

Overview of Scholarship

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Active Schools Institute

My Mentors



Dr. Kim Graber
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Dr. Dolly Lambdin
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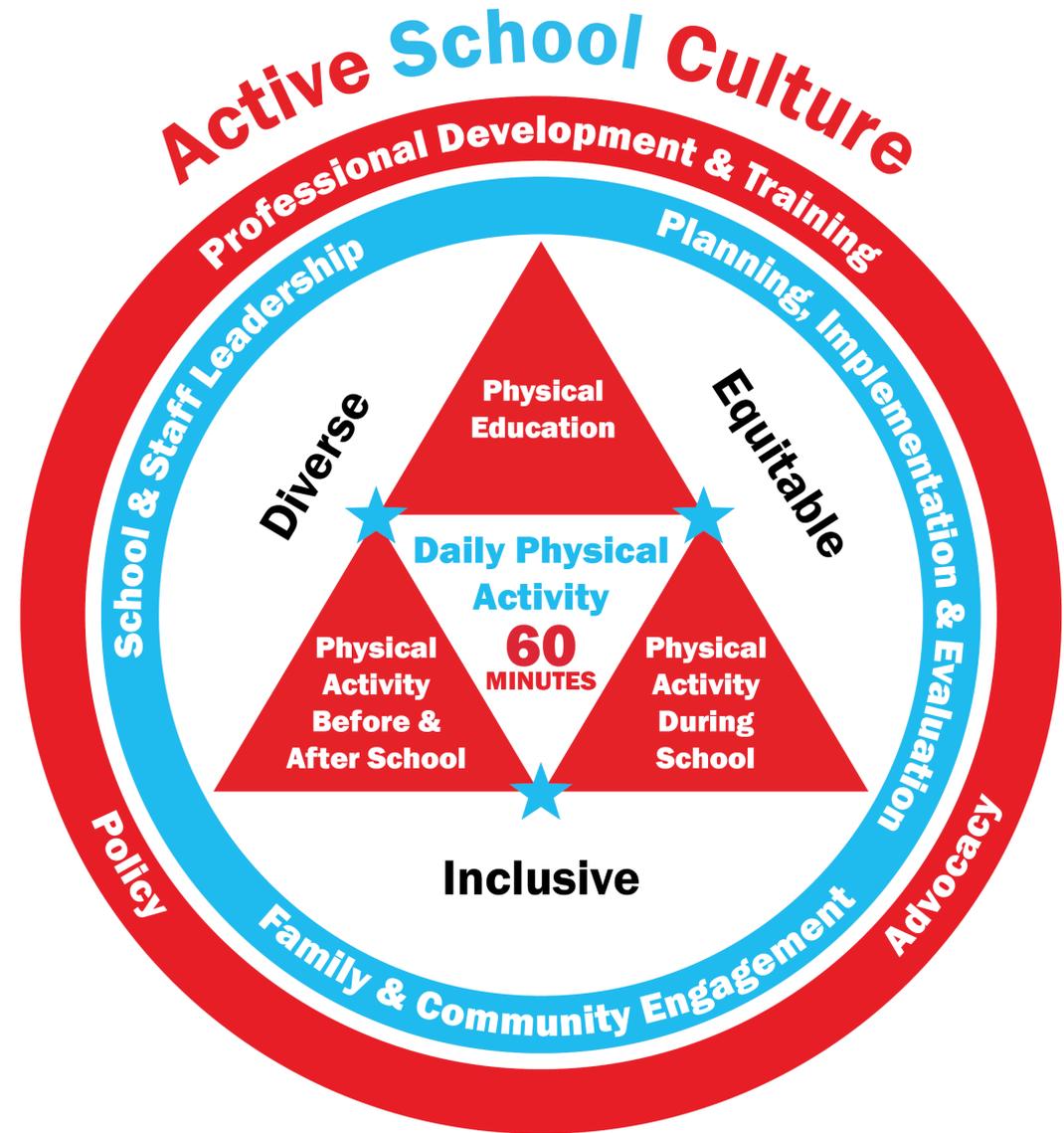
Dr. Russell Carson
PlayCore

UNC Active Schools Institute Team



9 Essential Elements of an Active School Culture

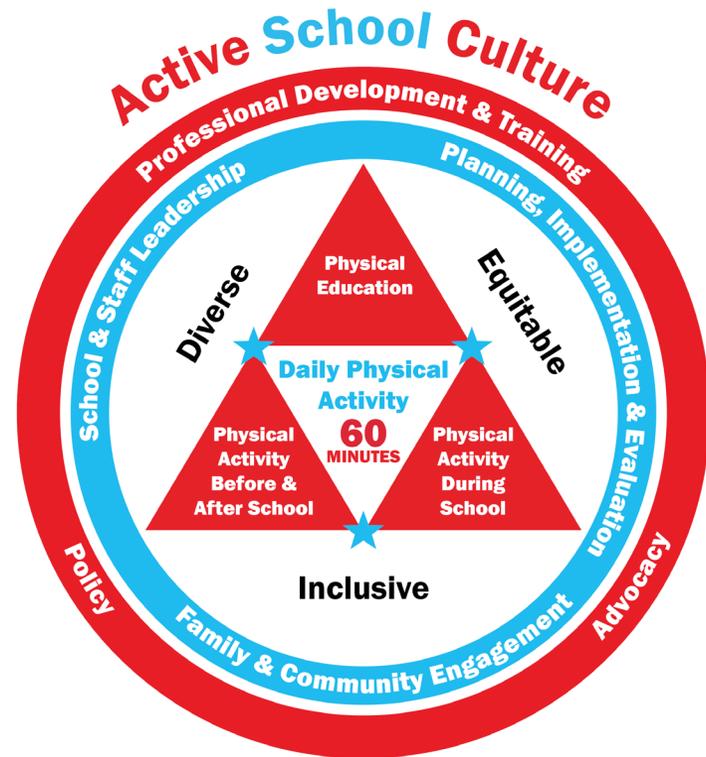
1. Diverse, Equitable, and Inclusive Opportunities for Physical Activity
2. Physical Education
3. Physical Activity During School
4. Physical Activity Before and After School
5. School and Staff Leadership
6. Planning, Implementation, & Evaluation
7. Family & Community Engagement
8. Policy & Advocacy
9. Professional Development & Training



Active Schools (2022)

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Scholarship: Developing an Active School Culture



Active Schools (2022)
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Dauenhauer, B. & Stoepker, P. (2022). **Physical education & physical activity within a whole school, whole community, whole child approach.** *Journal of Physical Education, Recreation, and Dance*

Pulling Kuhn, A., Stoepker, P., Dauenhauer, B., & Carson, R. L. (2021). **A systematic review of comprehensive school physical activity program (CSPAP) interventions.** *American Journal of Health Promotion*

Carson, R. L., McMullen, J., Dauenhauer, B., & Brittain, D. R. (2019). **Physical activity promotion in schools.** In D. B. Bornstein, A. A. Eyler, J. E. Maddock, & J. B. Moore (Eds.), *Physical Activity and Public Health Practice*. New York, NY: Springer.

A Systematic Review of Comprehensive School Physical Activity Program (CSPAP) Interventions

Table 1. Search Terms by Content Categories.

| Multicomponent terms (category 1) | School physical health terms (category 2) | Academic terms (category 3) |
|---|---|--|
| <ul style="list-style-type: none">• school-wide• comprehensive• coordinated• multicomponent• whole-of-school• comprehensive school physical activity program | <ul style="list-style-type: none">• physical education• physical activity• physical education & physical activity | <ul style="list-style-type: none">• physical health• mental health• emotional health• academic achievement• <i>academic performance</i><ul style="list-style-type: none">○ class grades○ standardized tests○ graduation rates• <i>classroom behavior</i><ul style="list-style-type: none">○ attendance○ absenteeism○ dropout rates○ behavioral problems• <i>cognition</i><ul style="list-style-type: none">○ concentration○ memory○ fitness• BMI |

Results:

Across 32 studies...

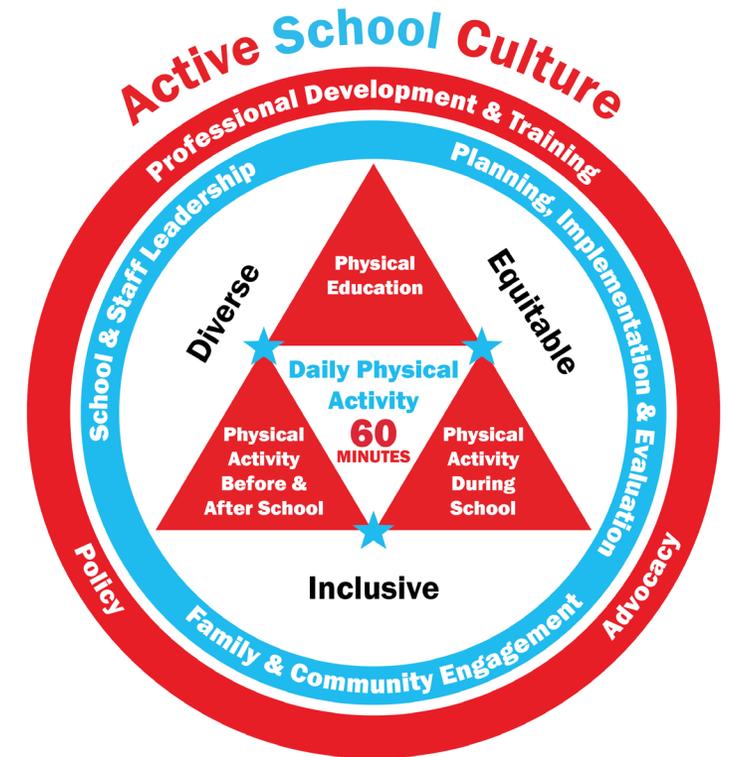
- 11 included physical education plus 1 additional CSPAP component (PE + 1)
- 10 included PE + 2 additional CSPAP components
- 8 included PE + 3 additional CSPAP components
- 1 included all 5 CSPAP components
- Two studies included 2 or 3 CSPAP components without PE
- Most interventions targeted health outcomes (94%) rather than academic outcomes (6%)
- **Multicomponent CSPAP interventions are effective**

Scholarship: Diversity, Equity, and Inclusion

Ha, T., Moon, J., Dauenhauer, B., Krause, J. M., McMullen, J. M., & Gaudreault, K. (2021). **Health-related fitness levels among Title I elementary school students.** *International Journal of Environmental Research and Public Health*

Dauenhauer, B. & Keating, X. D. (2011). **The influence of physical education on physical activity levels of urban elementary students.** *Research Quarterly for Exercise and Sport*

Keating, X. D., Harrison, L., & Dauenhauer, B., Chen, L., & Guan, J. (2009). **Urban minority ninth grade students' health-related fitness knowledge.** *Research Quarterly for Exercise and Sport*



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The Influence of Physical Education on Physical Activity Levels of Urban Elementary Students

- One urban elementary school
- Hispanic (76%) and African American (24%) students
- Grades 3-5

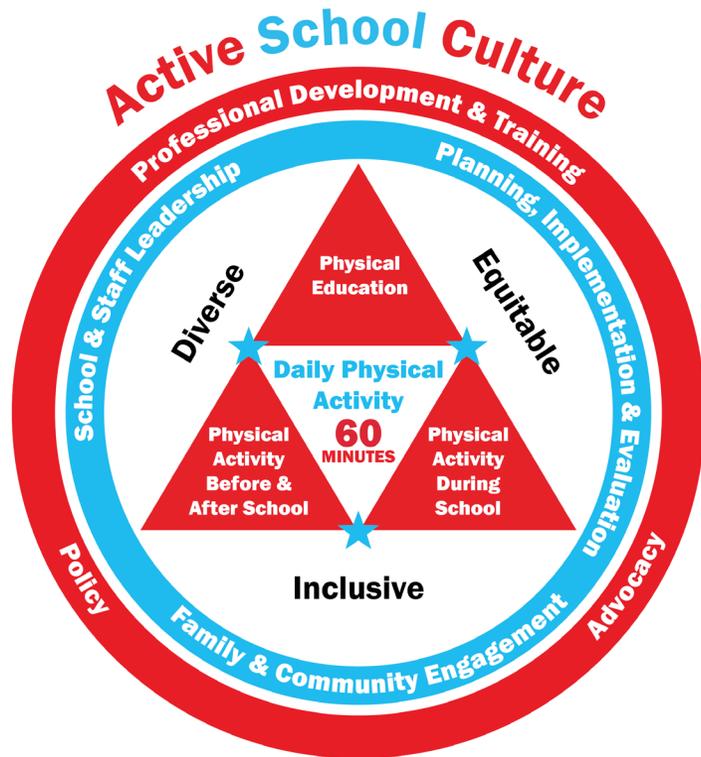
Results:

- Students averaged half of daily recommended step counts
- Students were more active on school days than weekend days
- Students were more active on 60-min PE days than 30- or 0-min PE days
- **Students performed more PA outside of PE on 60-min PE days**

Table 2. Physical activity steps by gender

| Steps | Boys (n = 33) | | Girls (n = 38) | |
|-------------------------------|---------------|-----------|----------------|----------|
| | M | SD | M | SD |
| Overall | 7,409.41 | 1,917.76* | 6,512.36 | 1,492.86 |
| Weekday | 7,621.38 | 2,096.82* | 6,603.73 | 1,453.73 |
| Weekend-day | 6,879.47 | 2,713.09 | 6,283.96 | 2,286.85 |
| 30-min PE | 785.40 | 344.95 | 758.57 | 468.39 |
| 60-min. PE | 1,355.16 | 422.27 | 1,244.78 | 415.35 |
| 0-min PE-day | 7,379.68 | 2,068.29* | 6,326.09 | 1,423.06 |
| 30-min PE-day | 7,575.54 | 2,753.37 | 6,506.52 | 1,721.68 |
| 60-min PE-day | 8,492.32 | 2,693.00 | 7,533.84 | 2,096.64 |
| 30-min PE-day excluding PE | 6,690.14 | 2,660.87 | 5,747.95 | 1,750.21 |
| 60-min PE-day excluding PE | 7,137.15 | 2,623.57 | 6,289.06 | 1,979.18 |

Scholarship: Physical Education



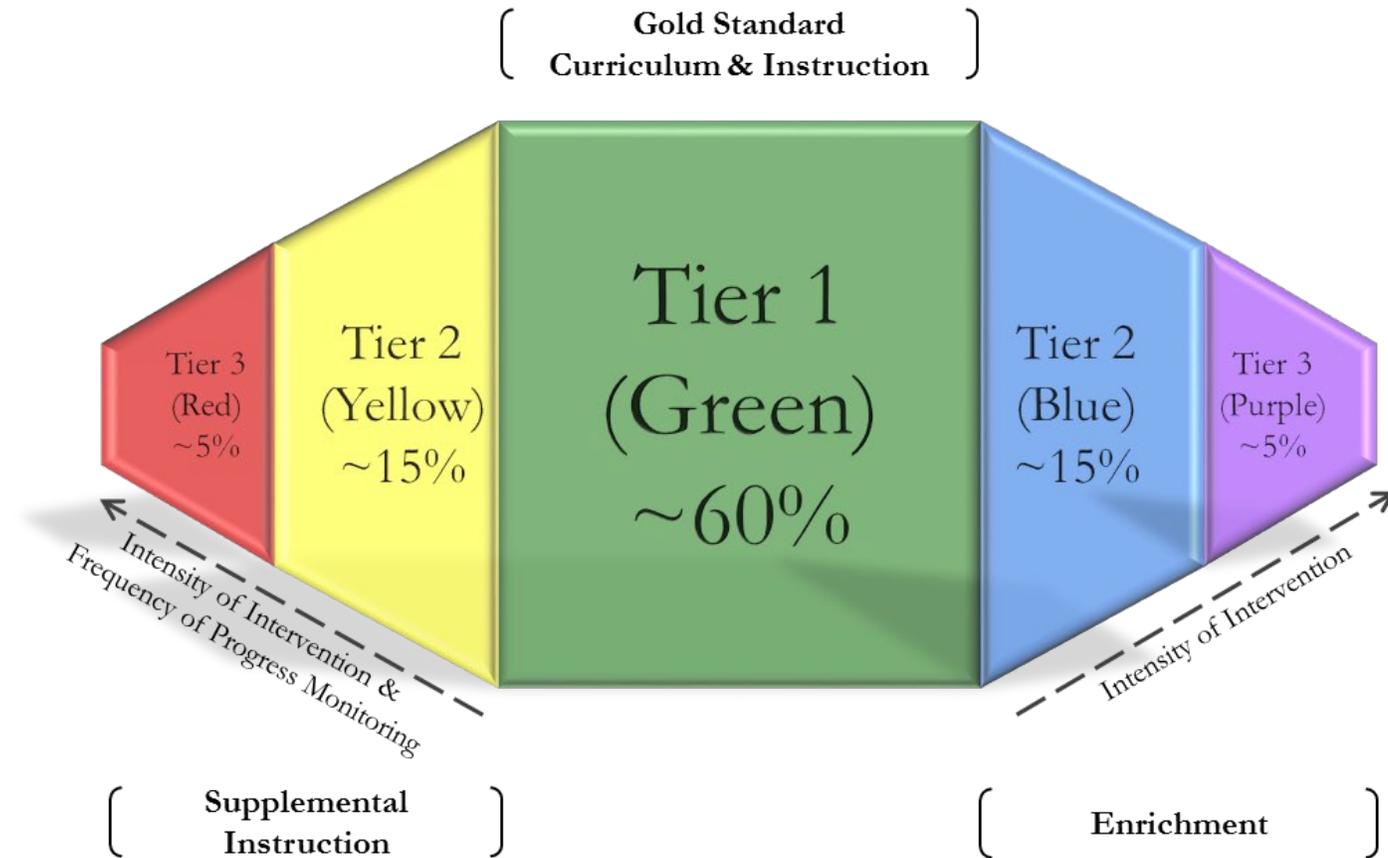
Active Schools (2022)
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Ha, T. & Dauenhauer, B. (2021). **A physical literacy index: Identifying students for intervention through standards-based assessment.** *Journal of Physical Education, Recreation, and Dance*

Dauenhauer, B., Keating, X. D., & Lambdin, D. (2018). **An examination of physical education data sources and collection procedures.** *Journal of Teaching in Physical Education*

Dauenhauer, B., Keating, X. D., Lambdin, D., & Knipe, R. (2017). **A conceptual framework for tiered intervention in physical education.** *Journal of Physical Education, Recreation, and Dance*

A Conceptual Framework for Tiered Intervention in Physical Education

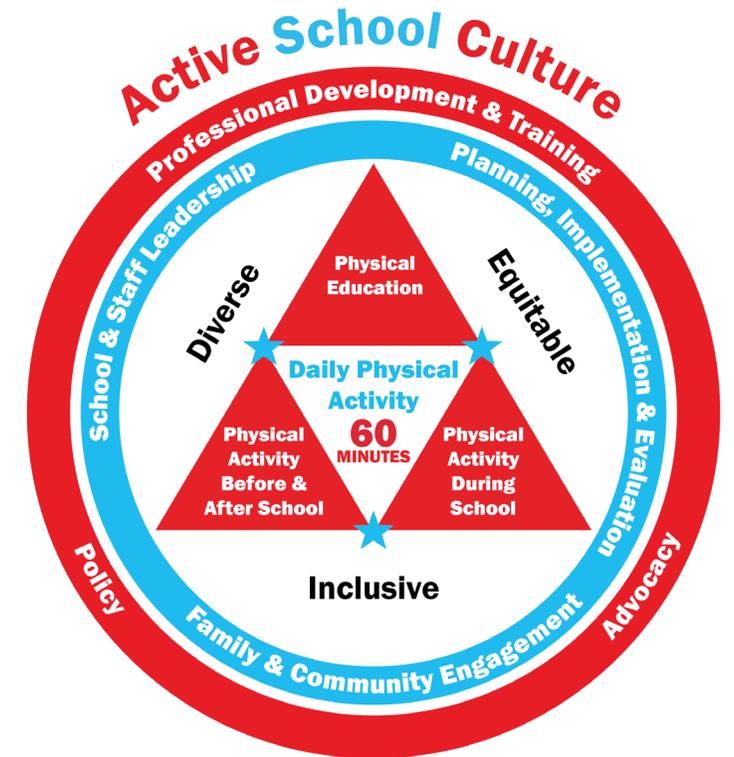


Scholarship: Physical Activity During School

McMullen, J. M., Hodgins, K., Krause, J. M., Dauenhauer, B. & Carson, R. L. (2021). "It makes you fly to the moon" – Stakeholder perceptions of physical activity in the school environment. *European Journal of Environment and Public Health*

Hodgins, K. L., von Klingraeff, L., Dauenhauer, B., McMullen, J. M., Pulling Kuhn, A., Stoepker, P., & Carson, R. L. (2020). Effects of sharing data with teachers on student physical activity and sedentary behavior in the classroom. *Journal of Physical Activity and Health*

Stoepker, P., Dauenhauer, B., & McCall, T. (2018). Effects of a walking program on physical activity accrual and on-task behavior. *Physical Educator*



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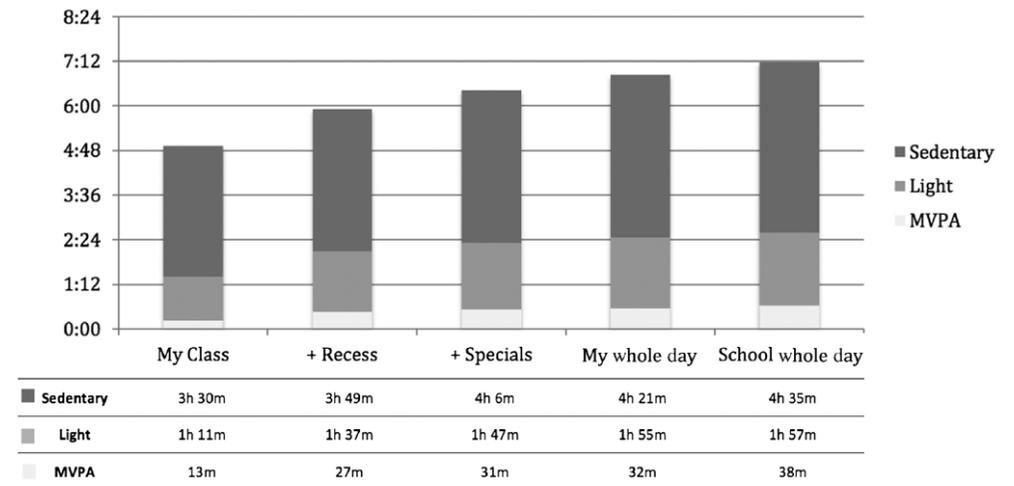
Effects of Sharing Data with Teachers on Student Physical Activity and Sedentary Behavior in the Classroom

- 8 classroom teachers (K-2) and 132 students
- Accelerometers
- SOSMART

Results:

- Teachers were surprised by how much time students were sedentary
- MVPA increased by ~2 min
- Sedentary time decreased by ~9 min

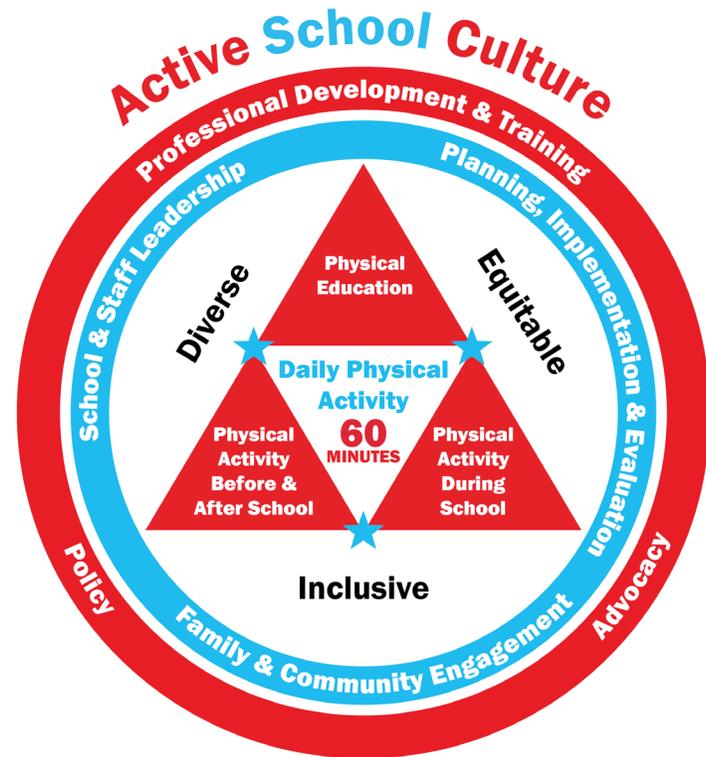
Accumulated physical activity during the school day (school-wide comparison)



*National recommendation = 30 min MVPA during school hours (Institute of Medicine, 2013)

*National recommendation = 60 min MVPA each day (UDHHS, 2015)

Scholarship: Physical Activity Before & After School



Active Schools (2022)
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Dauenhauer, B., Kulinna P. H., Marttinen, R., & Stellino, M. B. (2022). **Before- and after-school physical activity: Programs & best practices.** *Journal of Physical Education, Recreation, and Dance*

Dauenhauer, B., Stellino, M. B., Webster, C., & Steinfurth, C. (2020). **Physical activity programs before and after school.** In R. L. Carson, & C. A. Webster (Eds.), *Comprehensive school physical activity programs: Handbook of research and practice.* Champaign, IL: Human Kinetics.

Stellino, M. B., Dauenhauer, B., Stoeper, P., & Kuhn, A. C. (2017). **Structured before-school physical activity: Impact on student behaviors and experiences** [Abstract]. *Research Quarterly for Exercise and Sport*

Before- and After-School Physical Activity: Programs & Best Practices

Table 1.
Resources for Before- and After-School Physical Activity Programming

| Type of Program | Resources |
|------------------|---|
| Before school | Build Our Kids' Success (BOKS) www.bokskids.org Marathon Kids www.marathonkids.org 100 Mile Club www.100mileclub.com |
| After school | National Afterschool Association https://naaweb.org/resources/naa-hepa-standards CATCH https://catchinfo.org/programs/after-school/ SPARK https://sparkpe.org/curriculum/spark-curriculum-after-school-curriculum |
| Youth sports | The Aspen Institute https://www.aspeninstitute.org/tag/youth-sports/ Project Play https://www.aspenprojectplay.org/ |
| Active transport | Safe Routes to School http://www.saferoutesinfo.org National Walk/Bike to School http://www.walkbiketoschool.org Walking School Bus http://www.walkingschoolbus.org |

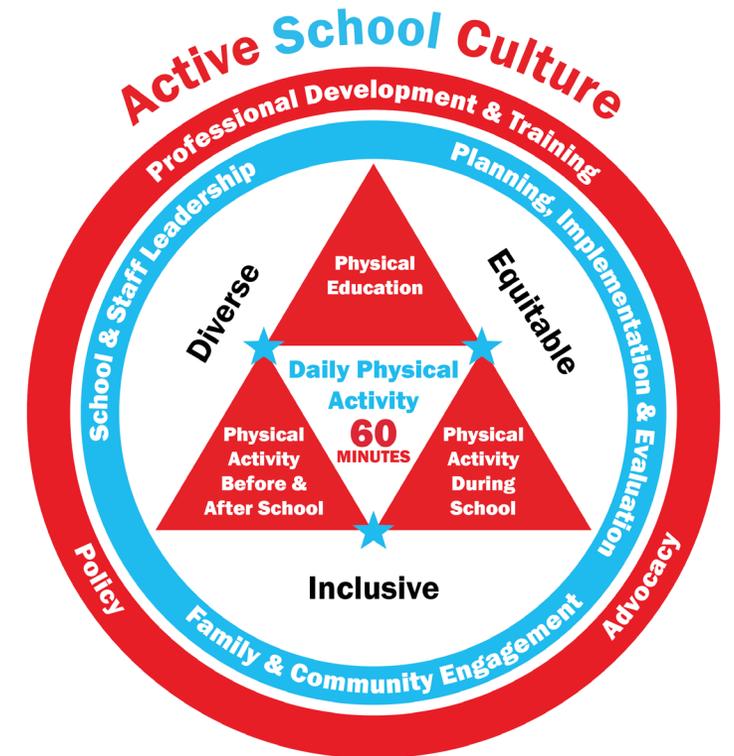
- Types of before and after school programs
- Benefits (physical, cognitive, social-emotional)
- Considerations for DEI
- **Best practices and recommendations**

Scholarship: School & Staff Leadership

Dauenhauer, B., Ha, T., Webster, C., Erwin, H., Centeio, E., Papa, J., & Burgeson, C. (2022). [Predicting the presence of active schools: A national survey of school principals in the United States](#). *Journal of Physical Activity and Health*

Orendorff, K. L., Webster, C. A., Mandrilla, D., Cunningham, K., Doutis, P., Dauenhauer, B., & Stodden, D. F. (2021). [Principals' involvement in comprehensive school physical activity programs: A social-ecological perspective](#). *European Physical Education Review*

Webster, C. A., Glascoe, G., Moore, C., Dauenhauer, B., Egan, C. A., Russ, L. B., Orendorff, K., & Buschmeier, C. (2020). [Recommendations for administrators' involvement in school-based health promotion: A scoping review](#). *International Journal of Environmental Research and Public Health*



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Recommendations for Administrators' Involvement in School-Based Health Promotion: A Scoping Review

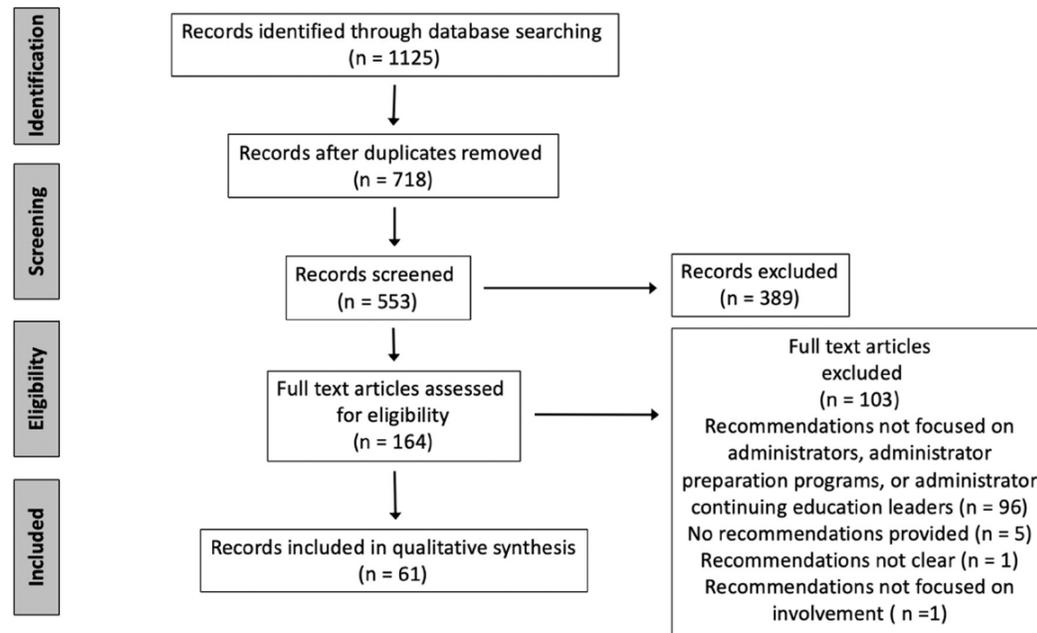
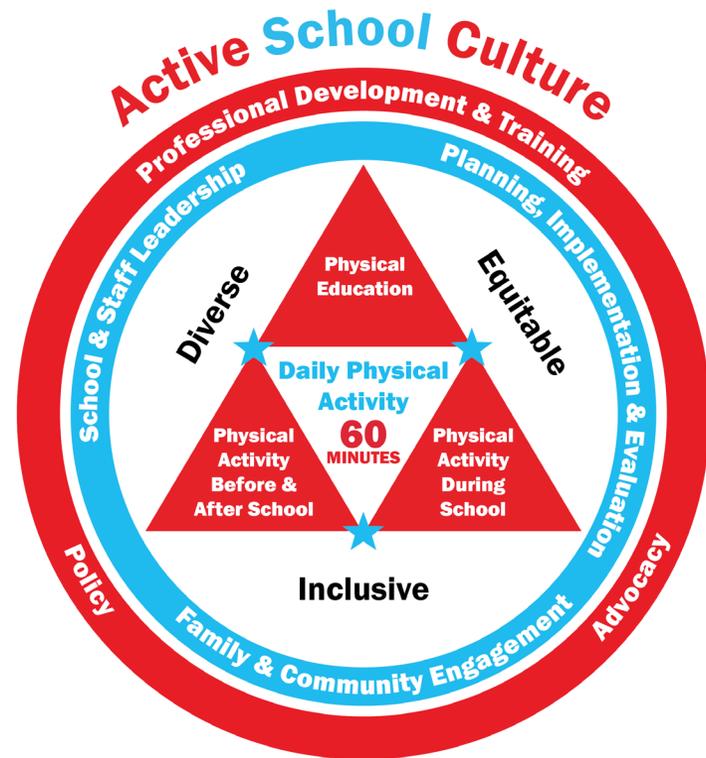


Figure 1. PRISMA flow diagram illustrating the process used to identify the final set of records included for qualitative synthesis.

Table 4. Themes, recommendation categories, and number of distinct recommendations in each category.

| Theme | Recommendation Category | Total Number of Distinct Recommendations |
|---------------|---|--|
| Collaboration | Joint Effort | 17 |
| | Implementation | 17 |
| | Involvement in Planning and Evaluation | 10 |
| Advocacy | Knowledge and Values | 14 |
| | Policy Involvement | 5 |
| | Exposure and Experience | 4 |
| Support | Funding/Resources | 6 |
| | Professional Development/Technical Assistance | 4 |
| | Prioritizing Physical Education | 2 |
| | General Support | 1 |

Scholarship: Planning, Implementation & Evaluation



Active Schools (2022)
www.ActiveSchoolsUS.org

Stoepker, P., Dauenhauer, B., Moore, J. B., & Carson, R. L. (2020). **Comprehensive school physical activity program policies and practices questionnaire (CSPAP-Q)**. *Research Quarterly for Exercise and Sport*

Dauenhauer, B., Keating, X. D., & Lambdin, D. (2016). **Effects of a three-tiered intervention model on physical activity and fitness levels of youth**. *Journal of Primary Prevention*

Dauenhauer, B., & Castelli, D. (2014). **Activity monitor feedback and physical activity in overweight/obese children** [Abstract]. *Research Quarterly for Exercise and Sport*

Comprehensive School Physical Activity Program Policies and Practices Questionnaire (CSPAP-Q)

Table 1. Sub-Categories aligned with Comprehensive School Physical Activity Program (CSPAP) components.

| CSPAP component | Sub-categories |
|-------------------------------|--|
| Physical education (PE) | (1) Safe and positive PE environment (2) Time for PE (3) Grading in PE (4) Teacher training (5) Standards-based curriculum (6) Facilities & equipment (7) Student-to-teacher ratios (8) Exemptions, waivers, withholding PE |
| PA during school | (9) Adapted PE (1) Time for recess (2) Recess activities (3) Playground safety (4) Withholding recess (5) Recess equipment & facilities (6) Classroom PA integration |
| PA before/after school | (1) Intramurals & PA clubs (2) Active transportation (3) Community organized enrichment |
| Staff involvement | (1) Resources & incentives for staff (2) Staff wellness programs |
| Family & community engagement | (1) Advocacy & communication (2) Community use of facilities |

- Review of existing school health and PA surveys
- Items aligned to CSPAP
- Expert feedback ($n=11$) using Delphi method
- Test-retest reliability ($n=38$ PE teachers)

Results:

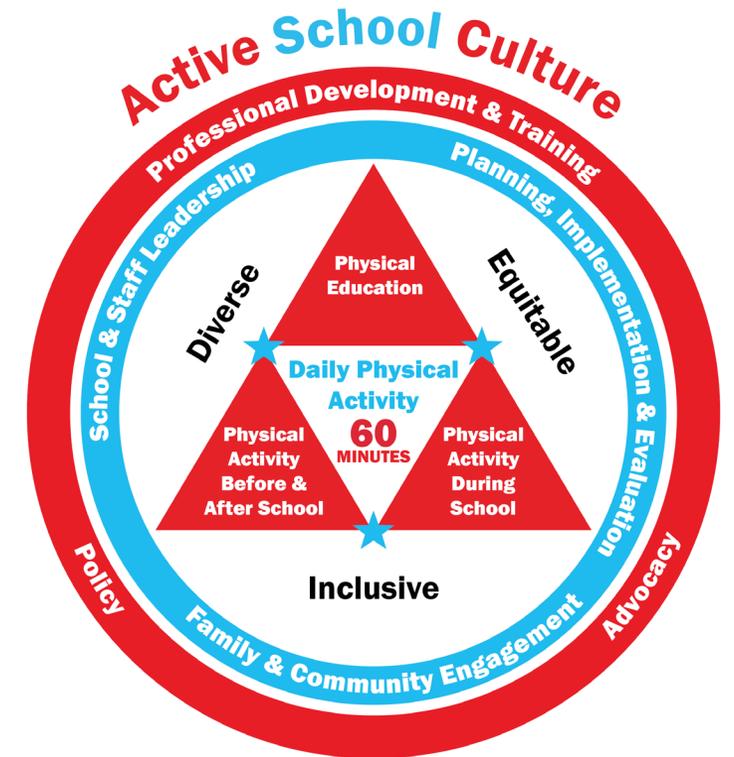
- **CSPAP-Q is valid and reliable**

Scholarship: Policy & Advocacy

Fan, X., McMullen, J. M., Krause, J. M., & Dauenhauer, B. (2022). [The status of physical education in Colorado](#) [Abstract]. *Research Quarterly for Exercise and Sport*

Dauenhauer, B., Keating, X. D., Stoeper, P., & Knipe, R. (2019). [State physical education policy changes from 2001 to 2016](#). *Journal of School Health*

Keating, X. D., Lambdin, D., Harrison, L., Dauenhauer, B., & Rotich, W. (2010). [Changes in K-12 physical education programs from 2001 to 2006](#). *Research Quarterly for Exercise and Sport*



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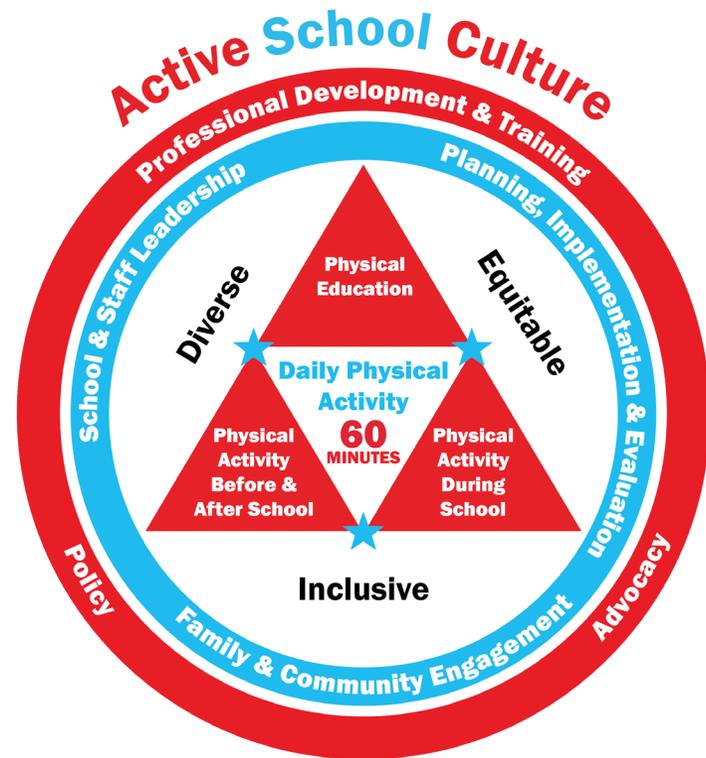
State Physical Education Policy Changes from 2001 to 2016

Table 1. Changes in State Physical Education Policies, 2001-2016

| State Policy Variables | N | 2001 | 2006 | 2010 | 2012 | 2016 |
|------------------------------|----|--------------------|-------------------|--------------|--------------------|---------------------|
| Adoption of standards | 51 | 82.4% | 94.1% | 94.1% | 98.0% | 98.0% ^a |
| Minute requirements—ES | 51 | 21.6% ^b | — | 31.4% | 31.4% | 37.3% ^{ab} |
| Credit requirements—HS | 51 | 68.6% | 68.6% | 80.4% | 80.4% | 82.4% ^a |
| Assessment | 51 | 13.7% ^c | 27.5% | 31.4% | 47.1% ^c | 43.1% ^{ac} |
| Fitness testing | 51 | 15.7% | 7.8% ^c | 21.6% | 21.6% | 29.4% ^{ac} |
| PE mandate—ES | 51 | 80.4% | 72.5% | 84.3% | 82.4% | 84.3% |
| PE mandate—MS | 51 | 80.4% | 66.7% | 78.4% | 78.4% | 80.4% |
| PE mandate—HS | 51 | 82.4% | 84.3% | 90.2% | 86.3% | 88.2% |
| Substitutions for PE allowed | 51 | 60.8% | 52.9% | 68.6% | 70.6% | 62.7% |
| Minute requirements—MS | 51 | 21.6% | — | 23.5% | 25.5% | 29.4% |
| Minute requirements—HS | 51 | 13.7% | — | 13.7% | 17.6% | 11.8% |
| Credits—HS | 32 | 1.28 (0.68) | 1.28 (0.69) | 1.33 (0.70) | 1.27 (0.70) | 1.30 (0.66) |
| Weekly minutes—ES | 10 | 107.0 (35.9) | — | 106.9 (41.1) | 106.9 (41.1) | 106.0 (37.5) |
| Weekly minutes—MS | 9 | 148.1 (68.7) | — | 104.4 (53.1) | 104.4 (53.1) | 110.3 (48.0) |
| Weekly minutes—HS | 4 | 142.5 (43.5) | — | 135.0 (50.7) | 135.0 (50.7) | 135.0 (50.7) |

^ap < .05 for omnibus tests over the 15-year time period; ^bp ≤ .008; ^cp < .005 for follow-up pairwise comparisons, representing Bonferroni corrections. ES, elementary school; MS, middle school; HS, high school.

Scholarship: Professional Development & Training



Active Schools (2022)
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Dauenhauer, B., Krause, J. M., Cox, D. G., Hodgin, K. L., McMullen, J. M., & Carson, R. L. (2023). **A two-year evaluation of professional development workshops focused on physical education and school physical activity.** *Journal of Teaching in Physical Education*

Carson, R. L., Pulling Kuhn, A. C., Moore, J. B., Castelli, D. M., Beighle, A., Hodgin, K. L., & Dauenhauer, B. (2020). **Implementation evaluation of a professional development for leaders of comprehensive school physical activity.** *Preventive Medicine Reports*

Dauenhauer, B., Krause, J. M., Douglas, S., Smith, M., & Stellino, M. B. (2017). **A newly revised master's degree in physical education and physical activity leadership at the University of Northern Colorado.** *Journal of Physical Education, Recreation, and Dance*

A Two-Year Evaluation of Professional Development Workshops Focused on Physical Education and School Physical Activity



Table 1 Comprehensive PD Evaluation Plan

| Characteristics of quality PD | Subcharacteristics of quality PD | Level of evaluation | Preworkshop survey | Workshop observations | End-of-workshop survey | Postworkshop survey | Interview | Artifacts |
|---|----------------------------------|---------------------|--------------------|-----------------------|------------------------|---------------------|-----------|-----------|
| Provide opportunities for active engagement | Interactive learning | 1 | | ✓ | ✓ | | | |
| | | 2 | | | ✓ | | | |
| Facilitate with care | Authentic inquiry | 1 | | ✓ | ✓ | | | |
| | Caring environment | 1 | | ✓ | ✓ | | | ✓ |
| | | 2 | | | ✓ | | | |
| Tailor experiences | | 1 | ✓ | ✓ | ✓ | | | ✓ |
| | | 2 | ✓ | | | | ✓ | |
| | | 3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Foster communities of continued learning | Strengthen professional networks | 3 | | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Ongoing support | 3 | | ✓ | | ✓ | ✓ | ✓ |
| Focus on student outcomes | | 4 | | | | | ✓ | |
| | Content knowledge and pedagogy | 2 | ✓ | | ✓ | ✓ | ✓ | ✓ |
| | | 4 | ✓ | | | ✓ | ✓ | ✓ |
| | Data and assessment | 5 | ✓ | | | ✓ | ✓ | ✓ |

Note. Levels of PD evaluation: Level 1—participants' reactions; Level 2—new gains in knowledge and skills; Level 3—organizational support for change; Level 4—participants' use of new knowledge and skills; and Level 5—student learning outcomes (Guskey, 2002). PD = professional development.

Table 3 Pre/Post Survey Results

| Constructs | M_{Pre} | M_{Post} | t | p | Cohen's d |
|---|-----------|------------|------------------|-------|-------------|
| Self-reported knowledge | 4.48 | 5.52 | $t_{49} = -7.67$ | .000* | 1.085 |
| Objectively measured knowledge (quiz performance) | 0.81 | 0.86 | $t_{50} = -1.98$ | .053 | 0.277 |
| Utilization of implementation strategies | 3.39 | 4.34 | $t_{34} = -3.52$ | .001* | 0.594 |
| Perceived barriers to implementation | 4.44 | 4.26 | $t_{43} = 1.07$ | .293 | 0.160 |
| Presence of a community of continued learning | 3.96 | 4.58 | $t_{42} = -4.19$ | .000* | 0.638 |
| Teacher efficacy | 4.90 | 5.31 | $t_{43} = -2.13$ | .039* | 0.321 |

*Statistical significance at $p < .05$.

Essential Elements of an Active School Culture

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