

Social Determinants of Health: Year-Round Schooling

Community Preventive Services Task Force Finding and Rationale Statement Ratified August 2017

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CPSTF Finding and Rationale Statement

Context

Students may lose the equivalent of two months of grade-level learning over a summer break (Cooper et al., 1996). This loss is greater among economically disadvantaged students. Schools may be able to address this problem by shortening the summer break and redistributing vacations and breaks throughout the school year.

Intervention Definition

Year-round schooling alters the school calendar by redistributing school and vacation days more evenly throughout the year, without changing the number of school days per year.

There are two forms of year-round schooling:

- **Single-track:** all students participate in the same school calendar. In place of long breaks such as summer vacation, there are shorter breaks between school sessions distributed more evenly throughout the year. Schools may offer intersession programs with remedial or accelerated classes.
- **Multi-track:** students are grouped into “tracks” and each one has its own schedule. One track is on break while the others are in session, and breaks are distributed throughout the year. Except for certain holidays, the school remains open year-round.

Single-track programs are generally implemented to address the problems of summer loss and achievement gaps. Multi-track programs are generally implemented to address school crowding and take advantage of school facilities that are often closed and empty during summer. Extra space is created by scheduling tracks so that fewer students are attending school at any given time; one track is on break while the remaining tracks are in school. Both year-round systems need to consider issues such as parental employment, child care availability, and school administration.

CPSTF Finding (August 2017)

The Community Preventive Services Task Force (CPSTF) finds insufficient evidence to determine the effectiveness of **single-track year-round schools** in improving academic achievement because the role of intersession programs is unclear. Intersession programs offered between regular school sessions may be used for remedial or accelerated course work. Most studies included in this review did not indicate whether intersession programs were considered essential or optional elements of single-track year-round schooling. It also was unclear whether benefits of single-track programs were attributable to the change of calendar, the addition of intersession programs, or a combination of both.

The CPSTF finds insufficient evidence to determine the effectiveness of **multi-track year-round schools** in improving academic achievement. If multi-track programs are implemented, it is important that students be equitably assigned to tracks and that tracks have equivalent resources.

Academic achievement is an established determinant of long-term health. When implementing year-round schooling, issues to consider include parental employment, child care availability, and school administration.

Rationale

Basis of Finding

A 2003 meta-analysis of 47 studies evaluated the effects of year-round school calendars on student achievement (Cooper et al, 2003); of these, 23 studies specified whether the calendar was single- or multi-track. The CPSTF findings are based on the Cooper et al. review, combined with more recent evidence (6 additional studies, search period March 2002 - August 2016).

In combination, 18 studies evaluated single-track year-round calendars and 11 evaluated multi-track year-round calendars. One study (Graves 2010) is counted twice because it evaluated both single- and multi-track programs, and another study (Wu et al., 2010) is not included because it evaluated both single- and multi-track programs together. All studies reported academic outcomes. Results are shown in Tables 1 and 2.

Table 1: Single-Track Year-Round Calendars - Effect on Academic Outcomes

Outcome	Cooper et al., 2003	Updated Search
<p>Achievement Scores (17 studies)</p>	<p>15 studies: Weighted d*: 0.19 (95% CI: 0.07 to 0.31)</p> <p>Overall magnitude of effect is small but meaningful and consistent across the body of evidence. The role of intersession programs is unclear.</p>	<p>1 study: Increase of 5.2 pct pts in NPR in math Increase of 1.6 pct pts in NPR in reading</p> <p>1 study: Decrease of 0.40 pct pts in NPR in math Increase of 0.18 pct pts in NPR in reading Decrease of 0.37 pct pts in NPR in language</p> <p>Among overcrowded schools: Decrease of 0.79 pct pts in NPR in math Decrease of 0.62 pct pts in NPR in reading Decrease of 0.10 pct pts in NPR in language</p> <p>1 study (measured as relative gain**) Overall, no effect (values not reported)</p> <p>Among Black students: Increase of 19% in math Increase of 16% in English</p> <p>Among Hispanic students: Decrease of 7% in math Increase of 7% in English</p> <p>Among low SES students: Increase of 13% in math Increase of 6% in English</p> <p>Among Limited English proficiency students: Increase of 4% in math Decrease of 12% in English</p> <p>Overall magnitude of effect is insufficient and inconsistent across the body of evidence. The role of intersession programs is unclear.</p>

*d is a common measure of standardized mean difference

**relative gain is the difference between the proportion of the population with scores 10% higher than expected and 10% lower than expected

CI: confidence interval

NPR: National Percentile Rank
Pct pts: percentage points

Table 2: Multi-Track Year-Round Calendars - Effect on Academic Outcomes

Outcome	Cooper et al., 2003	Updated Search
Achievement Scores (11 studies)	8 studies: Weighted d*: 0.04 (95% CI: -0.12 to 0.2) Overall magnitude of effect is insufficient.	1 study: Decrease of 0.002 SMD in math SE = 0.028 Increase of 0.016 SMD in reading SE = 0.023 1 study: Decrease of 1.0 pct pts in math Decrease of 1.1 pct pts in reading Differential effects by tracks within schools 1 study: Decrease of 0.32 pct pts in NPR in math Decrease of 0.12 pct pts in NPR in reading Decrease of 0.44 pct pts in NPR in language Among overcrowded schools: Decrease of 1.9 pts in NPR in math; p<0.01 Decrease of 0.91 pts in NPR in reading Decrease of 1.2 pts in NPR; p<0.05 Overall magnitude of effect is insufficient.

*d is a common measure of standardized mean difference
Pct pts: percentage points
CI: confidence interval
NPR: National Percentile Rank
SE: standard error
SMD: standardized mean difference

Applicability and Generalizability Issues

Applicability was not assessed for single-track and multi-track year-round schools because the CPSTF did not have enough information to determine if these interventions work.

All included studies came from the United States. Studies in the Cooper et al. review were implemented in urban school districts (18 studies), at the elementary school level (23 studies), at the secondary school level (9 studies), in single-track schools (15 studies), and with intersession programs (15 studies). Programs reported using days in school/days not in school ratios of 45/15, 30/10 or 60/15 more frequently (20 studies) than 60/20 calendars (8 studies).

Studies included in the update were implemented in mixed urban/suburban and rural settings. Studies reported on multi-track schools (2 studies), single-track schools (2 studies), and multi-track and single-track schools (2 studies). Half of the studies were implemented in elementary or middle schools, and one study mentioned intersession.

Data Quality Issues

Several of the studies from the updated search reported data from the same school districts in California, potentially double-counting data in the review. The Cooper et al. review did not have similar issues.

Other Benefits and Harms

The following are drawn from studies included in the evidence review, the broader literature, and expert opinion.

Possible added benefits:

Single-track

- None noted

Multi-track

- Decreased school vandalism
- Cost-saving or cost delays to school district

Potential harms:

Single- and Multi-track

- Difficulty for parents to arrange work and child care
- Interference with extracurricular activities, job scheduling (for parents and students)
- Reduced family vacation time

Multi-track

- Complex scheduling, coordination, administration
- Difficulty scheduling standardized tests
- Difficulty arranging after-school activities
- Loss of school friends (in other tracks)

Considerations for Implementation

If year-round calendars are to be implemented, the following issues should be considered.

Overall:

- Curriculum revision to better fit year-round calendar, such as allowing for more frequent review of material
- Parental employment
- Child care arrangements
- Resistance from travel industry
- Differences in the way the calendar is implemented
 - How many breaks in the calendar?

- How are they arranged?

Multi-track:

- Administrative challenges
- Number of tracks
- Methods of student assignment to different tracks

Evidence Gaps

Additional research and evaluation are needed to answer the following questions:

- Is there an optimal spacing of school days and breaks for purposes of learning?
- Does optimal spacing match a particular calendar design?
- Single-track calendars:
 - Are single-track calendars effective in the absence of intersession programs? Does the intersession account for the benefit of single-track calendars?
- Multi-track calendars:
 - How is track placement achieved and how can equity be assured?

References

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The data presented here are preliminary and are subject to change as the systematic review goes through the scientific peer review process.

Disclaimer

The findings and conclusions on this page are those of the Community Preventive Services Task Force and do not necessarily represent those of CDC. CPSTF evidence-based recommendations are not mandates for compliance or spending. Instead, they provide information and options for decision makers and stakeholders to consider when determining which programs, services, and other interventions best meet the needs, preferences, available resources, and constraints of their constituents.

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