

"OCTOPUS" LITTER-PATIENT RESTRAINT DEVICE

The enclosed "Octopus" litter-patient restraint device is **EXPERIMENTAL** and is supplied with an understanding that it is to be used for research and development purposes.

The "Octopus" system provides litter-patient restraint in horizontal, vertical, and inverted litter carry situations. The system with its six (6) lateral straps and adjustable center strap can be adapted to fit almost any size patient and almost any injury profile. It has been designed to allow rapid field application by one or more trained rescuers and provides easy patient accessibility without significant loss of patient restraint.

The "Octopus" is constructed from military specification webbing and certified hardware. Each section of the lateral strap system has been pull tested to failure which occurred at 2000# when the buckle failed. The lateral strap system is designed to be used in pairs (one secured on the patient's left, and one secured on the patient's right) which provides a failure load rating of 4000# per strap system. Safe working load for the lateral strap system(s) is 250# per pair.

The center (ventral) strap is secured with four (4) buckles - two (2) at the head and two (2) at the feet. This provides a failure load rating of 7000# for the strap system due to the webbing tensile strength. Safe working load for the center strap is 250# min (assuming failure of two (2) buckles) and 500# max (assuming total system integrity).

CAUTION The strap/buckle combination provides a three (3) to one (1) - 3:1 - mechanical advantage system which makes snugly securing a patient in the litter very easy. However, caution is necessary when tightening the lateral and center straps to prevent overtightening any of the strap/buckle systems. Excessive strap tightness can lead to soft tissue injury in unconscious (or low LOC) patients.

WARNING The foot restraint loop (red webbing) **MUST** be used whenever a patient may/will be moved in any vertical lift position. Failure to use the foot loop or to tension it adequately will result in patient movement - slippage toward the foot of the litter. This movement may cause the center strap to make contact with the patient's neck/trachea and present a serious life safety threat.

"OCTOPUS" USE

1. "Package" the patient as necessary for the ambient conditions and injuries.
2. Lay the entire "Octopus" system out on the ground next to the litter. Position the head and foot portions of the center strap to coincide with the patient orientation. Approximate the positions of the lateral straps to coincide with the patient's chest, pelvis, thighs, shins and ankles. All straps are to be positioned buckle-up and should have the straps engaged in the buckles.
3. Carefully lay the entire strap system on the patient with the center strap aligned with the patient's midline and the "Y" straps positioned at approximately two (2) inches below the Notch of Lewis.
4. Engage the two "Y" shoulder straps through the litter rigging and into their respective buckles. Do not take-up excess strap at this time.
5. Engage the two foot straps through the litter rigging and into their respective buckles. Do not take-up excess strap at this time.
6. Based on the patient size and excess strap amount available at the shoulder and foot buckles, adjust the center strap length. **CAUTION** Center strap buckle is a double pass buckle. Ensure second pass is engaged before proceeding.
7. Tension shoulder and foot straps equally to ensure center strap remains in position.
8. Move lateral straps into position. This may be dependent on litter rigging and patient injuries. Generally, one lateral strap system goes across the chest, one or two across the pelvic area, one across the thighs, one across the shins, and one across the ankles. The "Octopus"

provides for easy lateral strap placement. Strap numbers 4, 5, and 6 have a slightly larger center strap loop and will easily move across the center strap buckle for placement.

9. Begin tightening the lateral straps at the chest and work toward the feet. When using two (2) rescuers, work in unison one on either side of the litter. Tension should be "lightly snug" at this time.

10. Reaccess patient and strap placement.

11. Tension shoulder and foot straps to "snug" tension.

12. Tension lateral straps to "snug" tension.

13. Reaccess patient and strap placement.

14. Engage additional foot strap (red webbing) at this time. Anchor location(s) are dependent on litter rigging but should be somewhere near patients knees.

15. Tension the red foot strap to "moderately snug" tension. **WARNING** Insufficient tension on this strap system will allow patient to slip down and may cause a life safety problem. Over tensioning may cause undo stress on lower extremities.

16. Reaccess patient and check all straps for equal tensioning.

17. Prepare to move patient.

18. After several minutes of transport, reaccess patient and check ALL straps for equal tensioning.

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