

What Is the Relationship Between Students' Physical Activity and Mental Health?

The relationship between physical activity and mental health is not as simple as to say that activity will invariably lead to improved mental health. For youngsters to be engaged in physical exercise, it is important that the needs of the particular child be taken into account. Forced and frightening activities should be avoided. The context should be one of enjoyment rather than of harsh discipline and skill-dependent games where many children are apt to fail.

Lagerberg (2005)

Recent reviews have helped to clarify the relationship between youngsters' physical activity and mental health.

In their review of reviews, Biddle & Asare (2011) report:

“Four review articles reported evidence concerning depression, four for anxiety, three for self-esteem and seven for cognitive functioning. Nine primary studies assessed associations between sedentary behaviour and mental health. Physical activity has potentially beneficial effects for reduced depression, but the evidence base is limited. Intervention designs are low in quality, and many reviews include cross-sectional studies. Physical activity interventions have been shown to have a small beneficial effect for reduced anxiety, but the evidence base is limited. Physical activity can lead to improvements in self-esteem, at least in the short term. However, there is a paucity of good quality research. Reviews on physical activity and cognitive functioning have provided evidence that routine physical activity can be associated with improved cognitive performance and academic achievement, but these associations are usually small and inconsistent. Primary studies showed consistent negative associations between mental health and sedentary behaviour.”

They conclude: “Association between physical activity and mental health in young people is evident, but research designs are often weak and effects are small to moderate.”

Studying a sample of adults, Kim, Park, Allegrante, Marks, Ok, Ok, & Garber (2012) report:

“A curvilinear association was observed between physical activity and general mental health. The optimal threshold volume for mental health benefits was of 2.5 to 7.5 hours of weekly physical activity. The associations varied by gender, age, and physical health status. Individuals who engaged in the optimal amount of physical activity were more likely to have reported better mental health.”

*The material in this document was culled from the literature by Wei-Hsuan (Sharon) Wang as part of her work with the national Center for Mental Health in Schools at UCLA.

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Correlational studies, of course, say nothing about cause and effect. Nevertheless, the widespread view is that “appropriate” physical activity has a beneficial effect on mental health. Physical activity generally is defined as any bodily movement produced by skeletal muscles that require energy expenditure. Among the mechanisms hypothesized to produce psychological and physiological benefits are increased blood and oxygen flow to the brain, increased levels of norepinephrine and endorphins resulting in a reduction of stress and an improvement of mood, increased growth factors that help to create new nerve cells and support synaptic plasticity, and psychological and sociological factors such as body-weight perception (self-image) and the social aspects of participation (social interaction).

Physical Activity and Classroom Functioning and Learning

Because of the relevance to schools, considerable public attention has been given to emphasizing the relationship of physical activity and school learning and behavior. Reed (2011) cites an example where a school had students begin their day with 20 minutes of cardio exercise before proceeding with academic lessons. He reports:

"Everyone changed. Kids started getting off Ritalin. They started coming to school every day to use the workout equipment. A student who could barely sit still for 10 to 15 minutes could sit quietly and complete an assignment for the first time. Students could concentrate and work harder. There was no swearing, no running around. One student felt more energized and with improved mood could control his anger and concentrate better. One student said he started getting smarter, paid attention more, and began to see how he could turn his life around. Not to mention an improvement in reading and writing of 25 to 30 percent. One student had a 400 percent increase in comprehension. Math performance was up 25 percent."

Tomprowski, Lambourne, & Okumura (2011) report that data from large samples of children and adolescents suggest moderate to strong positive associations between the amount of physical activity or participation in physical education and school behavior and academic achievement. They conclude that exercise fosters the emergence of children's mental functions, particularly executive functioning.

Others report that:

- providing short physical activity breaks during the school improved on-task behavior (Whitt-Glover and Porter 2013)
- after exercise, students were sharper, more attentive, less impulsive and fidgety, and sustained their attention longer (Reed, 2011)
- physical activity increased concentration on the academic material in the classroom (Singh 2012)
- an exploratory study suggested that participation in a physical activity program improved muscular capacities, motor skills, behavior, and level of information processing of children with Attention Deficit Hyperactivity Disorder (Verret 2011).

Current Status of Structured Physical Activity in Schools

The U.S. Department of Health and Human Services recommends that young people aged 6–17 years participate in at least 60 minutes of physical activity daily. And given the many formal and informal opportunities for activity at school, schools are regularly seen as needing to play a major role in ensuring this happens. At the same time, it is widely acknowledged that attention to facilitating positive physical activity at schools is lacking and is a marginalized focus in school improvement policy and practice.

The Centers for Disease Control and Prevention report that, in 2013, only 27.1% of high school students surveyed had participated in at least 60 minutes per day of physical activity on all 7 days before the survey, and only 29% attended physical education class daily.

CDC advocates that schools

- promote physical activity through comprehensive school physical activity programs, including recess, classroom-based physical activity, intramural physical activity clubs, interscholastic sports, and physical education.
- ensure that physical education is provided to all students in all grades and is taught by qualified teachers.
- work with community organizations to provide out-of-school-time physical activity programs and share physical activity facilities.

(<http://www.cdc.gov/HealthyYouth/physicalactivity/facts.htm>)

What Advocates Recommend for Increasing Student Physical Activity at Schools

Prominently mentioned strategies for increasing physical activity during school hours include:

- providing enhanced physical education that increases lesson time, is given by trained specialists, and includes instructional practice at a moderate to vigorous physical activity level
- taking classroom activity breaks
- creating activity sessions before and after school while providing adequate space and equipment
- participating in active transportation, which includes walking and biking to and from school, to help kids, along with parents, get in more physical activity
- encouraging physical activity during recess, lunch and other breaks, with organized activities and game equipment available; this may help increase physical activity

Of course, schools already do many of these things.

Examples of What Schools Are Doing

In the current educational system, children and adolescents are given opportunities to engage in physical activity during formal physical education classes, or they may have exercise routines as part of their classroom activity. Beyond P.E., there are opportunities at recess, lunch, before and after school, and as part of various extra-curricular recreational programs.

Physical Education – Structured physical education curricula are widely available. Currently, policy emphasis is on recommending, not mandating such courses. A recent online survey taken by 1,173 parents and K-12 educators reports overwhelming support for health and physical education to be a mandatory part of the school day (*KidsHealth in the Classroom* – <http://kidshealth.org/parent/educator/health-pe-survey.html>). The survey also found that a many schools don't offer such classes, and those that do are seen as not devoting enough time to the subjects and/or are teaching them ineffectively.

Beyond P.E. – In kindergarten and elementary schools, physical activity mainly occurs during unstructured play time (e.g., before and after school, during recess and lunch). At such times, adult supervisors are expected to monitor students for bullying or other behavior problems, but generally do not provide structured activities. Schools vary in the type and quantity of recreational equipment or games provided. Students vary in how much physical activity they expend during the time available. By middle and high school, opportunities for physical activity expand to extra-curricular opportunities (e.g., intra- and extra-mural sport, drill team, marching band, dance and other performance arts).

The Role of Motivation

Clearly, some students are highly motivated to pursue physical activity; some are not. As with all facets of schooling, efforts to enhance student physical activity must address differences in motivational readiness and develop processes that promote engagement during school and beyond.

A growing body of literature is focusing on the relationship between motivation, especially intrinsic motivation, and health promoting physical activity. Studies support theory suggesting that in establishing opportunities for participation in physical activity schools should provide a wide range of options from which students can make personal choices and be supported in their participation. (Intrinsic motivation theory emphasizes that students are more likely to engage in activities that make them feel competent, self-determining, and positively connected with significant others. Conversely, they are likely to avoid and disengage when they experience threats to such feelings.)

Concluding Comments

Clearly schools are places where a considerable amount of physical activity takes place. The degree to which the activity is fully integrated into school improvement policy and practices varies with the amount of public concern about health matters (e.g., obesity) and advocacy for physical education and sports. The trend continues to be one of ad hoc and piecemeal initiatives.

With respect to the future, the question remains: *How should schools embed a regular, well-integrated, and equitable focus on physical activity into its other concerns for promoting healthy development and addressing student's problems?* In answering this question, policy makers must consider both formal and informal curricular and pay greater attention to natural opportunities for promoting healthy development. And, they must appreciate the role physical activity can play in addressing barriers to learning and teaching and re-engaging disconnected students.

Resources Used in Preparing this Resource

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<http://activelivingresearch.org/do-you-see-what-i-see-correlates-multidimensional-measures-neighborhood-forms-and-perceived-physical>

Note also:

Mental Health and Physical Activity – an international forum for scholarly reports on any aspect of relevance to advancing our understanding of the relationship between mental health and physical activity. <http://www.sciencedirect.com/science/journal/17552966>

For more, see the Center's Online Clearinghouse Quick Finds (e.g., on *After School Activity* at <http://smhp.psych.ucla.edu/qf/afterschool.htm>; *Mental Health Curriculum* at http://smhp.psych.ucla.edu/qf/p2311_01.htm)

For more on embedding health concerns into a unified and comprehensive system of student and learning supports, see

- Adelman, H.S. & Taylor, L. (2014). Embedding school health into school improvement policy, *International Journal of School Health*, 1 – <http://smhp.psych.ucla.edu/pdfdocs/intjournal.pdf>.
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- Adelman, H.S. & Taylor, L. (2015). *Transforming student and learning supports: developing a unified, comprehensive, and equitable system*. Los Angeles: Center for Mental Health in Schools at UCLA. <http://smhp.psych.ucla.edu/pdfdocs/book/book.pdf>

About Transforming Student and Learning Supports

Concerns such as those highlighted in this Information Resource are part of a wide range of barriers to learning and teaching. To effectively address the breadth of concerns schools face each day requires transforming current approaches to providing student and learning supports. The *2015 National Initiative for Transforming Student and Learning Supports* is dedicated to this.

It's Time for Direct Action!

2015 is the time for everyone concerned about student learning, behavior, and emotional problems to pursue the following courses of action to enhance school improvement policy and practice:

- Work for collaboration among groups recommending changes in education policy so that there is a unified message about
 - >ending the marginalization of student and learning supports
 - >developing a unified, comprehensive, and equitable system of student and learning supports.
- Participate at decision making and planning tables focused on school improvement so you can clarify the need to expand from a two to a three-component policy framework.
- Send the message to those shaping school improvement policy (e.g., principals, superintendents, mayors, governors, organizational, business and philanthropic leaders).
- Communicate with Congress about the need to end the marginalization of student and learning supports and expand from a two to a three-component policy framework for school improvement as a major facet in reauthorizing the ESEA.
- Focus the attention of governors, mayors, superintendents, principals, and other leaders on the need to help schools unify and develop a comprehensive system of student and learning supports.
- Let us know who to send information to.

At a minimum, let us know your thoughts about direct action to elevate student and learning supports in policy as a nonmarginalized and unified system. That will help us in mobilizing others.

Send your ideas and any information about what you see happening to Ltaylor@ucla.edu or to adelman@psych.ucla.edu

Here's a few resources to share with colleagues:

- >*Transforming Student and Learning Supports: Trailblazing Initiatives!*
<http://smhp.psych.ucla.edu/pdfdocs/newsletter/summer14.pdf>
- >*Introducing the Idea of Developing a Comprehensive System of Learning Supports to a New Superintendent or to One Who May Be Ready to Move Forward*
<http://smhp.psych.ucla.edu/pdfdocs/introtosups.pdf>
- >*Developing a Unified, Comprehensive, & Equitable System of Learning Supports: First Steps for Superintendents Who Want to Get Started*
<http://smhp.psych.ucla.edu/pdfdocs/superstart.pdf>
- >*Establishing a Comprehensive System of Learning Supports at a School: Seven Steps for Principals and Their Staff*
<http://smhp.psych.ucla.edu/pdfdocs/7steps.pdf>

And for a more in-depth discussion, go to the section on our website for the 2015 initiative and download and share the new book: *Transforming Student and Learning Supports: Developing a Unified, Comprehensive, and Equitable System*.