

## 5 PED

### Feasibility of implementing 10-minutes of classroom activity breaks in primary and junior high school: the project “un km al giorno”

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**Aim:** The purpose of this study was to investigate the feasibility of the program “un km al giorno” based on outdoor bouts of physical activity in primary and junior high school settings.

**Methods:** Three hundred and twenty students of the primary (F = 46%; range 6–10 years) and 217 students of junior high schools (F = 39%; range 11–15 years) with the respective teachers (N = 62) participated in the activity for eight months (from October 2016 to May 2017). The intervention program was based on a previous strategy named “The daily mile” consisting in walking/running outside the school buildings along a path purposely marked in the schoolyard. The classroom teacher conducted the activity that did not require a specific training. At the end of the activity, teachers filled questionnaires about the impact of such activity on student behaviour, organizational and general aspects.

**Results:** The 88% and the 80% of the teachers of the primary and the junior high schools reported that the program did not negatively affect their teaching activity. Furthermore, the majority of the teachers did not highlight any difficulty to resume the teaching after the activity (71%). Teachers reported that the activity improved the relationship among the students both in the primary (50%) and junior high school (85%) and between teachers and students (52 and 69% respectively). Generally, teachers were satisfied of the program (60% in the primary and 90% in the junior high school) and would like to repeat the program next year (60 and 75% respectively).

**Conclusions:** Teachers referred satisfaction for participating in the activity “un km al giorno”. The present feasibility study revealed that the activity was successfully implemented in the school day routine both in the primary and in the junior high school.

## 6 PED

### Children’ social behavior, physical activity and motor skills: tools validation and correlation study

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**Aim:** Main objectives of the research are: (1) verify objectivity and reliability of questionnaires on social behaviours compiled by children and teachers. (2) study any correlations between the results of these questionnaires and children’s motor skills.

**Methods:** “Student Survey” (SS) and “Teacher Survey” (TS) developed by Tauck Family Foundation and Child Trends (2014) to assess social behaviours were translated into Italian and administered at two hundred and one children and twenty teachers respectively. Children, furthermore, compiled a physical activity questionnaire and performed six motor skills tests (Leger, Standing long jump, Hand-grip, Speed 10x5, 9 Hole Pole Test, Sit and Reach). Objectivity and reliability of the SS and TS were assessed. Pearson’ correlation between social behaviours and motor skills was evaluated.

**Results:** SS shows low objectivity ( $r = 0.33/0.47$ ;  $p < 0.001$  for four factors and total). TS has medium objectivity ( $r = 0.63/0.74$ ;  $p < 0.001$  for all factors and total) and good reliability ( $r = 0.75/0.82$ ;  $p < 0.001$  for all factors and total). Correlation between the two factors common for both tools is low ( $r = 0.28/0.36$ ;  $p < 0.001$  for two factors and total). Correlation between social behaviour and physical parameters was calculated with teachers’ values separately for males and females.

Males and females show very different results; only speed test was positively related for both ( $r = 0.20/0.30$ ;  $p < 0.05/0.001$  for factors and total). Males have negative correlation with age, BMI, hand coordination and Strength ( $r = 0.0.15/0.23$ ;  $p < 0.05$ ) and a positive correlation with Endurance ( $r = 0.27$ ;  $p < 0.01$  for one factor). Females have two other positive correlation with Sit and Reach and Hand coordination ( $r = 0.21/0.43$ ;  $p < 0.05 \div 0.01$ ).

**Conclusion:** Only the questionnaire compiled by the teachers has an acceptable objectivity and reliability. The great differences found in males and females in the correlations between their social behaviours and motor skills oblige to study this factors with gender attention.

#### References

Tauck Family Foundation and Child Trends, 2014; Measuring Elementary School Students’ Social and Emotional Skills. Child Trend

## 7 PED

### Quantitative and Qualitative tools for a physical education program that increases inclusion of children with disabilities

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**Aim:** A small group of primary school students with disabilities was involved in motor tests, self-perception of effectiveness in school tasks and daily motor balance surveys. Tests were conducted at the beginning and at the end of a motor training period (6 months) to study the effect of physical activity on all features.

**Methods:** The research studied the psychological effects on 114 certified (L.104/92) students (82 M + 32 F) of supervised physical activity (Perceived Self-efficacy ASP, Physical Activity Enjoyment PACES-It and Previous Day Physical Activity PDPAR). The

students (7–11 years old range) global fitness was also evaluated by: anthropometric measures (body mass index), skill (4 × 10 m shuttle run test\_SRT) and health-related abilities using tests as the standing broad jump\_SBJ and six-minute walking test\_6MWT.

**Results:** Except for 6MWT, data showed that there were no significant changes at the end of structured activities in most of the investigated psychophysical features ( $\Delta$ PSBJ[M + F] > 90 = -0.2%;  $\Delta$ PSRT[M + F] > 90 = -0.1%). 6MWT ( $\Delta$ 6MWT[M + F] > 90 = +19.2%) had significant increases in walking distance. The same happens in psychological surveys.

**Conclusions:** The impossibility to verify changes in the psychophysical indexes we measured doesn't mean that the activities carried out through the administered program did not lead to any effects or that the measuring procedures were incorrect. Indeed, the literature (1) suggest that, when disabilities are tested, it is necessary to adopt complex adaptation and interpretation strategies: we need an adaptation report to certify and to track the measurement, for better focusing the results of the motor tests (also in 6MWT) and a qualitative and narrative interview for psychological tests (2). On these basis, the design of future investigations we planned for the next school year, will encompass participant observation tools through observation grids with inclusion descriptors in order to highlight the inclusive effect of the physical activity (3). The new tools will be defined on the bases of the *Grounded Theory* (i.e. *NVivo*) and phenomenological analysis.

#### References

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## 8 PED

### Teaching using novels help 4 y old children to develop motor skills

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**Aim:** Motor skill competence is a primary underlying mechanism to promote engagement in physical activity (Stodden, 2008) and to execute new tasks. Learning a motor task requires capacity to stay focuses, pay attention and activation of working memory, especially if it is difficult (Diamond, 2016). Story telling helps to develop executive functions and to be able to play attention.

**Methods:** We recently studied the effects of telling a novel to 4–5 year old children, teaching them a difficult task with cognitive engagement. Children of 2 kindergarten of northern Italy were engaged in the study.

**Methods** One class of 4–5 year old children was given instructions usually provided to 7–10 year old children to execute a motor task (Sigmundsson et al. 2016, walking, running in slope); in another class the task was dramatized with a fantastic situation

**Results:** Both groups understood the task but children scaffolded with the story executed the task more accurately and faster than children that received only standardized instructions.

**Conclusions:** For 4–5 year old children inserting a motor task in a fantasy novel improves understanding and remembering of the task resulting in more accurate and rapid execution of the task.

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## 9 PED

### Gross Motor Coordination, Bmi and Physical Activity: Trend and Correlation In Children

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**Aims:** Modern lifestyle can generates an early movement deficit in children that can produce a deficiency in motor skills even exaggerated in overweight children (1). Our study aim at verifying the evolution of physical activity, BMI and gross motor coordination in children (8–11 y.o.).

**Methods:** Study involved 991 children (Females = 452; Males = 539; Number for age: Eight = 284; Nine = 325; Ten = 315; Eleven = 67) from Veneto and Lazio regions. Normalized measure of Gross Motor Coordination (MC) was detected with KTK test (1). PAQ-C questionnaire was adopted to measure physical activity (PA).

**Results:** Physical activity was lower in females (F = 2.66; M = 2.86; p < 0.01) who, at 11y, also showed a significant drop (8 year = 2.71; 9 year = 2.76; 10 year = 2.82; 11 year = 2.34; p < 0.05 9 year and 10 vs 11 year). Males maintains their PA's level and, at 11 year, was higher than that of Females (Males 11 year = 2.95; p < 0.01 Males vs Female). MC was better in males (M = 95.3; F = 90.9; p < 0.001) and, for both, decreased with age (8 year = 98.7; 9 year = 93.1; 10 year = 89.7; 11 year = 90.8; p < 0.001 8 year vs 9–10–11 year; p < 0.019 vs 10 year). BMI increased significantl year from 8 year. (8 year = 17.9; 9 year = 19.0; 10 year = 19.3; 11 year = 19.8; p < 0.001 9–10–11 year vs 8 year). Negative correlation was found between MC and age (Females r = -0.21; Males r = -0.27; p < 0.001 for both) as well as between MC and BMI (Females r = -0.25; Males r = -0.26; p < 0.001 for both). No correlations were measured between MC and PA.

**Conclusions:** The age dependent reduction of normalized values of MC seems to be partiall year related to increase in BMI but low grade of correlation suggests that other important factors play a role in the progressive impairment of motor skills which apparently affect children in the so called "golden age" for motor learning.

#### References

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