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## Can schoolyard improvements increase physical activity for the least active students, or just provide better opportunities for the most active?

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optodes in both cerebral hemispheres (prefrontal cortex), the non-dominating arm (high/deep finger bender) as well as the right leg (calf-muscle). Additionally, the perfusion index of oxygen saturation and heart rate was recorded.

**Results** When performing cognitive exercises and muscular activities, it has been shown that the corresponding parameters in case of immediate stress are either decreasing or increasing. Beginning with targeted intervention respectively the distress of connected organs, we could identify immediate, significant changes when calculating ( $\Delta$  rSO<sub>2max</sub> = left hemisphere: 3.16,  $P < .01$ ; right hemisphere: 3.45,  $P < .01$ ) or contracting the forearm muscles repeatedly ( $\Delta$  rSO<sub>2max</sub> = 6.19,  $P < .01$ ). Above all there is a tendency that students of "Moving school" achieve comparable cognitive results with moderate increase of cerebral oxygenation. Presumably, very complex and difficult tasks can rather be completed successfully by students from "Moving school".

**Conclusion** The study shows that the concept of "Moving school" is very beneficial in terms of physical and mental development. It is absolutely advisable to integrate the whole body into all sectors of learning processes by means of regular exercises.

**Keywords** Near-infrared-spectroscopy; Tissue oxygenation; "Moving school"

**Disclosure of interest** The authors have not supplied their declaration of conflict of interest.

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#### S6-3

### Can schoolyard improvements increase physical activity for the least active students, or just provide better opportunities for the most active?



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**Introduction** School physical activity interventions can improve the physical environment and organizational environment of schools to increase the opportunities for physical activity (PA) in recess. The purpose of this study was to evaluate if improvements to the outdoor physical environment at the school had equal impact on all students regardless of their PA at baseline [1].

**Method** The SPACE-study used a cluster randomized controlled study design with a 2-year follow-up, and enrolled 1348 students aged 11–13 years from 14 schools in Denmark. A web-based questionnaire was used to obtain knowledge of PA during recess and in leisure time. The multicomponent intervention comprised 11 components, and included a combination of changes to the physical environment and organizational changes.

**Results** At baseline, 73% of the students reported to engage in sport outside school and were characterized as "the most active". At the intervention schools the proportion of student who reported good possibilities for outdoor PA increased (71% to 75%), while the proportion decreased at the comparison schools (87% to 68%). The

proportion of students reporting to be active daily during recess decreased for all groups (87% to 58%). The decrease was smaller at the intervention schools (88% to 62%), but only for the students characterized as the most active at baseline (90% to 66%). Furthermore, there was large variation between intervention schools.

**Conclusion** The intervention produced considerable changes to the environment of all seven intervention schools, and had a positive impact on self-rated PA during recess for the most active students at baseline.

**Keywords** Recess; Playground; Intervention

**Disclosure of interest** The authors have not supplied their declaration of conflict of interest.

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#### S6-4

### Exp rimentation des « Brain Break » dans l'enseignement primaire. Avis des  l ves



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**Introduction** L' cole est identifi e comme un des piliers de la lutte contre la s dentarit  des jeunes [1]. Elle peut mettre en  uvre un large  ventail de dispositifs parmi lesquels figurent les pauses mouvement propos es pendant les activit s en classe [2]. Une soci t  am ricaine (HOPSports) con oit et diffuse des s quences de quelques minutes qui mettent en sc ne des personnages r alisant des activit s physiques   imiter en classe : les 'Brain Breaks' (BB). Notre  tude vise   d terminer l'effet de l'utilisation r guli re de ces pauses mouvement sur les attitudes des enfants   l' gard de l' cole et sur leur style de vie.

**M thodes** Pendant 10 semaines (47 journ es), 88  l ves de 9   13 ans (3 classes) ont pratiqu  au moins un BB/jour (5 minutes effectives en moyenne), choisi parmi un  chantillon de 9 vid os. Avant et apr s le cycle, les enfants ont compl t  un questionnaire reposant sur des  chelles de Lickert   4 niveaux. Le m me instrument a  t  soumis   136 enfants contr les, issus d' coles appari es. Lors du post-test, les  l ves du groupe exp rimental ont aussi  t  interrog s sur leur perception des BB. L'analyse des donn es a  t  op r e au moyen du logiciel Statistica.

**R sultats** Au d but, aucune diff rence statistiquement significative n' st identifi e entre les enfants des classes exp rimentales et t moins. Apr s 10 semaines d'exposition quotidienne aux BB, les attitudes des  l ves  voluent diversement selon la classe consid r e et les variables analys es. En revanche, les r ponses de la majorit  des enfants   l' gard des vid os soulignent clairement l'int r t qu'ils leur ont port  (3,51/4) et leur souhait de poursuivre cette activit  (3,19/4).

**Conclusions** La programmation des BB peut contribuer   l'am lioration de la perception des enfants   l' gard de l' cole et d'eux-m mes mais il s'av re encore n cessaire de pr ciser le r le du d roulement des activit s dans l'ampleur de cet effet. Par ailleurs, il reste   d terminer si les enfants appr cient l'activit  physique ou la pause dans l'encha nement des le ons.

**Mots cl s** Enseignement primaire ; Brain breaks ;  l ves

**D claration d'int r ts** Les auteurs n'ont pas transmis de d clarations de conflits d'int r ts.

#### R f rences

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