

THE ROLE OF RESISTANCE TRAINING IN ENHANCING MENTAL HEALTH AND SELF-ESTEEM IN YOUTH – A GUIDE FOR EDUCATORS AND COACHES

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Physical activity has long been recognized as an essential contributor to both physical and psychological well-being. In this article, mental health refers to a young person's emotional well-being, ability to cope with stress, ability to maintain positive self-beliefs, and ability to function effectively in daily life, consistent with definitions commonly used by the World Health Organization and contemporary youth mental health literature (8). Among various exercise modalities, resistance training has emerged as a particularly promising strategy for supporting self-esteem, emotional resilience, confidence, and perceived physical competence in children and adolescents. For educators and strength and conditioning coaches, understanding how to implement resistance training safely and effectively is important not only for performance outcomes, but also for broader holistic development including physical, psychological, and social growth (7). Current pediatric consensus statements emphasize that resistance training is safe and beneficial for youth when appropriately supervised and well structured (7). Recent research highlights growing evidence that well-designed resistance training programs can enhance self-worth, reduce symptoms associated with poor mental health, and promote positive developmental experiences in youth (2,5,9). This article summarizes key findings and provides practical, coach-focused strategies to help educators and strength and conditioning coaches use resistance training as a tool to support healthy youth development and synthesizes recent research to provide actionable insights into how resistance training supports youth development.

THE MENTAL HEALTH BENEFITS OF RESISTANCE TRAINING

Resistance training is increasingly recognized as an important component of youth physical education and fitness programming, provided it is developmentally appropriate, well supervised, and progressively structured (7). A growing body of research indicates that participation in resistance training can positively influence several dimensions of mental health in youth populations, including resilience, self-esteem, and psychological well-being (2,5,9). For example, Zhang et al. reported that youth who engaged in more frequent muscle-strengthening exercise demonstrated significantly higher levels of resilience and well-being, with effects of practical developmental importance, given the role resilience plays in coping with stress and managing emotional challenges during adolescence (9).

The psychological benefits of resistance training are likely explained by multiple interacting mechanisms rather than a single “antidepressant effect” (6). Physiologically, resistance training can influence mood through neurochemical responses, such as increases in endorphins and dopamine, improved sleep, reductions in stress-related cortisol levels, and beneficial adaptations in brain function associated with regular exercise participation (6). Psychologically, resistance training provides frequent mastery

experiences, measurable progress, goal achievement, and positive performance feedback, which are key drivers of self-efficacy and self-worth that are linked to improved mental health (2,4). Socially, supportive training environments and peer interaction can reduce social anxiety and increase belonging. Together, these biological, psychological, and social mechanisms help explain why resistance training can be particularly impactful for adolescents navigating the emotional and social demands of growing up.

SELF-ESTEEM AND SELF-WORTH: THE UNIQUE CONTRIBUTION OF RESISTANCE TRAINING

One of the most consistent findings in the youth resistance training literature is the association between participation in resistance training and improvements in self-esteem and self-perceptions. Collins et al. reported that resistance training interventions produced meaningful improvements in resistance training self-efficacy, perceived physical strength, physical self-worth, and global self-worth in young people (2). These outcomes can be interpreted through the Exercise and Self-Esteem Model (EXSEM), a well-established framework suggesting that improvements in specific physical competencies contribute to enhanced perceptions of physical self-worth, which can then generalize into broader gains in self-esteem and confidence. In other words, when youth repeatedly experience success, perceive themselves as getting stronger, and receive reinforcing feedback, these mastery experiences build efficacy, reshape self-beliefs, and support healthier self-identity.

This pathway is particularly meaningful for youth who may have lower confidence, limited positive movement experiences, or a history of difficulty in physical education or sport environments. Ekland et al. found that exercise interventions can produce short-term improvements in self-esteem, especially in populations who may be vulnerable to lower self-worth or psychosocial difficulty (3). For these students, structured and supportive resistance training environments may offer accessible opportunities to experience success, competence, and belonging—factors that can make resistance training a valuable tool in supporting positive youth development.

FOSTERING RESILIENCE AND SOCIAL SKILLS

Beyond self-esteem, resistance training may also contribute to resilience and social connectedness when delivered in supportive environments. In this article, resilience refers to a young person's ability to cope with stress, adapt to challenges, and persist through difficulty, while social connectedness reflects a sense of belonging, positive peer interaction, and supportive relationships. Recent research suggests that participation in strength- and resistance-based activities can reduce depressive symptoms, enhance self-efficacy, and help youth feel more capable of managing daily demands, especially when programs emphasize successful experiences, encouragement, and positive coaching interactions (5).

The processes behind these outcomes are likely multifaceted. Resistance training often provides structured opportunities for goal setting, gradual progression, and visible improvement, which can teach persistence and reinforce the belief that effort leads to competence. Group training environments can also promote communication, cooperation, and teamwork when youth spot each other, share equipment, or work toward shared goals. These experiences may strengthen feelings of belonging and mutual support, contributing to social connectedness. However, it is important to acknowledge that these outcomes are not automatic. Without thoughtful program design, inclusive instructional practices, and emotionally supportive coaching, some youth may feel unsuccessful or discouraged. Therefore, educators and strength and conditioning coaches play a central role in shaping environments that promote positive social and emotional experiences for all participants, not only those who are already confident or athletically inclined.

Community-based and school-based resistance training initiatives can extend these benefits beyond individual training by creating shared experiences for students, teammates, and families. While community-based resistance training events and school-family initiatives can provide meaningful opportunities for youth connection, resilience building, and belonging, these programs do not occur “for free” and require thoughtful planning, resources, and compensation. Successful implementations typically involve partnerships between schools, community recreation centers, local health organizations, or youth sport programs, where insurance, facility space, staffing, and professional expertise are supported through institutional budgets, grants, sponsorship, parent-booster organizations, or municipal funding.

Educators and strength and conditioning coaches should be appropriately compensated for their time and expertise, and program planning should be intentional rather than assuming goodwill alone will sustain such efforts. Importantly, clearly communicating the purpose of the program (e.g., enhancing student well-being, strengthening school-community relationships, and supporting long-term youth development) can help justify investment and encourage broader stakeholder support. In this sense, resistance training initiatives should not be viewed as “extra” activities, but as meaningful educational and wellness opportunities that are worth supporting structurally and financially. Rather than relying solely on competition, programs that emphasize inclusion, encouragement, and shared achievement appear most effective in building belonging, self-esteem, and self-efficacy in youth (5). When done well, resistance training can support not only physical development, but also meaningful social and emotional growth.

PRACTICAL IMPLEMENTATION FOR EDUCATORS AND STRENGTH AND CONDITIONING COACHES

To maximize the benefits of resistance training for youth, educators and strength and conditioning coaches should adopt several evidence-based strategies:

1. *Incorporate Resistance Training into School Curricula*
Resistance training should be integrated intentionally within school physical education and fitness programming where feasible. However, it is important to recognize that doing so requires resources, planning, and support rather than assuming schools can simply “add” resistance training without investment. Schools that successfully implement resistance training often do so through phased development (e.g., beginning with bodyweight and resistance band programming and adding more equipment later on), partnerships with community recreation facilities or local universities, grant funding, booster organizations, municipal wellness initiatives, or the hiring of qualified strength and conditioning professionals as resources allow. These models acknowledge cost realities while reinforcing that youth strength programs are not “extras,” but meaningful educational and wellness investments that can advance student well-being, engagement, and development.
2. *Focus on Proper Technique and Supervision*
Proper technique and supervision are essential to ensure that resistance training is safe, developmentally appropriate, and beneficial. Pediatric position statements consistently emphasize that youth can increase strength safely when programs prioritize movement quality, appropriate progression, and qualified supervision (7). Educators and strength and conditioning coaches should teach foundational movement competency, provide clear and accessible instruction, maintain appropriate coach-student ratios, and ensure environments emphasize learning rather than comparison or competition.
3. *Address Diverse Needs*
Resistance training programs should be inclusive and adaptable. Students enter with different abilities, comfort levels, and movement histories, so instruction should offer multiple entry points. Providing variations of exercises, using different modalities (e.g., bodyweight, machines, free weights, resistance bands), and allowing students to progress at an individualized pace can help ensure that resistance training experiences promote success rather than exclusion. Inclusive, competence-building experiences are key drivers of self-efficacy, engagement, and positive self-perceptions (2,6).
4. *Engage Families and Communities*
Extending strength-building opportunities into families and communities can build broader support networks and shared ownership. When feasible, schools may collaborate with community partners to host introductory strength sessions, informational workshops, or inclusive training events that emphasize belonging, learning, and encouragement rather than elite performance. These initiatives can strengthen family-school connections and reinforce a culture of wellness and confidence beyond the gym setting.

5. Monitor Progress and Provide Feedback

Monitoring should be practical, supportive, and educational rather than purely performance-driven. Teachers and coaches can track progress through observable indicators, such as improved technique, ability to perform movements with greater control, physiological markers (e.g., increased weight lifted), persistence or attendance, or validated measures of self-efficacy or self-esteem. Even simple checklists, formative assessment rubrics, training logs, and reflection prompts can help students recognize growth. Meaningful feedback matters because it helps students connect effort to improvement, reinforces competence, and supports self-efficacy, which are critical contributors to mental well-being (2). Regular, encouraging, and instructional feedback helps students to develop realistic expectations, sustain motivation, and experience resistance training in an environment where success is achievable.

LONG-TERM CONSIDERATIONS AND FUTURE RESEARCH

Although a growing body of evidence supports the short-term psychological benefits of resistance training for youth, much of the current research focuses on relatively brief interventions and specific outcomes. As a result, less is known about how benefits such as resilience, confidence, self-esteem, and mental well-being develop or are sustained over longer periods, across diverse populations, and within different educational or community settings. Several reviews have emphasized the need for continued high-quality research to better understand how physical activity (specifically resistance training) relates to youth mental health across varying contexts and time frames (1,2,5).

Future research should extend beyond simply determining whether resistance training “works” and instead examine how, for whom, and under what conditions it is most effective. This includes exploring underlying mechanisms, differences across developmental stages, program design characteristics, instructional approaches, and the role of supportive relationships in shaping outcomes. A combination of randomized trials, longitudinal studies, mixed-methods research, and implementation science approaches may be particularly valuable in capturing both measurable outcomes and lived experiences.

Finally, examining resistance training through an equity lens is essential; issues such as access to facilities, qualified supervision, funding, cultural relevance, and school or community resources influence who can participate. Understanding how resistance training programs can be designed to be inclusive, sustainable, and attainable for underserved communities is critical if all youth are to have meaningful opportunities to experience the physical, social, and psychological benefits resistance training can provide.

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