

Fighting obesity: Revisiting schoolyard games

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(PhysOrg.com) -- A study in the Journal of Pediatrics systematically measured both energy expenditure and enjoyment in 30 different schoolyard games. Its findings offer a menu of effective games that could be played during gym and recess to address the growing child obesity problem.

Not all children's games are alike when it comes to how many calories kids burn playing them. And, as many adults will remember, not all are equally enjoyable to play. A study in [The Journal of Pediatrics](#) systematically measured both energy expenditure and enjoyment in 30 different schoolyard games. Its findings offer a menu of effective games that could be played during gym and recess to address the growing child [obesity](#) problem.

Researchers at Children's Hospital Boston and the University of Massachusetts Amherst collaborated on the project. They selected the 30 games through focus groups with physical education teachers, then tested them in 28 third-graders in a large gymnasium.

"There's a big push for more formal physical education in schools, but this game-type activity is also important," says Voula Osganian, MD, director of the Clinical Research Program at Children's and senior investigator on the study, which was [published online](#) August 13. "With nutrition and diet, we have the ability to be precise in our measures, but it's hard to know how much energy children really expend during [physical activity](#). What we wanted to see was a precise 'dose' of games."

As the children played, their total [energy expenditure](#) was tracked with a portable metabolic analyzer with a face mask that measured their oxygen consumption. An [accelerometer](#) measured how physically active each child was during the game. Immediately after each game, the children ranked their level of enjoyment on a visual scale showing happy, sad and neutral faces.

Among the games ranking highest in terms of calories burned per minute were Computer Virus, Builders and Bulldozers, Race Day, and Dragon's Tail. Most of these also ranked at the top of the physical-activity scale. Among those with the highest enjoyment scores were Dragon's Tail, Capture the Flag, Stop and Go, and Monkey in the Middle.

In general, children expended the most energy during tag-type games and games requiring minimal strategy or skill, and the least during games requiring relatively less social interaction (such as Monkey in the Middle) or had periods of standing still (Eagles and Sparrows, Crows and Cranes, Hibernation). The games ranking highest for enjoyment were tag-type games with more erratic movement patterns.

In June, the researchers completed a pilot intervention study at two Massachusetts elementary schools, testing the 22 most promising games. The findings suggest that running these games during recess, rather than allowing unstructured free play, increases physical activity. "We really don't take advantage of recess now," says Osganian. "But if you had short bouts of physical activity twice a day, you could expend up to 200 calories a day in energy at school."

Provided by Children's Hospital Boston

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