PhysioPartners Position Statement on Scoliosis Screening and Treatment

By: Stephanie Penny, PT, DPT

While the United States Preventive Services Task Force continues to state that there is not enough evidence to weigh the benefits and harms of screening for idiopathic scoliosis in asymptomatic youth ages 10 to 18 years in a draft statement, this position is a loosening of the task force’s 2004 guidance that decisively recommended against such screening.

The task force does state that adequate evidence exists to support that screening accurately detects idiopathic scoliosis in adolescents.

The task force continues to report that no direct evidence supports screening’s effects on patient-centered health outcomes and that evidence on the effects of treatment with exercise or surgery was considered inadequate. While in the past, the value of a screening examination for scoliosis has been debated due to inconclusive evidence of the success of non-operative treatment for scoliosis, the 2013 BrAIST study does establish the effectiveness of bracing as effective early, non-operative care.

The BrAIST study, a randomized clinical trial, asked the question of whether bracing is effective in growing children and adolescents with curves between 20 – 40 degrees. The study demonstrated that the bracing of adolescents with moderate scoliosis was an effective treatment, based on the reduction of the number of patients who progressed to needing surgery. In addition, a dose response was found between the number of hours of brace wear and the success rate of bracing.

242 patients participated in the study and patients in the bracing group were assigned to wear a brace 18 hours per day, which is a typical bracing prescription. Patients in the observation-only group received no additional treatment. The end point of the study was “treatment failure”, defined as progression of the scoliosis to 50 degrees or “treatment success”, when skeletal maturity was reached without progression to 50 degrees.

72% of brace wearers avoided surgical recommendations, but only 48% of patients in the observational group avoided recommendation for surgery. Furthermore, the rate of success achieved by those patients who wore the brace for 13 hours or more was greater than 90%, demonstrating that the amount of time the brace is worn is critical to the outcome. The study provided strong evidence to the value of brace treatment for those adolescents at high risk of progression of surgery.

In addition, at this point, multiple randomized controlled trials support the utilization of scoliosis-specific exercise, known as physiotherapeutic scoliosis-specific exercises (PSSE) and the Schroth Method, in treating scoliosis. The Schroth Method is a conservative treatment originally developed by Katharina Schroth, who had scoliosis, in 1921 in Meissen, Germany. The Schroth Method has been used across Europe in treating scoliosis since the 1960s and utilizes stretching, breathing and muscular retraining exercises to decelerate scoliotic curve
progression in children and teens, manage postural pain in children, teens and adults and restore optimal postural alignment and control.


  Girls between 11 and 13 years old underwent physical therapy using scoliosis-specific exercises. The comparison group underwent usual physical therapy. In this randomized controlled trial, the scoliosis-specific exercise group demonstrated decreased Cobb angles (curve size measured on x-ray) by 5.3 degrees at skeletal maturity, improved quality of life, and curves were stable 1 year post-treatment.

- **Schreiber S. Schroth Exercises for Adolescent Idiopathic Scoliosis – Reliability, A Randomized Controlled Trial and Clinical Significance. 2014.**

  For the trial, 50 patients with AIS were randomized, aged 10-18 years, with curves 10°-45° to standard of care (observation or bracing) or supervised Schroth exercises plus standard of care. After introducing Schroth exercises, a daily home program was adjusted during weekly supervised sessions for six months. After six months, Schroth group had by 3.5° smaller largest Cobb angle. Schroth exercises improved patients’ back muscle endurance, by 30 seconds (p=0.02). Proportions of improved or stable patients were significantly larger in the Schroth group for all outcomes.


  A randomized controlled trial assessed the effect of Schroth (scoliosis-specific) exercises added to the standard of care (observation or braces) on the quality of life and muscle endurance of adolescents with scoliosis between 12 and 15 years old. In follow up x-rays, the Schroth group who underwent supervised scoliosis-specific exercises Cobb angle decreased by 1.2 degrees while the standard of care groups Cobb angle increased (worsened) by 2.3 degrees. Completers had even larger benefits. Pain, back muscle endurance, and self-image improved in the scoliosis specific exercise group.

This study assessed treatment outcomes on adolescents with scoliosis of Cobb angles averaging 31.3 degrees. The study compared three intervention groups, the first completed supervised Schroth method exercises, the second group completed unsupervised Schroth exercises on their own, and the third group received no treatment, consistent with the commonly recommended “wait and see” treatment. Six months later, follow up x-rays were taken to assess the Cobb angle. The supervised Schroth exercise group demonstrated an improvement (decrease) of 2.5 degrees Cobb angle. The home exercise group curve increased (worsened) by 3.3 and the no treatment group increased by 3.1 degrees.


This study assessed the effects of scoliosis specific exercises using the global posture reeducation in adolescents, average age of 10, and Cobb angles between 10 and 20 degrees. The study compared with scoliosis specific exercise intervention to no treatment. After 3 months follow up x-rays were taken. The scoliosis specific exercise group demonstrated improvement (decreased in curve size) 5.3 degrees. The no treatment group Cobb angle deteriorated (worsened) by 1.4 degrees.


The goal of the Schreiber study was to determine the effect of a six-month Schroth scoliosis-specific intervention added to standard of care (Experimental group) on the Cobb angle compared to standard of care alone (Control group) in patients with scoliosis. Fifty patients with AIS aged 10–18 years, with curves of 10°-45° and Risser grade 0–5 were recruited from a single pediatric scoliosis clinic and randomized to the Experimental or Control group. Outcomes included the change in the Cobb angles of the Largest Curve and Sum of Curves from baseline to six months. The intervention consisted of a 30–45 minute daily home program and weekly supervised sessions.

After six months, the Schroth group had significantly smaller largest curve than controls (decreased 3.5 degrees). Likewise, the between-group difference suggested that an average patient with 51.2° at baseline, will have a 49.3° Sum of Curves at six months in the Schroth group, and 55.1° in the control group with the difference between groups increasing with severity. Schroth PSSE added to the standard of care were superior compared to standard of care alone for reducing the curve severity in patients with adolescent idiopathic scoliosis.
The task force states that another reason to not recommend screening is that we lack evidence of what the magnitude of spinal curvature will be at skeletal maturity and that inadequate evidence exists that screening can improve adult health outcomes. The task force additionally reported that, although some evidence suggested bracing could decrease spine curvature, evidence was lacking on whether curvature reductions in adolescence improved health outcomes in adulthood.

While we may not know how much impact screening and subsequent treatment can have on adult health outcomes, we have plenty of evidence of the negative impacts of scoliosis on adult quality of life. Children’s bones are flexible and are at the greatest risk for scoliosis progression during puberty. Interventions targeted at successfully minimizing curve progressions have potential to improve future quality of life and are very low risk.

Several national specialty groups have published statements in support of screening, including the American Academy of Orthopaedic Surgeons, the Scoliosis Research Society, the Pediatric Orthopaedic Society of North America, and the American Academy of Pediatrics, which advocate screening for scoliosis in girls at age 10 and 12 years and once in male adolescents at age 13 or 14 years as part of medical home preventive services, if performed by well-trained screening personnel. However, the International Society on Scoliosis Orthopaedic and Rehabilitation Treatment recommends screening for idiopathic scoliosis by clinicians who specialize in spinal deformities through school-based programs.

PhysioPartners supports scoliosis screening for adolescents between the ages of 10 and 14 years to identify scoliosis and initiate early treatment. This treatment, to be determined by their physician, may involve scoliosis-specific physical therapy exercises, bracing or surgery.

PhysioPartners physical therapist, Stephanie Penny, is trained in the Schroth Method and utilizes scoliosis specific exercises to address scoliosis in adolescents and adult population. The most common statement from the adults is “I wish I could have done this treatment when I was younger.”


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