

DAISY CHAINS AND OTHER LANYARDS: SHOCKING RESULTS WHEN SHOCK-LOADED

There are a number of commercially available lanyards on the market that are bought and used by rescuers and climbers for the purpose of creating a primary attachment link from their harness to an anchor point. Common user applications include use at belay stations for climbers, attaching to a bridle focal point while attending a stretcher operation, attaching to ladder rungs while ascending a water or communications tower, and many other applications involving rescue response and/or training.

Lanyards that are designed and manufactured for the OSHA-compliant user groups are tested both in a tensile strength manner (slow pull) as well as a dynamic manner (shock loading). Many of the lanyards that are designed and manufactured for the climbing and rescue community are not tested in a dynamic manner (e.g. daisy chains); the test method and/or rated strength is generally limited to tensile strength only.

Manufacturers do often caution the user against shock loading daisy chains (and other similar lanyards), however common user applications often place the climber and/or rescuer in a position whereby a shock load is possible. Depending upon variables such as the mass of the rescuer, the fall factor, the lanyard material and the lanyard make/model & construction, the integrity of the connection may be compromised in a shock loading scenario. Additionally, the peak force that the person is subjected to may be significant if their only means of creating shock absorption is their lanyard and their body.

The purpose of this study was twofold:

1. To examine the magnitude of peak forces on certain lanyards and/or lanyard configurations in a dynamic event
2. To examine the integrity of the connections on certain commercially available as well as user-created lanyards

The material presented is designed to raise awareness and offer some direction to the rescue and climbing community with respect to user application and selection of primary lanyard attachments.