

SUSPENSION TRAUMA

What is Suspension trauma or Orthostatic Intolerance?

One of the effects of being suspended in a harness is tightening of the leg straps that bear the body weight of the suspended person.

Gravity pulls the blood down into the legs (venous pooling). This pooling of blood in the legs reduces the amount of blood flowing in the body and so the heart compensates and breathing increases to maintain the flow of oxygenated blood to the brain and organs. When this fails the heart rate slows and the casualty faints. This reduced heart rate can critically reduce both the quality and quantity of oxygenated blood to the brain and other vital organs with serious consequences of kidney failure or brain damage.

It is strongly recommended that no person remains suspended in a harness for longer than 10 minutes, after 5 minutes the casualty will most likely become unconscious.

What to do if you become suspended?

In the event of a fall and when a person may not be able to self-rescue, the work at height rescue plan must be put into immediate effect and emergency services should be contacted.

Fall victims can slow the onset of suspension trauma if they are able to do so by use of the following techniques: -

- Pushing down vigorously with their legs and mobilising all the limbs will help to maintain the circulation. Frequent 'pumping' of the legs against a firm surface will also activate the muscles and improve blood circulation.
- Positioning their body in a horizontal or slight leg-high position
- If possible something nearby which the feet can be rested, standing up.

The harness design and fall injuries may prevent the casualty from being able to do any of the above.

What are the signs of Suspension Trauma/Orthostatic Intolerance?

The possible signs and symptoms will be seen in two to three minutes and can include:

- Faintness - Nausea - Breathlessness - Dizziness - Sweating
- Unusually low heart rate - Unusually low blood pressure - Paleness
- Hot flushes - Loss of vision - Increased heart rate

What to do after a casualty has been rescued?

Following the rescue of a casualty suspended at height, normal first aid rules do not apply. The blood that has pooled in the legs that has been prevented from collecting oxygen from the lungs and is now stale, loaded with carbon dioxide and toxins from the body's metabolising processes.

If the casualty were to be laid down after rescue, the stale blood would rush back to the heart and other vital organs. This rush of deoxygenated blood can cause death by heart attack or a few days later from organ failure.

The current recommended procedures following a rescue are to keep the casualty in a knees bent 'W' sitting position for at least 30-40 minutes. This partially closes the

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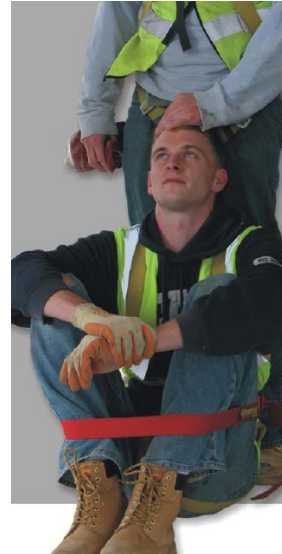
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femoral artery, allowing any pooled blood to be slowly released back towards the heart, allowing the body to reprocess and remove the toxins etc.

In some instances it may be best to place a belt or strap under the casualties raised legs and behind their back to restrict their movements, some rescue kits include a strap for this purpose.

The only Exception to this rule:

The only exception to positioning a casualty in the 'W' position is when there is or suspected spinal injury. A casualty can be assumed to have suffered spinal injury if they have fallen approximately 4 metres e.g. from connecting arresting lanyard at feet level or pendulum.



In this instance the casualties' legs are not to be raised but to support the casualty in a body splint or a stretcher that acts as a splint with a neck brace and head block. Then raise the casualty so that the head is above their legs to minimise the effects of toxic shock, utilising gravity to slow the flow of stale blood to the heart and vital organs.

ALL personnel who have been suspended in an arrested fall should be treated as a medical emergency and immediate medical attention sought.



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