

# Vigorous physical activity may increase risk of bleeding for children with hemophilia

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In children and adolescents with hemophilia, vigorous physical activity was associated with an elevated risk of bleeding, although it appears the absolute increase in risk may be small, according to a study in the October 10 issue of *JAMA*.

[Hemophilia](#) is a bleeding disorder that, if untreated, causes recurrent bleeding into [joints](#). "Vigorous physical activity is thought to increase risk of bleeds in children with hemophilia, but the magnitude of the risk is unknown," according to background information in the article. Information about risks associated with physical activity is needed to help inform decisions regarding participation in physical activity, the authors write.

Carolyn R. Broderick, M.B.B.S., of the University of Sydney, Australia and colleagues conducted a study to quantify the transient (short duration) increase in risk of bleeding associated with [vigorous physical activity](#) in children with hemophilia. The study was conducted at three pediatric hemophilia centers in Australia between July 2008 and October 2010 and included 104 children and [adolescent boys](#) ages 4 through 18 years with moderate or severe hemophilia A or B who were monitored for bleeds for up to 1 year. Following each bleed, the child or parent was interviewed to determine exposures to physical activity preceding the bleed. Physical activity was categorized according to expected frequency and severity of collisions. The risk of bleeds associated with physical activity was estimated by contrasting exposure to physical activity in the 8 hours before the bleed with exposures in two 8-hour control (non-

bleed) windows, controlling for levels of clotting factor in the blood. The median (midpoint) duration of follow-up was 52 weeks.

There were 436 bleeds, of which 336 were study bleeds (i.e., bleeding episodes without another bleeding episode in the preceding 2 weeks). Eighty-eight participants (84 percent) reported at least 1 bleed. The most frequent sites of bleeding were the knee (15 percent), ankle (14 percent), and elbow (10 percent). Compared with inactivity and category 1 activities (e.g., swimming), category 2 activities (e.g., basketball) were associated with a transient increase in the risk of bleeding (30.6 percent of bleed windows vs. 24.8 percent of first control windows; odds ratio, 2.7). Category 3 activities (e.g., wrestling) were associated with a greater transient increase in risk (7.0 percent of bleed windows vs. 3.4 percent of first control windows; odds ratio, 3.7). These odds of [bleeding](#) suggest that for most children, the absolute increase in risk associated with physical activity is low. "To illustrate absolute risk increase, for a child who bleeds 5 times annually and is exposed on average to category 2 activities twice weekly and to category 3 activities once weekly, exposure to these activities was associated with only 1 of the 5 annual bleeds," the authors write. Most bleeds associated with physical activity were present within an hour of activity.

"This study confirms that [physical activity](#) is associated with an increased risk of bleeds in children and [adolescents](#) with moderate or severe hemophilia A or B. It demonstrates that the relative increase in risk is moderate. However, for most children, the absolute increase in risk is likely to be low," the researchers conclude.

Marilyn J. Manco-Johnson, M.D., of the University of Colorado and Children's Hospital Colorado, Aurora, writes in an accompanying editorial that participation in sports can be important to help reduce the sense of isolation experienced by many children with hemophilia, and that "guidelines focused on [children](#) with hemophilia and participation in

[collision](#) sports are needed."

"These recommendations should include educating parents and athletes about potential short and long complications related to sports participation, risk reduction measures with prophylaxis regimens, conditioning and strengthening programs, and the healthful contributions of sports participation toward physical, social, and emotional development as well as the prevention of obesity."

**More information:**

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*JAMA*. 2012;308[14]:1480-1481.

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