

How to Determine Tree Strength & Build Tree Anchors

A set of guidelines is presented to assist a technical rope rescuer in judging: a) how well a particular tree will serve as an anchor, b) whether or not it needs a back-tie added, and c) how far up the trunk an anchor system can be affixed. These guidelines are derived from a series of comprehensive field tests involving tensile forces being applied to different sizes and species of trees in a variety of soil/rock environments and with anchors affixed at different heights off the ground. The forces applied, both statically and dynamically, to the test trees vary in magnitude, with the minimum being 15 kiloNewtons. This is equal to the maximum applied force created by the Belay Competence Drop Test Method (BCDTM: a 280 kilogram litter/patient/attendant load on 3 meters of 12.7 mm diameter low-stretch rope attached to an anchor via web cordage, load release hitch, and tandem prusiks is dropped one meter.) The significance of this set of guidelines for building tree anchors is that it can serve as an aid to a rescue rigger to help minimize the amount of time, rescue gear, and manpower needed to build anchor systems, especially in rescues where time is critically short in accessing, treating, and delivering a victim to definitive care.