**Developing Sporting Characteristics in Key Stage One Children through a Gross Motor and Fundamental Motor Skills Intervention Programme.**

Isaac Hay 192318

8th April 2022

Alex Bliss

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*Abstract*

Developing sporting characteristics is often reserved for later life. The aim of this study is to identify whether introducing a multi-faceted intervention in Key Stage One (KS1) can help improve sporting attributes at a faster than average rate, while improving motivation to participate in sport and exercise.

The study investigates the effects of an intervention on the development of fundamental and gross motor skills, forming sporting characteristics following ten intervention sessions with KS1 state school children aged six-seven years. The intervention programme contained periodised sessions and focused on; motor proficiency, sporting characterics and strength and conditioning movements.

Results of the Bruininks-Oseretsky Test of Motor Proficiency Short Form, Second Edition (BOT2- SF) increased in both groups but significantly more in the intervention group. Participants that scored below average upon initial BOT2- SF assessment demonstrated the greatest percentile improvement, increasing percentile score by 52.5%. Attitude towards physical education (PE) and general sport increased in the control group but decreased in the intervention group. Therefore early intervention can help improve sporting attributes but to motivate participants to further engage in sport they should be placed in similar ability level groups.

*Keywords – Coordination, Key Stage one (KS1), Participation, Gross Motor Skills, Developing Sporting Foundations.*

*Introduction*

*Rationale*

Many children lack the opportunity to develop gross motor skills (GMS) and fundamental motor skills (FMS) and they therefore lack vital sporting characteristics. This could be a consequence of limiting factors such as environmental or familial influences, lack of time, facilities or finance to play sports, effects of Covid 19 lockdown, lack of interest in exercise within the family, or a reduced focus on PE and active break times in school. FMS development in children is reported to provide the foundation for an active lifestyle (Lubans, Morgan, Cliff, Barnett, & Okely, 2010).

Children need more opportunity to participate in sport and exercise to facilitate development (Parker, MacPhail, O’Sullivan, Ní Chróinín, & McEvoy, 2018). School break times are an opportunity to make up for lost play and physical learning but since 1995 break times have reduced by an average of 45 minutes a week for KS1 pupils (Baines & Blatchford, 2019). Children need to be explicitly prompted to engage in physical activity. Without such encouragement, children are unlikely to combine physical activity with physical development (Parker et al., 2018). ‘Children do not develop FMS through the maturation process’, further highlighting the importance of prompts, opportunity, familial background and a reduced focus on school PE (Logan, Robinson, Wilson, & Lucas, 2012)

Childrens’ participation in physical activity is declining (Ziviani, Scott, & Wadley, 2004) and less physical activity provides less opportunity to develop the motor skills needed for sport. Obesity and lack of sporting participation has risen since the 1960s. More recently children’s fitness has decreased while their body mass index (BMI) has increased (Andersen et al., 2008). Study participants will therefore benefit from the increase in physical activity. The current international guidelines state children should participate in 60 minutes of moderate to vigorous activity daily (Strong et al., 2005). However, this is commonly believed to be insufficient and more is needed to help improve cardiovascular health and prevent the onset of cardiovascular disease (Andersen et al., [2006](https://onlinelibrary.wiley.com/doi/full/10.1111/sms.12277?casa_token=I2puyrymrFIAAAAA%3A13JhCiqzr0mCuNgtDKg8smCqccKPnvw2P6kkgPk44gnBG3G1v9UHbMr1arCGxzF7BAlit7EXg6q-#sms12277-bib-0001)).

Most research into childrens’ practice hours are referring to how much physical activity they get by walking to and from school (Ziviani et al., 2004). Other previous interventions have focused on increasing specific physical characteristics specifically jump height or promoting cardivascular health (Andersen et al., [2006](https://onlinelibrary.wiley.com/doi/full/10.1111/sms.12277?casa_token=I2puyrymrFIAAAAA%3A13JhCiqzr0mCuNgtDKg8smCqccKPnvw2P6kkgPk44gnBG3G1v9UHbMr1arCGxzF7BAlit7EXg6q-#sms12277-bib-0001); Duncan, Eyre, & Oxford, 2018; Fernandez-Jimenez, Al-Kazaz, Jaslow, Carvajal, & Fuster, 2018). No notable intervention studies have attempted to improve motivation to participate in sport as a consequence of improving base level motor skills through high quality concentrated practice hours.

Recently the 10,000 hour rule brought to light by a paper from Ericsson, Krampe and Tesch-Römer (1993) has been critiqued and discussed by coaches and more notably, popular books like ‘Outliers’ (Gladwell, 2008) and ‘Talent Is Overrated’ (Colvin, 2016). These books have highlighted the importance of perfect, deliberate practice rather than total hours of general practice. Emphasis placed on the importance of perfect practice was a deciding theme when structuring the training intervention. Meaningful intentional and early practice could be argued as the success, therefore through a concentrated intervention programme could the benefits of perfect practice hours outweight hundreads of hours of gernal practice and aid a rapid increase in GMS development and motivation to particpate in sport.

Sustained practice was the intial idea behind the 10000 rule (Ericsson et al., 1993) and is key to developing sporting characteristics. Therefore attempting to improve childrens attitudes toward sport, could help towards continued long term sporting participation. Throughout the paper FMS and GMS combined will be referred to as sporting characteristics.

*Aims*

The study aimed to improve all childrens’ sporting attributes through GMS and FMS development regardless of starting ability through a 10 session school based intervention.

Alongside this a Likert scale was used to see if motivation to participate in sport increased or decreased alongside GMS development. The aim was to provide children with necessary skills to create a more developed and sound sporting base or starting point, to provide opportunity to pursue and develop their sporting potential.

The study was well rounded and aimed to help disadvantaged or below average children by increasing their abilities and allowing them an equal opportunity to engage in sport from an early age. It is possible that children who scored below average could have undiagnosed additional needs, and it is important to intervene at an early age to assist helping the child learn and master new motor tasks while movement demands are still relatively basic (White, 2017). Alongside this, removing barriers for inclusion and including children of all ability levels in the IG and CG group would help motivate participants with additional need (Coates, & Vickerman, 2008).

Due to the decline in active hours during the school day (Baines & Blatchford, 2019) a knockon effect of this study will be tackling the obesity epidemic by increasing amount and intensity of physical activity (Nadeau, Maahs, Daniels, & Eckel, 2011). The intervention could potentially be used as an additional physical education session to help towards more active hours for children.

The hypothesis for the study is that the control group (CG) would only improve according to their age increase. Their motivation towards sporting participation would either remain the same or slightly decrease. In comparison, the intervention group (IG) would show an increased level of motivation to participate in sport alongside an improvement in physical capacity and motor skills. The Null hypothesis would suggest that there was no significant difference in level of motivation or GMS development. This could be due to random allocation, meaning one group may have a disproportionate number of children with additional needs, which could influence the results due difficulty in mastery of motor tasks (White, 2017).

*Method*

Participants

Twenty Key Stage One (KS1) children from one Primary school class in London, England took part in the study, once ethical approval had been granted. Five completed all sessions, two completed nine sessions and three completed eight sessions. The participants were randomly assigned to either the CG or the IG. Five males were in both CG and IG and five females were in the CG and IG. Two IG participants missed post screening through illness, so their post results were not available for analysis. Children who completed sufficient intervention days and did not miss pre or post testing were 6 or 7 years old (IV, M = 6 years 11.5 months, SD = 3.59 months; CG, M = 6 years 10.7 months, SD = 3.37 months).

The intervention participants completed 10 x 50 minute sessions over an 8-week period. Outside of the group both CG and IG completed the same amount of Physical Education (PE); extra-curricular activities or external sports clubs were not tracked. IG was run in a free period when missing this study time was deemed not to be detrimental to their education.

Full ethical approval was gained prior to commencement of the study and World Medical Association guidelines were followed (Helsinki, November 27, 2013). The researcher, Occupational Therapist (OT) and OT student each had up to date enhanced Disclosure and Barring Service documents.

Measurement

Pre and Post testing took place within a hall where distractions were at a minimum. Three test stations were set up, so three children could be assessed simultaneously. The researcher, a Registered OT and an OT student were present, and all had received training in how to administer the assessment and split the test into three parts. Each tested the same part of the test pre and post study. A Likert scale measuring participant enjoyment towards PE and sport, was also completed by the researcher. One week after all participants had been screened the intervention programme began. Post screening took place the day after the final session and was completed in the same manner.

The Bruininks-Oseretsky Test of Motor Proficiency Short Form, Second Edition (BOT2- SF) (Bruininks and Bruininks, 2005) was the standardised test used pre and post intervention. This is an evidence based assessment that measures fine and gross motor proficiency tailored to children and young adults from 4-21. The BOT2-SF was created to be used as a quick screening of total motor abilities in a shorter amount of time than the main assessment. This was chosen by the researcher, as it was a test the OT had access to and had trained the researcher and student in using. The short form could measure key areas and be completed relatively quickly.

Training intervention

Sessions were facilitated by the researcher with the first seven sessions supported by the OT student. Sessions were split into 4-6 sections consisting of: 1 warm up, 1-3 game of bench ball, 2-3 exercises, 1-3 obstacle courses. The warmup consisted of multi-plane and multi-limb movements, bilateral integration exercises and finished with 2 strength movements. 20 minutes was allocated for “Bench Ball” (Vickerman, & Hayes, 2012). Exercises either worked on balance, stability, core strength, or coordination. An obstacle course provided ‘chaos’ and a competitive stimulus in which parts of the sessions could be put practice in a competitive environment (chaos refers to an environment where anything could happen). Inspiration for this design was taken from the ‘control-chaos-continuum’ (CCC) (Allen, Wilson, Cohen, & Taberner, 2021). This is a return to injury protocol but can equally be applied to non-injured children. Movement skills were practiced in the warmup, hand eye coordination was developed and then before each ‘chaotic’ task of a sport game or obstacle course. The movements that would take place in that component were first practiced in a controlled and premeditated manner.

Once the programme progressed and participants became familiar with the group format, a third exercise was introduced at session 5 and a second obstacle course was introduced at session 7. Volume, repetitions, sets, number of exercises and general overall difficulty was increased accordingly. Exercise selection, duration, and intensity varied from week to week to significantly challenge participants as they adapted to stimuli.

Exercises in both the BOT2-SF pre and post screening and throughout the intervention were demonstrated in a way that all children could learn from. Verbal explanation was used first followed by verbal demonstration and then silent demonstration. There was then an opportunity to ask questions if any arose. Children with motor planning difficulties often need proprioceptive stimulation to be able to grasp the movement or exercise they were being asked to do. Those who struggled with instructions were strategically placed to be closer to the researcher so it would be easier and less disruptive to provide these individuals extra assistance.

Bench ball was the sport chosen because it has lower movement skill demands than other popular sports. It is also safer and is easier for the researcher to intervene and provide coaching points. The concept of a possession game where children had to make ten passes to score a point was trialled, but due to their age this was unfamiliar, and the concept was not understood. Bench ball gave them a clear competitive goal to motivate them and make sessions enjoyable, whilst incorporating GMS and FMS.

During the sessions certain criteria was designed to be met and was always achieved (Appendix 4). Criteria was created to effectively monitor if all areas needed for physical development were adequately being met. Exercises were selected through the researcher’s experience working in this field and OT recommendations for bilateral exercises that would assist if any children had additional needs. Other criteria were designed through clarification of the FMS and GMS needed to develop sporting characteristics were put together from researching various articles and books (Duncan, Eyre, & Oxford, 2018; White, 2017; Moody, Naclerio, & Green, 2013; Lubans et al., 2010). Sessions were first and foremost designed to be enjoyable and engaging, attempting to increase motivation to participate in sport.

Equipment list

Hall 10\*16 metres, cones of various size and colour, hurdles, netballs, tennis balls, footballs, various coloured flat discs, orange tape, two benches 30cm/2metres, two benches 35cm/2.5m, bibs, gymnastic mats four 1.5/2.5m, A4 session print out. Equipment used for pre, and post testing was kept the same to avoid any data disturbances.

The methods used can be followed to replicate the intervention in other schools, equipment was also selected on the basis that all school should have access to the equipment. Detailed session plans are in the appendix (Appendix 1, 2 & 3) Sessions show change in planning and progression through session one, five and 10.

*Results*

BOT2-SF results showed that post intervention, both groups improved on average (Figure 1) however significant change was noted only in the IG (0.020) while no significance was detected for the CG (0.588). Figure 1 shows that despite the IG starting off with a lower average score compared to the CG post test results was not only a significant increase but significantly more than the CG average. No significant difference was detected upon Likert scale analysis (Figure 2) (IG, 0.577, CG, 0.197). BOT2-SF results show the CG improved by 1.25%, whereas the IG improved significantly more at 8.24%. More relevantly percentile age ranking decreased in the CG, despite overall average scores increasing. CG went from the 66th percentile to the 62nd whereas the IG improved from the 42nd percentile to the 80th (Figure 3). Percentile change between groups again shows that pre intervention the CG scored significantly better, post intervention highlights how this changes between groups.

Figure 1: BOT2-SF Results, Pre & Post Intervention

No significant change in Likert Scale results were detected. However, the IG scores decreased by 7.25% while CG’s scores improved by 15%.

Figure 2: Likert Scale Results, Pre & Post Intervention

Figure 3: BOT Percentile Ranking Pre & Post

When specific test sections such as upper limb coordination were further analysed, BOT2-SF results (table 1) showed (Figure 4) that in the CG upper limb coordination decreased by 15.52% whereas in the IG results increased 42.86%. To further highlight progress made, upper limb coordination results were broken down into total catches + total dribbles pre and post for both groups rather than scoring categories. The CG improved by 5.7 (catches + dribbles) to an average of 12.2 whereas the IG improved by 38.875 to an average of 58 (Figure 5).

Figure 4: Upper Limb Coordination BOT2-SF results

Figure 5: Upper Limb Coordination Average Catches + Dribbles Pre & Post Intervention

Below average scorers (potential additional needs) from the CG improved their BOT2-SF score by 15% whereas in the IG they improved by 51.5%. When taking away fine motor skill improvements between pre and post test results, GMS changes became clearer. In the CG GMS had decreased by 1.8% and in the IG, they had improved on average by 20.9%. Every child involved in the IG improved. All children in the study improved in fine motor skill areas of the BOT2-SF test, which shows that in class education is working.

The most significant improvements noted were the two children with a below average pre-test score, these children improved on average by 51.5 percentile points. The one child in the CG with a below average pre-test score improved by 15 percentile points but the increase was only in the fine motor components of the test. Not including the BOT2-SF fine motor skill component of the test their overall score decreased by 1 point. When evaluating percentile change if fine motor skill improvement is taken away, it shows that fine motor skill development had masked GMS and FMS reduction. In initial testing, this participant scored on the 24th percentile if the nine-point fine motor skills improvement is taken away in post testing they score on the 16th percentile, decreasing their sporting characteristics by eight percentile points. The IG above average pre-test scorers improved by 2% on the BOT2-SF percentile score while CG participants decreased by 12.34%. Results show that a 10-session intervention can have a significant increase upon sporting characteristics.

Table 1: Study Data summary, comparison of CG and IG in different scenarios.

Table

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*Discussion*

The aim of the study was to improve KS1 GMS and FMS leading to better sporting characteristics, giving children a stronger platform for development and in turn improving motivation to participate in sport. The study aimed to do this through an ten session intervention containing high quality ‘perfect practice hours’ (Gladwell, 2008; Colvin, 2016). Designed to improve sporting attributes at a faster than average rate, this improvement was expected to increase motivation to participate in sport.

The findings show that an intervention of 10 x 50 minute sessions was beneficial to improving GMS, and attitude towards participation. The intervention resulted in significant increases in strength, balance, and coordination. The findings show that post intervention all participants improved when compared to the CG. The extent to which they improved was not amplified as much as it should have been. Results showed a significant improvement in sporting characteristics in the IG in relation to the CG. Percentile age increase highlighted the effectiveness of the study. Another key finding was that upper limb coordination in the top performer in the IG increased from 400% to 1200%. This shows that the BOT2-SF was not sensitive enough to measure improvement.

To improve the study and complete further research, a test with wider grade boundaries should be used. Some children’s results in the study seemed insignificant, due to already starting in the 90> percentile. Therefore, despite improving GMS, especially upper limb coordination by upwards of 15% this was not highlighted in the initial result analysis, due to having already scored the maximum score in pre intervention screening. Tests for balance weren’t challenging enough, and therefore inaccurately depict the change between CG and IG. With wider grade boundaries the true success of the intervention could have been better highlighted.

BOT2-SF also placed an importance on fine motor skills when this was not the target of the study. Improvement in this area was insignificant between groups, but when analyzing individual results this affected data interpretation. A test focusing solely on GMS would be more accurate and specific. Fine motor skill improvement acted as a blanket for hiding GMS stagnation or decline. Overall, the CG’s GMS percentile score has reduced, despite participation in play, PE and external clubs, demonstrating that the current curriculum is not sufficient at improving GMS. Results could be interpreted that the school curriculum has a detrimental effect on GMS development. Potentially, this could be due to early specialization or an increase in demand on making children fitter rather than better at sports, and with the increase in sports premium physical education outsourcing often employs underqualified staff (Harris, 2018). Sporting characteristic development is negatively affected due to poor physical education in primary schools (Harris, 2018).

Table 2 highlights how this stage of development should not be overly structured, and sport specific skills should not be heavily focused on. It highlights the importance for improving FMS at an early age moving on to sport specialization in later life. Malina (2010) highlights the importance of this pre-adolescent stage and that it should be used as a time to biologically grow and mature while early specializing in pre-adolescent years rarely leads to success and will more likely lead to sporting dropout.

The youth physical development models (Lloyd & Oliver, 2012) shown below in Table 2 state that within the targetted age range, the majority of childrens developmental time should be spent developing FMS rather than sport specific skills. While an equal proportion of time is spent developing GMS. Before eight years, the development model is identical for boys and girls. Developing FMS and GMS first is crucial to creating strong foundations to allow for a smoother progression into sport specialization later in life. This compounds the negative outcomes of hiring under qualified external sports coaches at this vital stage of a childs development (Harris, 2018).

Table 2: Youth Physical Development Models (Lloyd, & Oliver, 2012).

Graphical user interface, application, table

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Likert Scale results were not significant, but unexpected. Despite a vast increase in performance by everyone in the IG their scores decreased by 7.25% while CG’s scored improved by 15%. IG scores were impacted by two participants who initially ranked their PE enjoyment level at a ten and halved this to five post intervention. All other participants in the IG remained the same or their motivation to participate in sport and PE increased.

The Likert results were unexpected as despite all IG participants improving, there were two individuals who improved the most from starting in the below average range. Despite this, from being exposed to challenging tasks, they became aware that they were behind in comparison to the rest of the group, and scored themselves lower on the Likert scale post testing. This therefore could have affected their confidence in sport and motivation to participate, despite their skill improvement. It is therefore important to provide suitable early support to develop motor skills to prevent disengagement from sport and exercise.

Children with developmental coordination disorder avoid free play activities (Cairney, Hay, Veldhuizen, Missiuna, & Faught, 2010) and organised activities at an early age, as they get older this relationship progresses in a linear manner by the individuals avoiding more and more physical tasks. A strategy to manage this would be to run the intervention with the same challenging features, but with a group with similar ability levels, to ensure no child would feel out of place or lose confidence.

The ‘just right challenge’ is a method OT’s use to ensure the activity is graded or adapted to suit the individual’s need. If it is too difficult, it can feel unachievable and if the tasks are too easy, it is not beneficial (Molineux, 2017). Activities were adapted for individuals accordingly through differences in sets, repetitions, time or distance, however the weaker children still noticed others achieving more than them. If a group with similar ability levels was run, then the confidence of the participants should not be affected.

A potential weakness of the study was the lack of full participation from the IG. Half completed all sessions, 2 completed 9 sessions and 3 completed 8 sessions. If fully attended, results could have been more significant. Two children in the IG missed the post screening, so no results were available for them therefore the total number of participants for the study was 18. Covid was a determining factor in overall participation.

A larger cohort of participants would have given more reliable results. However, to keep results reliable the same class had to be used to eliminate PE teaching content variation. A larger school with a designated PE teacher could have been used to eliminate teaching variation, in doing so multiple class results could have been combined creating a larger cohort. At KS1 many children have yet to be diagnosed with additional needs and this could potentially hamper results. It is probable that children who participated in the IG and CG had additional needs that would hinder learning speed (White, 2017). Cairney, Hay, Veldhuizen, Missiuna and Faught (2010) found that children with movement challenges are less likely to participate in organised sports and physical activity. This is because FMS challenges inhibit successful completion of activities that contain FMS like balancing, running, catching, and throwing etc.

Another limitation of the study was the chosen test, a more in-depth GMS test with a wider range of more challenging exercises and higher-grade boundaries may have produced more specific results. Results were still accurately depicted but would have been better demonstrated with more time for increased testing and a larger sample group. The full version of the BOT2-SF test was more complex but too time consuming for the study despite this, the BOT2-SF was still effective at measuring sporting characteristics. Assessing children’s strength was challenging due to age as some children with poor motor planning struggled to perform a sit up or press up correctly. This may have affected their scores not through lack of strength but lack of coordination. However, post study this should still have improved accordingly as the intervention worked on strength and coordination.

Regarding form when completing exercises, the same expectations were applied to all children, eg. if they used their hand to push up from the floor on sit ups that repetition did not count. With press ups if their hips went to the floor and not their chest the rep did not count. The same criteria were used for results before and after to sustain validity. This study could be replicated in other KS1 classes following these guidelines to maintain validity and reliability.

It is important to note that conditions like developmental coordination disorder (DCD), Dyspraxia, and autism spectrum disorder (ASD) are things that will affect participation (Kurtz, 2008). Potential undiagnosed difficulties may be masked by children, by avoiding situation or activity that may highlight their motor difficulties. Therefore, causing a downwards spiral in participation and the progress of physical ability. The study particularly helped those who were below average in their motor skill abilities and demonstrates that ‘repetition is an important concept in motor learning’ (Kurtz, 2008).

An intervention that not only exposes these individuals to new stimuli, but also exposes their test results and within session ability to a qualified practitioner, which could help with early diagnosis and treatment. For these individuals, lack of participation can lead to their relationship making skills and physical skills suffering, a decline in team sport participation, and a negative impact upon self-esteem, confidence, and mental health (Lingam et al, 2012). Results show that aiming to directly assist underperformers, preadolescence would significantly increase their sporting characteristics. Early intervention before movement skills become too complex could result in better participation levels and therefore improved mental and physical health (Lingham et al, 2012).

The aim of the study was to identify whether introducing a multi-faceted intervention in KS1 children could help improve sporting attributes at a faster than average rate, while improving motivation to participate in sport and exercise. The study was partially successful as it significantly increased all IG results but did not show a significant difference in Likert scale results. The significant impact on below average scorers has been detailed but despite the BOT2 -SF having a low ceiling, detailed analysis showed that top initial performers also improved in key areas such as upper limb coordination. Therefore, this study is effective at improve sporting characteristics in a KS1 class with a varied starting ability level. Likert scale analysis revealed that grouping children with similar ability levels together would support confidence and motivation to engage in sport. Further research is needed to see if results are replicable in a larger cohort and if ability-based groups better help improve motivation to participate in sport.

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*Appendices*

Appendix 1: Session 1

Graphical user interface, application

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Table

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Appendix 4: Session Ticklist

Table

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Text

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30 January 2022

Dear Isaac,

Re. Improving base level sporting characteristics in KS1 boys and girls.

Thank you for submitting your ethics application for consideration.

I can confirm that your application has been considered by the SAHPS Ethics Committee and that ethical approval is granted. Attached you will find your signed approval form.

Yours sincerely,

Text, letter

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Maeve Murray

Faculty of SAHPS Ethics Committee



**Approval Sheet**

(This sheet must be signed at all relevant boxes)

|  |  |
| --- | --- |
| Name of proposer(s) | Isaac Hay |
| Name of supervisor(s) | Alex Bliss |
| Programme of study | Strength and Conditioning Science BSC(Hons) |
| Title of project | Improving base level sporting characteristics in KS1 boys and girls. |

Supervisors, please complete section 1. If approved at level 1, please forward a copy of this Approval Sheet to the Faculty Ethics Representative for their records.

|  |  |  |  |
| --- | --- | --- | --- |
| **SECTION 1:** To be completed by supervisor (for student research projects). PhD/MPhil applications must be referred to and reviewed by an Ethics Representative at Section 2 below. | | | |
| ☐ Approved at Level 1.  X Refer to Ethics Representative for consideration. | | | |
| Name of Supervisor: | Alex Bliss |  |  |
| Signature of Supervisor: | A picture containing text  Description automatically generated | Date: | 14/1/2022 |

|  |  |  |  |
| --- | --- | --- | --- |
| **SECTION 2:** To be completed by Faculty Ethics Representative. | | | |
| Approved at Level 2.  Level 3 consideration is required by Ethics Sub-Committee. | | | |
| Signature of Faculty Ethics Representative: | Text, letter  Description automatically generated | Date: | 30 January 2022 |

Graphical user interface, application

Description automatically generated with medium confidence

Graphical user interface

Description automatically generated with medium confidence



17th January 2022

Dear Parents/Guardians,

I am a third year student studying Strength and Conditioning Science at St Mary’s University in Twickenham. As part of my course I am completing a research project entitled ‘Developing key sporting attributes in Key Stage 1 children.’ Heathrow Primary School have kindly agreed for me to conduct my research on their premises.

I have planned to complete a short assessment of balance, strength, speed and coordination with each child in Daffodil class, and they will give a rating of how much they enjoy physical exercise. This will be completed prior to and on completion of the study. Half of the class (chosen at random) will attend a weekly group session that will run for the duration of the Spring term and will be a 30 minute fun session aiming to improve their physical attributes. Examples of activities included are ball games, balancing activities and coordination games. This would be completed in addition to the weekly PE sessions.

For confidentiality, child protection and data protection purposes, your child will be anonymous with no names used in any of the data collected.

I have an enhanced DBS and regularly work with children in my part time job as a skipping coach in schools. My sessions will also be supported by school staff.

I do hope you will agree to your child participating in my research and the potential associated benefits to their health, fitness and enjoyment.

Yours sincerely, Isaac Hay

----------------------------------------------------------------------------------------- Please can you complete the medical history form and physical readiness questionnaire and the slip below with regard to your child participating in my research and return it to school. With thanks, Isaac.

Name of Child:............................................................................................... I/We Do/Do not give permission for the above child to participate in the research group...............................................................................................................................................

Signed....................................................................... Date............................