

# **STRENGTH MATTERS AT YOUR HIGH SCHOOL**



## ***Consider the Evidence-based Benefits of Strength & Conditioning in Scholastic Environments***

### **STUDENT BENEFITS**

***Develop Movement  
Skills and Athleticism<sup>1</sup>***

---

***Build Resilience,  
Self-Confidence, and  
Social-Emotional Skills<sup>2</sup>***

---

***Increase Motivation  
and Engagement<sup>3</sup>***

---

***Instill Healthy Physical  
Activity Habits<sup>4</sup>***

---

***Early Exposure  
to Potential  
Careers Paths<sup>5</sup>***

### **SCHOOL BENEFITS**

***Enhance Physical  
Education Offerings<sup>6</sup>***

---

***Improve Student  
Engagement and  
Leadership Skills<sup>7</sup>***

---

***Promote an Inclusive  
and Supportive  
Learning Environment<sup>8</sup>***

---

***Qualified Supervision  
for Student Health  
and Safety<sup>9</sup>***

---

***Adherence to  
National Standards<sup>10</sup>***

**[NSCA.com/WhatsMissing](https://www.nscapublic.com/WhatsMissing)**

**“Schools are an ideal environment for mass implementation of strength and conditioning interventions to support youth development.”**

— Till, K., Bruce, A., Green, T., Morris, S.J., Boret, S., & Bishop, C.J., *British Journal of Sports Medicine*

## 1 Develop Movement Skills and Athleticism

**“Aside from the development of athleticism, preparatory conditioning inclusive of motor skill and muscular strength development provides an appropriate strategy for reducing the relative risk of injury for youth during sport and physical activity later in life.” (Lloyd et al., 2016)**

Lloyd, R.S., Cronin, J.B., Faigenbaum, A.D., Haff, G.G., Howard, R., Kraemer, W.J., Micheli, L.J., Myer, G.D., & Oliver, J.L. (2016). National Strength and Conditioning Association Position Statement on Long-Term Athletic Development. *Journal of Strength and Conditioning Research*, 30(6), 1491-1509.

Wade, S., Pope, Z., & Simonson, S. (2014). How Prepared Are College Freshmen Athletes for the Rigors of College Strength and Conditioning? A Survey of College Strength and Conditioning Coaches. *Journal of Strength and Conditioning Research*, 28(10), 2746-2753.

Takano, R.K. (2013). Weightlifting in the Development of the High School Athlete. *Strength and Conditioning Journal*, 35(6), 66-72.

Read, P.J., Oliver, J.L., & Lloyd, R.S. (2020). Seven Pillars of Prevention: Effective Strategies for Strength and Conditioning Coaches to Reduce Injury Risk and Improve Performance in Young Athletes. *Strength and Conditioning Journal*, 42(6), 120-128.

## 2 Build Resilience, Self-Confidence, and Social-Emotional Skills

**“Resistance training has been found to improve physical self-perception, perception of self-worth, and decrease anxiety and depression.” (Collins et al., 2019).**

Collins, H., Booth, J.N., Duncan, A., Fawcett, S., & Niven, A. (2019). The Effect of Resistance Training Interventions on 'The Self' in Youth: A Systematic Review and Meta-analysis. *Sports Medicine – Open*, 5, 29.

Lubans, D.R., Aguiar, E.J., & Callister, R. (2010). The effects of free weights and elastic tubing resistance training on physical self-perception in adolescents. *Psychology of Sport and Exercise*, 11(6), 497-504.

Schranz, N., Tomkinson, G., Parletta, N., Petkov, J., & Olds, T. (2014). Can resistance training change the strength, body composition and self-concept of overweight and obese adolescent males? A randomised controlled trial. *British Journal of Sports Medicine*, 48(20), 1482-1488.

Radcliffe, J., Comfort, P., & Fawcett, T. (2015). Psychological Strategies Included by Strength and Conditioning Coaches in Applied Strength and Conditioning. *Journal of Strength and Conditioning Research*, 29(9), 2641-2654.

## 3 Increase Motivation and Engagement

**“Systematic and deliberate training enables teachers and coaches to create a positive motivational environment.” (Bangsbo et al., 2016)**

Bangsbo, J., Krustup, P., Duda, J., Hillman, C., Andersen, L.B., Weiss, M., Williams, C.A., Lintunen, T., Green, K., Hansen, P.R., Naylor, P.J., Ericsson, I., Nielsen, G., Froberg, K., Bugge, A., Lundbye-Jensen, J., Schipperijn, J., Dagkas, S., Agergaard, S., Von Seelen, J., Østergaard, C., Skovgaard, T., Busch, H., & Elbe, A.M. (2016). The Copenhagen Consensus Conference 2016: Children, youth, and physical activity in schools and during leisure time. *British Journal of Sports Medicine*, 50(19), 1177-1178.

Radcliffe, J.N., Comfort, P., & Fawcett, T. (2018). The Perceived Psychological Responsibilities of a Strength and Conditioning Coach. *Journal of Strength and Conditioning Research*, 32(10), 2853-2862.

## 4 Instill Healthy Physical Activity Habits

**“A properly designed and supervised resistance training program can help promote and develop exercise habits during childhood and adolescence.” (Faigenbaum et al., 2009)**

Faigenbaum, A.D., Kraemer, W.J., Blimkie, C.J.R., Jeffreys, I., Micheli, L.J., Nitka, M., & Rowland, T.W. (2009). Youth resistance training: Updated position statement paper from the National Strength and Conditioning Association. *Journal of Strength and Conditioning Research*, 23(5): S60-S79.

Lloyd, R.S., Cronin, J.B., Faigenbaum, A.D., Haff, G.G., Howard, R., Kraemer, W.J., Micheli, L.J., Myer, G.D., & Oliver, J.L. (2016). National Strength and Conditioning Association Position Statement on Long-Term Athletic Development. *Journal of Strength and Conditioning Research*, 30(6), 1491-1509.

## 5 Early Exposure to Potential Careers Paths

**“Access to a qualified strength and conditioning professional yields unique and engaging exposure to STEM and allied health related disciplines.” – William Johnson, PhD, CSCS, CPSS, Biomedical Engineer & Data Scientist**

Drazan, J. (2020). Biomechanists can revolutionize the STEM pipeline by engaging youth athletes in sports-science based STEM outreach. *Journal of Biomechanics*, 99, 109511.

Baldwin A., & Agho A.O. (2003). Student recruitment in allied health educational programs: The importance of initial source of contact. *Journal of Allied Health*, 32(2), 65-70.

Barfield, J., Folio, M.R., Lam, E., & Zhang, J. (2011). Factors Associated with Enrollment in Allied Health Education Programs: Development of a Predictive Scale. *Journal of Allied Health*, 40(2), 82-89.

## 6 Enhance Physical Education Offerings

**“Schools are an ideal environment for mass implementation of strength and conditioning interventions to support youth development.” (Till et al., 2022)**

Till, K., Bruce, A., Green, T., Morris, S.J., Boret, S., & Bishop, C.J. (2022). Strength and conditioning in schools: A strategy to optimise health, fitness and physical activity in youths. *British Journal of Sports Medicine*, 56, 479-480.

Duehring, M.D., Feldmann, C.R., & Ebben, W.P. (2009). Strength and conditioning practices of United States high school strength and conditioning coaches. *Journal of Strength and Conditioning Research*, 23(8), 2188-2203.

Kraemer, W.J., & Nitka, M. (2022). Development of the High School Sports Performance Program: Simple, Safe, and Successful. *Strength and Conditioning Journal*, 44(2), 131-133.

## 7 Improve Student Engagement and Leadership Skills

**“There are aspects unique to strength and conditioning training sessions that provide opportunities for the development of leadership behaviors among students.” (Smith & Moore, 2019)**

Smith, V., & Moore, E.W.G. (2019). Strategies to increase athletes' transformational leadership behaviors during strength and conditioning sessions. *Strength and Conditioning Journal*, 41(2), 31-37.

Jones, D., & Newland, A. (2022). Implementing Effective Coaching Behaviors and Pedagogical Practices Into Strength and Conditioning. *Strength and Conditioning Journal*, 44(3), 80-87.

Plisk, S. (2003). Principle-Based Teaching Practices. *Strength and Conditioning Journal*, 25(5), 57-64.

## 8 Promote an Inclusive and Supportive Learning Environment

**“Effective youth coaches understand the process of coaching and recognize the importance of providing meaningful instruction in a supportive and encouraging environment to inspire participants, enhance physical development, and optimize performance.” (Faigenbaum & Meadors, 2017)**

Faigenbaum, A.D., & Meadors, L. (2017). A Coach's Dozen: An Update on Building Healthy, Strong, and Resilient Young Athletes. *Strength and Conditioning Journal*, 39(2), 27-33.

Larkin, P., Sortino, B., Carlon, T., Saunders, T., & Pane, C. (2022). Gender- and Sport-specific Normative Anthropometric and Physical Values in Talent-Identified High School Athletes. *Journal of Strength and Conditioning Research*. Advance Online Publication.

Barbosa, A., Whiting, S., Simmonds, P., Scotini Moreno, R., Mendes, R., & Breda, J. (2020). Physical Activity and Academic Achievement: An Umbrella Review. *International Journal of Environmental Research and Public Health*, 17(16), 5972.

Legertoloz K. (2018). The Effects of Resistance Training on Health of Children and Adolescents With Disabilities. *American Journal of Lifestyle Medicine*, 14(4), 382-396.

## 9 Qualified Supervision for Student Health and Safety

**“Adults who teach and coach youth resistance training should have practical experience working with children and adolescents, and a recognized professional certification.” (Faigenbaum et al., 2009)**

Faigenbaum, A.D., Kraemer, W.J., Blimkie, C.J.R., Jeffreys, I., Micheli, L.J., Nitka, M., & Rowland, T.W. (2009). Youth resistance training: Updated position statement paper from the National Strength and Conditioning Association. *Journal of Strength and Conditioning Research*, 23(5): S60-S79.

National Strength and Conditioning Association. (2017). NSCA Strength and Conditioning Professional Standards and Guidelines. *Strength and Conditioning Journal*, 39(6), 1-24.

Casa et al. (2012). The inter-association task force for preventing sudden death in collegiate conditioning sessions: Best practices recommendations. *Journal of Athletic Training*, 47(4), 477-480.

## 10 Adherence to National Standards

**“As part of their 60 or more minutes of daily physical activity, children and adolescents should include muscle and bone strengthening physical activity on at least 3 days a week.” – U.S. Department of Health and Human Services**

2018 Physical Activity Guidelines Committee. (n.d.). Scientific Report - Physical Activity Guidelines for Americans (2nd Ed.). U.S. Department of Health and Human Services.

Centers for Disease Control and Prevention. (2013). Comprehensive School Physical Activity Programs: A Guide for Schools. U.S. Department of Health and Human Services.

SHAPE America. (2014). National Standards and grade-level outcomes for K-12 physical education. Human Kinetics.

Overway, L.G., Thompson, M., & Van Mullem, P. (2020). National Standards for Sport Coaches: Quality Coaches, Quality Sports. SHAPE America - Society of Health and Physical Educators.