

Orthotic Vest Construction Instructions

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I work with an orthotist or a certified orthotist technician to make this vest. They are very used to making TLSO's, and at first may be skeptical regarding the use of this one. This is a lightweight trunk orthosis. It can be billed as such, and should be billed at the cost of labor, materials, etc. by the orthotist. *(It has been funded here in PA by all insurance companies and by Medicaid as a lightweight trunk orthosis. I have been informed that it has also been funded in other states, where I have taught workshops and its use. The cost varies, as it is my understanding that if the orthotist must measure the child and then make a "mold" and "send it out" for construction, obviously the labor is much more extensive and expensive. If the child and family can attend an orthotist's construction site, and the vest is made right there, directly on the child, the costs appear to be less, obviously, for less time and labor. I do not "set" the costs, the orthotists bill for this "vest" as to their labor costs and time for construction.)*

A prescription for "a lightweight trunk orthosis" is needed by a physician, for the child. I suggest that the therapist and/or family talk to the child's family physician and/or pediatrician, specifically describing what the vest is and why the child needs it.

This vest is a lightweight, low temperature plastic, formed to fit the child's trunk. Plastazote, the "pink/flesh" color is soft, and it is important to use 1/2" depth. It does not matter if the plastazote is perforated or not, but the 1/2 inch dept is critical. If the child has a feeding tube, a hole can be cut out (through both layers) to readily accommodate it.

Straps are most effective if they are totally circumferential. This is a softer material and if straps are only put on in the front and attached with grommets and use a D-ring only, frequently, the straps are then "pulled" too hard, to tighten, and the grommets can pop out of the material. *However, if the grommet type strapping is chosen (both work, I have no preference, it is usually the orthotist's preference I follow), please make sure that instructions are shared with all adults who assist the child in getting in and out of the vest. This includes holding onto the grommetted part securely when pulling the strap closed. This is NOT an MAFO or AFO strap. The plastazote is a "soft" material, and the strap will pull right out of the material, if the strap is pulled too hard, without assisting it by holding onto the strap's base at the grommet.*

This orthotic is to be worn by the child during an activity to assist them in using and maintaining an independent upright posture, and prevent the trunk from collapsing. As a therapist with a lot of experience with children with complex bodies (i.e. children with hypertonicity, spasticity, dystonia, athetosis, and tone fluctuations) as I handle some children, the trunk frequently collapses and the head drops. This appears to be a protective-type, tactile reaction of the trunk. This trunk collapsing is strongly activated by a singular point of pressure from my hands during treatment. The children's trunks also can be observed to "hang" on their chest straps or trunk supports. This vest

prevents the collapsing, yet also acts as a “barrier” to the sensation of singular points of contact. The child is then able to more readily utilize weight bearing in the pelvis (while they are in treatment or how we have created their seating system) and learn to integrate the use of the shoulder girdle with the pelvic girdle, learning to use an increased upright alignment in the trunk and head while engaged in activity.

Frequently, orthotists have shared with me a healthy skepticism regarding the use of this material, when forming a lightweight TLSO. When they observe the child’s trunk, they may see it as a “lack of control” and want to “correct” this posture by adding a much stronger, harder material, even a bi-valved TLSO with steel stays. We do not want a TLSO to “control” the trunk. We are using this low-temperature, lightweight material to assist us in handling the child during treatment to prevent the protective reaction of collapsing and instead assist the child’s body in using its own righting reactions and upright postures. With this very specific, low temperature material, the child does not have difficulty getting used to it, and any adjustments needed to be made (pressure under the axilla, or at the hip) can be made by simply cutting the material, it does not have to be re-formed, nor re-heated. The material needs to be just firm enough to prevent a full trunk collapse, and to prevent the sensation of a singular point of pressure. We are using this vest not as a “corrector” but rather as an “assist” in sensory processing within the body, during activity. We are able to assist the child in utilizing her own postural mechanisms for upright postures rather than her protective reactions which can occur from our own handling.

To make the vest, the orthotist needs to measure the child as they would for any TLSO. This measurement would usually be on an examining table, while the child is in supine. They need to measure from the axillae to the ASIS, and in the rear (with the child moved to side-lying) the PSIS. Then the circumference of the vest, in one piece, it is NOT valved.

Measure the child’s trunk from one nipple all the way around to the same nipple, then add an additional length from one nipple to the other. (In short, the vest will lay over itself on the front of the child from nipple to nipple). This will give it some additional strength, to prevent collapsing. The straps are then placed on the vest circumferentially with the closure being on the front.

The vest must be formed around the ASIS’s so that it will sit properly on the hipbones, when the child is seated in an upright posture. There should be enough room, that in the fitting, the child’s hip can be fully flexed.

The child wears a T-shirt for the construction (and while wearing the vest). Since this is a low temperature material it only takes only a few minutes in the oven at the orthotist’s to heat the cut material. Then, the orthotist will come out, and the treating therapist needs to assist him/her by lifting up the child, laying them on the material, bringing the material around and over the front of the chest. One person pulls the material over the other, while the other adult presses in at the hips for some curvature of the material there. The vest is then taken off the child and the orthotist then completes the fabrication. They will add straps to it, on the front, and usually sand or bevel out the edges; especially at the front where the pieces lay over each other. The whole process from measuring, to heating, to fitting, to creating, has never taken more than an hour, and is often closer to 30 minutes.

It is actually a very simple process, every orthotist will recognize it as a quite simple TLSO, made of a much more lightweight material. Again, this TLSO is not meant to prevent scoliosis, or, in fact, control the body at all, but instead, it is a vest which is used during activity and treatment, to prevent an over-collapse of the trunk due to postural inexperience and to prevent the trunk from its protective reaction of collapsing when reacting to single points of pressure. This vest is not worn all day, nor for long periods of time. It is used as a part of treatment, and during treatment and activity. (Some orthotists may have made a very similar vest as a “quick” vest post surgical spinal rod insertion with children who have muscular dystrophy.)

In summary the vest is made from Plastazote; a low temperature plastic material, lightweight and less conforming than standard, valved, TLSO orthotic jackets. Pink/flesh color is SOFT too. Use the 1/2” depth. (Even on small and younger children the 1/2 inch is critical, if 3/8 inch is used, the vest is not effective, it is too soft.) The softness of this vest is critical in its application as it does NOT completely conform to the body and does not “control” the body. It is, instead, used for sensory processing and sensation issues, assisting the child’s body in developing its own postural control and upright postures.

Plastazote can be obtained from

From: Cascade Orthopedic Supply, www.cascade-usa.com or Friddle’s Orthopedic Appliances; www.friddles.com (These manufacturer’s are well known to orthotists.)

If there are any questions or concerns regarding this construction, please do not hesitate to contact me. *(I will readily email you photos of real children in the vest and its construction to accompany these instructions.)*

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Date; 8/24/14

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