,224 (14%)	4,331 (27%)	1,863 (11%)	3,308 (20%)	16,330

¹ e.g. Pilates, yoga, core training

Analysis by Institution Size

A combined institution rank score considering both total participation levels and participation relative to 100 students was calculated. **Table 1.6** indicates that a significant difference was found for total number of participants in exercise and fitness sessions, with large colleges reporting significantly higher levels than small colleges. No significant difference was found for rank across small, medium and large colleges.

Table 1.6: Number of participants in exercise and fitness sessions by institution size and institution rank for this provision (M ± SD).

	Small	Medium	Large	Sig	Post - Hoc
Number of Participants	267.1 ± 406.8	484.6 ± 606.9	1037.1 ± 519.1	P = .010	Small < Large
Institution Rank	17.7 ± 8.9	18.6 ± 10.9	10.9 ± 6.0	NS	NS

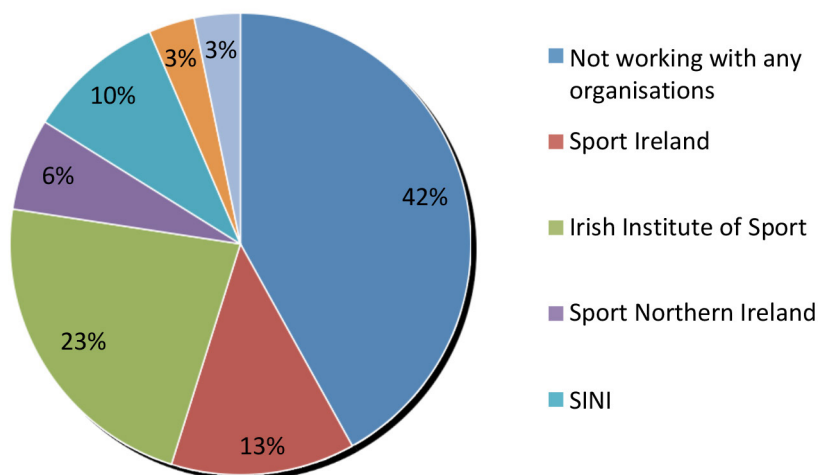
1.4.6 Section 6 High Performance Athletic Support

The SAR online instrument included questions regarding various aspects of provision for high performance programmes and athletes. 31 colleges provided data for this aspect.

Key Findings – High Performance Athletic Support:

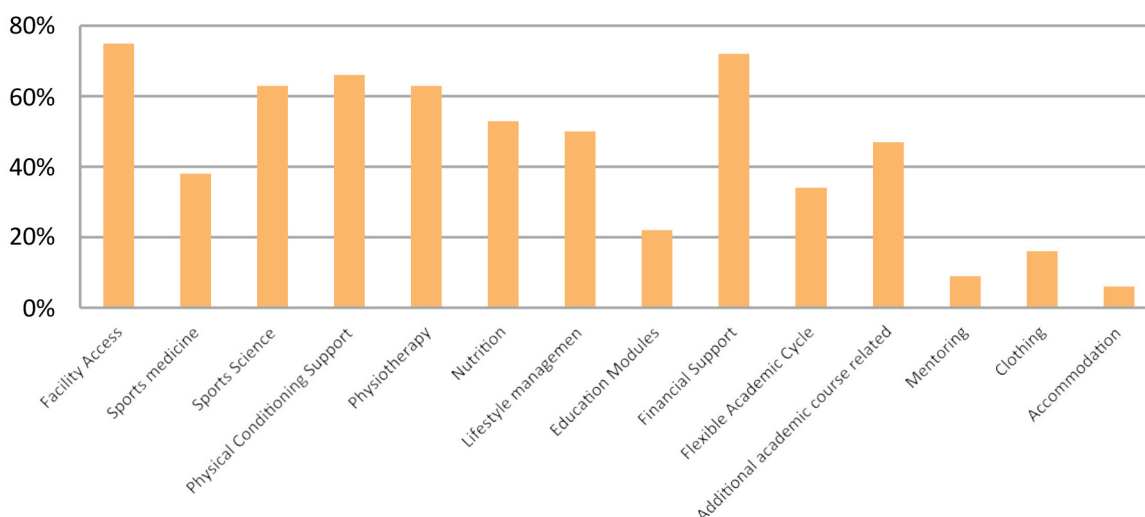
- More than half of colleges (58%, 18/31) have links to NGBs in relation to High Performance (HP) development. Most have relationships with a number of NGBs, with 22 different NGBs reported. 73 NGB links were reported in total with the field sports GAA (22%), Rugby (15%) and Soccer (12%) dominating (*A full list can be found in Appendix 1, Table 1.21*).
- Access and sharing of facilities (28%), funding for HP (19%) and mentorship and guidance (14%) were the most frequently reported relationships between NGBs and colleges. Coaching, competition/event planning, sports science support, specialist courses, membership and academy on ≤ 8% of occasions.
- *Figure 1.3* illustrates that 58% of colleges reported working with a number of named sporting organisations. 61% reported a relationship with 1 organisation only, 31% with 2 and 8% with 4 organisations.
- More than half of colleges (52%, 15/29) reported a link with external sports clubs for students to participate in that sport at national level competition. The majority (73%) of the colleges reporting a link have relationships with a 2 or more external clubs. 21 different sports were reported. 42 external clubs links were reported in total with Soccer 11 – a side (14%), Basketball (10%), Gaelic Football (10%), Badminton (7%) and Rugby (7%) dominating these links (*see Appendix 1, Table 1.22 for full list*). 75% of the external links were available for males and females, 18% male only and 7% female only.
- Access and sharing of facilities (19%), coaching (19%) competition and event planning (19%), funding for HP (15%) and mentorship (8%) are the most frequently reported relationships between colleges and external sports clubs. Sport science support, specialist courses, membership, academy and special entry to third level were each reported on 4% of occasions.

Figure 1.3 Percentage of colleges reporting a link with sporting organisations to support HP



- 83% (25/30) of colleges reported making scholarships/bursaries available to HP athletes. 70% (21/30) reported providing standard scholarships and 60% international standard scholarships.
- The number of scholarships awarded from 2009 to 2013 increased by 11% (*See Appendix 1, Table 1.23*). The number of scholarships secured by males was 60% greater than females. This difference may be explained by the higher level of male participation in sports clubs. 55% of colleges reported investing >10,000 annually (€/£). The five-year total (2009 – 2013) is an impressive 6,679 student athletes, 4,747 males and 1,932 females.
- 22 Colleges indicated specific sports in which scholarships/bursaries were offered. The majority of colleges indicated multiple sports with 30 different sports being reported across all 22 colleges on 184 occasions in total. Gaelic Football was reported by 91% of colleges providing data (20/22), Soccer 11 – a side, 86% Athletics and Basketball, 73% for each, Hurling 68%, Rugby Union 55% and Camogie and Golf 50% of institution. Of the sports that scholarships were available for, 62% were offered to males and females, 17% only to males and 21% only to females.
- Colleges were asked to state the minimum and maximum value of the sports scholarships for 2013. The mean minimum value was €471 ± 397; the mean maximum value for scholarships/bursaries awarded in 2013 was €1,633 ± 1,795. 68% of minimum values were ≤€500, 39% of maximum values were ≥ €1,500. Based on the 2013 data an estimate of total expenditure on scholarships across colleges was calculated (*Appendix 1, Table 1.23*)
- 77% of colleges reported making in – kind provision of some nature, 23% reported no in – kind provision. Figure 1.4 indicates the nature of in – kind contributions made and the percentage of each type reported across all colleges. The majority of colleges reported multiple in kind contributions. Facility access, sport science support, physical conditioning support, physiotherapy, financial support was reported by 60% or more of participating colleges. Examples of financial support (in addition to scholarship) given by respondents were: competition fees, travel costs, sports gear purchase, workshop fees etc.

Figure 1.4 Nature and percentage occurrence of in - kind contributions across colleges.



- Colleges were asked to state the minimum and maximum value of in – kind contributions awarded. The mean minimum value was €204 ± 274; the mean maximum value was €1,657 ± 2,597. 67% of minimum values were ≤ 200, 35% of maximum values were ≥ 1000.

- A substantial number (35%, 10/29) of colleges indicated access for athletes to academic programmes by accommodating them with reduced academic requirements. 6 colleges indicated a decision on access would be made based on “interview plus assessment of sporting achievement”, 3 indicated “references and sporting achievement” 1 indicated “interview” and 1 “sporting achievement only” (Some indicated more than 1 access route).
- 52% (15/31) of colleges reported active recruitment of student athletes, 26% indicated that recruitment took place via school, 24% via sports clubs, 20% via NGB links, 20% via references and sporting achievements and 10% via organised talent identification sessions.
- Reported sources of funding for sports scholarships included (in rank order) institutional support, corporate sponsorship and NGB grants (*See Appendix 1, Fig 1.0*).

1.4.7 Section 7 Institutional Ethos and Prioritisation for Sport and Physical Activity

The SAR online instrument included questions regarding perceived institutional ethos and prioritisation for sport and physical activity (PA) provision. Questions included: 1) Importance of sport and PA as a strategic priority; 2) an examination of factors which influence the degree of prioritisation of sport and PA and 3) an overview of the perceived quality of provision under the headings, “sport”, “physical activity” and “other aspects”. A rating scale of 0 to 10 was provided to respondents (10 = Highest Importance). A rank ≥ 6 indicated a positive perception. Details of related findings are provided in Appendix 1. All individuals within each institution who contributed to completing the SAR online response were asked to complete this aspect (*Appendix 1, Table 1.24*).

Key Findings - Institutional Ethos and Prioritisation:

- 55% of all respondents scored institutional importance placed on sport using a rank ≥ 6 . 42% of all respondents scored institutional importance placed on PA using a rank ≥ 6 (*See Appendix 1, Table 1.25*).
- The cost of providing opportunities and facilities was seen as having the highest impact on the degree of institutional prioritisation for both sport and physical activity. Raising the profile of the institution was seen as the 2nd most important factor for sport and attracting students was third. Regarding PA, health benefit and academic performance were ranked 2nd and 3rd respectively (*See Appendix 1, Table 1.26*).
- A small majority, 58% of colleges gave a positive overall rating to the quality of provision for both sport and physical activity. Other aspects of provision such as indoor facilities, funding and staffing for sport and PA provision were also identified as areas that require improvement (*Appendix 1, Table 1.27*).
- The majority of colleges (approx. 60%) indicated that both sport and PA had become more strategically important in the last 3 years. 40% of colleges indicated no change or a decrease.
- 56% (18) of colleges indicated that institutional priorities for sport are identified and 52% (17) reported institutional priorities for physical activity.

Analysis by Institution Size

No significant difference was found for perceived quality of provision across small, medium and large colleges (for details of calculations see *Appendix 1, Table 1.28*). This indicates that institution size does not impact significantly on perceived quality of provision in sport and PA.

1.5 SAR Conclusions

This conclusion will summarise the main findings from the SAR results and makes some recommendations based on these findings. In addition, the findings from a regression analysis which considered the interaction among the SAR and key outcomes variables from the Survey (e.g. student physical activity levels, non – participation, satisfaction etc.) is included (See Appendix 7, binomial regression analysis, for detailed analysis).

Table 1.7 provides mean values for high, medium and low institution provision categories for the various aspects of provision assessed by the SAR. The different categories of provision were determined by calculating i) an institution rank considering both the total provision score and ii) the total score relative to 100 students. Based on this rank colleges were assigned to either a high, medium or low provision category. High performance was not categorised as this aspect was deemed to be targeted only at individual students and not at the general student population. *Table 1.7* provides a valuable reference for third level colleges to contextualise existing provision.

Figure 1.4 Nature and percentage occurrence of in - kind contributions across colleges.

Provision Aspect	Provision Categories		
	High	Moderate	Low
Number of Organisational Structures	9.1 ± 2.9	7.8 ± 3.3	2.3 ± 1.9
Staffing Score (2014)	80.8 ± 49.2	29.0 ± 22.1	6.3 ± 5.7
Indoor Facilities M2	3,268.7 ± 1837.7	1,774.1 ± 1273.3	534.1 ± 532.0
Outdoor Facilities M2	14,3138.9 ± 74,368.6	5,8601.7 ± 40769.1	12,964.7 ± 14987.4
Capital Investment Indoor facilities (000)	6,985 ± 4,148	4,058 ± 1570	1,274 ± 1420
Capital Investment outdoor facilities (000)	5,174 ± 927	2,105 ± 1255	908 ± 890
Current Investment (000)	3,915 ± 3,325	1,016 ± 614	410 ± 328
Number of Sport Clubs	44.2 ± 14.8	24.5 ± 17.3	10.1 ± 8.4
Sport Club Participation (No of Students)	1,480.0 ± 729.7	576.1 ± 457.2	176.8 ± 145.8
Exercise and Fitness Participation	1,190.9 ± 434.4	235.1 ± 201.9	64.4 ± 45.3
Perceived Quality of Provision for Sport	103.0 ± 8.3	84.3 ± 5.7	42.4 ± 23.5
Perceived Quality of Provision for PA	80.0 ± 7.6	62.2 ± 5.0	26.1 ± 16.2

Staffing

A significant increase in both full-time and part-time staff was found between 2009 and 2014. However it is noted that the majority (>70%) of this increase was accounted for by 4 colleges in both cases. Over 50% of colleges reported an increase in staff which, during a recessionary period indicates a commitment of third level colleges to provision for sport and PA participation. The increase in staff may also be a response to increased student numbers attending third level education during this period.

In 2014, 25% of all staff were full-time, 29% were part-time, and 46% were volunteers (*Appendix 1, Table 1.2*). 34% of colleges did not involve volunteers (90% were either small or medium size colleges) and a further 25% reported very small numbers (1-8 volunteers). 41% of colleges involved in excess of 20 volunteers. A highly significant correlation was found between the number of volunteers and the number of students participating in sports clubs. An increased emphasis on volunteer staff recruitment is recommended in colleges with no or a small volunteer base to increase the capacity to further support provision for sport and PA.

Almost 1,100 full and part staff are employed in the third level education sector to support sport and PA participation suggesting a significant commitment on the part of the sector. As expected large colleges have more staff than small colleges. However, when colleges were ranked based on total staff and staff provision per 100 students no significant difference in provision was found across institution size (*Appendix, Table 1.3*). Staffing levels were not associated with higher student activity levels.

Facility Provision

The third level education sector on the island of Ireland boasts an extensive range of both indoor and outdoor facilities. The distribution of facilities varies with fewer colleges (< 50%) having direct access to swimming pools, climbing walls and squash and handball courts, track and field facilities, tennis courts and synthetic outdoor surfaces (Appendix 1, Tables 1.4 and 1.5). 64% of all facilities reported are owned, 36% are hired (Appendix 1, Table 1.6). This may indicate a wise economic model in the third level sector as 100% ownership may be cost prohibitive.

58% of all facilities were deemed to be accessible for individuals with a disability. For both indoor and outdoor facilities medium and large colleges had significantly greater M^2 than small colleges. When ranked for the total M^2 provision and provision relative to 100 students, no difference was noted for indoor facilities across institution size. However, for outdoor facilities small colleges had a significantly lower rank than medium size colleges (Appendix 1, Table 1.7). The difference between small and large colleges approached significance for outdoor facilities.

Students in colleges with high indoor provision were 29% less likely to be a non – participant than students in low provision colleges. However, students in colleges with moderate and low outdoor facility provision were less likely to be in a non-participant category. This may be explained by a complex interaction between the predominance of team sports which have a ceiling to the number of participants using outdoor facilities, the lack of universal appeal of outdoor facilities (i.e. specific to sport choice) and college size. Colleges should plan any expansion of outdoor facilities based on a known demand.

Investment

A steady increase in capital investment for indoor and outdoor facilities between 1995 and 2014 was noted (*Appendix 1, Tables 1.8 and 1.9*) with significant future investment planned over the next 4 years. Current investment has remained consistent from 2009 - 2014, this is impressive during a recessionary period (*Table 1.2*). A balanced investment between representative sports and physical activity opportunities was noted. No differences in total capital indoor and outdoor investment were noted across institution size; however, the investment by large colleges in indoor facilities tended to be greater. This suggests that the degree of capital investment possible is independent of institution size. When colleges' scores were ranked relative to provision a significant difference between medium and large colleges remained. This finding indicates that institution size may impact significantly on current investment provision and that large colleges are more likely to make greater investments (*Appendix 1, Table 1.16*). Current investment was not associated with high student activity levels; this is also consistent with findings regarding staffing levels. However students in colleges with low current investment were 38% more likely to define themselves as a non – participant than in colleges with high levels of investment.

Student Participation

Large colleges provided significantly more sports clubs than medium and small colleges. However, when total club provision and club provision per 100 students was ranked no difference across institution size was found.

Potential to expand provision for females was noted. Expanded provision for females in 11 a – side Soccer (30% of colleges had male only clubs) and Rugby Union (39% male only) may increase participation in colleges where these activities are not available for females. Provision for individuals with a disability remains a challenge for third level colleges and is a greater challenge for team sports. 42% of all clubs indicated having provision for individuals with disabilities. 18,759 male and 9,948 female participants were reported across the 54 listed sports clubs, 35% of total membership was female (*Appendix 1, Table 1.18*). 56% of clubs reported $\leq 50\%$ female membership relative to males (e.g. Soccer 11 – a – side Male members = 1,888 vs Females = 692 (Female membership is 37% of Males). When clubs were ranked using the total number of participants reported, the following clubs were in the top 10 for both men and women: Gaelic Football, Soccer 11 – a – side, Hurling/Camogie, Rugby Union and Badminton. Additional analysis using the number of participants per club related to the provision of that particular club across all colleges revealed that in addition to those mentioned above, Trampolining, Cycling and Rugby League were also ranked in the top 10 for both genders (*Appendix. 1 Table 1.18*). This analysis provides valuable guidance for third level colleges about which sports that they should initially target to promote participation among males and females. The top 10 clubs ranked for males accounted for 52% of all male participants reported (9,730 out of 18,759) and the top 10 for females accounted for 57% of all female participants reported (5,753 out of 9,948).

No significant difference was noted in student participation in sport clubs across institution size (*Table 1.4*). This indicates that small and medium size colleges achieved an equivalent rank for participation numbers in sports clubs relative to large colleges. The mean participation in sports clubs per 100 students was 15.4 (SD \pm 12.7) students; this is a useful comparative reference for third level colleges to establish their current levels of provision. 60% of colleges reported a per 100 student participation rate greater than 10. Sport Club provision is deserving of continued promotion as it provides a physical activity outlet to a significant proportion of the student population i.e. 15 of every 100.

As indicated earlier the targeting of specific clubs which have been found to be popular may produce dividends and increase participation levels. No difference was found across institution size when ranked for student participation in exercise and fitness sessions. This indicates that in relative terms (i.e. when participation per 100 students is included) that institution size does not impact on numbers attending exercise and fitness sessions. The mean participation per 100 students was 8.8 (SD \pm 11.0) students; when compared with relative participation in sports clubs this is impressive, as sports clubs accommodate a much greater diversity of interests and abilities (i.e. 54 different clubs). 28% of colleges reported a per 100 student participation rate greater than 10, indicating the potential which may exist to expand provision for exercise and fitness opportunities. Provision of exercise and fitness opportunities may merit greater promotion within the third level sector due to the many benefits for the individual and the institution.

High Performance

Impressive networks of external institution links exist to support high performance (HP) athletes. More than 50% of colleges report links with NGBs, national sport organisations (e.g. Sport Northern Ireland, Sport Ireland) and external sports clubs which compete at a national level. Field sports such as Gaelic Football, Soccer and Rugby Union dominate these links. The wide range of external club links, the significant gender equality and the nature of the institution – club link relationship, indicates that the link between colleges and external clubs is an extensive and significant aspect of HP provision in the third level sector. 83% of colleges reported a scholarship programme of some nature. The number of scholarships awarded from 2009 to 2013 increased by 11% (*See Appendix 1, Table 1.23*). The number of scholarships secured by males was 60% greater than females. This difference may be explained by the higher level of male participation in sports clubs. Estimated

investment in 2013 (n = 31 colleges) was €1,139,000 (Males = €804,000; Females = €335,000). 26% of colleges indicated no scholarship investment; 19% invested between €5,000 – €10,500; 16% = €10,501 – €30,000; 19% = €30,001 – 65,000 and 19% in excess of €65,000. Large colleges invested significantly more than small colleges. Colleges seem to rely heavily on own funds to support scholarships, a greater contribution from external sources is recommended (*Appendix 1, Figure 1.0*). Support for high level performers in team sports dominates provision. Additional support for individual sports should be considered.

Institutional Ethos and Prioritisation for Sport and Physical Activity

No difference was found for the index of perceived quality of provision across small, medium and large colleges (*Appendix 1, Table 1.28*). This indicates that institution size does not impact significantly on perceived quality of provision in sport and PA. Evidence for concern regarding provision for non – competitive sport and disability provision for sport was found in 39% and 12% of colleges, respectively. Evidence for concern regarding provision for facilities to support active and safe commuting and disability provision for physical activity was found in 33% and 12% of colleges, respectively. Other aspects of provision such as indoor facilities (50%), funding (47%) and staffing (44%) for sport and PA provision were also identified by colleges as areas which require improvement. Students in colleges with low levels of perceived quality of provision were 33% more likely to be in a non-participant group.

Phase 2: Student Survey

2.1 Survey Introduction

The previously described self - assessment review (SAR) provided the context for the student survey. Colleges were identified as small, medium and large and the details of the provision for sport and physical activity were investigated with key personnel in the colleges. The purpose of the student survey was to ask a representative sample of the student population on the island of Ireland about their participation in sport and physical activity, what motivated them to participate or not participate, and what motivated them to engage with student sport while they are in college. The survey also explored health behaviours that might be associated with their sports and physical activity participation.

2.2 Survey Sampling

Sampling was undertaken using student data for the academic year 2012 – 2013. A detailed overview of the sampling procedure can be found in the Appendix 2. An All – Ireland representative sample (**Figure 2.0**), weighted to achieve a meaningful sample in smaller colleges was achieved by randomly selecting class groups from fields of study in each institution (n=32). These class groups were accessed by the SASSI champion. One institution did not adhere to the sampling protocol and was omitted from the dataset. This protocol resulted in high response rates, but biased the sample in favour of full - time undergraduate students. The sample was weighted to account for variations from national statistics (**See sample representativeness section in Appendix 8: Technical Protocol**).

Figure 2.0 Map of Ireland / Northern Ireland showing spread of participating colleges (Orange line represents the border between Northern Ireland and the Republic of Ireland.)



2.3 Survey Results

All results reported are a valid percent for a particular response, unless otherwise indicated. In addition to describing the findings within this section, a regression analysis was performed to better understand the interaction among the SAR and Survey variables (e.g. what variables best predicted participation in physical activity, non - participant, student satisfaction etc.). The results of the regression analysis are incorporated into the text below and are presented in *Appendix 7*.

2.3.1 Section 1 Response Rate, Characteristics of Irish Students and Sample Representativeness

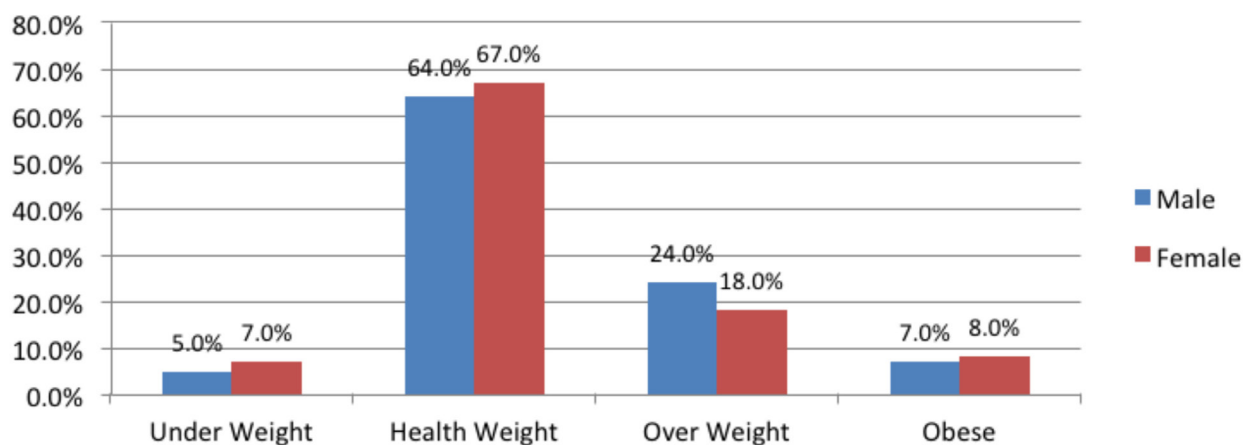
Response Rate

31 colleges participated in the student survey. Of these, 14 achieved 100% of their target quota ($\pm 10\%$), 12 did not reach within 10% of their target quota (10% - 80%), and five exceeded their target. Given that this was a survey on physical activity and sport, participants who did not complete the filter disability question (Q9 – Do you have a long – term illness, health problem or disability that limits your daily activities or work?) or those who did not complete any physical activity questions (Q11 onwards) were deemed non – responders and removed from further analysis. 9,197 survey responses were collected (87% of the target quota). Following removal of the non - responders, analysis was performed on 8,122 responses. These eligible responses were then weighted based on both gender and age, as detailed in *Appendix 8* and all future analyses were conducted on this weighted data set.

Self - reported Height, Weight and Body Mass Index (BMI)

The majority of male and female respondents (male 64%, female 67%) were within the healthy weight for height range (BMI score between 18.5 and 24.9). The Healthy Ireland survey (Department of Health and Ipsos MRBI, 2015) reported that 64% of males aged 15 - 24 years and 64% of women in this age category were normal weight. Overall, 28% of respondents were overweight or obese (BMI score >25). Seven percent of males and 8% of females were categorised as obese (BMI score >30 *Figure 2.1*).

Figure 2.1 BMI ranges for males and females

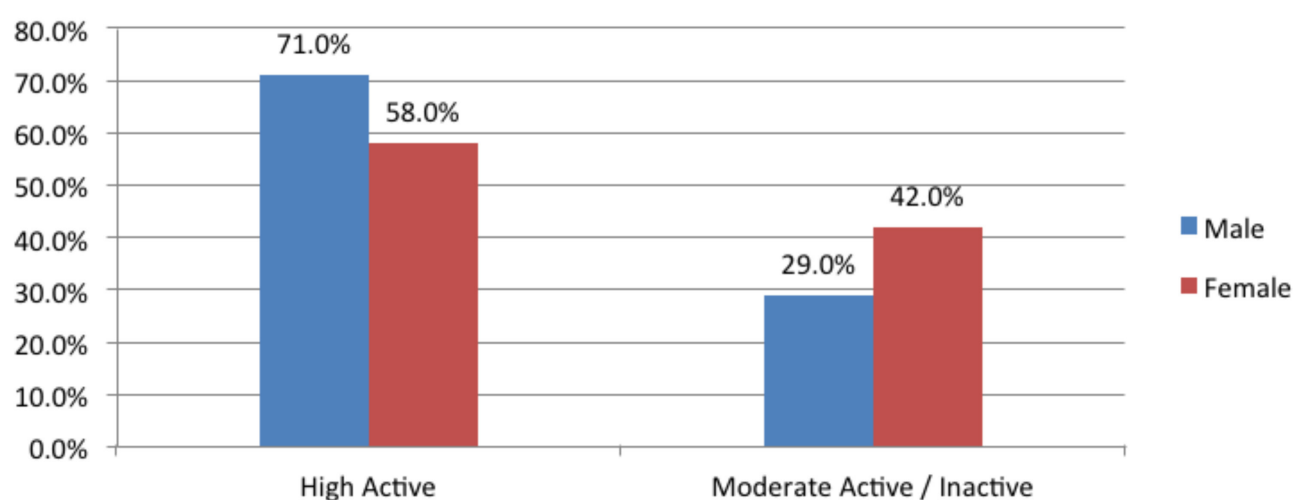


2.3.2 Section 2 Physical Activity Levels of Students and Meeting Physical Activity Guidelines

Adults should undertake at least 150 minutes of moderate – intensity aerobic physical activity per week (WHO, 2014). Self-reported physical activity data was assessed using the previously validated International Physical Activity Questionnaire (IPAQ) tool embedded within items 16 to 21 of the survey and analysed using the IPAQ guidelines for data process and analysis (IPAQ 2005). Details on the instrument and the categorisation into low, medium and high physical activity categories are provided in *Appendix 6.2*. While those in the ‘moderate’ category technically achieve the guidelines of moderate intensity physical activity on most (five) days per week, or 150 minutes per week, it has been widely suggested that the IPAQ instrument overestimates physical activity as it assesses multiple domains. The IPAQ Scoring Protocol (2005) and Bauman et al (2009) therefore propose that only respondents classified as ‘high active’ be deemed ‘sufficiently active’. The research team has adopted this protocol in categorizing the student population here.

In the current sample, 64% (71% male; 58% female) were categorised as “high active” on IPAQ and, according to the agreed criteria, are deemed sufficiently active, in accordance with meeting the minimum physical activity guidelines. 36% (29% male; 42% female) were categorised as “moderately active / inactive” on IPAQ, thus insufficiently active to meet the minimum physical activity guidelines (*Figure 2.2*). The Healthy Ireland survey (Department of Health and Ipsos MRBI, 2015) reported that 56% of men aged 15 – 24 years were classified as ‘high active’, decreasing to 52% of men aged 25 – 34 years. For women, 34% of 15 – 24 year olds and 32% of those aged 25 – 34 years were in this category, indicating that female students, in particular, are considerably more active than their counterparts in the general population.

Figure 2.2 Proportion of students in IPAQ Low, Moderate, High Active³ categories



Walking and Cycling to College

Forty percent of students indicated that they walked (34%) or cycled (6%) to college, with the car (33%) and the bus (20%) also popular choices. In the 2011 Census of Population, 28% of students walked and 4.6% cycled to college making them the group most likely to actively commute. The majority of respondents reported their journey times to college takes up to one hour (52% up to 30 minutes / 34% 31 – 60 minutes). Respondents who do not use active transport (walking or cycling) were asked to provide their top reason for not doing so. The most common responses to this question were ‘too far (distance)’ (74%), followed by ‘bad weather’ (5%) and ‘not convenient’ (4%). Additionally, 91% of those who reported ‘too far’ as a reason for not walking or cycling are either living in the family home or renting privately during term time.

Whether active transport contributes to the overall physical activity level of students is an important question for policymakers. A Chi square analysis indicates higher engagement in active transport compared to motorised transport in those students who are sufficiently active (i.e. in the high IPAQ category compared to those in the low or moderate category), and this difference is statistically significant. Motorised transport remains the most common mode of transport for both groups, however (57% of high active students and 79% of inactive students use motorised transport), so there is still considerable scope to promote active transport as a viable mode of physical activity.

³ Those classified as “high active” are deemed sufficiently active to benefit their health

What are the characteristics of physically active students?

To understand which variables best predict participation at the “high active” IPAQ category, i.e. sufficient physical activity for health, binomial logistic regression analyses were performed. These examined the association between institution and individual variables and physical activity. The individual variables included gender, age, year of study, determinants of participation score, alcohol consumption, smoking behaviour, perceived health in last 12 months and BMI. The only significant predictors of sufficient physical activity to meet national physical activity guidelines were gender, age, determinant score and perceived health (*see Appendix 7, Section A for more details*). The odds of being in the IPAQ ‘high active’ group were:

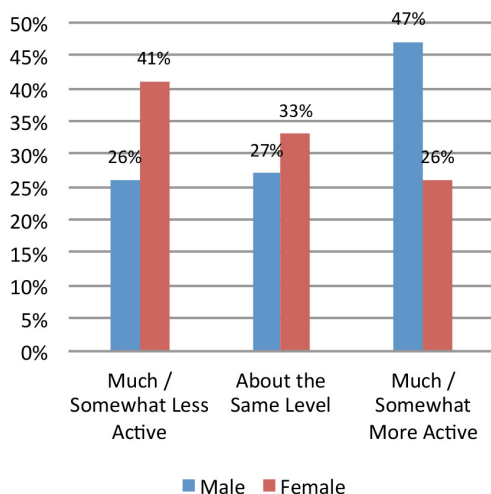
- 54% higher for males than females;
- 3% lower with each additional year of age;
- 102% higher with each unit increase in determinant score; and
- 25% lower for those who perceived their health as good as opposed to very good, 29% lower for those who perceived their health as average as opposed to very good, and 44% lower for those who perceived their health as poor/very poor as opposed to very good.

Pengpid and colleagues (2015) published a paper on physical inactivity and associated factors among university students in 23 low, middle, and high income countries. In this international study, similar to the SASSI findings, males had significantly higher physical activity levels than females in 17 countries; and increasing age was also associated with increased odds of being physically inactive.

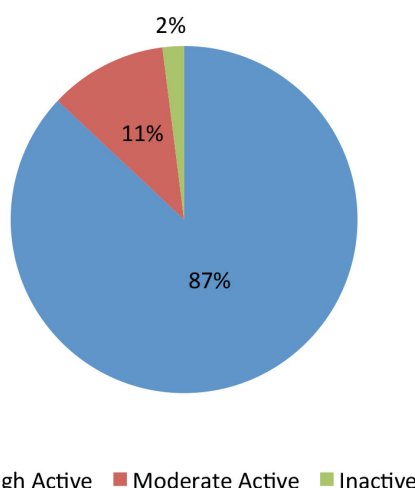
Student perceptions of their physical activity levels

32% of students felt that they did not take enough physical activity to keep healthy. Significantly fewer males (24%) than females (39%) felt this way. Over one quarter of students classified as inactive felt that they were sufficiently active for their health. Once again, males were more likely than females (22%) to feel this way. Males were also more likely to report that they were doing somewhat or much more PA than others (males 47%, females 26%). Students, who reported that they were ‘somewhat or much more active than others’, were more likely to be highly active individuals (*Figure 2.3*). This sense of “over-optimism” particularly on the part of young male students may be something that needs to be countered by the sport and PA system within colleges with appropriate communications and awareness campaigns.

Figure 2.3
View of physical activity compared to others



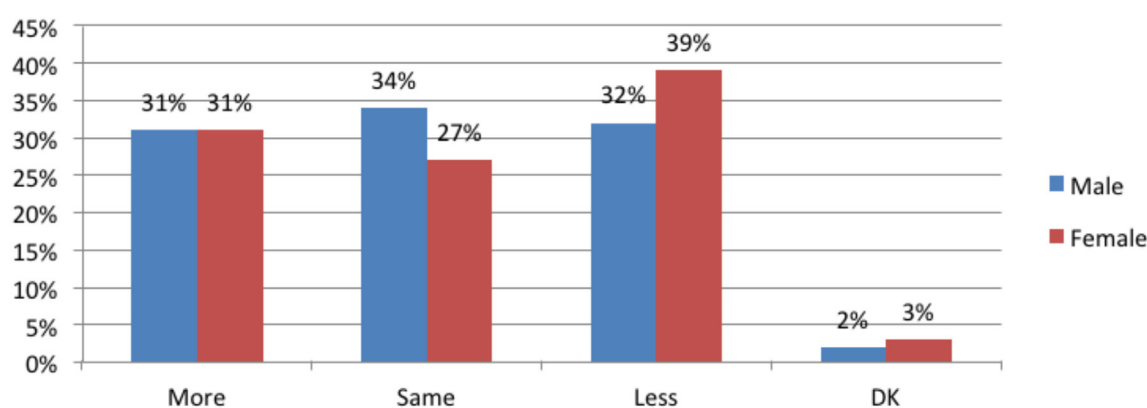
PA Levels among those who perceive themselves more active than others



Students were asked to rate their current PA compared to their PA one year previously, and were also asked to indicate whether they would like to do more PA in the next 12 months. Very small differences were noted between males and females regarding PA participation compared to last year (*Figure 2.4*). However two out of every three students had not increased their physical activity since the same time last year with no difference between males and females in this regard.

The odds of students being in the high active group were 3% lower with each additional year of age (*see Appendix 7 Section A for more details*). 81% of students indicated that they would like to do more PA in the next 12 months, with 86% of females and 77% of males indicating a desire to be more active.

Figure 2.4 View of personal Physical Activity levels compared to last year



Knowledge of physical activity guidelines

Students were asked an open ended question to ascertain their knowledge of the PA guidelines, i.e. "According to current recommendations, what is the minimum amount of moderate to vigorous intensity physical activity that adults should perform to gain health benefits?" Thirty two percent accurately recorded 30 mins PA per day, and 2% correctly identified 150 mins per week of moderate to vigorous PA as the current volume and intensity of PA recommended to gain health benefits. Females (39%) were significantly more knowledgeable than males (26%).

However, among those answering in minutes per day, quite a few (37%) reported 60 minutes per day as the optimum volume of PA (*Appendix 2 Figure 2.1*). This is the PA recommendation for 5 – 18 year olds, and many of the respondents in this study are 18 or 19 years old (27%). Therefore, it may be the case that they know some guidelines, albeit the guidelines for children and not for adults. Whilst knowledge of PA guidelines may be poor, accurate knowledge of the guidelines does not appear to be associated with actually meeting the guidelines in students - of those unable to these questions correctly, 67% were classified as high active compared to 60% for those who knew the guidelines. For this group of students' awareness of the guidelines does not appear to be act as a stimulus to being more active.

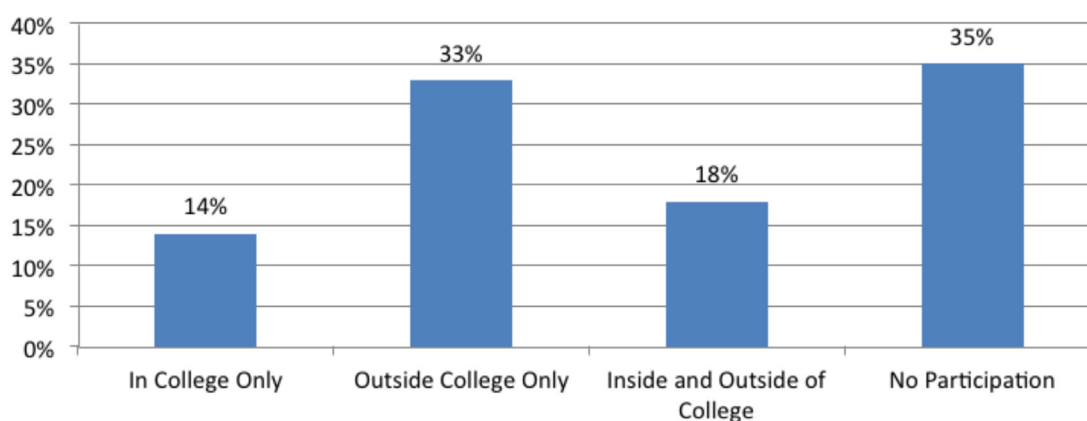
2.3.3 Section 3 Sports Participation In and Outside College, the Effect of College on Transitions into and out of sport, and Determinants of Sport and Physical Activity

Overall, 65% of respondents had participated in some form of physical activity in the last 4 weeks; *Figure 2.5* displays the breakdown across four groups:

1. those not participating;
2. those participating only in college;
3. those participating only outside college; and
4. those participating both in and out of college.

The lowest levels of participation were within college only where 14% played sport or physical activity. 18% participated inside and outside of college and 33% reported participating only through outside organisations and facilities. The remaining 35% did not participate in any sports or physical activity in the last 4 weeks.

Figure 2.5: Sport and Physical Activity by Location



The top 3 reasons for participating only outside college were (i) "Not convenient" (58%), "Already involved in an outside club" (38%) and (iii) "Not easy to get involved" (23%). There were no significant differences between the opinions of males and females for the majority of reasons and, for both genders, the three reasons listed were the top 3. However, males were more likely to already be involved in an outside club while females were more likely to find it not convenient. See *Appendix 2 Table 2.2* for the full list of reasons for not participating through college.

Table 2.1 overleaf shows the breakdown for each participating group (in college, outside college, and both in and out of college) across a number of sports played, frequency of participation, session duration, intensity of sessions, standard achieved, etc.

Table 2.1 Breakdown for those participating in college, outside college and both in and outside of college across key variables

		Participation location		
		Only IN	Only OUT	BOTH
Number of sports played in the last 4 weeks	1	47%	36%	26%
	2	32%	35%	35%
	>3	21%	29%	39%
Frequency per week	1 - 3 sessions p/w	84%	73%	71%
	4 - 6 session p/w	13%	22%	24%
	7 - 9 sessions p/w	1%	3%	3%
	10+ sessions p/w	2%	2%	2%
Duration of sessions	Up to 1 hour	46%	50%	30%
	1 - 2 hours	44%	42%	58%
	2 - 3 hours	10%	8%	12%
Intensity of sessions	Light Intensity	11%	6%	4%
	Moderate Intensity	53%	51%	45%
	Vigorous Intensity	36%	43%	51%
Standard achieved	Basic	70%	62%	35%
	Competitive	28%	33%	55%
	High Level	2%	5%	10%
Participation on your own / with friends / both	Participate predominantly on your own	33%	35%	20%
	Participate predominantly with friends	40%	37%	37%
	Both on your own and with friends	27%	27%	43%

Note on Standard Achieved: Basic level refers to recreational activities and exercise for health and fitness; Competitive level refers to club level participation as an individual and / or team; and High level refers to competing at national, regional or international levels.

Those participating only within their college (14%) are most commonly doing 1 – 3 sessions per week, for up to two hours at a moderate intensity. They are most likely to be members of a college club, participate with friends rather than on their own, in 1 or 2 sports, and at a predominantly basic standard.

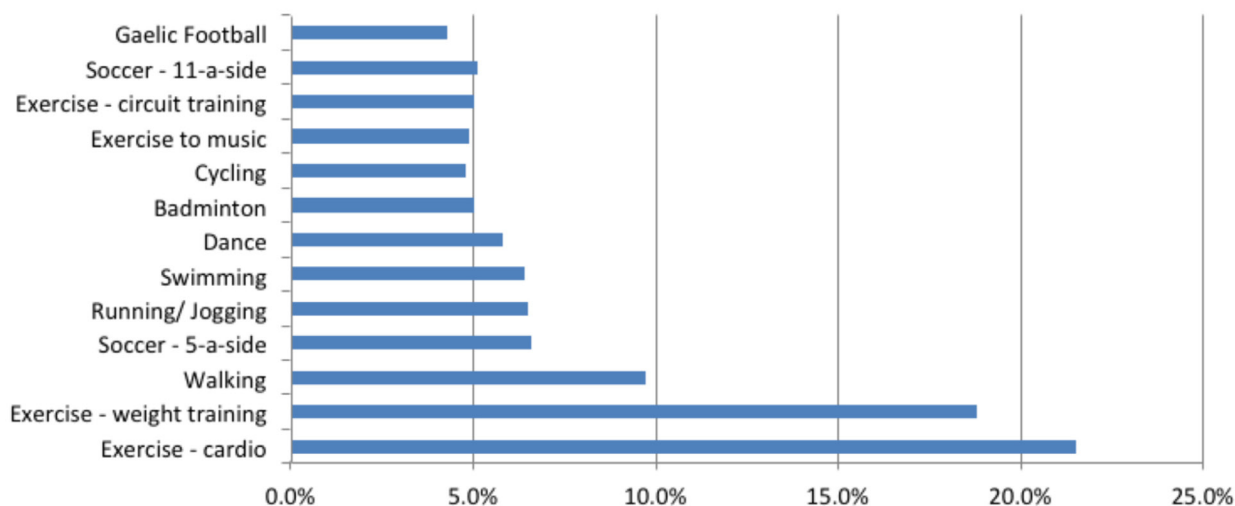
For those participating only outside of college (33%), the majority participated between 1 – 3 times per week, for up to two hours, at a predominantly moderate intensity. Approximately two thirds of respondents in this group have played more than one sport in the last 4 weeks and over half are members of a club outside of college.

Those participating both within and outside of college (18%) are predominantly participating between 1 and 3 times per week, for up to 2 hours per session, at a moderate to vigorous intensity. They have participated in more than one sport / PA in the last 4 weeks, and are most likely to be members of clubs both within and outside of college.

Most Common Sports/Activities

Exercising for weight training or a cardio workout were the most popular activities for respondents participating across all categories i.e. either inside college only, inside and outside college or outside college only. *Figure 2.6* shows the top thirteen sports participated in by respondents who participate only within college. Ten of the thirteen are individual activities reflecting the dominance of such sports for young adults. For a full list of sports / activities participated in across all 3 categories see *Appendix 2, Figures 2.2 to 2.4*.

Figure 2.6 12 Most popular sports / activities participated only in college

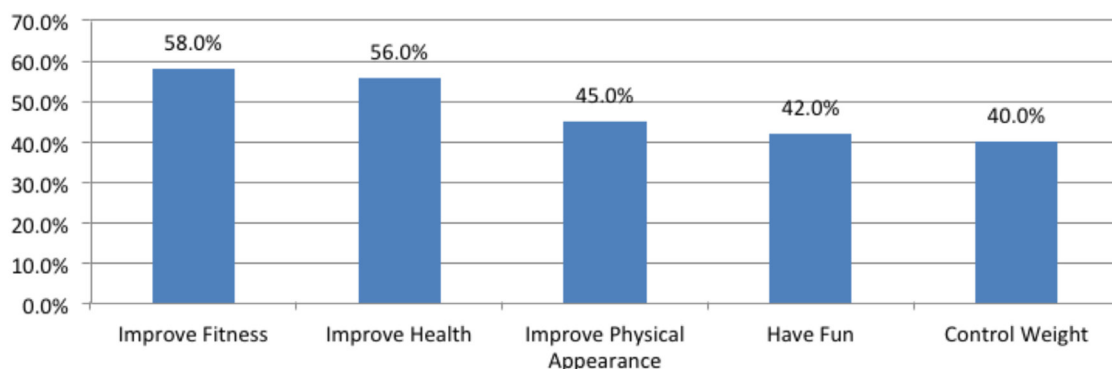


Respondents who participate only through their college tended to reported non-performance factors as their main motivations to participate (*Figure 2.7*). Overall, there were some differences between males and females in their reasons for participation, particularly in relation to having fun, improving fitness and controlling weight. Males were more likely to participate to have fun while females participated more to improve fitness and control weight.

Differences were noted when looking at level of participation (Basic, Competitive or High Level) among the reasons for participation. Elite athletes placed much more emphasis on improving performance and being competitive, while improving health, fitness, controlling weight and physical appearance were important reasons for those performing competitively and at a basic level. See *Appendix 2, Figures 2.5 and 2.6* for the top 5 reason respondents participate both in and out of college and only outside of college.

When asked whether participation is 'with friends, on your own or both', the majority of respondents reported participation with friends (38%), followed by participation both on your own and with friends (32%), with participation on your own slightly behind (30%).

Figure 2.7 Top 5 Reasons for Participating in Sports or Physical Activity in College Only



Factors influencing participation in sport and physical activity within or outside of college

Analysis was undertaken to understand the factors – individual and institutional - which best explain the likelihood of students opting to meet their physical activity and sport needs through participation only within their institution in comparison to those who chose participate only outside of their institution. Results showed that individual factors influencing participation only within colleges were age and determinants. The odds of students participating only within their institution are 7% lower with each additional year of age and 19% lower with each unit increase in determinant score (*Appendix 7 Section B for more detail*).

Results showed that the institutional factors that were influencing participation only within the institution were numerous and consisted of number of staff, indoor facilities (M²), outdoor facilities (M²), perceived quality of provision for sport, perceived quality of provision for physical activity, sports clubs participation and number of exercise and fitness sessions offered (*Appendix 7, section B for more detail*). Essentially, the odds of students opting to participate only within their institution are:

- 58% lower in colleges with moderate staff numbers compared to those with high staff numbers.
- 43% lower in colleges with low staff numbers compared to colleges with high staff numbers.
- 18% lower in colleges with moderate indoor facilities (M²) in comparison to colleges with high indoor facilities.
- 49% lower in colleges with low indoor facilities (M²) compared to those with high indoor facilities.
- 41% higher for colleges with moderate outdoor facilities (M²) in comparison to colleges with high outdoor facilities.
- 17% lower for colleges where quality of sport provision is moderate rather than high.
- 57% lower for colleges where quality of provision for sport is low rather than high.
- 44% lower in colleges where perceived quality of provision for PA is moderate not high.
- 83% lower for colleges where perceived quality of provision for PA is low rather than high.
- 48% lower for colleges where sports club participation is low rather than high.
- 36% lower for colleges where exercise / fitness sessions are moderate rather than high.
- 61% lower for colleges where exercise / fitness sessions are low rather than high.

Factors influencing participation in sport and physical activity versus non - participation in general

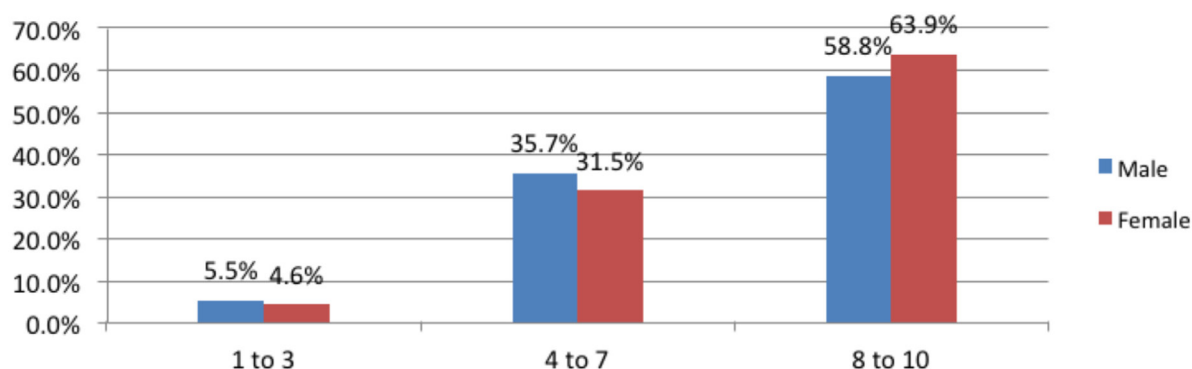
- A second analysis was undertaken to understand the factors - individual and institutional - which best explain student participation in sport and physical activity in general, i.e. within or outside college or both (participants), in comparison to those who do not participate in sport and physical activity (non - participants). The results showed that the odds of students being in the non - participant group are 4% higher with each additional year of age, are 30% lower for males than females and 68% lower with each unit increase in determinant score (*see Appendix 7, Section C for more detail*). From an institutional perspective, the odds of students being in the non - participant group are 29% higher for students attending colleges with low indoor facilities (M²) in comparison to those with high indoor facilities (M²); and 34% higher for colleges where the perceived quality of provision for physical activity was low in comparison to high; yet 29% lower for colleges with moderate outdoor facility space (M²) in comparison to those with high outdoor facility space (M²) (*see Appendix 7, Section C for detail*).

Satisfaction with Sports and Exercise Provision

Of participants who only participate within college, high levels of satisfaction were recorded with the majority scoring 8 – 10 in all aspects of provision (*see Appendix 2, Table 2.3*). When looking at the male / female split for overall satisfaction, males tend to be less satisfied than females (*Figure 2.8*). This difference remained when looking at individual aspects of provision.

The odds of being satisfied with provision for sport and physical activity at your institution was 51% lower for males than females. The odds of students in colleges with moderate indoor facility provision being satisfied are 62% lower than in colleges with high indoor facility provision. Further the odds of students in colleges with low perceived quality in sport and physical activity being satisfied are 73% and 72% lower respectively than in colleges with highly perceived quality.

Figure 2.8: Overall Satisfaction With Sport and Physical Activity Provision in College by Gender



The effect of college on the transition into and out of sport and physical activity

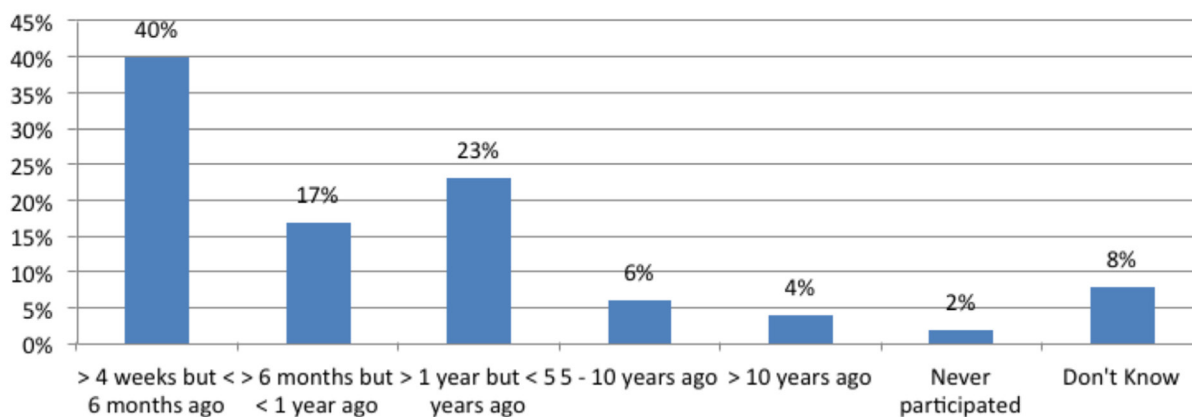
In addition to overall satisfaction, respondents were asked to rate their satisfaction in a number of other aspects of provision. Two of these aspects were the “ease of participation in college sport and physical activity” and “opportunities to socialise and feel part of a group or team”. Regarding ease of participation those who participate both in and out of college and those who participate only in college appear to be extremely satisfied with this aspect of provision, with approximately 50% of both groups scoring an 8 or higher in each case.

Respondents were asked about new sport(s) initiated since starting college. Just less than 45% of those participating both within and outside college had taken up a new sport or physical activity since starting college; 53% of those participating only in college had taken up a new activity while 23% of those participating only outside college had taken up a new sport or physical activity. In all categories, males were more likely to take up 3 or more sports. Of those who participated in college male participants were more inclined to take up Exercise for weights, Soccer, Boxing or Swimming while female participants tended towards Exercise for Cardio, Exercise for weights, Exercise to music or Dance as new activities. For a more complete list of new sports / activities taken up by students please refer to *Appendix 2, Figures 2.7 and 2.8*.

As previously reported, 35% of respondents did not participate in any sport or physical activity (*see Appendix 2, Table 2.4 for the full list of reasons in rank order*). The most popular reasons for non – participation were similar for males and females. The top 3 reasons were lack of time, tiredness and a preference to do other things. Interestingly enough males were more likely than females to indicate a lack of interest and a preference to do other things contrary to the popular view that it is females who have less interest in sport and physical activity.

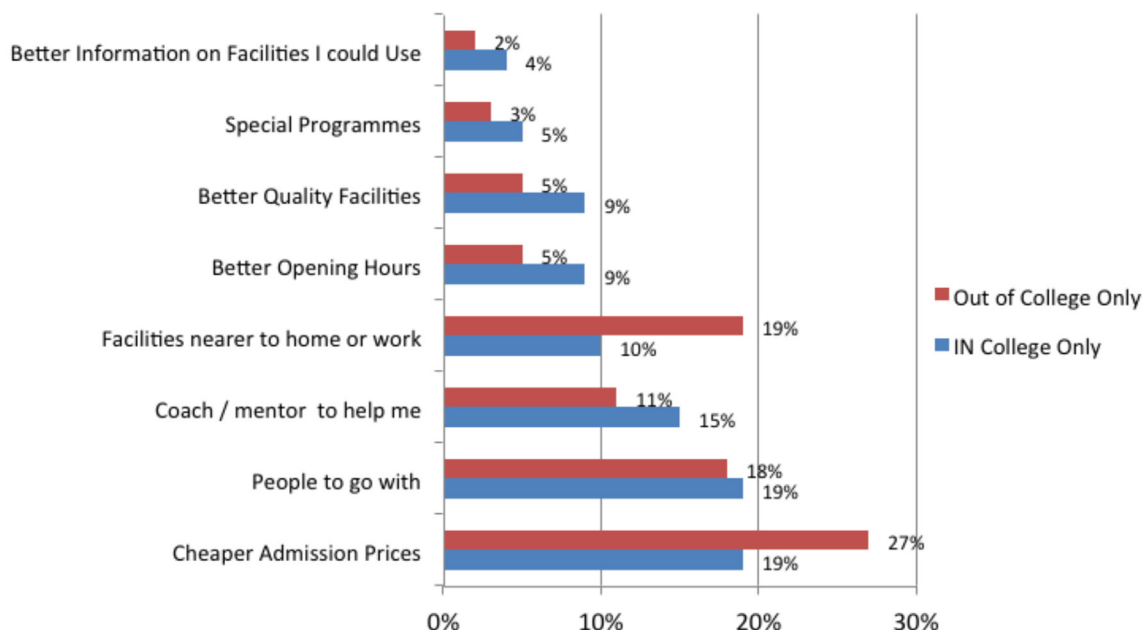
Within this group it was not only important to establish the reasons for not participating but also the time since the last participation. Importantly, 40% of those currently not participating (within the last 4 weeks) had in fact participated within the last 6 months and only 2% have never participated in any sports or physical activity (*Figure 2.9*). However, 87% of current for non – participators reported that they could indeed be encouraged to participate again, with females (90%) more likely to be encouraged than males (84%).

Figure 2.9 Time since last participating for current non-participants



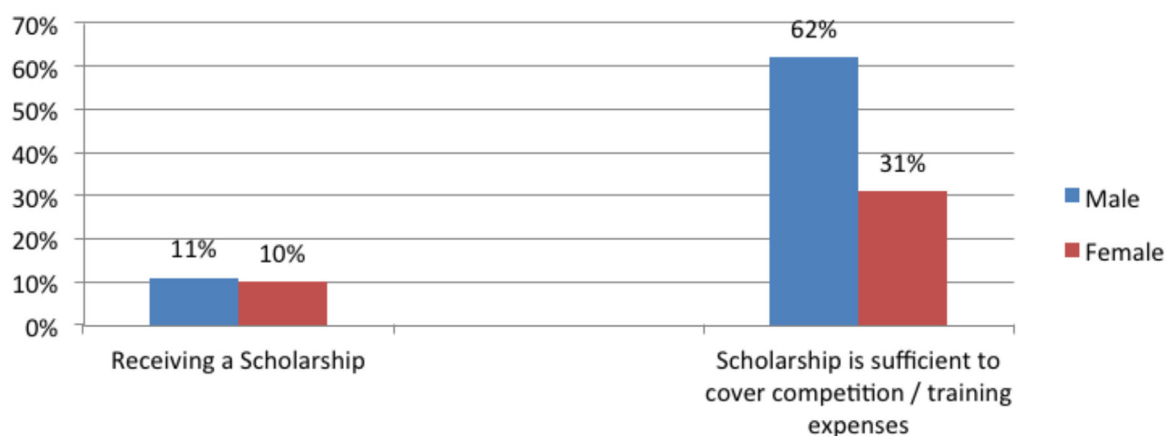
“Cheaper admission prices” and “people to go with” were highlighted as the top ways of encouraging participation either within or outside of the college environment. Additionally, “coaching” has the potential to encourage participation within college whereas “facility proximity to home / work” has the potential to encourage participation outside of college (*Figure 2.10*).

Figure 2.10 Methods to encourage participation among current non-participants



6% of current participants in sports or physical activity indicated that they were competing at an elite level (national, regional or international level), two thirds of which were male. Overall, only 11% of high level athletes indicated that they are in receipt of a scholarship / bursary from their institution; however, the sufficiency of the scholarship/bursary is significantly different between males and females (*Figure 2.11*).

Figure 2.11 Elite level athletes in receipt of a scholarship / bursary and whether it is sufficient to cover training / competition expenses



A full list of sports participated in by high level athletes can be seen in *Appendix 2 Figures 2.9 and 2.10*. Males had greater elite level participation rates in Gaelic Football, Soccer, Rugby Union and Hurling and females had higher rates in Dance, Gaelic Football, Athletics and Swimming. 10% of elite level athletes are competing as such in more than one sport (8% in 2 sports and 3% in 3 sports). In relation to satisfaction with provision for elite level athletes there was a wide ranging opinion. Based on a scale of 1 – 10 (with 10 being the best) 22% scored satisfaction at 1- 3 , 38% scored 4 - 7, 29% scored 8 - 10, for a further 11% this was not applicable.

Determinants of Participation in Sport and Physical Activity

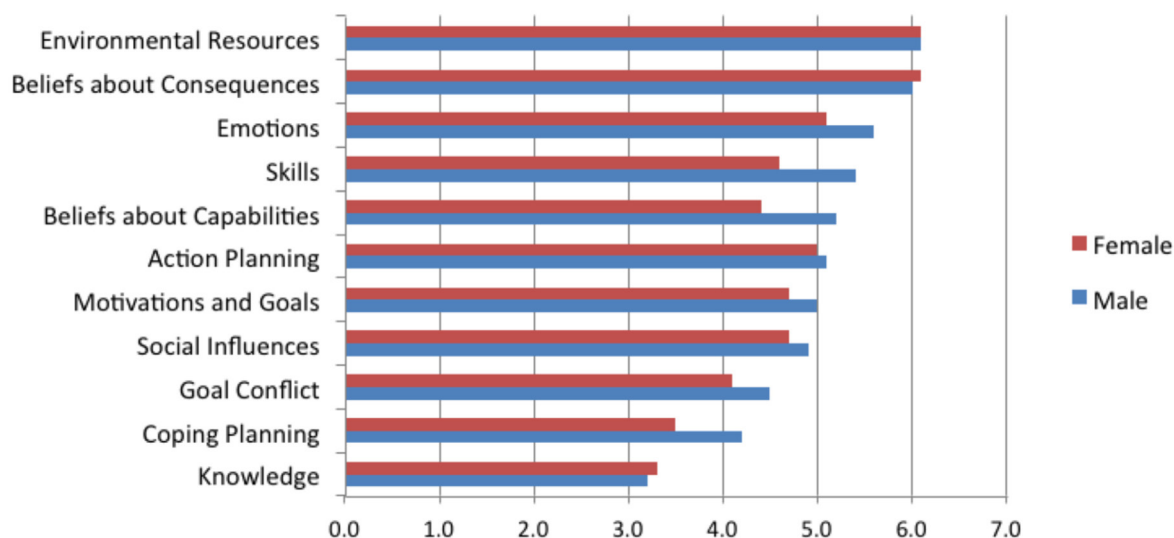
The circumstances in which people are born, grow, live, work, study and age help to create economic, social, cultural and physical environments that foster healthy living and active lifestyles. Determinants scores were used to ascertain the numbers of respondents affected by external factors that may potentially contribute to reduced sport or physical activity participation. Taylor and colleagues (2013) developed a self-reported questionnaire to assess the key determinants of physical activity amongst third level students. SASSI adapted this instrument by selecting single item indicators of the key determinants identified by Taylor and colleagues (2013). The student survey determinants and their meanings are listed in **Table 2.2**. Respondents indicated their level of agreement with each determinant on a 7 point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree.

Table 2.2 Determinants assessed and their explanation

	Determinant	Explanation: Respondents who score highly demonstrate:
1	Knowledge	Have read of information about the current nationally recommended PA guidelines.
2	Environmental Resources	Awareness of where to do physical activity in their locality
3	Motivation and goals	Feel motivated to do physical activity
4	Beliefs about capabilities	Feel confident when they are doing PA
5	Skills	Feel they have the skills to keep going to PA sessions
6	Emotions	They do not have many negative emotions which prevent them for doing PA
7	Social influences	They have people to do PA with.
8	Beliefs about consequences	They think physical activity will change their life for the better
9	Action planning	They plan how their physical activity will happen (e.g. how to get there, kit needed etc.)
10	Coping planning	They always work around obstacles to physical activity, nothing really stops them
11	Goal conflict	They would be prepared to give up things they usually do in their leisure time for physical activity

Figure 2.12 shows the mean determinants score for both males and females across the eleven determinants of physical activity. Environmental resources and beliefs about consequences scored the highest for both males and females, while knowledge and coping planning scored the lowest.

Figure 2.12 Mean determinants scores for males and females



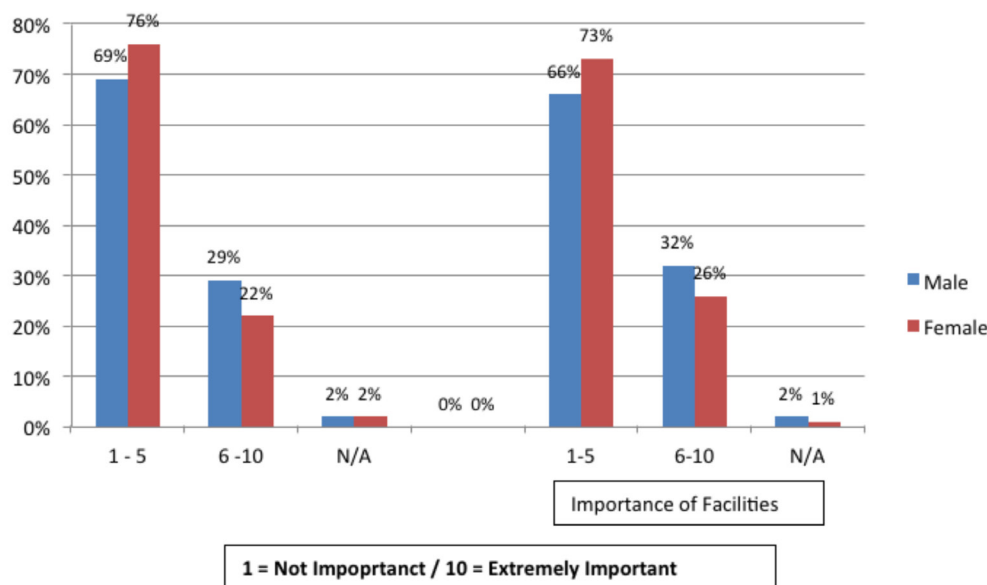
Three key determinants were significantly associated with an increased likelihood of being in the high active group. These were knowledge, motivation and goals and coping planning. The odds of students being in the high active group were 52% higher for those who knew the physical activity guidelines than those who did not know the guidelines and 52% higher for those who had previously read information on the national physical activity guidelines than those who were unaware of the guidelines; the odds were 303% higher for students who were motivated to do physical activity in comparison to those who were unmotivated; and 707% higher for students who felt they had coping skills to help them navigate obstacles that might otherwise have prevented them participating in physical activity than those who felt they had no coping skills. Social influence was the main determinant of participation within colleges. The odds of students participating in sport and physical activity in colleges was 57% lower if they felt that they 'did not have anyone to do physical activity with', in comparison to those who strongly disagreed with this statement (*see Appendix 7, Determinants, sub-item analysis*).

This is useful information for SSI staff responsible for developing physical activity programmes. If students are encouraged to read about PA, in particular the national physical activity guidelines, they can be helped to set goals and gain coping skills that help them to manage their own physical activity and work around any obstacles preventing activity, and if they are encouraged to avoid going it alone, but rather to develop a social network to support their activity choices, then there is significant potential to increase physical activity levels within universities and colleges.

Sport / Physical activity influence on college choice

Participants were asked to rate, on a scale of 1 – 10, the importance of sport and physical activity opportunities and facilities when selecting their college (with 1 being not important and 10 being extremely important). The majority of respondents rated sport and physical activity opportunities and facilities as not particularly important when choosing a college, with 71% scoring their importance between 1- 5. Additionally, 71.5% of elite athletes rated opportunities between 6 – 10, while 60% of athletes rated facilities between 6 - 10. This shows that sporting opportunities and facilities are more important for elite athletes seeking a college/university (*Figure 2.13*).

Figure 2.13 Importance of sport and physical activity in choosing college by gender



2.3.4 Section 4. Coaching, Volunteering and other Social Aspects of Sport in College

Coaching in college sport

Respondents were asked whether or not they had received any formal coaching or instruction to improve their performance in any sport or recreational activities. 56% of those who responded (58% of males and 53% of females) had received some form of formal coaching or instruction. The location where this coaching was received was also assessed. In college fitness facilities accounted for 21%, with outside sports clubs and health facilities combined accounting for the remainder of locations in which coaching was received.

Volunteering and other social aspects of sport and physical activity

Respondents were asked about their sports volunteering in the past 4 weeks i.e. sports voluntary work they had done without receiving any payment except to cover expenses. This volunteering included; organising or helping to run a sports event (Coaching, Refereeing, Umpiring); Administrative Roles; Campaigning/Raising Money; Providing Transport or Driving; Taking Part in a Sponsored Event; Coaching; Tuition and Mentoring.

Just over 15% of respondents undertook some voluntary work in the last 4 weeks. Males (18%) were more likely to volunteer than females (13%). Just over one quarter of volunteers reported doing between 1-5 hours per week, a further 21% doing 6 – 10 hours per week, with the remainder working more than 10 voluntary hours per week. The most prevalent area for voluntary work was Coaching (20%), followed by Fundraising (16%), Refereeing (16%) and Administration (16%). Across all aspects of voluntary work respondents were equally likely to participate in voluntary work outside of their college (Inside 50%, Outside 50%).

Several factors were found to influence the level of student volunteering to support sporting activities. The odds of students having volunteered in the four weeks prior to completing the survey were 29% higher for males than females; were 40% higher for students in medium sized colleges and 50% higher for students in small colleges, than large colleges; and 83% higher for each unit increase in determinant score (see Appendix 7 Table E for more details).

2.3.5 Section 5. Other health related characteristics of students

The SASSI survey investigated several health related factors that have been shown in some populations to be associated with physical activity. An overview of the health related characteristics of Irish students are described below. Binary regression analyses were conducted to understand participation in, or avoidance of, sport or physical activity and this relationship with other health behaviours.

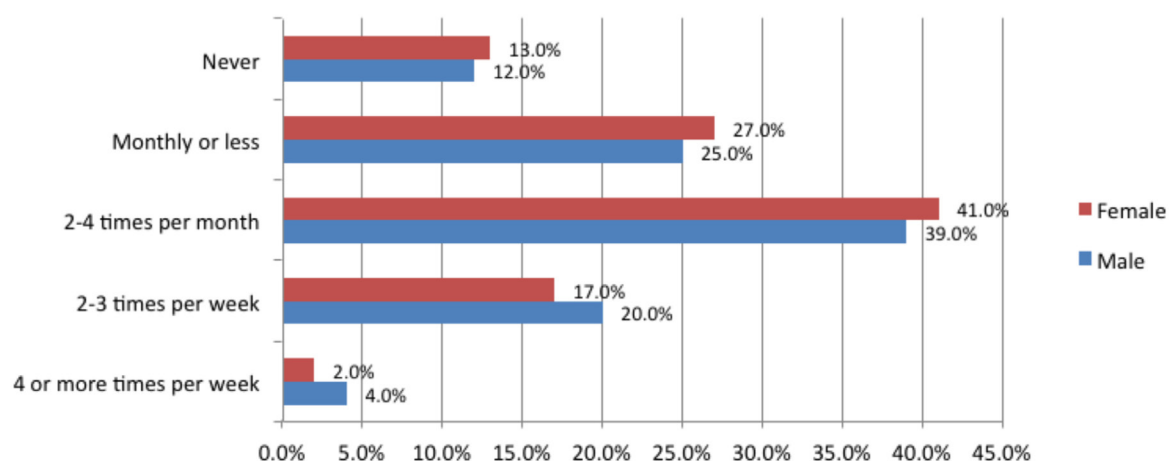
Long - term illness, health problem or disability that limited their daily activity or work

Respondents were asked if their daily activities or work were limited by a long term illness, health problem or disability. Only 6% of respondents reported having a long-term illness, health problem or disability that limited their daily activity or work, with no significant difference between males and females. Within this small group, 38% of males and 50% of females reported difficulties with participation in sports or PA due to their illness or disability.

Alcohol consumption, Smoking, Non - prescribed Drugs

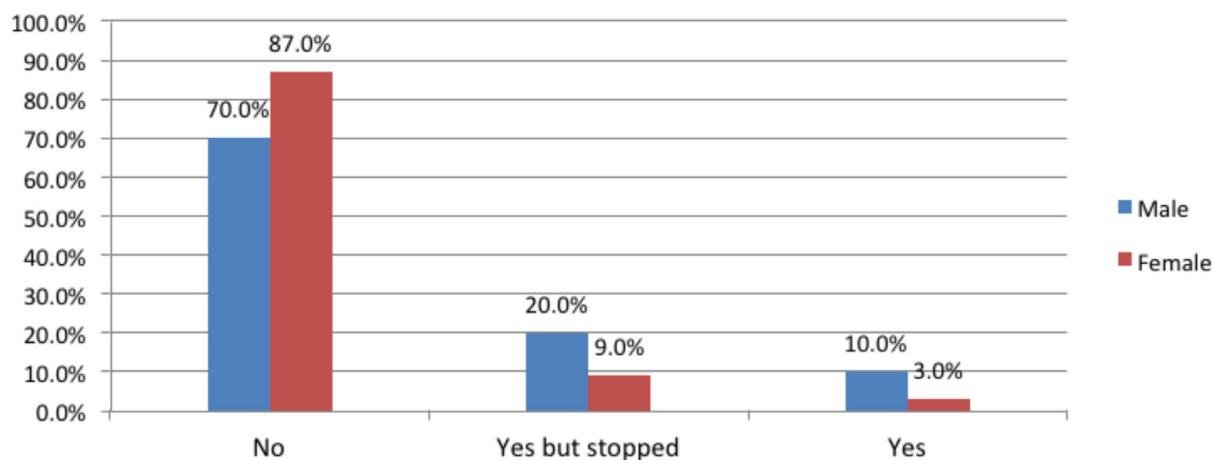
Only 13% of the overall sample reported being non-drinkers. Only minor differences were found in alcohol consumption patterns between males and females (*Figure 2.14*).

Figure 2.14 Frequency of Alcohol Consumption



Just under 80% of the total sample are non-smokers (79% do not smoke, 11% smoke some days, 10% smoke everyday), with very little difference between males and females in all categories. Just fewer than 80% of respondents have never used non – prescribed drugs. In the ‘yes’ categories drug use is more prevalent among the male respondents (Male: Yes but stopped 20%, Yes and still do 10%; Female: Yes but stopped 9%, Yes and still do 3%; $p < .05$; Figure 2.15).

Figure 2.15 Drug use – Use of Non-Prescribed Drugs by Gender



Sedentary Behaviours

Sedentary behaviour (i.e. sitting and lying) is quite common among the respondents in this cohort. On weekdays over 72% of respondents spent more than 7 hours (420 mins) per day sitting. Weekends displayed slightly less sedentary behaviour with 56% spending over 7 hours sitting per day. Both during the week and at weekends there was little difference between males and females.

Diet

Respondents report eating relatively healthily, with just over 60% eating convenience food less than once per week or never. Additionally, 61% of respondents report consuming food from fresh ingredients at least 4 times per week. There is little difference between males and females in terms of their convenience food consumption or in terms of their likelihood to cook from fresh ingredients.

Body Image

Just under 50% of participants reported being content with their current body shape; however, almost 39% reported that their body is “a bit / much too fat”, with females reporting a greater incidence of dissatisfaction in this category (male 30%, female 48%).

Health and Happiness

On a 5 point Likert scale (very good to very poor) respondents were asked to consider their health in the last year. The majority of respondents (56%) reported their health as good or very good. In the 2008 SLAN survey (Morgan et al, 2008), 88% of adults rated their health as good or very good while the Healthy Ireland survey (2015) found that 92% of 15 – 24 year olds reported their health as good or very good. The ratings in this current study are significantly lower than these and therefore worthy of further investigation.

The majority of the group (64%) also reported a high level of happiness giving a score of 7 and above (1 = Extremely unhappy, 10 = Extremely happy). According to Eurostat data, this is similar to the EU and Irish average (average rating of 7.1 and 7.8, respectively). In both instances, for health and happiness there were only minor differences between males (score 7 – 10, 65%) and females (score 7 – 10, 63%).

Mental Health

The Mental Health Index (MH – 5) was adopted from the widely used RAND SF - 36 questionnaire as a measure of mental health. The index, comprises 5 items and asks respondents whether they felt 'particularly nervous' or 'downhearted and miserable' in the previous 4 weeks. The range of scores is between 0 and 100, with higher scores being indicative of higher levels of positive mental health and well-being. Findings show that the overall mean score for respondents was 67 (\pm SD 20). These scores are significantly lower than those for the general adult population and the population aged 15 – 24 years reported in the 2015 Healthy Ireland survey (Department of Health and Ipsos MRBI, 2015, i.e. mean (MH – 5) scores of 86.3 and 81.6 for men and women respectively, and 86.7 for men and 80.0 for women aged 15 – 24 years). A previous study in 1,000 Irish students recorded a mean score of 72.6 (\pm SD 17.6; Houghton et al, 2011). These authors suggest that students report more symptoms of mental ill health compared to general young adult population norms, perhaps due to the pressures of combining study and paid employment, in addition to personal, social and developmental issues. Those with a score equal to or below the recommended cut off score of 56 are identified as having a 'probable mental health problem' (Lavikainen, Fryers and Lehtinen, 2006).

Phase 3: Physical Activity and Health Measures

3.1 Physical Activity and Health Measures Introduction

Phase three of SASSI, led by Dublin City University (DCU), involved physical health testing of a sub - sample of students in DCU, Ulster University (UU), University of Limerick (UL), Waterford Institute of Technology (WIT) and Institute of Technology Carlow (ITC). This multi – centre study was a single stage physical health data collection study. A detailed methodological overview can be found in the Appendix 8: Technical Protocols.

3.2 Physical Activity and Health Measures Results

3.2.1 Participant Characteristics

Data was collected on 463 third level students (52.9% male) between the ages of 18 – 53 (22.2 + 4.5 year). Most (99.6%) were studying full-time, with 88.9% undergraduate students, and 11.1% postgraduate. The undergraduates comprised 1st year (24.7%), 2nd year (53.1%), 3rd year (8.6%), and 4th year (13.6%). The postgraduate students were Masters (92.3%) and PhD (7.7%) students. Participants lived in college halls on campus (26.4%), college / university halls off-campus (6.2%), rented privately (31.0%), family home (34.9%), and other (1.6%).

3.2.2 Physical Health Data

The mean, standard deviation and range of scores for height, weight, BMI, waist circumference, systolic blood pressure, diastolic blood pressure and estimated VO₂ max can be seen on **Table 3.1**. A significant difference was found between males and females for all of the physical health variables; height, weight, BMI, waist circumference, systolic blood pressure, diastolic blood pressure and estimated VO₂ max. Males had a higher BMI and waist circumference than females. Male college students also had higher systolic and diastolic blood pressure readings, as well as higher estimated VO₂ max than female university students.

Table 3.1 Physical Health Data of SASSI Phase 3 participants

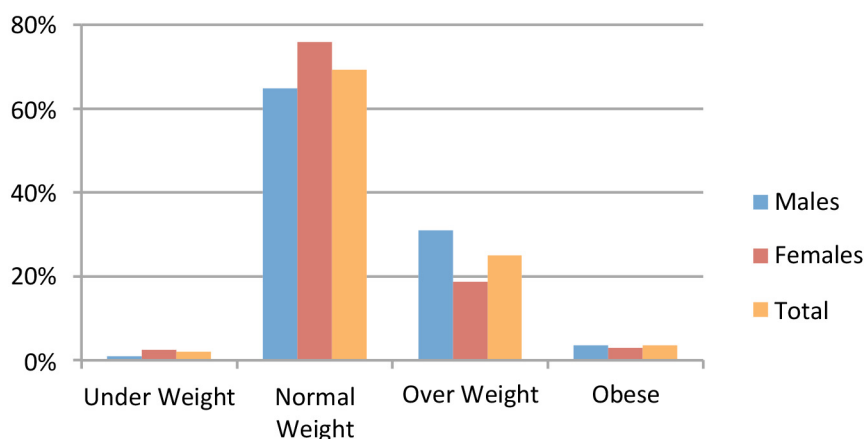
	Male (N)	Female (N)	T - test scores	Total (N)
Height (cm)	179.1±9.8 (228)	166.0±9.6 (204)	14.0**	173.0±11.7(449)
Weight (kg)	78.4±11.1 (228)	64.2±10.4 (204)	13.7**	71.8±13.1 (449)
BMI kg.m - 2	24.3±2.8 (228)	23.1±3.2(204)	4.1**	23.8±3.2 (449)
Waist Circumference (cm)	82.7±6.9 (227)	74.1±8.3 (203)	10.1**	78.7±9.5 (445)
Systolic Blood Pressure (mmHg)	132.9±15.1 (229)	121.8±13.3 (203)	8.0**	127.8±15.4 (449)
Diastolic Blood Pressure (mmHg)	77.7 ± 9.9 (229)	77.9±10.8 (203)	- .244	77.5±10.4 (449)
Estimated VO ₂ max (ml.kg - 1.min - 1)	49.3±6.5 (182)	39.7±6.5 (142)	13.5**	45.1±8.1 (308)

Note: ** = <0.01, * = <0.05

Male and Female numbers do not add up to the total score as some participants did not note what gender they were, and so were noted as a missing score.

The cut off points defined by the American College of Sports Medicine (ACSM) for underweight (≤ 18.4), normal weight (BMI = 18.5 – 24.9 kg/m²), overweight (BMI = 25 – 29.9 kg/m²) and obese (BMI > 30 kg/m²) were applied to the data in order to calculate BMI class (Vehrs, 2010). Two percent were classified as underweight (Males: 0.9%; Females 2.5%), 69.3% as normal weight (males 64.9%; females 75.9%), 25.1% as overweight (males 30.7%; females 18.7%) and 3.6% as obese (males 3.5%; females 2.9%; **Figure 3.1**).

Figure 3.1 Proportion of participants in each category of Body Mass Index.



3.2.3 Physical Activity Data

Table 3.2 displays the data collected from the self-reported physical activity measures. The mean scores are given for the whole sample and for both the males and females, showing significant differences only in vigorous physical activity levels.

Table 3.2 Self - reported physical activity

	Male (n)	Female (n)	T - test scores	Total (N)
IPAQ Vigorous PA(mins/day)	63.3±47.6 (223)	52.1±53.1 (202)	2.30**	59.9±51.9 (453)
IPAQ Moderate PA (mins/day)	73.8±54.2 (224)	70.8±57.8 (201)	0.54	73.8±56.2 (453)
IPAQ MVPA (mins/day)	136.8±86.9 (222)	120.7±91.5 (201)	1.86	132.6±91.2 (451)

Note: ** = <0.01, * = <0.05,

Male and Female numbers do not add up to the total score as some participants did not note what gender, and so were noted as a missing score.

Table 3.3 displays the accelerometer data for phase 3. The average minutes spent in sedentary behaviour and in each physical activity category (light, moderate, vigorous and moderate to vigorous (MVPA) for the full sample and stratified by gender is shown. No differences were found between males and females for time spent in any behaviour. This shows that on average this third level sample, though highly active are spending 86% of their time in sedentary behaviour.

Table 3.3 Accelerometer determined physical activity of SASSI Phase 3 participants

	Male (n)	Female (n)	T - test scores	Total (N)
Sedentary PA (mins/day)	1223.6 ±81.2 (152)	1236.6 ±59.2 (142)	- 1.6	1228.6 ±71.4 (307)
Light PA (mins/day)	150.9 ±61.6 (152)	(142)	1.4	147.0 ±53.9 (307)
Moderate PA (mins/day)	50.4 ±16.2 (152)	48.0 ±17.9 (142)	1.2	49.8 ±17.4 (307)
Vigorous PA (mins/day)	6.51 ±7.22 (152)	6.01 ±6.73 (142)	0.6	6.4 ±7.6 (306)
MVPA (mins/day)	56.8 ±19.1 (152)	53.8 ±20.4 (141)	1.3	56.4 ±20.5 (306)

Note: ** = <0.01, * = <0.05,

Male and Female numbers do not add up to the total score as some participants did not note what gender they were, and so were noted as a missing score.

Relationship between physical activity and physical health

An examination of the relationship between the physical health variables (namely BMI, WC, Blood Pressure and cardiorespiratory fitness (estimated VO₂ max) and both objective (accelerometer determined) and subjective (self-report) physical activity variables was carried out. Fitness level was moderately related to objective physical activity for the total sample ($r=.259$, $p<0.01$), for males ($r=.210$, $p<0.01$), and females ($r=.342$, $p<0.05$). Similar, though stronger relationships were found between fitness and IPAQ for the full sample ($r=.304$, $p<0.01$) and for males ($r=.352$, $p<0.01$) though a weaker relationship for females ($r=.186$, $p<0.05$). For the full sample, diastolic blood pressure was weakly related to objective physical activity ($r = -.113$, $p<0.05$), while waist circumference and systolic blood pressure were weakly correlated with IPAQ (waist circumference $r=.100$, $p<0.05$, systolic blood pressure $r=.110$, $p<0.05$).

3.2.4 Comparison between subjective self - report and objective accelerometer physical activity

In order to test the quality of the physical activity data, we conducted validity and reliability tests comparing the physical activity data from the IPAQ short form (subjective self - reported) to the actigraph accelerometer (objective). Participants were required to wear the actigraph accelerometer for seven full days, ten hours wear time per day and to complete a 7 day test – retest administration of the SASSI Phase 3 questionnaire. One hundred and ninety one students (46% males; 54% females) met these criteria. Results showed a moderate correlation between the IPAQ short form and the accelerometer determined levels of physical activity for the full sample ($r=0.32$, $p<0.01$), for females ($r=0.31$, $p<0.01$), and for males ($r=0.33$, $p<0.01$). The 7 – day test - retest reliability for IPAQ short form was also acceptable (Cronbach Alpha =0.7).

3.3 Physical Activity and Health Measures Conclusions

The purpose of phase three was to give a deeper understanding of the physical health, fitness and physical activity levels of third level students and to provide validity to the self-reported physical activity measures used within the survey in Phase 2.

Quality of the physical activity data

The seven day test – retest reliability of the IPAQ short form was strong (0.7), showing consistency in the data obtained and providing evidence of the instruments reliability for this study. The IPAQ short form was found to be moderately correlated ($r=.32$ full sample, $r=.31$ males, $r=.33$ females) with accelerometer data

in terms of MVPA mins/day. This is in line with Lee and colleagues (2011) who completed a systematic review of twenty three validation studies for the IPAQ short form. Their correlations ranges were from $r=.09$ to $r=.39$; the findings from this study place SASSI phase 3 at the higher end of this range. While the level of correlation is below the minimal standard accepted in the literature ($r=0.5$) for self-reported physical activity and objective standards, given the high number of participants in the full study and the requirement to obtain physical activity and other data the research team deemed the IPAQ short form as acceptable for use in the SASSI study.

Relationship between physical health and physical activity

Physical activity and physical fitness are strong determinants of health. Results showed that the activity levels of students, irrespective of mode of measurement (objective or subjective), was moderately related to their cardiorespiratory fitness - the more minutes spent being active the higher their level of fitness.

Body Mass Index (BMI)

Males had a greater mean BMI than females. The same BMI classification is used regardless of gender but BMI still cannot be used as a comparable measure of body fatness in men and women (Gallagher, et al., 1996). There are a number of limitations on its use as a measure of body fat. On average, women have greater amounts of total body fat than men with an equivalent BMI. However, BMI does not distinguish between body fat and lean body mass and therefore is an imperfect measurement of body fat (Hu F., 2008). This is particularly relevant for individuals who are active and fit and consequently have increased muscle mass. People with high levels of absolute muscle mass may appear to be overweight or obese when, in reality, they have relatively low body fat (Prentice & Jebb, 2001). From the descriptive analysis it is evident that the students in the study are fit and active and therefore may indicate that the students had a substantial amount of muscle mass rather than body fat.

Waist Circumference

A significant difference was found between male and female waist circumference measurements. This finding is in keeping with previous literature in the area. It is well known that adipose tissue distribution differs distinctly between males and females. Men are more likely to carry excess adipose tissue in the upper body (i.e. trunk, abdomen), whereas women usually accumulate adipose tissue in the lower body (i.e. hips, thighs). Adipose tissue in the abdomen is closely associated with visceral fat which increases the risk of cardiovascular and metabolic risk making waist measurement a simple health measure/predictor. The waist circumference measurement is taken at the narrowest point from the anterior view (or half way between the rib cage and the superior iliac crest), and as men are more likely to carry excess adipose tissue in the upper body, this provides an explanation as to the significant difference in waist circumference that was found between men and women.

Sex hormones may also play a role in the gender differences associated with regional body fat distribution (Krotkiewski, et al., 1983). The differences may be due to the number of local fat cells in the body. Men have more fat cells in the abdominal region, while women have more fat cells in the gluteal/femoral adipose depot. Furthermore, regional adipose tissue distribution was also found to be unrelated to the presence or absence of obesity.

Blood Pressure

In the study females had significantly lower mean systolic blood pressure readings than males. This finding is in line with previous literature in the area. A review by Reckelhoff (2001) concluded that blood pressure is higher in men than in women at similar ages. However, post menopause blood pressure increases in women

to higher levels than in men. A possible explanation as to why a significant difference was found between male and female blood pressure is the association between body fatness and the risk of hypertension. Studies have shown that there is a significant risk of hypertension among those with a high waist circumference (Harris et al, 2000; Janssen et al., 2002) as well as a positive and significant relationship between BMI and blood pressure (Dyer & Elliot, 1989).

Cardiorespiratory Fitness

A significant difference was found between male and female estimated VO₂ max score. This finding is in keeping with the literature which states that males have a significantly higher fitness level than females (Amra et al., 2009; Burns et al., 2013), mainly due to physiological differences between the sexes. The main factors which have been attributed to the sex difference in VO₂ max are body composition (volume of oxygen consuming muscle mass) and blood volume and haemoglobin concentration (oxygen carrying). Untrained adult women possess about 25% body fat compared to untrained adult men who have on average 15% body fat (McArdle, Katch, & Katch, 2006). Therefore males have the ability to better utilize oxygen and generate more total aerobic energy simply because they have a relatively larger muscle mass and less fat than females. Males are also typically larger in size than females, resulting in larger lung size and greater blood volume, which gives them larger lung capacity. Men also have a 10% - 14% greater concentration of haemoglobin in their blood than women. This allows males to circulate more oxygen during exercise, resulting in a greater aerobic capacity and VO₂ max score than females. This offers the most probable explanation for the significant difference found between male and female cardiorespiratory fitness in the student sample in this study.

Summary and Conclusions

The Student Activity and Sport Study Ireland (SASSI) was the first comprehensive study of provision for and participation in sport and physical activity by third level students on the island of Ireland. Conducted in 2014, the study consisted of three phases. A Self-Assessment Review (SAR) completed by 33 of the 41 higher education colleges allowed an analysis of the environment and provision made by third level colleges to support student participation in sport and physical activity. Seven large ($\geq 11,000$ students), 11 medium (4,000 – 10,999 students) and 15 small colleges ($\leq 3,999$ students) completed the SAR. An online survey of a representative sample of the student population assessed levels of participation in sport and physical activity, motivation for, barriers to and correlates of participation. 31 colleges and over 8,100 students participated in the survey. A sub-sample of 463 students from 5 higher education colleges participated in an objective assessment of physical activity, cardiovascular fitness and health parameters including weight, anthropometric measures and resting blood pressure. This chapter summarises the findings from the SASSI study drawing upon the findings from each phase of the study and making recommendations to encourage participation in sport and physical activity among third levels students.

Sport and Physical activity participation levels

The self-reported physical activity measure IPAQ was used in the student survey. In SASSI phase 3, the seven day test - retest reliability of the IPAQ short form was strong (0.7), showing consistency in the data obtained and providing evidence of the instrument's reliability for this study. The IPAQ short form was found to be moderately correlated ($r=.32$ full sample, $r=.31$ males, $r=.33$ females) with accelerometer data in terms of MVPA mins/day. This is in line with Lee and colleagues (2011) who completed a systematic review of twenty three validation studies for the IPAQ short form. Given the high number of participants in the full study and the requirement to obtain physical activity and other data the research team deemed the IPAQ short form as acceptable for use in the SASSI study. Using this measure 64% (71% of males; 58% of females) were categorised as "high active", and, according to agreed criteria are deemed sufficiently active for health. The Healthy Ireland survey (Department of Health and Ipsos MRBI, 2015) reported that 56% of men aged 15 – 24 years were classified as 'high active', decreasing to 52% of men aged 25 – 34 years. For women, 34% of 15 - 24 year olds and 32% of those aged 25 - 34 years were in this category, indicating that female students, in particular, are considerably more active than their counterparts in the general population.

The SASSI study examined the association between institution size, gender, age, year of study, alcohol consumption, smoking behaviour, perceived health in the last 12 months and body mass index and self – reported physical activity. Only gender, age, year in college, perceived health and determinant score were found to be predictors of sufficient physical activity. Male students are 54% more likely to be in the highly active group than females and with each additional year of age students were 3% less likely to be in the highly active group. Along with the increase in age, students in year 4 or more of their studies were 21% less likely to be part of the highly active group compared to students in year 1. The odds of being in the high active group were 25% lower for students with good, 29% lower for average, 44% lower for poor/ very poor perceived health versus students with very good perceived health. The odds of being in the highly active group were also 102% higher with each unit increase in determinant score.

The determinants of physical activity may be a starting point for the development of policies and interventions in order to promote female participation, to sustain participation as students' progress through higher education and to promote perceived health amongst students.

65% of respondents reported participating in some form of sport or physical activity in the previous 4 weeks. 14% participate in sport only in a college setting, 18% participate both inside and outside of college while 33% participate exclusively outside college. This may reflect the increasing tendency for students to remain at home while attending college allowing them to maintain sporting and physical activity connections established in their community.

Choice of Activities

Going to the gym for strength training and cardiovascular workouts were the most frequently reported sporting activities for students both within and outside college. This highlights the importance of the provision of well-equipped, attractive and affordable gym facilities for higher education colleges. The most popular sports clubs reported across both genders were Soccer, Gaelic Football, Hurling/Camogie, Rugby Union, Rugby League, Badminton, Cycling and Trampolining. In addition Archery, Athletics, 5-a-side Soccer, Mountaineering and Surfing were popular among males while Basketball, Volleyball, Ultimate Frisbee and Walking were popular among females. Together these 16 sports/activities account for 55% of the total reported participation in sport by students surveyed.

Sports Clubs

Sports club membership of approximately 32,000 students across 847 clubs was reported. Extrapolation to include the colleges who did not take part in the study would suggest that over 900 sports clubs engage over 35,000 student members each year. As might be expected, large colleges reported more sports clubs than medium and small colleges however, total club provision per 100 students was similar across colleges. Although provision of clubs for males and females was broadly similar, males accounted for 66% of the total participation (10,940 females compared to 21,282 males). In clubs where both males and females participated, females accounted for 35% of total membership. Provision of sporting opportunities for individuals with a disability remains a challenge for third level colleges with 58% of sports facilities accessible for disabled students and on average 42% of sports clubs reporting provision for individuals with a disability. Number of sports clubs was not strongly associated with an increased likelihood of participation within the college only. However, participation within the college was significantly associated with staff numbers, indoor and outdoor space/facilities, perceived quality of provision for sport, perceived quality of provision for physical activity, sports clubs participation (numbers) and exercise/fitness participation (numbers) (*see Appendix 7, Table B, Analysis 2 for more details*). These findings underscore the importance of staffing and quality facility provision to student participation.

Physical activity and sport participation in the transition to third level study

Overall, 65% of the entire sample had participated in some form of sport or recreational physical activity in the last 4 weeks. 45% of those who reported playing sport or physical activity either inside or outside college had taken up a new sport or activity since starting college. The majority of students had not increased their physical activity since the same time last year. Of those who reported doing more physical activity than last year, 31% were first years. This increase may be the result of increased opportunities to be active at third level and/or a decrease in the amount of timetabled class and private study time compared to the secondary school education. 81% of respondents reported that they would like to do more PA in the next 12 months (77% of males and 86% of females). Collectively these findings suggest that the transition to third level education may provide an opportunity to increase involvement in sport and physical activity and that this group may be more receptive to new activities.

Motivations for, barriers to and determinants of physical activity

The most frequently cited motives for participating in sport and PA were to improve fitness, health and physical appearance and for enjoyment. The most often cited barriers to participation were lack of time, fatigue, lack of confidence and a preference for other leisure time activities. These motives and barriers are similar to those reported in surveys of other adult populations.

Survey respondents were asked about a range of factors which might influence their levels of participation in sport and physical activity, including knowledge of physical activity recommendations and benefits, environmental factors, motivations, goals and beliefs about their capability to be active, social influences and the degree to which they plan their physical activity and sports participation. Three determinants were highly associated with an increased likelihood of being active; having read information on the physical activity guidelines, high levels of motivation for activity, and the ability to cope with obstacles to being active. A fourth determinant was associated with participating in the college only was student perception of social influences that support participation. However, while having read information on the national physical activity guidelines was associated with a higher likelihood of being in the high active category, accurate knowledge of these public health guidelines was poor. Only 34% of students accurately reported the current public health recommendations for physical activity (32% correctly identified 30 minutes of PA per day; 2% correctly identified 150 minutes of PA per week). In fact, over two – thirds of students who either over or under estimated the national recommendations identified themselves as being sufficiently active. This shows that knowledge alone is insufficient to explain physical activity behaviour, and in fact it is the act of seeking and reading information pertaining to physical activity that seems to be more directly associated with meeting physical activity guidelines. This is useful information for SSI and colleges' staff responsible for developing physical activity programmes. It suggests that strategies to encourage students to read information on physical activity, providing them with support to help them set motivational goals and to develop their coping skills around dealing with obstacles preventing their activity, combined with social support, there is significant potential to increase physical activity levels within universities and colleges.

Of the 35% of students who did not participate in any sport or physical activity, 87% reported that they could be encouraged to participate again, with females more likely to be encouraged than males. The top means of encouraging participation were 'cheaper admission prices and 'people to go with'. Within the college environment 'coaching' was cited as having the potential to encourage participation, whereas 'proximity to home/work' was important for outside of college participation. Interventions targeting these factors may appeal to the currently inactive and provide useful information for policymakers.

Active transport

Forty percent of students indicated that they use walking (34%) and cycling (6%) as a mode of transport to college. In the 2012 census, 28% of Irish students walked and 4.6% cycled to college making them the group most likely to use active transport - in the general population 10.5% walk and 2.4% cycle to work. Active commuting programmes for students appear to be a low priority across most colleges. Only 28% of colleges responded to the item on provision for or encouragement of active transport. Also, active commuting programmes accounted for less than 3% of total current investment in sport and physical activity from 2009 and 2013. Whether active transport contributes to the overall physical activity level of students is an important question for policymakers. In the current survey students who are sufficiently active showed higher engagement in active transport compared to motorised transport. One of the key findings of the survey is that active transportation is likely to make a positive contribution to total physical activity levels and more importantly health. Given that 79% of "inactive" students travel using motorised transport there is considerable scope to promote active transport as a viable way of increasing daily physical activity among students.

Health and Happiness

Physical health and fitness measures were obtained from a sub – sample of students in 5 colleges. Self – reported height and weight for survey participants were similar for the sub – sample who took part in the health and fitness assessments. Using self – reported height and weight 66% of students can be classified as normal weight, 20% overweight and 8% obese. This is a similar profile to that found in the 2008 SLAN data (age category 18 - 29 years; 63% of men and 71% of women normal weight) The Healthy Ireland survey (Department of Health and Ipsos MRBI, 2015) reported that 64% of males aged 15 – 24 years and 64% of women in this age category are normal weight. Objectively measured height and weight from the sub – sample indicates similar levels overweight and obesity (25% overweight 4% obese).

The majority of survey respondents (56%) perceived their health as either good or very good. In the SLAN survey (Morgan et al,2008) 88% of adults rated their health as good or very good while the first Healthy Ireland survey reports that 92% of 15% - 24 year olds rated their health as good or very good. This shows quite a significant difference between this student population and the national population with regards to perceived health and is an issue worthy of further investigation. The majority (64%) reported a high level of happiness scoring 7 and above on a 1 – 10 scale of happiness (where 1= not at all happy and 10 = extremely happy). According to Eurostat data, this is similar to the EU and Irish average (average rating of 7.1 and 7.8, respectively).

Physical activity and physical fitness are strong determinants of health. The results of Phase 3, conducted on a subsample of students, showed that the activity levels of students, irrespective of mode of measurement (objective or subjective), was moderately related to their cardiorespiratory fitness - the more minutes spent being active the higher their level of fitness.

Facilities

An extensive range of indoor and outdoor facilities exists in the third level education sector on the Island of Ireland. A steady increase in capital investment for indoor and outdoor facilities between 1995 and 2014 has occurred. An investment of almost €50m in facilities over the next 4 years is planned. The distribution of facilities varies with most having at least a sports hall (82%) gym / fitness suite (82%) and free weights facility (64%) and dance/fitness studio (55%) but fewer colleges have direct access to swimming pools, climbing walls, squash and handball courts, track and field facilities, tennis courts and synthetic outdoor surfaces. 64% of all facilities reported are university owned and 36% are hired. Facility provision is relative to student population with no differences for indoor and outdoor facilities relative to student enrolment. The availability of facilities was strongly associated with participation in sport and physical activity in college but was not associated with being highly physically active in general.

Student satisfaction with provision for sport and physical activity

In general, levels of satisfaction with the provision for student sport is high, with 62.5% of survey respondents who participate rating satisfaction levels of 8 out of 10 or higher. Satisfaction is lower amongst males than females, with males 51% less likely to be satisfied with the provision for sport at their institution, than females. Indoor facility provision was strongly associated with student satisfaction. The odds of students in colleges with moderate indoor facility provision being satisfied are 62% lower than in colleges with high indoor facility provision. Furthermore the odds of students in colleges with low perceived quality in sport and physical activity being satisfied are 73% and 72% lower respectively than in colleges with highly perceived quality.

Staff and Structures

Almost 1,100 full and part staff are employed in the third level education sector to support sport and PA participation. More than half of the colleges reported dedicated structures for the management of sport, including employing a Director/Head of Sport. Since 2009 over half of the colleges surveyed reported an increase in the number of the full-time and part-time staff involved in the delivery of sport and physical activity opportunities.

The focus in terms of employment has been on sports development officers, rather than on instructors for recreational physical activity. The study found that a total of 24 different types of sports clubs across all colleges reported having the support of a full - time or part - time development officer. The level of development officer support of competitive team sports is particularly substantial. The increase in staff may, at least in part, be a response to the increase in numbers of students attending third level education during this period. 76% of colleges engage volunteers in the provision of sport and physical activity. The number of staff involved in providing sport and physical activity opportunities was associated with student satisfaction. Students in colleges with high levels of staff provision were 59% more likely to report satisfaction with provision for sport and PA than students enrolled in colleges with low staff provision.

15% of students surveyed reported volunteering in a sport and physical activity context. Student volunteering was more likely in colleges with good indoor facilities and good levels of investment, There may be potential to provide better support for student volunteers and increase this figure.

High Performance

6% of students (11% of males; 10% of females) surveyed indicated that they were competing in sport at a high level (regional, national, or international level). Overall only 11% of high level athletes indicated that they are in receipt of a scholarship/ bursary from their institution. Impressive networks of external institution links exist to support high performance (HP) athletes. More than 50% of colleges report links with NGBs, national sport organisations (e.g. Sport Northern Ireland, Sport Ireland) and external sports clubs which compete at a national level. Field sports such as Gaelic Football, Soccer and Rugby Union dominate these links. Overall, 83% of colleges reported a scholarship programme with colleges relying heavily on own funds to support scholarships. 35% of colleges now have an access programme for athletes to gain entry onto academic programmes with reduced entry grade offers. Additionally, a strong trend towards a targeted approach to scholarship provision was found with 45% of all sports having scholarships attached being targeted in nature. Despite this investment in high performance, levels of satisfaction were lower amongst elite athletes (27% scoring 8 – 10) than recreational participants.

Case Studies

Each case study is based on a detailed analysis of the SAR outcomes (chapter 1) and also key variables from the student survey (chapter 2). Based on this data analysis, the top performing small, medium and large size colleges are presented below. In identifying and providing a brief profile of these top three colleges –with their permission – all other colleges, who must remain confidential, can now consider and gain insights into how these top performing colleges provide for sport and PA etc.

5.1 Case Study 1: Institute of Technology (IT) Carlow

The Institute of Technology Carlow was classified as a medium sized institution in SASSI and participated in all three phases of the study. Since 1970 sport, physical education and health in IT Carlow (Carlow RTC) developed in parallel with academic courses such as the programme in Health Care, Physiology and Rehabilitation Therapy and, more recently, the sports related/health science suite of courses was developed in partnership with National Governing Bodies of GAA, Soccer and Rugby in delivering BA Degrees in Sports Management & Coaching.

“Our collaborations with the GAA, IRFU and the FAI are something we are extremely proud of here in IT Carlow. As well as developing elite coaches and players through the provision of the BA Sport and Exercise, GAA, Soccer and Rugby programmes, our strategic partners in the three major national governing bodies recognise IT Carlow’s inclusive community ethos. This understanding creates fantastic opportunities to reach out to local primary and secondary schools, as well as neighbouring clubs and surrounding counties, providing a programme of Sport, Recreation and Physical Activity appropriate to the needs of the people of the region.”
Donal McNally, Director of Sport IT Carlow

Over the past ten years IT Carlow has invested significant resources in sport and allied facilities to the tune of 10million euro and is now ranked in the top three IOT’s in the country proudly earning the title, Sunday Times IOT of the year in 2014. The new Barrow Centre complex was officially opened in January 2012 and the sports facilities are some of the best equipped centres for strength and conditioning, fitness training and sports activities for elite athletes, college teams and recreational users.

This investment has been driven by the considerable academic and sporting success of students on the national and international stage and the associated positive publicity of such achievements. Elite Sport at IT Carlow focuses predominately on 3 key areas: High Performance Athlete Entry Scheme (HPE); NGB’s, Coaching and Elite Sports Courses; and Elite Athlete Support Programme.

Under the HPE scheme IT Carlow awards extra points for high performance students while experienced tutors from the three major governing bodies of Soccer, Rugby and GAA provide their expertise in Coaching and Player Development through the delivery of sports programmes, in association with the GAA, IRFU and the FAI. The number of scholarships has grown over the past 16 years and is awarded in a range of sports.

Links with sports clubs in the local community provide access for students to a range of other sporting activities, not currently catered for on campus. A range of cross departmental initiatives, promoting Physical Activity, Health Well – Being are organised throughout each year emphasising the fun, recreation aspect of staying fit and healthy, supporting the ‘Healthy Campus’ philosophy and encouraging greater participation in fitness activities i.e. Couch2 5k; Santa Run; Operation Transformation; Health Week.

“Sport at IT Carlow has developed and shaped me into the person I am today. In an ever revolving world IT Carlow has given me the opportunities, confidence and friendships to excel academically physically and socially”. Brenagh Schlingermann, Sports Rehabilitation Student 2012- 2015.

The development of post graduate programmes across a range of disciplines has further accelerated the institute’s commitment to research in the sports and health science fields. The new Dargan Centre for Research and Innovation was opened in early 2014 and the development of the Research Centre for Men’s Health and the Rehabilitative Sciences Research Centre at IT Carlow offers both taught and research masters programmes in Strength and Conditioning, Exercise Rehabilitation, and Sports Performance Analysis.

5.2 Case Study 2: University of Limerick (UL)

UL Sports Department was established in 1985 and was originally based in the old Sports Building (now home to the Department of Physical Education and Sport Sciences). The Sports Department moved its home to the University Arena building in 2001. The Sports Department was renamed in January 2014 to bring ALL sports facilities under the one umbrella body UL SPORT. UL Sport comprises four main areas of responsibility: UL Sport Arena, UL Sport North Campus Pitches and Outdoor Facilities, UL Sport Adventure Centre and more recently acquired UL Boathouse (a €5m student driven initiative however it is now under the management of UL Sport). UL Sport receives core funding of €600,000 (pay and non – pay) operates as a limited company, Plassey Campus Arena Ltd. The annual operating cost of UL SPORT is approximately €5 million. UL Sport Arena is open all year round on a membership or casual user basis. Students and staff of UL can avail of membership at discounted rates. Casual user rates are also discounted on presentation of a UL student or staff card.

UL Sport Arena has, on average, 13,500 visits a week and facilities extensive indoor sports halls, strength and conditioning facilities, the national 50m swimming pool, and indoor and outdoor tracks. The UL Sport North Campus pitches consist of fully floodlit all weather synthetic grass park and pitches over 20 acres.

15 kilometres from UL on the banks of Lough Derg near Killaloe, Co. Clare, a full range of outdoor pursuits and team challenge facilities offer activities from sailing and archery to high - rope climbing and team - building for all age groups, and is fully self-financing. The UL Boathouse is located on the West Campus and is home to Irelands first indoor powered 8 seated rowing tank – when powered simulates the river experience for rowing novices and is ideal for winter training for the senior squads.

UL Sport provides a huge sport and recreation schedule for UL Students and training facilities to over 60 active sport clubs (approx. 5,000 students) on campus free of charge. Students can access the gym, pool fitness studio and over 70 fitness classes per week on a “pay as you go” basis or a student membership. Currently UL does not offer a structured scholarship / bursary process within Sport with the exception of GAA (55 annual scholarships - Gold, Silver and Bronze categories - total value of €50,000). Although, there is no other formal process, students at national / international / high performance levels are supported in various means ranging from gym membership to financial support on a case by case basis. A new initiative, UL BEO, launched in autumn 2015 and is a partnership between the Physical Education and Sports Sciences Department, UL Sport and Campus Life Services and will build on UL’s pioneering of Ireland’s first Physical Education teacher training program and sport and exercise sciences degree, and first 50m swimming pool.

5.3 Case Study 3: University College Dublin (UCD)

UCD, one of the large colleges in SASSI, has its main campus at Belfield with large outdoor and indoor sports facilities, multi – purpose halls and a 50 metre pool while a 6.2k path/track has been developed throughout the Belfield campus and it is available to staff and students and the regional community.

Since the creation of the post at UCD of 'Director of Sport' in 1991 the role of sport as a core contribution to the holistic UCD student experience has been significantly enhanced and deepened. The Director of Sport reports directly to university management (UMT) through the Student Experience Group (SEG). Since 2000 the investment in capital sports development at UCD is in excess of €50m.

The principal vehicles to support PA and Sport at UCD are:

- Department of Sport – university support unit to promote/provide for UCD PA/Sport
- UCD Sport and Fitness – wholly owned UCD company to manage PA/sports facilities
- Athletic Union Council – UCD sports clubs supervision and governance committee – 56 clubs

All students pay a student levy and use of the facilities is then free to the 15,000 students who have registered for regular exercise and PA, as well as over 650 UCD staff and 5,000 members of the wider communities of the region. On average, 15,000 students use the facilities weekly, and there are 56 student clubs. A sports scholarship scheme has been in place since 1978. In 2010 the Ad Astra (Elite Athlete Academy) was put in place to augment the sports scholarship arrangements at UCD and these provide a range of supports from academic mentoring, finance support, sport science interventions, lifestyle coaching etc. In 2014/2015 there were 60 Ad Astra and 120 sports scholarships.

Academic courses in Health and Sports Science and Sports Management are offered at UCD for the past 20 + years and have postgraduate level programmes as well as research elements. There is an ongoing interface between sport and academic programmes – clubs support, research, mentoring etc. and these collaborations are growing and expanding ongoing.

The Department of Sport receives an annual grant of €300,000 to operate and manage sport and physical activity through 6 human resource equivalents. An additional sum of €700,000 is made available annually from central university funds to contribute to the 56 UCD student clubs that are under the remit of the AUC. In addition UCD Sport and Fitness operate and manage the sports facilities as part of the wholly owned company operations which has a turnover in excess of €2.5m.

UCD will be a venue for the Woman's Rugby World Cup in 2017 as well as the World Woman's Rugby 7's Qualifier in August 2015.

UCD run several innovative programmes for UCD staff, students and the local community. One example is the 7 week "Get in Gear Get Active" programme targeted at inactive UCD students and delivered twice a year (October and January). Students can take part in a health evaluation screening during week 1 followed by 5 weeks of exercise classes and a post evaluation. This programme is delivered by UCD Sport in partnership with the School Public Health, Physiotherapy and Population Science with input from the School of Psychology and the Institute of Food and Health on mental health and nutritional aspects. This partnership continues with the 8 week "Get in Gear Be Active" programme for UCD staff, delivered in March each year, with financial support from UCD HR Learning and Development. The Get in Gear programmes recruits placement students from relevant programmes across other third level colleges thus providing valuable dissemination of the initiative.

The UCD “Better Bones” 7 week exercise programme is aimed at community members over 55’s and delivered four times a year. It involves an initial screening followed by 6 weeks of classes delivered by UCD Sport in partnership with the UCD School of Public Health, Physiotherapy and Population Science and St Vincent’s University Hospital. Participants have cited the positive experience of exercising in a sporting environment alongside a student population instead of a hospital setting. Demand is strong for the programme and a further level is being added. Another partnership exists to deliver the UCD “Step and Join in” exercise referral programme, whereby students are referred from the UCD Student Medical Centre to UCD Sport for an exercise consultation.

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