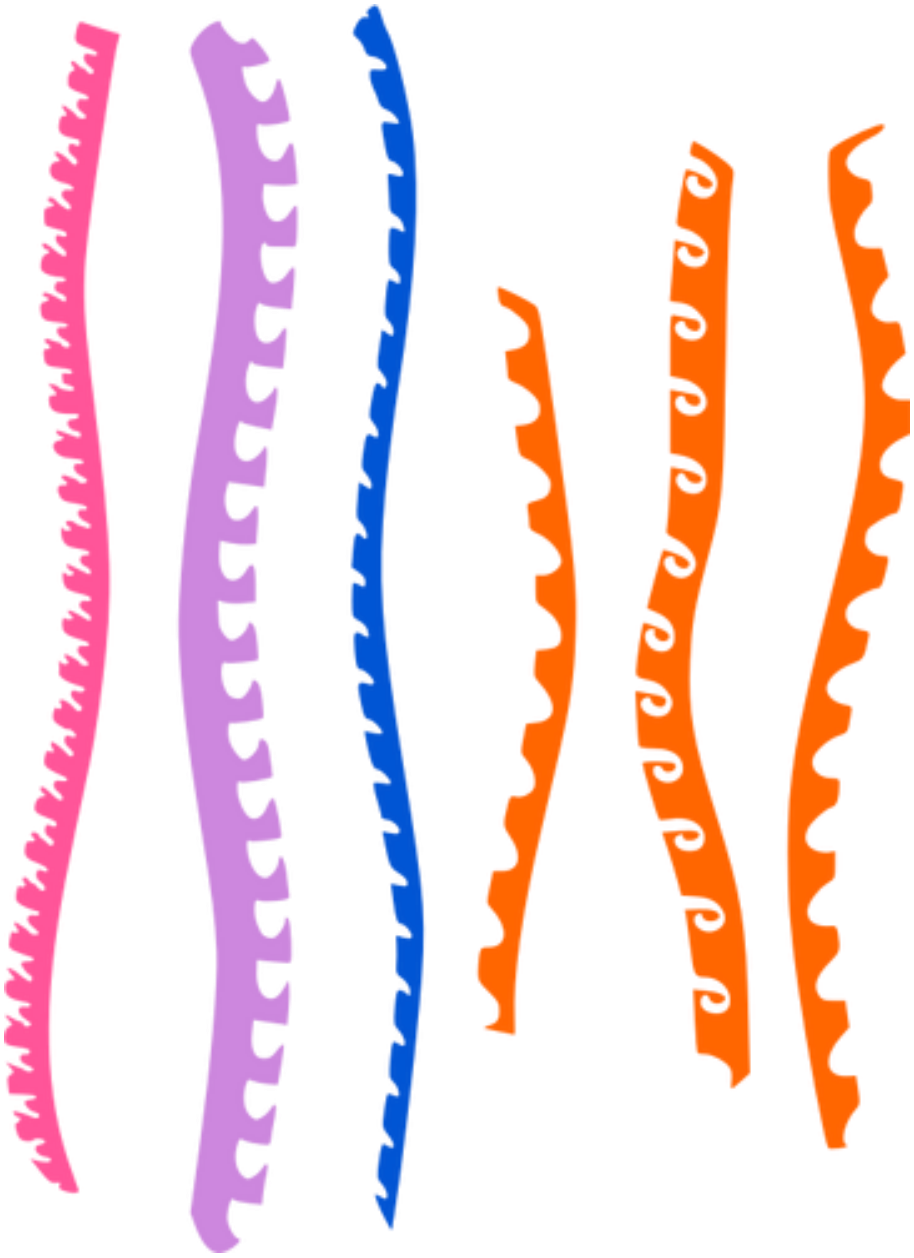


School spinal (scoliosis) screening guidelines

Utah Department of Health & Human Services

These guidelines were written in conjunction with Utah code 53G-9-402 and replace previous guidelines from 2017.

Utah Department of Health and Human Services
PO BOX 142107
Salt Lake City, UT 84114

Utah State Board of Education
PO Box 144200
Salt Lake City, UT 84114

Inquiries regarding material contained in this publication should be addressed to:

Elizabeth (BettySue) Hinkson, MSN RN-BC NCSN
Utah Department of Health and Human Services
School Nurse Consultant
PO Box 142107
Salt Lake City, UT 84114
(801) 419-1078
bhinkson@utah.gov

or

Kendra Muir, MHL BSN RN
Utah State Board of Education
School Nursing and Wellness Specialist
PO Box 144200
Salt Lake City, UT 84114
(801) 539-7904
kendra.muir@schools.utah.gov

Contents

School spinal (scoliosis) screening guidelines

Introduction

School spinal (scoliosis) screening was developed to identify adolescents with small spinal curves and refer them for treatment before these curves become too severe. Many states do some form of spinal screening to make sure students get needed evaluation and treatment. The state of Utah does not mandate spinal screening, but does require each local school board to implement rules developed by the Utah Department of Health and Human Services (Utah code 53g-9-402).

If the school has one nurse assigned full-time, screening may be considered worth the expense; however, most schools in Utah share a nurse with up to 15 other schools. For this reason, along with the high amount of false positives from screening tests, the time and cost involved, and the minimal need for significant intervention, the Utah Department of Health and Human Services recommends against routine school scoliosis screening in Utah.

Scoliosis is an abnormal curvature of the spine. The purpose of screening is to detect scoliosis at an early stage when it is believed treatment can be most effective in preventing the progression of the disease.

Routine school scoliosis screening began in the late 1950's (Karachalios, Theofilos, Nikolaos, Papageloupoulos, & Karachalios, 2000), but has recently come under fire. In 2004, the U.S. Preventive Services Task Force recommended against routinely screening asymptomatic patients, stating the screening was ineffective and found several false negatives and false positives (U.S. Preventive Services Task Force, 2018). False positives resulted in avoidable expense and anxiety and didn't decrease the likelihood students screened needed surgery; the majority of students identified needed minimal or no follow-up (Jakubowski & Alexy, 2014). Many believe routine school scoliosis screening is based more on tradition than evidence.
Another study found there was insufficient evidence to support school scoliosis screening, stating that most cases do not progress enough to require treatment,

cases needing treatment are likely to be detected without school screening, and false positives often result in unnecessary X-rays and medical appointments (Honeyman, C. 2014), as well as painful and unnecessary brace wear (Linker, 2012).

School spinal (scoliosis) screening

If school scoliosis screening is to be done, personnel should be educated on the correct way to screen to minimize unnecessary referrals. Currently, the Adams Forward Bend Test with use of a scoliometer is thought to be an effective way to measure abnormalities. The Scoliosis Research Society recommends that students found to have a 5 to 7 degree deformity be the threshold for a positive screening (2015). Karachalios, et al. (2000) recommend that eight degrees or more be the criteria for referral, but also don't believe school screenings are the best way to detect scoliosis because over-referral is common, and progressive curves are rare.

The Scoliosis Research Society (2015) recommends that girls be screened 2 times during their schooling years, at ages 10 and 12 (5th and 7th grade), and boys be screened 1 time at age 13 or 14 (8th or 9th grade), although methods and locations of screenings vary. Screenings can be done in schools by school nurses, PE teachers, or other qualified healthcare professionals; or is often done during a routine physical examination by the student's healthcare provider. Parents can also be made aware of signs to watch for that may indicate a spinal deformity.

Most cases have no known cause and are referred to as idiopathic scoliosis. It commonly affects young people between the ages of 10 and 16 years of age. Idiopathic scoliosis can go unnoticed in a young person because it is rarely painful in the formative years.

Spinal (scoliosis) screening process

The screening process identifies students who may have some physical findings that suggest a spinal curve. The screening process does not diagnose a spinal deformity. The student showing these findings is referred to a healthcare provider who completes an extensive examination and then will likely take X-rays to confirm whether the student has an abnormal spinal curve. At that point, the healthcare provider can provide recommendations for treatment.

Parents must be notified before students can be screened. They have the right to deny screening. This can be done through active or passive permission slips. Students already under treatment for scoliosis should not be screened.

The room in which the screening is done should have sufficient lighting and the floor should be level. The most common area to conduct the screening is in a middle school or junior high locker room. Boys and girls must be screened separately, in an area that accommodates the need for privacy. It is recommended that students wear gym clothes, ideally wearing shorts to allow better visualization of the waist, hips, and legs. Boys should remove their shirts. Girls should keep their shirt on until in a private area, and then can be instructed to either take the shirt off or pull it up around their neck with their arms out of the sleeves, with the shirt hanging in front of them. Girls not wearing a bra, bathing suit, or camisole should not remove their shirt. If the girl is wearing a camisole, it should be rolled up so the examiner can visualize the upper back. There should always be a minimum of two adults present for privacy concerns.

How to screen students for scoliosis:

1. The student begins by standing with their back to the screener. They should be standing up straight with their shoulders back, head up, arms hanging loosely at their sides, and knees straight. The student should not look backward at the screener or to the sides since this can cause a change in the findings. Long hair should be moved forward to allow full view of the student's back. Check for the following:
    - One shoulder higher than the other
    - One shoulder blade higher or more prominent than the other
    - One hip higher than the other
    - Space between arms and body greater on one side
    - Waist creases uneven
    - Obvious lateral curvature of the spine
    - Observe from either left or right side for kyphosis (increased curve of thoracic spine) or lordosis (increased curve in lumbar area)
2. Next, ask the student to put their palms together with their arms out straight. Then, the student should lower their chin to their chest and bend at the waist until their back is horizontal with the floor. This is called the Adams Forward Bend Test. Check for:

- Asymmetry of two sides of the back
- Rib prominence

3. Finally, use a scoliometer. This is considered best practice and should be used if possible. It is like a carpenter's level and designed to measure the degree of spinal rotation.
    - Hold the scoliometer with the number "0" directly over the top ridge of the student's spine.
    - Write down the number on the scoliometer. A reading should be taken at both the thoracic and lumbar spine.
    - Do not press down as this will distort the reading.
    -

Criteria for referral

The school nurse should screen those with positive findings a second time to minimize unnecessary referrals. This can be done at the same time as the original screening by having the student stand up and reposition, or can be done another day. Students should only be referred to a healthcare provider for additional screening or treatment if:

- The scoliometer reading is 8 degrees or more.
- A combined reading (thoracic and lumbar) of 10 degrees or more.
- Obvious curvature of the spine (or kyphosis or lordosis).
- Two or more of the following:
    - Shoulder or scapula asymmetry
    - Space between arms and body greater on one side
    - One hip higher than the other
    - Waist creases uneven

Documentation

All results should be documented either electronically or on paper. Those with positive findings should have a referral sent to a parent or guardian. Referrals should be to a medical physician (MD or DO), and not to a chiropractor. The school nurse should maintain a record of students who were referred for a professional examination, and those who were excluded from screening (for any reason). Sample referral letters are included in the appendix. Lists of students referred to a medical physician do not need to be sent to the Utah Department of Health and Human Services.

Management

Management of spinal deformities will typically consist of either observation, bracing, or surgical intervention. Most students with scoliosis require no treatment other than observation (Jakubowski & Alexy, 2014). Alternative treatments have not been successful in preventing curves from progressing. These include electrical muscle stimulation, exercise programs, manipulation, massage, and magnets.

Should the school provide the screening?

Current Utah law states the decision for schools to provide scoliosis screening should be determined at the local school board level. These guidelines have been established by the Utah Department of Health and Human Services to help local school boards that choose to implement school scoliosis screening. The local school board, with input from their school nurses, should review the most current research to make the decision whether to screen.

The U.S. Preventive Services Task Force (USPSTF) (2018) states that most cases of scoliosis are obvious and would be found in the student's regular visits with their healthcare provider. If the school has 1 nurse assigned full-time, routine school scoliosis screening may be considered worth the expense; however, most schools in Utah share a nurse with up to 15 other schools. For this reason, along with the high amount of false positives, the time and cost involved, and the minimal need for significant intervention, the Utah Department of Health recommends against routine school scoliosis screening in Utah.

If the local school board decides to implement scoliosis screening, the above guidelines should be followed. If the decision is made to not provide school scoliosis screening, a letter or flyer should be sent home with students in 5th or 6th grade containing more information on scoliosis (sample in appendix).

Definitions

Abnormal spinal curvature: an anatomic, structural deviation from the normal spine curse, such as scoliosis, kyphosis, or lordosis.

Cervical spine: neck portion of the spine.

Forward Bend Test: procedure used to assess the possible presence of abnormal spinal curvature (also known as the Adams Forward Bend Test).

Idiopathic: a condition with no known cause.

Kyphosis: abnormally increased roundness in the spine of the upper back as viewed from the side; also known as round back, hunchback, or humpback.

Lordosis: abnormally increased curvature in the spine of the lower back as viewed from the side; also known as sway back.

Lumbar spine: portion of the spine in the small of the back, or lower back.

Scoliometer: an apparatus for measuring the clinical deformity of patients with scoliosis.

Screening: a test or procedure to determine the need for a professional diagnostic examination.

Thoracic spine: the chest area or upper part of the spine.

References

Honeyman, C. (2014). Raising awareness of scoliosis among children's nurses. *Nursing Children and Young People, 26*(5). Pp. 30-37.

Hresko, M.T., Talwalkar, V.R. & Schwend, R.M. (2015). Position Statement – screening for the early detection for idiopathic scoliosis in adolescents. Scoliosis Research Society Position Statement, Retrieved from https://www.srs.org/Education/Quality-and-Safety/Informational--Position-Statements.

Jakubowski, T.L. & Alexy, E.M. (2014). Does school scoliosis screening make the grade? *NASN School Nurse, September 2014*, pp. 259-264.

Karachalios, T., Roidis, N., Papagelopoulos, P., & Karachalios, G.G., (2000). The efficacy of school screening for scoliosis. *Orthopedics, 23*(4), 386-391.

Linker, B. (2012). A dangerous curve: The role of history in America's scoliosis screening programs. *American Journal of Public Health, 102(*4), pp. 606-616.

U.S. Preventative Services Task Force (USPSTF). (2018). Adolescent idiopathic scoliosis screening. Retrieved from https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/adolescent-idiopathic-scoliosis-screening

Appendix

Sample permission letter

Scoliosis screening permission letter XXX school	
Student:	Grade:
Scoliosis screening will be conducted in the _____ grade P.E. classes under the direction of the district's school nurses. The purpose of scoliosis screening is to detect signs of spinal curvature at the earliest stages when treatment is most effective. It is usually detected in childhood or early adolescence by the student's primary care provider. Some schools may choose to have the school nurse also screen for spinal abnormalities. Most cases of scoliosis are mild and don't require surgery or interventions. Most children with scoliosis only need regular check-ups with a doctor. Sometimes, curves in the spine can become more severe as the child continues to grow. Early treatment can prevent the development of a severe deformity which can affect a child's health and appearance later in life. Screening for scoliosis is simple. Screeners who have been specially trained will look at your child's back while he or she stands and then bends forward. Privacy is important. Boys and girls are screened in different locations. Privacy screens or separate rooms help make sure students feel safe and as comfortable as possible. Each student is screened by themself with 2 adults present. Boys must remove their shirt. Girls must also remove their shirt and must wear a bra, camisole, tank top, or bathing suit top or they cannot be screened. It is necessary for the entire back to be visible during the screening process. Shoes must also be removed. You will be notified only if medical follow-up is necessary. This screening does not replace your student's need for regular health care and check-ups. Please check one of the boxes below and sign the form. The form should be returned to your child's P.E. teacher before the screening day. If a student does not return this permission form, he or she will not be screened.	
○ I do want my student screened for scoliosis.	○ I do not want my student screened for scoliosis.
Parent signature:	Date:

****

For school use					
Scoliosis screening findings: ○ Within normal limits ○ Possible problem noted (indicate findings below)					
L	R	Findings	L	R	Findings
		Shoulder blade more prominent than other			High shoulder blade
		Obvious curve of spine in lower back			Rib hump
		Obvious curve of spine in area of rib cage			Hip higher than other side
		Obvious curve of spine in upper back			High shoulder
		Waist to arm space greater			Other:
		Rounded back			Uneven on bend test by _____ degrees ○ upper back ○ middle back ○ lower back
Nurse signature:			Date:		

Sample information letter

Scoliosis information

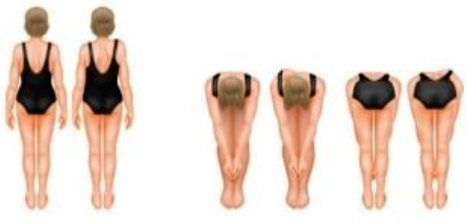
What is scoliosis? Scoliosis is a side-to-side curving of the spine. It is a developmental defect and not the result of poor posture habits. About 80% of scoliosis cases have no known cause (called idiopathic). However, scoliosis can be more common in some families, which means it could be genetic.

Idiopathic scoliosis starts as a slight bend in a growing child's spine. This bend may stay the same or it may progress over time, sometimes rapidly between the ages of 10 and 15. About 10% of people with scoliosis have a very mild form of it and won't need any treatment. Many times it is unnoticeable to anyone not trained to examine for it. About 1% of people with scoliosis will have a progressive condition and need some medical treatment. In the developing stage the spine stays flexible and there is no pain to indicate progression.

Significant curves that are left untreated will continue to advance into adulthood. Left untreated, scoliosis can cause physical deformity, pain, arthritis, heart and lung complications, and can also limit physical activity.

If detected early, scoliosis can be treated before it becomes a physical or emotional disability. Frequent signs of scoliosis are: a prominent shoulder blade, uneven hip and shoulder levels, unequal distance between arms and body, uneven hemlines, and clothes that do not hang right.

Home screening tests can be done with the child having no shirt on. For girls, a bra or a swimsuit that is low enough in the back to show the lumbar spine (lower back) will be OK.
To check your child for scoliosis at home, have your child stand facing away from you. Look at your child's back and answer these questions:

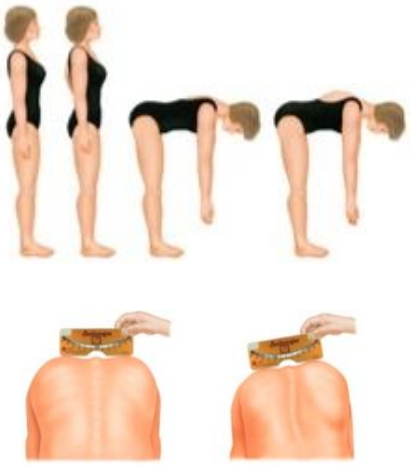


1. Is one shoulder higher than the other or is one shoulder blade more prominent?
2. When his or her arms hang loosely at their sides, does one arm swing away from the body more than the other?
3. Is one hip higher or more prominent than the other?
4. Does your child seem to tilt to one side?
5. Do you see an obvious curve in their spine?

Next, ask your child to bend forward, with arms hanging down and palms together at knee level. Can you see a hump on their back at the ribs or near their waist?

Talk to a doctor if you answer "yes" to any of these questions.

Screening for scoliosis is routinely done by your child's doctor at well-child exams. It's recommended that girls be screened for scoliosis at least 2 times, at age 10 and 12. For boys screening should be done 1 time at age 13 or 14.



Sample parent referral letter

School spinal screening Parent notification and referral XXX School		
Parent of:	Grade:	Date:
Students in our schools were recently screened for scoliosis (a curve of the spine that can appear between ages 10 and 16 years). Your child has signs of possible curve listed below. This does not mean your student has scoliosis. Only a physician can make that diagnosis. We recommend your child have a complete evaluation by a pediatrician or health care provider. Take this form to the doctor and ask them to fill it out. Contact your school nurse if you can't afford a doctor or have questions.		

School screening findings

L	R	Findings	L	R	Findings (continued)
		Shoulder blade more prominent than other			High shoulder blade
		Obvious curve of spine in upper back			Rib hump
		Obvious curve of spine in lower back			High shoulder
		Obvious curve of spine in area of rib cage			Hip higher than other side
		Waist to arm space greater			Other:
		Rounded back			Uneven on bend test by ____ degrees

****

Physician examination report (to be completed by physician)		
Parent of:	Grade:	Date:
Diagnosis:		
Recommendations: ○ No treatment ○ Observation only ○ Follow-up appointment scheduled on _____		
Treatment:		
Activity limitations:		
Additional comments:		
Physician signature:	Date:	
Physician mailing address and phone:		