Title IX's Positive Unintended Consequence: Girls Have a Lower Probability of Obesity

Research on girls' sports participation and lifetime physical activity and weight

SUMMARY

From 2005 to 2008, researchers at the University of Illinois at Chicago carried out two studies to determine the impact of Title IX legislation on physical activity and obesity in girls and women.

The enactment of Title IX of the Educational Amendments in 1972, which prohibits discrimination based on sex in educational programs and activities that receive federal financial assistance, led to a dramatic increase in girls' sports participation. Although effects on obesity were not considered at the time (prior to the increase in U.S. youth obesity levels), these two studies examined such effects.

The first study examined the effect of the increase in girls' participation in high school sports on adolescent girls' (ages 12 to 17) physical activity and weight. The second study sought to determine whether these effects persisted into adulthood for this cohort.

Key Findings

Researchers reported the following findings in "Effects of Title IX and Sports Participation on Girls' Physical Activity and Weight," published in Advances in Health Economics and Health Services Research:

- A 20 percent increase in girls' participation in high school sports between the 1970–71 and 1977–78 academic years was associated with a 24 percent increase in the probability of engaging in "much" physical activity during recreational activities, a 4 percent decline in body mass index and a lessened probability of being overweight or obese.

- This is the only study to date establishing the effects of a strong and enforced school-based physical activity policy on population-level (national) obesity.

In an unpublished follow-up report, "Title IX, Girls' Sports Participation and Adult Female Physical Activity and Weight," researchers reported the following findings:
• The decrease in obesity associated with increased athletic opportunities for this cohort of adolescent girls continued into adulthood, primarily among women with a high school education or less.

• Surprisingly, expanded athletic opportunities for this cohort did not have any lasting effects on their overall physical activity levels later in life.

**Funding**

The Robert Wood Johnson Foundation (RWJF) supported the project with two grants between October 2005 and December 2008 that totaled $202,562.

**THE PROBLEM**

The participation of girls in sports increased dramatically after the passage of Title IX of the Education Amendments in 1972, which prohibits sex-based discrimination in any educational program or activity that receives federal financial assistance. Between the 1970–71 and 1977–78 academic years, the number of girls participating in high school sports increased more than 600 percent, according to the National Federation of State High School Associations, which is based in Indianapolis. During the same period, the rate of girls’ participation in high school sports increased from approximately 5 percent to 26 percent, according to a 2000 report from Harvard University.

Title IX presented a unique national experiment for examining the effects of school-based physical activity policies on obesity and overall physical activity levels of the first cohort of adolescent girls affected by it. Findings have direct relevance to federal school wellness policies enacted under the Child Nutrition and WIC Reauthorization Act in 2004.

**CONTEXT**

RWJF has developed three integrated strategies to reverse the childhood obesity epidemic: evidence, action and advocacy.

**Evidence Base**

Investments in building the evidence base will help ensure that the most promising efforts are replicated throughout the nation.

The Foundation’s major research efforts in this area—*Active Living Research, Healthy Eating Research* and *Bridging the Gap*—are contributing to the nation’s collective knowledge about the changes to policies and to community and school environments that are most effective in increasing physical activity and improving nutrition for kids. See
Program Results on *Active Living Research, Healthy Eating Research* and *Bridging the Gap* for more information on those programs.

RWJF also seeks to evaluate innovative approaches under way in states, schools and communities across the country.

- For instance, RWJF supported an independent evaluation of efforts to implement Arkansas Act 1220, which mandated a comprehensive approach to addressing childhood obesity in public schools.

- The Foundation also funded a separate initiative to analyze body mass index (BMI) data for all Arkansas public school students. The BMI analysis has indicated that in just three years, Arkansas has halted the progression of the obesity epidemic in the state.

See Program Results Report on *Information for Action* for more detail on this two-pronged initiative.

**Action**

RWJF's action strategy for communities and schools focuses on engaging partners at the local level, building coalitions and promoting the most promising approaches.

**Advocacy**

As staff learns from the evidence and action strategies, RWJF shares results by educating leaders and investing in advocacy, building a broad national constituency for childhood obesity prevention.

RWJF staff funded this project to take advantage of a "natural experiment" to address the Foundation's goal to build the evidence base for policy action to halt the rise in childhood obesity.

**THE PROJECT**

From 2005 to 2008, Robert Kaestner, PhD, an economist at the Institute of Government and Public Affairs at the University of Illinois at Chicago and his colleagues designed and conducted two studies of the impact of the Title IX legislation:

- The first study examined the association between the expanded participation of adolescent girls in school-based sports that resulted from Title IX and physical activity and body mass index.

- In the second study, investigators sought to determine whether lasting changes had occurred. They did so by investigating whether the benefits seen in the first study
persisted into adulthood for the women in the early cohorts of girls who were adolescents when Title IX took effect.

**Methodology**

For the first study, the researchers used data from two National Health and Nutritional Examination Surveys, which provide information on adolescent girls' (ages 12 to 17) physical activity and weight between 1971 and 1980, the period when girls' participation in high school sports grew most rapidly. They also used data from the National Federation of State High School Associations, which maintains information on participation in competitive high school sports by year, state, sport and gender.

For the second study, the researchers again drew on data from the National Federation of State High School Associations, and from the following sources:

- The Behavioral Risk Factor Surveillance Survey, which is an ongoing data collection program designed to monitor behavioral risk factors in noninstitutionalized adults in the United States.
- The National Health Interview Survey, which is conducted by the National Center for Health Statistics and is designed to be the major source of information on the health of the civilian noninstitutionalized population of the United States.

The researchers examined four birth cohorts: 1951–55, 1956–60, 1961–65 and 1966–70. Women in this study were between the ages of 25 and 53.

**Limitations**

Researchers reported the following limitations:

- Both studies used high school sports as a proxy for policy-driven expanded athletic opportunities for adolescent females, but Title IX may have had impacts on sports participation in other settings as well.
- The sample sizes in the first study may have been too small to detect small effects.
- The data on adult women in the second study did not provide information on the state in which they attended high school, making it difficult to link their current obesity and physical activity levels to the athletic opportunities that were available to girls on a state-by-state basis. To compensate, the researchers in some analyses limited the sample to women in states with relatively low migration rates. For similar reasons, they focused in some analyses on women with a high school education or less, who are more likely to live in the state in which they went to high school.
Communications

Findings from the first study were published in *Advances in Health Economics and Health Services Research*. RWJF staff also published a research brief on the study. Researchers prepared a report on the findings from Kaestner's second study, which has not yet been published. See the Bibliography for details.

Kaestner made presentations on findings from the first study in 2006 at the International Health Economics Association, Cornell University, the University of Chicago and the University of Illinois at Chicago. Kaestner also presented the findings of the second study at the American Society of Health Economics annual meeting and the University of Chicago in 2008.

FINDINGS

Researchers reported the following findings in "Effects of Title IX and Sports Participation on Girls' Physical Activity and Weight," published in *Advances in Health Economics and Health Services Research*:

- "Increases in girls' participation in high school sports, a proxy for expanded athletic opportunities for adolescent females, were associated with an increase in physical activity and an improvement in weight and body mass among girls."
  
  During this time period, researchers found:
  
  — A 24 percent increase in the probability of engaging in "much" physical activity during recreational activities.
  
  — A 4 percent decline in body mass index.
  
  — Marked reduction in the likelihood of being overweight or obese. Although the data showed evidence of a consistent effect, they fell within a large range, and the researchers noted that they could not provide a more precise estimate.

- The effect of Title IX on girls' weight varied based on family income levels but not on geographical location.
  
  — Increases in sports participation and physical activity levels were associated with improvements in weight and body mass index only among girls from high-income families (defined as household income above $10,000 in the 1970s).
  
  — A family's location in an urban or rural setting did not have a significant influence on the relationship between sports participation and weight or body mass index.
Researchers reported the following findings in the unpublished report, "Title IX, Girls' Sports Participation and Adult Female Physical Activity and Weight":

- **The decrease in obesity associated with increased athletic opportunities for girls continued into adulthood.** The primary population for this finding was women with a high school education or less. Differences in obesity rates tended to grow by birth cohort, consistent with the increased athletic opportunities available to each cohort, but the differences were relatively modest. Two sources of data confirmed the trends:
  
  — Less-educated women born between 1956 and 1970, who would have been adolescents after Title IX had been enacted, had rates of obesity that were 10 percent to 15 percent lower than a comparable population born between 1951 and 1955, according to data in the Behavioral Risk Factor Surveillance System.
  
  — Less-educated women born between 1961 and 1970 had 20 percent lower rates of obesity than comparable women born between 1951 and 1955, according to the CDC-sponsored National Health Interview Survey.

- **Adult women who attended high school in states where sports participation by girls increased substantially after Title IX took effect had lower rates of obesity than did older women in those states.** Because the goal of Title IX was to equalize athletic opportunities for girls and boys, the burden of creating this equality differed by states. States with higher rates of athletic participation by boys typically had a greater burden to increase participation by girls (e.g., if 10 percent of girls participated in sports in two states, but 50 percent of boys participated in one of those states and 20 percent of boys participated in the other, the first state would have a substantially higher burden than the second).

  Researchers looked specifically at these high-burden states and concluded:
  
  — Less-educated women born between 1961 and 1965 who attended high school in high-burden states had rates of obesity that were 20 percent lower than women born between 1951 and 1955 in the same states.
  
  — Less-educated women born between 1966 and 1970 who attended high school in high-burden states had rates of obesity that were 17 percent lower than women born between 1951 and 1955 in the same states.

- **Expanded athletic opportunities for girls did not have lasting effects on physical activity in adulthood.** This is consistent with other studies that have found only modest correlations between rates of physical activity over the life cycle.

**AFTERWARD**

As of June 2009, Kaestner and his colleagues were continuing to research the effects of Title IX and girls' sports participation, expanding their inquiry to consider the impact on employment, earnings and marriage. Their hypothesis is that expanded athletic
opportunities may have altered social networks and influenced self-esteem and other determinants of success.

**BIBLIOGRAPHY**

*(Current as of date of the report; as provided by the grantee organization; not verified by RWJF; items not available from RWJF.)*

**Articles**


**Reports**