How to Put on a Fall Protection Harness

Wearing a fall protection harness correctly is essential to worker safety on any job where a fall hazard exists. This procedure explains how to put on a fall protection harness step by step, from unpacking it to performing the final fit and safety checks. Following these steps ensures the harness is positioned, adjusted, and verified so it will function correctly if a fall occurs.

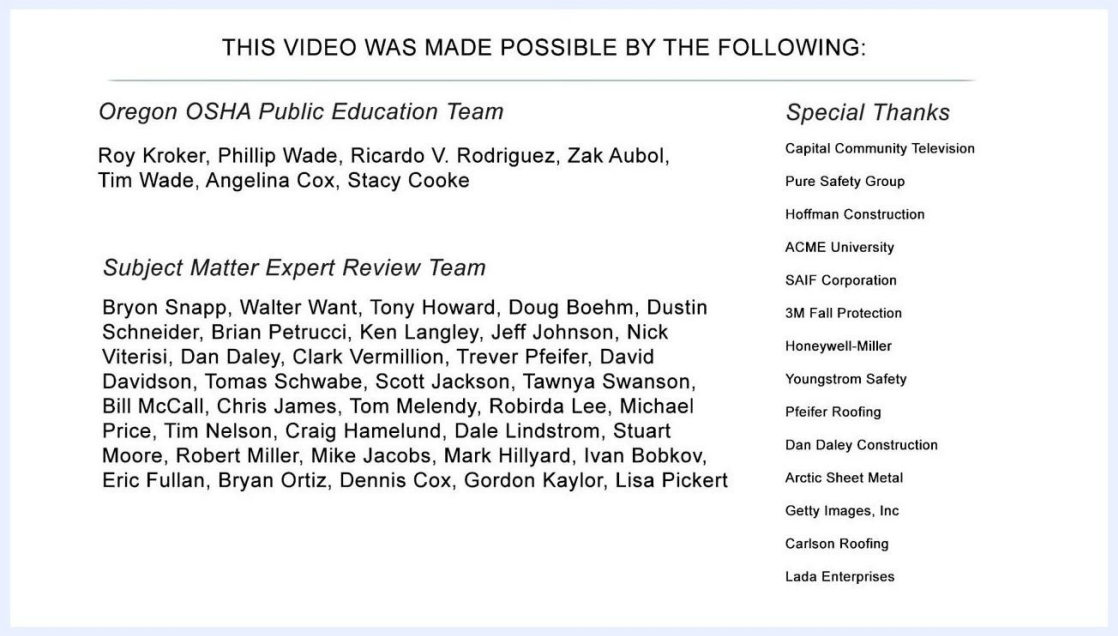
Instructor standing next to a mannequin torso, harnesses, and fall protection equipment, with text identifying him as a training expert

Purpose

This procedure describes the correct method for donning, adjusting, and verifying the fit of a fall protection harness before use. It covers strap identification, connector types, adjustment technique, and final safety checks needed to confirm the harness is ready for work.

Scope

This procedure applies to any worker who is required to wear a full-body fall protection harness. It covers standard harness components and common connector types, including pass-through buckles, quick-connect buckles, and tongue-and-buckle connectors. Because harness designs vary by manufacturer, always confirm the specific fitting instructions for your equipment.



Screen listing Oregon OSHA Public Education Team, Subject Matter Expert Review Team, and Special Thanks to various organizations and individuals.

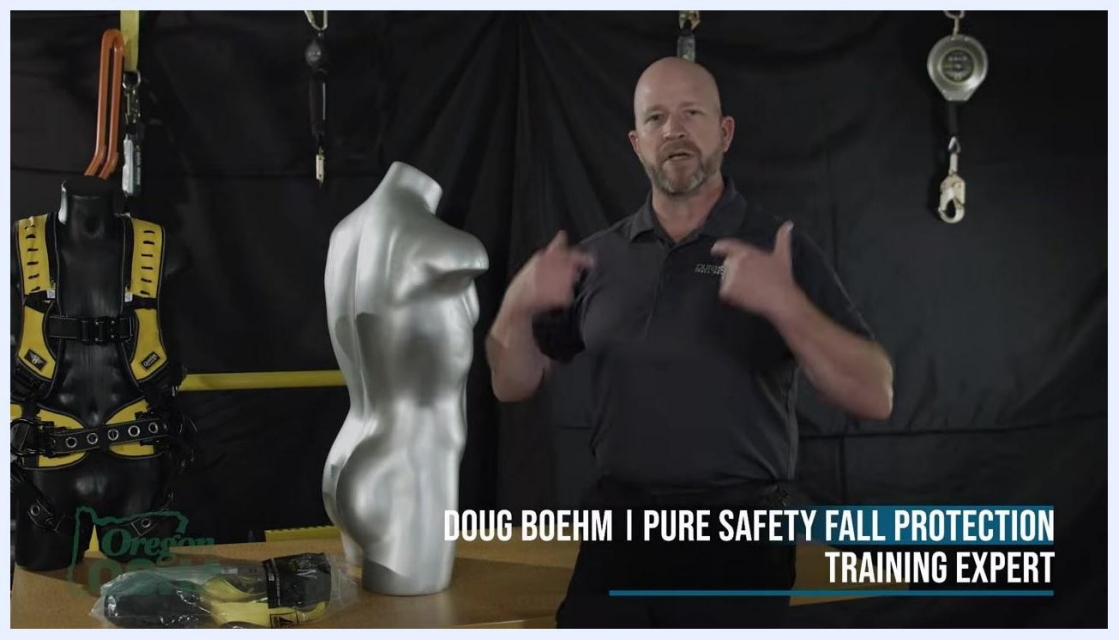
Required equipment and PPE

- A full-body fall protection harness, removed from its packaging
- A clear, open area to lay out the harness and avoid tangling straps
- Access to the manufacturer's specific fitting instructions for your harness model

Before starting, familiarize yourself with the essential components found on all harnesses:

- Shoulder straps
- Chest strap
- Leg or thigh straps
- Sub-pelvic (pelvic) strap

- Waist component, which allows the front and back of the harness to cross over when fitted



On-screen text: "STEP 2: SHOULDER STRAPS" over blurred background of instructor and mannequin

Step-by-step procedure

1. Prepare the harness

Remove the harness from its packaging and open it up fully to avoid tangling the straps. Throw the harness up and over your shoulder blades so that it sits in the upper part of your back before you begin fitting it.

2. Position the shoulder straps

Drape the harness over the shoulders, making sure the straps are not twisted, so the harness is positioned correctly on the upper back. This sets the foundation for all the adjustments that follow.

Harness properly positioned on a mannequin after initial adjustment

3. Check the harness placement

Confirm that the harness sits correctly across the upper back and shoulders before moving on. Proper initial placement makes every later adjustment easier and more accurate.

4. Assess harness size and fit

Evaluate whether the harness is the correct size for the wearer. Harnesses come in various sizes and functions, so proper sizing is crucial for safety and effective fall protection.

Harness held against a mannequin, illustrating the importance of correct size and fit

5. Adjust the harness for a proper fit

Make any adjustments needed so the harness sits snugly but comfortably. Double-check that all straps are lying flat and are not twisted before proceeding to the leg straps.

Instructor placing the harness over a mannequin's shoulders, demonstrating correct positioning

6. Identify the leg strap buckle type

Locate the leg or thigh straps and identify the type of buckle or connector fitted. The most common type is the pass-through buckle, which passes through one side and locks into position.

Title screen displaying "DONNING A HARNESS: A STEP BY STEP PROCESS" with Oregon OSHA logo

Pass-through buckle on a leg strap, prepared for connection

7. Identify other connector types

Some harnesses use a quick-connect buckle instead of a pass-through design. Take note of which connector type is fitted to your harness before securing the straps.

Harness draped over a mannequin's shoulders and back, showing correct initial placement

Different connector types shown on a harness leg strap area

8. Recognize the quick-connect buckle

Quick-connect buckles snap together and lock securely in place. They are commonly found on both chest and leg straps and are designed for fast, secure fastening, which is especially useful where frequent adjustments are needed.

Quick-connect buckle on a harness, shown snapping and locking securely on a mannequin torso

9. Recognize the tongue-and-buckle connector

The tongue-and-buckle connector functions like a traditional belt, with a tongue that fits into grommet holes. This design is commonly used on leg straps and allows for easy, variable adjustment, which is convenient when wearing cold or wet weather gear.

Close-up of a harness waist and leg area showing tongue-and-buckle connectors with multiple adjustment holes, resembling a belt system

10. Secure the leg strap through the buckle

Pass the leg strap through the buckle. To tighten, lift up on the buckle and pull the webbing through until it is snug. Leave a small amount of flexibility at this stage, since further adjustments will follow.

Threading and tightening a leg strap using a pass-through buckle on a mannequin

Safety note: Do not fully tighten the leg straps yet. Leave some flexibility to allow for even adjustment across the whole harness.

11. Check leg strap fit and flexibility

Confirm that the leg straps are snug but not overly tight, allowing for some movement and comfort. Additional adjustments will still be made once the rest of the harness is fitted.

On-screen text: "STEP 3: LEG STRAPS" over blurred background of instructor and mannequins with harnesses.

Pointing to the leg strap area on a mannequin, explaining the importance of flexibility in the fit

12. Adjust the harness evenly

Think of fitting the harness like shrinking a tube: adjust a little at the top, then a little at the bottom, alternating between areas rather than fully tightening one section before moving to the next.

After adjusting one leg strap, repeat the same process on the other side so both leg straps are evenly tightened and comfortable before moving to the chest strap.

Gesturing to the harness on a mannequin, explaining the process of making even adjustments

13. Attach and adjust the chest strap

Connect the chest strap across the front of the torso, ensuring it is properly latched. The chest strap should lay flat across the chest and not be overly tight; its main function is to keep the shoulder straps from slipping off the body.

Attaching the chest strap on a mannequin, ensuring it lays flat across the chest

14. Check chest strap placement and tension

Confirm that the chest strap is flat and secure, but not so tight that it pulls the harness inward or causes discomfort.

15. Understand the purpose of the chest strap

The chest strap distributes force in the event of a fall, helping to protect the chest cavity, shoulders, pelvis, and hips. The harness design ensures that fall forces are applied to the structural elements of the body.

Gesturing across the chest area, showing that the chest strap should lay flat and not be overly tight

16. Recognize the crossover effect

Note the crossover design of the harness, where the shoulder straps cross at the chest and hips. This design helps distribute fall forces effectively across the body's strongest areas.

On-screen text: "STEP 4: CHEST STRAP" over blurred background of instructor and mannequins with harnesses.

Pointing to the shoulder and chest area of a mannequin, highlighting the crossover effect of the harness straps

17. Ensure proper force distribution

Make sure the harness is adjusted so that, in the event of a fall, the forces are applied to the chest, shoulders, pelvis, and hips. This distribution is essential for safety.

Gesturing with hands in front of a harnessed mannequin, explaining force distribution

18. Save minor adjustments for last

Treat the chest strap adjustment as a minor adjustment compared to the torso and leg straps. Get the major straps properly fitted first, then finalize the chest strap.

Gesturing toward a harnessed mannequin while explaining how fall forces are distributed

Gesturing to the lower part of a mannequin, emphasizing that chest strap adjustments should be done last

19. Adjust the torso straps according to connector type

Torso strap adjusters vary by harness model:

- Some require pulling up to tighten
- Others require pulling down
- Some use roller buckles or internal adjusters

Identify the type of adjuster on your harness and use the appropriate method to achieve a snug, comfortable fit.

Explaining different types of torso strap adjusters beside a harnessed mannequin

20. Review the overall harness fit

With the harness fitted, review the shoulder straps, chest strap, and leg straps together. Shoulder straps should lay flat against the body without twists, sitting comfortably to allow free arm movement without excessive slack.

A hand placed on the mannequin's shoulder, indicating the harness is properly adjusted and fitted

21. Compare harness types for excess strap tail

Observe the difference between harnesses that leave excess tail (strap ends) after adjustment and those designed to eliminate extra tail.

Placing a hand on a mannequin's shoulder, emphasizing symmetrical harness adjustment

22. Confirm there is no excess tail

On harnesses with improved adjustment mechanisms, ensure that after tightening there is no leftover strap tail hanging down. The harness should fit cleanly and securely without loose ends.

Demonstrating harness adjustment on a mannequin, showing the difference in strap tail between harness types

23. Pull the strap through to tighten

Pull the adjustment strap through the buckle to achieve a snug fit. If necessary, move the chest strap to accommodate the tightening process, since strap positions may shift on the body as you tighten.

Discussing the tightening of torso and leg straps beside a mannequin

24. Ensure symmetrical adjustment

Adjust both sides of the harness so they are as symmetrical as possible. Avoid having one side tighter or looser than the other.

Explaining the correct snugness for leg straps, referencing the mannequin's harness fit

25. Tighten the torso and recheck the leg straps

As you tighten the torso straps, remember that the leg straps and sub-pelvic strap will also be drawn up. Keep the leg straps a little loose at this stage to allow for final adjustment once the torso is fitted.

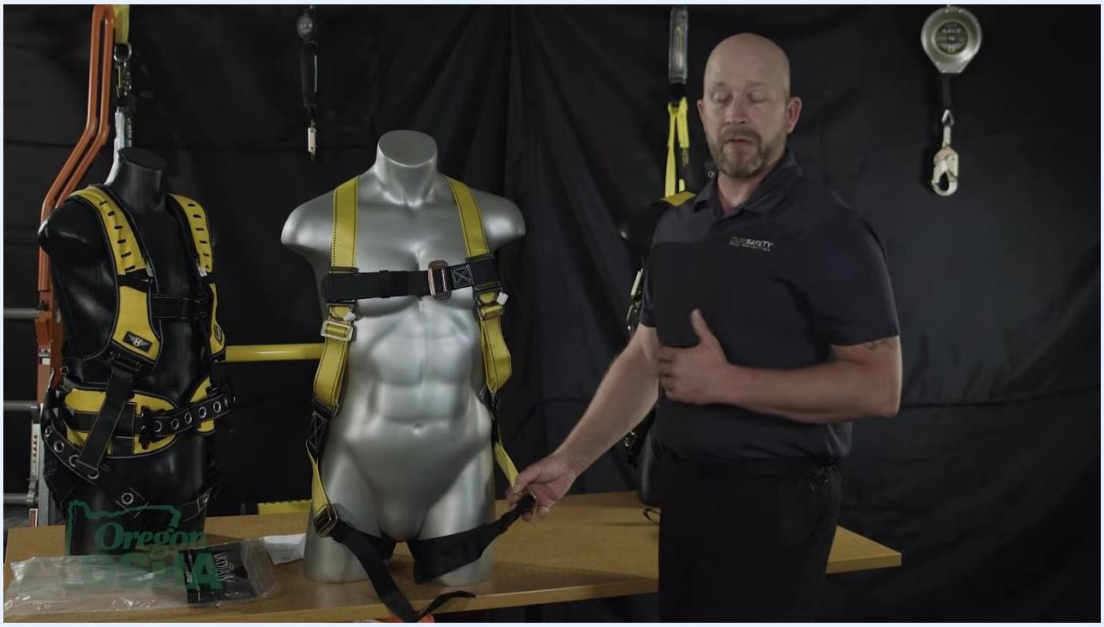
A mannequin wearing a yellow safety harness, showing the absence of excess strap tail after adjustment

26. Complete the final fitting for snugness

Once the harness is fully fitted, all straps should be snug to the body. For leg straps, allow only enough space to fit a flat hand between the strap and the leg—no more.

Gesturing to the harness on a mannequin, explaining strap adjustment and possible movement of the chest strap during tightening

Safety note: In the event of a fall, the leg straps bear much of the force and move up into the groin area. Correct adjustment is critical to avoid injury from improperly fitted straps.



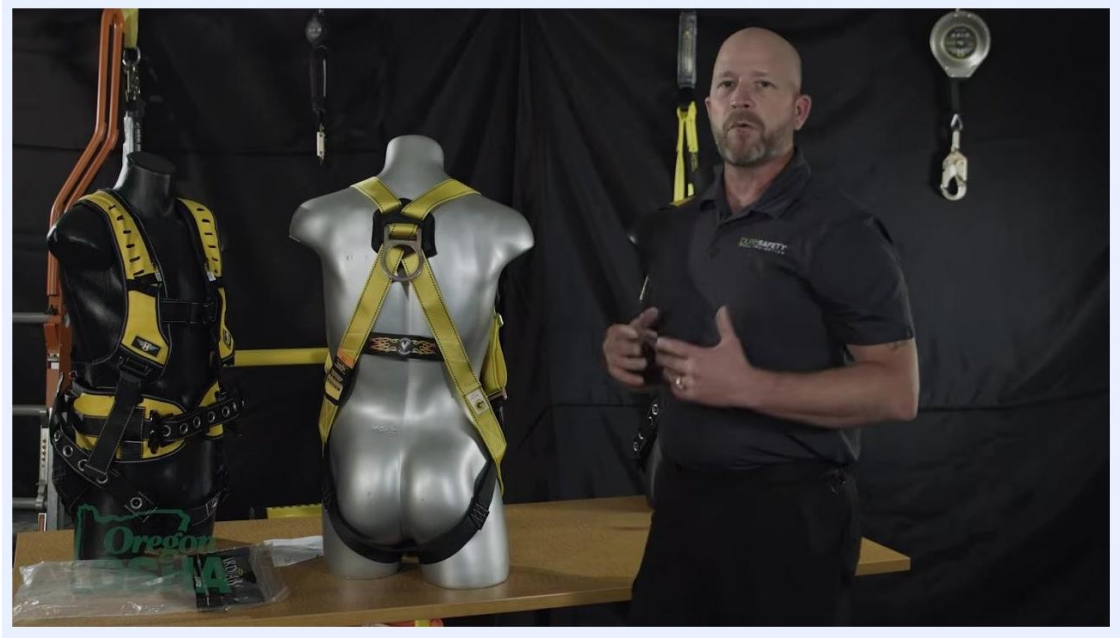
Holding the leg strap on a mannequin, emphasizing the importance of correct leg strap adjustment to prevent injury

27. Confirm all adjustments are complete

Double-check that the harness is symmetrical, snug, and free of excess tail once all straps are adjusted.

28. Check the harness alignment forms an "H" pattern

Confirm that the harness forms a clear "H" shape across the shoulders and chest. Adjust the straps as needed to maintain this pattern, which ensures even weight distribution and proper function.



Mannequin shown from the back with harness, illustrating fit and D-ring position during a mobility check

29. Secure all loose ends and strap tails

Make sure no straps or tails are left dangling from the harness. Tuck away or secure any excess strap material to prevent it from catching on tools, sharp objects, or other hazards.

Gesturing to the shoulders and chest of a mannequin, demonstrating the "H" pattern of the harness straps

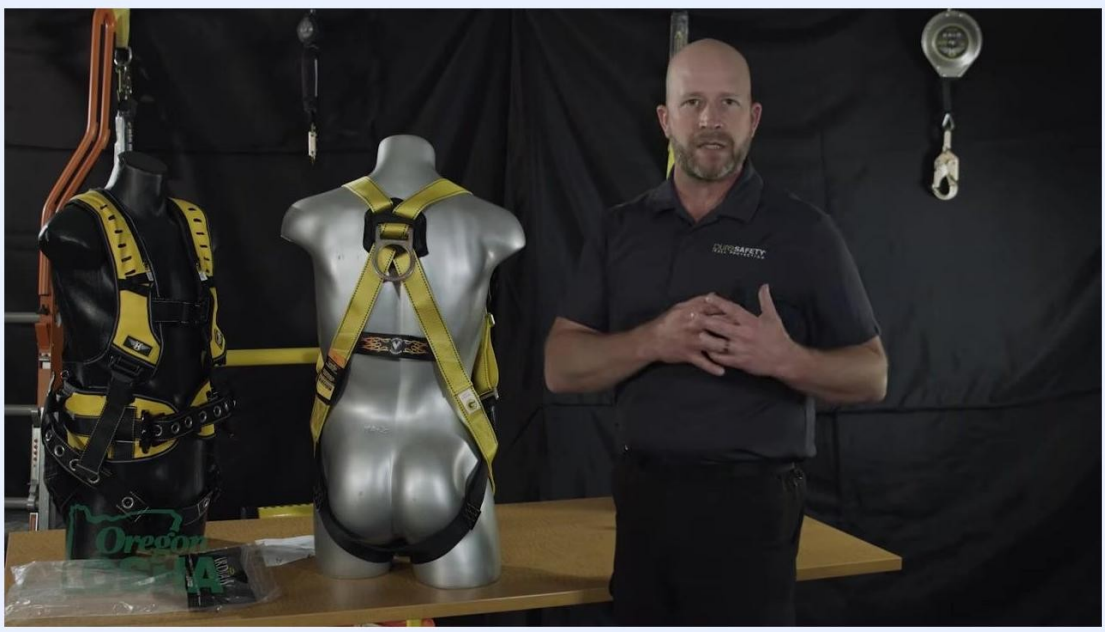
30. Perform a mobility check

Stretch your arms, bend over, and flex as you would during normal work activities to confirm the harness does not restrict movement or cause discomfort.

Holding a mannequin suspended by the D-ring, demonstrating the maximum allowable 30-degree angle from vertical

31. Verify D-ring placement

Confirm that the D-ring is positioned in the upper part of the back, centered between the shoulder blades. This is the designated pick point in the event of a fall and is critical for proper fall arrest function.



Indicating the D-ring placement on the back of a mannequin, centered between the shoulder blades

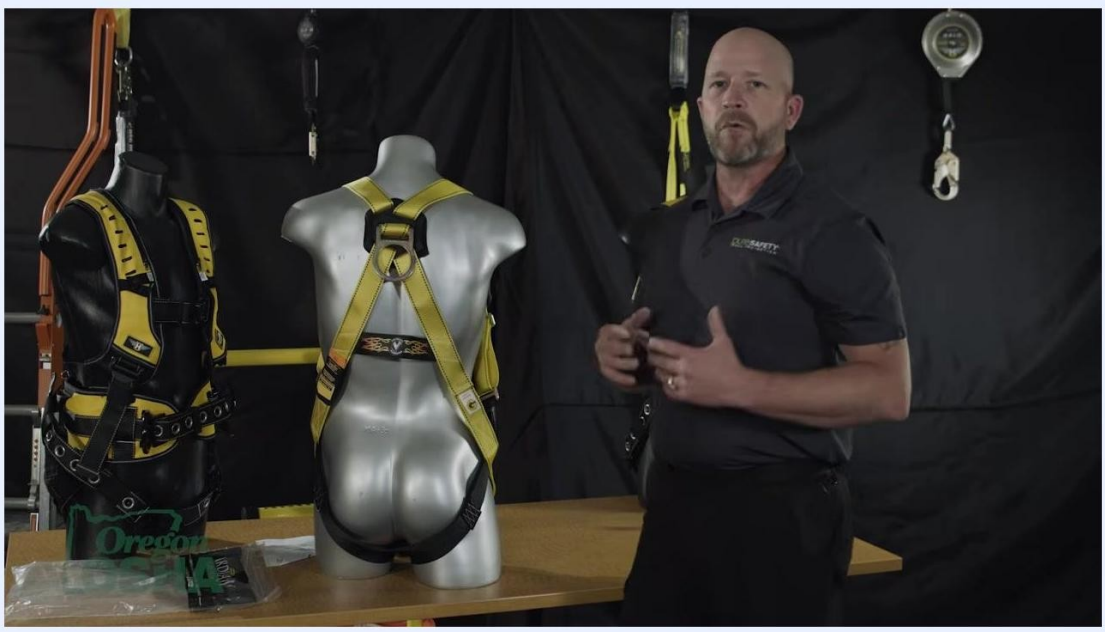
32. Avoid low D-ring placement

Do not allow the D-ring to sit too low on the back. A low D-ring can cause the worker to be pulled into a supine or "Superman" position during a fall.

Demonstrating with arms the incorrect, low D-ring placement and the resulting body angle

33. Check the maximum allowable suspension angle

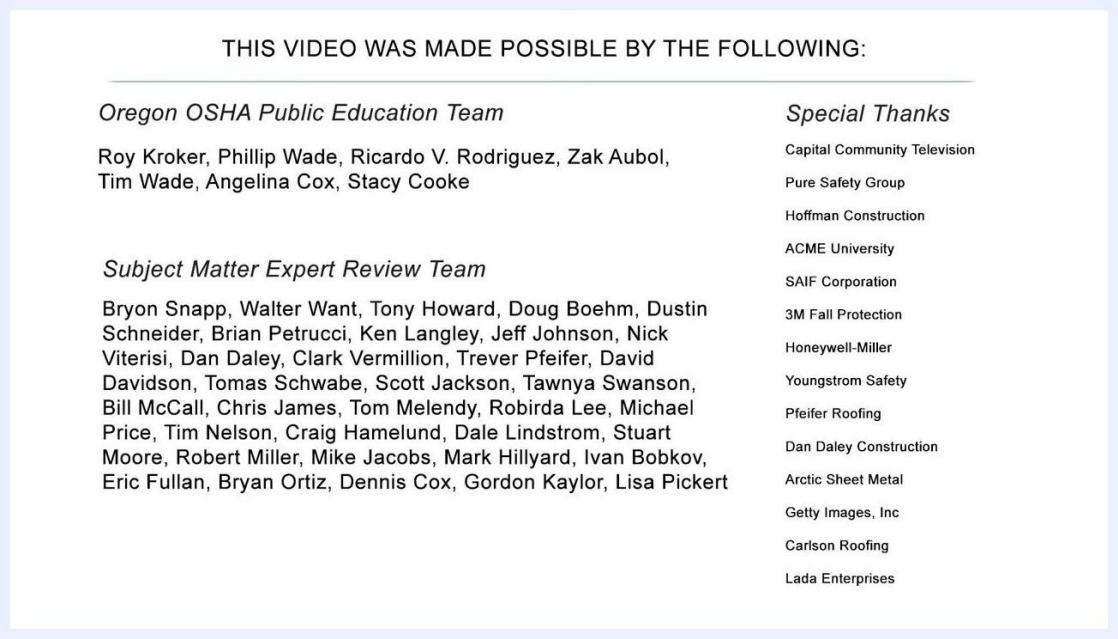
When suspended, the body should not exceed a 30-degree angle from vertical. Heavier weights may cause a greater angle, so always check the actual angle with the intended user.



Explaining the importance of securing loose strap ends to avoid hazards

34. Verify sub-pelvic strap placement

Ensure the sub-pelvic strap is correctly positioned beneath the buttocks. This strap is critical for supporting the body in the event of a fall.



Standing beside a mannequin with one hand on its shoulder, emphasizing the risks of improper harness adjustment

35. Understand the function of the sub-pelvic strap

The sub-pelvic strap acts like a seat when a fall occurs, supporting the body and creating a seat-like effect. Proper placement prevents the harness from causing injury during suspension.

Pointing to the sub-pelvic strap beneath a mannequin's buttocks, with another harnessed mannequin visible nearby

36. Ensure the strap contacts a flat area of the body

Confirm that the sub-pelvic strap rests against a flatter part of the body rather than digging into sensitive areas. This placement is important for comfort and safety.

Explaining the importance of the sub-pelvic strap contacting a flat area of the body

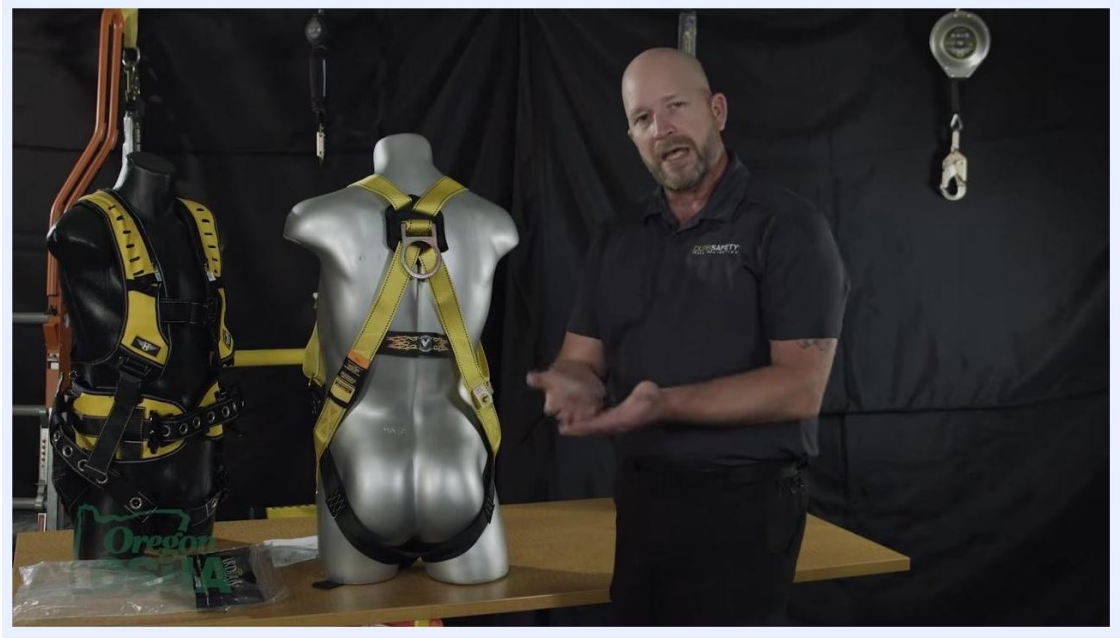
37. Review OSHA force requirements

OSHA has strict regulations regarding the amount of force a harness can apply to the body during a fall. Keep these requirements in mind when confirming the final fit.

Gesturing with both hands at different heights next to a mannequin, explaining OSHA force requirements, with the mannequin facing forward showing the chest strap and harness configuration

38. Understand the risks of improper force distribution

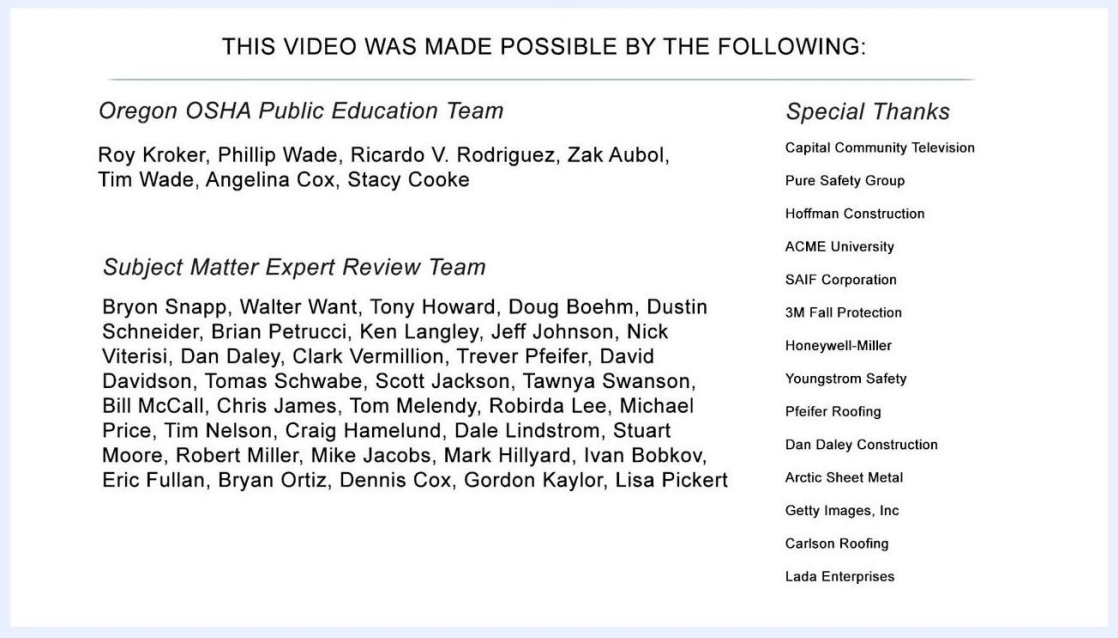
Improperly adjusted harnesses can cause significant injury due to excessive force on the body. Correct adjustment throughout this procedure is essential to avoid these damaging effects.



Gesturing with hands in front of a mannequin, explaining how the sub-pelvic strap creates a seat during a fall

39. Consult manufacturer instructions

The harness fitting shown here is for demonstration purposes only, and actual products may differ. Always refer to your specific harness manufacturer's instructions for detailed fitting and adjustment procedures.



Text screen stating that the harness used for demonstration is not a substitute for consulting the equipment manufacturer's specific instructions

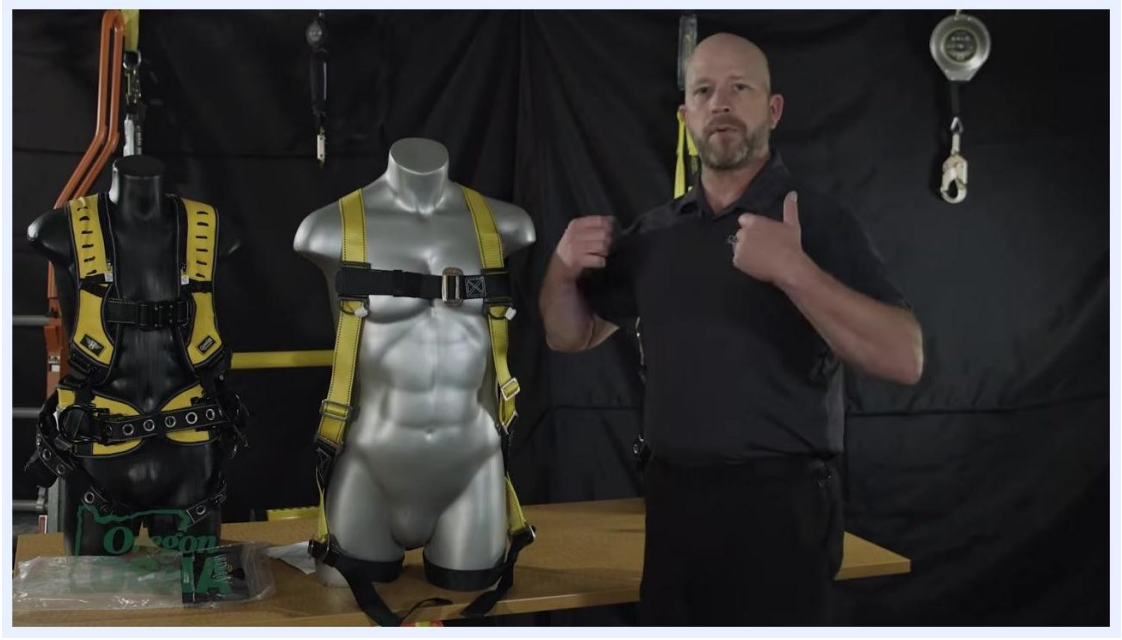
Final verification checklist

Before use, confirm the following points to verify the harness is properly worn:

- Shoulder straps lay flat against the body, are not twisted, and allow free arm movement without excessive slack
- Chest strap sits across the mid-chest area, not too high near the neck or too low near the abdomen, and is snug but not restrictive
- Leg straps are evenly tightened and secure, snug but allowing normal leg movement without restricting circulation
- The full range of motion has been tested by moving the arms and legs to confirm the harness does not impede movement
- Both sides of the harness are adjusted evenly, with all straps lying flat and buckles properly secured, giving the harness a symmetrical appearance
- All buckles, adjusters, and straps are securely fastened with no twists, tangles, or loose ends that could compromise safety
- The harness forms a clear "H" pattern across the shoulders and chest, with no excess strap tail remaining

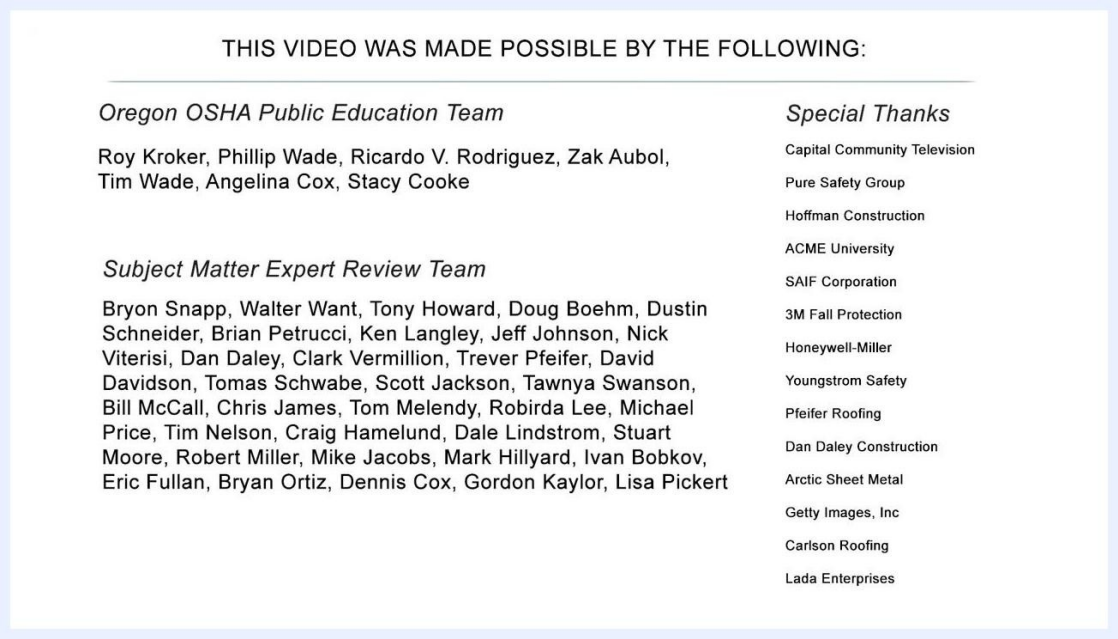
- The D-ring sits in the upper back, centered between the shoulder blades, and the suspension angle does not exceed 30 degrees from vertical
- The sub-pelvic strap is positioned beneath the buttocks against a flat area of the body

Instructor standing beside a mannequin torso, explaining harness orientation and the waist component



Gesturing to the shoulders while standing beside two mannequins wearing harnesses, one fitted with a yellow harness with chest and leg straps secured

Completing this checklist confirms the fall protection harness has been put on correctly, ensuring both comfort and maximum protection in the event of a fall. Always consult your equipment manufacturer for instructions specific to your harness model.



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