#RCSIPulseCheck

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In this case study, a student reflects on proposing a collaborative project to academic staff to address physical health promotion among schoolchildren in Ireland. The project that emerged from this partnership strengthened collaboration across students and staff, as well as creating greater links to the wider community through evidence-based healthcare interventions.

Introduction and Context

The project, #RCSIPulseCheck was a virtual paediatric physical activity and health education project that came about during the COVID19 global pandemic. As the student partner in this project, my preparations and planning began prior to the pandemic and initially the project was supposed to be delivered face-to-face. Building on the concept of student engagement, I proposed the original project to RCSI staff members who provided guidance on how best to deliver an impactful project while empowering my student voice (NStEP, 2021). Due to the extension of Level 5 COVID19 restrictions and ongoing remote schooling, it became apparent that roll out of a face-to-face project in its original format would be a challenge. It became necessary to review the project and shape it into a format that could achieve our aims and be deliverable with our school partners. This decision to pivot into a virtual project required student-staff collaboration to reach our end goal. During this collaborative effort, it became apparent that the project was suitable for funding from the RCSI Student Engagement and Partnership Programme which provided further impetus for the project. Social media (e.g. Twitter, Instagram) was a facilitator in reaching our target audience, in this case the teachers of schoolchildren between the ages of 8-11 years attending 3 Dublin based DEIS schools.

The principal issue that this project was trying to address was that of physical activity promotion and health education among the paediatric population of Ireland. 1 in 5 children in Ireland are overweight (Behan et al, 2018) and a 2019 Dublin City University study of over 2,000 children demonstrated that 78% performed very poorly or below average on fundamental movement testing (Healthy Ireland, 2016). Poor fundamental movement skills may have negative implications for children wishing to participate in physical activity, further contributing to a potentially more unhealthy society. Physical inactivity has deleterious consequences. According to the World Health Organisation, physical inactivity is estimated to be the principle cause for 21-25% of breast and colon cancers, 27% of diabetes and approximately 30% of ischaemic heart disease burden (WHO, 2019).

The aims of the project were to promote physical activity among schoolchildren attending 3 Dublin DEIS schools (aged 8-11 years) using evidence-based medicine while adhering to Level 5 COVID19 government restrictions. Using online platforms, e.g. RCSI Engage Twitter account, we posted 5 days of age-appropriate, varied and fun physical activities for schoolchildren to complete in an effort to promote physical activity among this population.

Project Outline

In 2020, the World Health Organisation (WHO) updated its physical activity guidelines (WHO, 2020). In this guideline, the WHO strongly recommended that children and adolescents in this age group should be physically active at a moderate to vigorous level for at least 60 minutes every day. This project used internationally recognised physical activity guidelines to deliver an evidence-based intervention. RCSI REACH, the community outreach arm of RCSI, has a commitment to engaging local community and promoting health awareness. Without this crucial link to community, this project would not have been feasible.

From the outset, this was a collaborative effort from staff and students. We engaged the RCSI Physiotherapy School who provided guidance on evidence-based practice pertaining to physical activity. RCSI REACH provided our link to the community and facilitated the logistics of the physical activity campaign. As the student partner, my role was to coordinate the development of educational content and to ensure our project was relevant, compliant with COVID19 guidelines and age appropriate. The RCSI design team were particularly helpful in ensuring that the content we sent on to teachers looked polished and professional.

This project afforded me the opportunity to connect with multiple different RCSI faculty members and students across medicine and physiotherapy disciplines. At every juncture of this project, my student voice was heard and appreciated. This project facilitated engagement in evidence-based medicine in liaison with Dr Grace O'Malley, RCSI School of Physiotherapy. For this project to be successful, it was important that we used age-appropriate vocabulary in order to maximally promote the benefits of physical activity. Through discussion with Grace, I developed an understanding of the subtleties of communicating health information to our target audience. Through liaising with Maria Kelly, programme manager of RCSI REACH, we collaborated successfully to deliver a virtual community-based health initiative.

We recruited RCSI student volunteers to make videos of the physical activities that would be posted as the physical activity for the schoolchildren to follow. The videos, which had tips and advice on how to perform the physical activities correctly and safely, was shown to the schoolchildren by their teachers on the morning they attended school and completed the physical activity before lunch. An integral part of the health education component of this project was the pulse check. We created a resource that teachers could use to educate children on how to check their pulses before and after carrying out the designated physical activity.

The online physical activities were delivered in a timely manner with clear instructions on how to carry out the physical activity. Each physical activity demonstration was reviewed by a chartered physiotherapist to mitigate the risk of injury and to ensure age appropriate engagement. The pulse check resource document, which formed the health education component of this project, was intuitive, succinct and provided troubleshooting tips for

Image 1: An infographic for children, produced as part of the #RCSIPulse Check project

for those finding it difficult to find their pulses. Due to the virtual delivery of this project, it was difficult to fully appreciate the impact of the project. We relied heavily on Twitter metrics such as impressions and views of videos to judge how our virtual project was tracking and positive feedback from teachers. Face-to-face interaction would have allowed more dialogue between project leaders and our target audience. Furthermore, a face-to-face experience would have permitted some informal health education and tips on keeping physically active.

Project Action	Brief Description
Action A	Collaboration – innumerable conversations and idea sharing opportunities with multiple RCSI departments and healthcare students from various years.
Action B	Evidence based practice – kept abreast of the ever evolving international physical activity evidence base
Action C	Health communication – using age appropriate vocabulary to deliver succinct health messages
Action D	Resource creation – collaboration with RCSI design team to deliver a physical activity resource
Action E	Diversity and inclusion – ensuring any images were reflective of a multicultural Ireland.

Student Partner Reflections

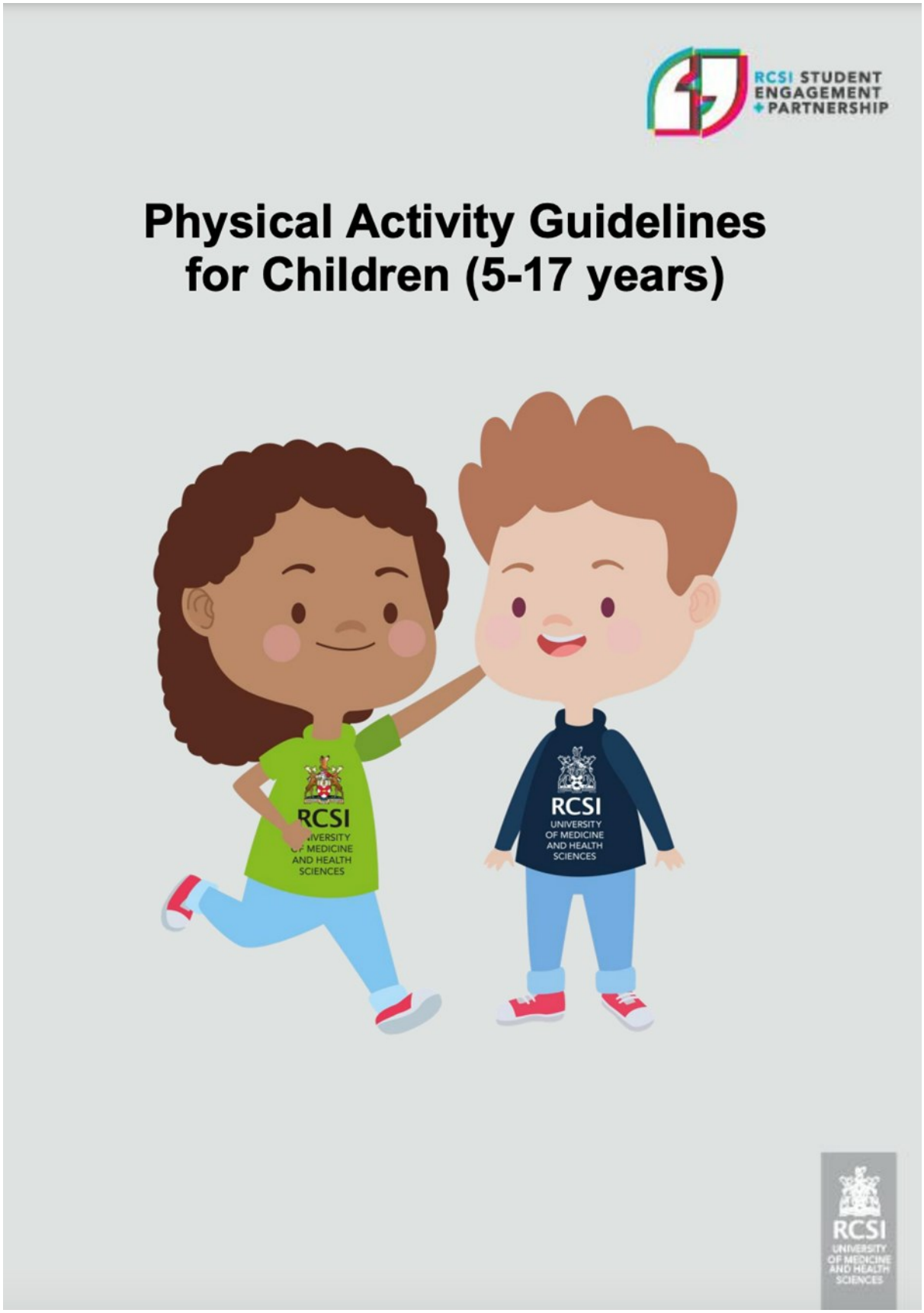
RCSI Student Engagement and Partnership Programme encourages student and staff collaboration and was instrumental in the project's completion. The themes of student voice, engagement and partnership were evident. My student voice was heard and acknowledged which I found inspiring. With the help of the staff members' engagement, my idea was leveraged and ultimately lead to an impactful project. Finally, meaningful interdepartmental partnerships were made that could pave the way for further projects of this nature. From an institutional level, it is imperative to actively promote the concept of student engagement and partnership with formal funding and recognition of idea sharing. Similarly, students must know that their perspectives and voices are valued. This will ensure synergistic project delivery that enriches the student and staff community.

The findings from this project could be replicated in other community settings to deliver additional evidence-based health-related activities and interventions via social media platforms. We have provided schools with a concise and up to date document that outlines guidelines for physical activity for children ages 5-17 years. These resources can be updated annually and used in similar STEP projects with a similar target group (school children) or adapted for other cohorts (e.g. children with hearing impairment or children who use wheelchairs). There is also potential to develop this project further as a research project exploring the health and learning impact of integrating short fun bouts of active play throughout the school day. Achieving such impact is crucial, especially in DEIS schools or those that have limited play facilities or indoor gymnasia.

Examples of project outcomes can be viewed in the appendices to this case study.

Appendices

Appendix 1—Physical Activity Guidelines for Children (5—17) years)



Thank you for taking time to review this physical activity resource - an initiative brought to you from the students and staff at the Royal College of Surgeons in Ireland.

Among the many concerns surrounding the COVID19 pandemic is young students' ability to engage in physical activity. The goal of this resource aims to address physical inactivity among children between the ages of 8-11 years. We hope that it will equip you with the understanding and tools necessary to encourage children to live a more physically active life.

**When discussing physical activity with children and adolescents, it is important to use vocabulary that this age group can understand. In this resource, "physical activity", "active games" and "actively playing" are used interchangeably.*

How much physical activity is enough and why is this important?

In 2020, the World Health Organisation (WHO) published physical activity guidelines for children and adolescents between the ages of 5-17 years[1]. In this guideline, the WHO strongly recommended that children and adolescents in this age group should be physically active at a moderate to vigorous level for at least **60 minutes every day**. This means playing active games that make them move to the point that they are finding it difficult to hold a conversation.

Children should also include active games to improve muscle strengthening, bone building and flexibility 3 times per week. This will be discussed later on in this resource.

The WHO has cited numerous health benefits to achieving this level of physical activity on a daily basis. The benefits are:

- Improved heart and lung health,
- Improved muscle and bone strength,
- Improved academic performance and mental health.

What is a moderate to vigorous level?

This means being physically active to the point that your heart is beating faster and your lungs are breathing faster. Another way to quantify this is by using a scale of 0-10 where 0 is considered resting and 10 is the maximal level of exertion possible for that individual, e.g. running at top speed up 10 flights of stairs. This type of physical activity is sometimes called **aerobic or cardiovascular activity**. If you are playing an active game at a moderate to vigorous level, it will be difficult to hold a conversation with friends (talking while breathing fast is difficult!). This is referred to as the "Talk Test" and is an easy way to explain physical activity intensity to children[2].

1. WHO guidelines on physical activity and sedentary behaviour. Geneva: World Health Organization; 2020.
2. Foster C, Porcari J, Anderson J, Paulson M, Smaczny D, Webber H et al. The Talk Test as a Marker of Exercise Training Intensity. Journal Cardiopulmonary Rehabilitation and Prevention. 2008;28(1):24-30.

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What is muscle strengthening, bone building and flexibility?

These forms of physical activity are different to the 60 minutes of moderate to vigorous physical activity (aerobic or cardiovascular activity). The following physical activities should be carried out at least 3 times per week.

Muscle strengthening requires pushing or pulling against resistance, e.g. climbing, push ups or tug of war.

Bone building involves games that put more load through the bones, e.g. jumping, hopping or skipping.

Flexibility involves reaching or stretching, e.g. yoga.

Appendix 2—Pulse Check explanatory guide

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Pulse Check

What is your pulse?

- Your heart is a big pump that beats all day and all night.
- When your heart beats, it pumps blood.
- Blood is carried around your body in big tubes called arteries.
- Your pulse is blood being pumped into your arteries.
- Today, we are going to feel a pulse in our left wrist, this is called the **Radial Pulse** (See Figure 1 below)

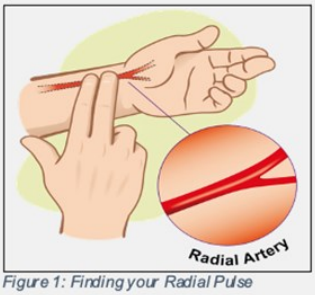

Figure 1: Finding your Radial Pulse

Fun Facts

Everybody's pulses are a bit different – this is normal!

When you are playing and physically active, your pulse beats faster.

This is because your heart beats faster to pump blood around your body and to bring extra oxygen to those moving muscles!

Pulse Check

Now, let's check our pulses using these steps:

Step 1

Place your right index and middle finger over your left wrist. Your index finger is beside your thumb!

Your pulse feels like a beat or throb. It is sometimes hard to find your pulse so keep trying! Raise your hand to ask your teacher for help if you can't feel it.

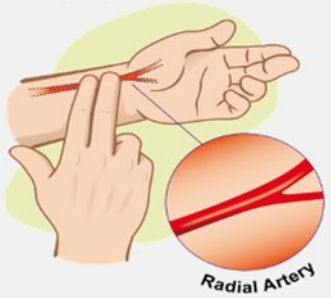

Figure 1: Finding your Radial Pulse

Step 2

Press "Start" on a stop watch.

Count your pulse for 15 seconds then multiply by 4 **OR** count your pulse for 30 seconds then multiply by 2.

This will tell you how many times your heart beats in 1 minute.

Step 3

For the next 5 days (17th January - 21st January), we are going to do 60 seconds of active games in the yard or in the classroom.

We are going to check our pulses before and after the 60 seconds of games. Your teacher will take a video or photo of the class and post it on your school's social media accounts!

Reference List

Behan, S. et al (2018). Getting Ireland's Children Moving: Examining Fundamental Movement Skills in Irish Schoolchildren as a key component of Physical Literacy. Insight: Centre for Data Analytics. Dublin City University. [online]. Available at: Denver Poster (dcu.ie)

Healthy Ireland (2016). A Healthy Weight for Ireland: Obesity Policy and Action Plan 2016—2025. An Roinn Sláinte/Department of Health. [online] Available at: 2d91a3564d7e487f86a8d3fa86de67da.pdf (assets.gov.ie)

National Student Engagement Programme (2021). Steps to Partnership: A Framework for Authentic Student Engagement in Decision-Making [online]. Available at: https://studentengagement.ie/about/framework/

World Health Organization (2019). Physical Activity. [online]. Available at: https://www.who.int/dietphysicalactivity/pa/en/

World Health Organisation (2020). WHO guidelines on physical activity and sedentary behaviour. Geneva: World Health Organization.

Links to Further Resources

Link to #RCSIPulseCheck social media campaign HERE

RCSI Student Engagement and Partnership programme:
https://www.rcsi.com/dublin/student-life/student-engagement-and-partnership