Water knot

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The **water knot** (also **tape knot**, **ring bend**, **grass knot**, or **overhand follow-through**) is a knot frequently used in climbing for joining two ends of webbing together, for instance when making a sling.

Water knot

Names	Water knot, Tape knot, Ring bend, Grass knot, Overhand follow through
Category	Bend
Related	Overhand knot, Beer knot, Overhand bend
Typical use	To join webbing for climbing
Caveat	Ends should be left long, knot should be tightened and inspected before each use. Difficult to untie.
ABoK	#296
Instructions	animatedknots.com (http://www.animatedknots.com/waterknot/)

Contents

Tying the water knot

It is tied by forming an overhand knot in one end and then following it with the other end, feeding in the opposite direction.

Water knot before tightening

The ends should be left at least 7.5 centimetres (3.0 in) long and the knot should be "set" by tightening it with full body weight. The ends can be knotted, taped or lightly sewn to the standing parts to help prevent them from creeping back into the knot.[1]

Uses

The knot can be used for joining flat materials such as leather or tape.[2]

Security

Once tied, for additional security each end should be tied in a double overhand stopper knot around the other standing end.

Some testing has shown that the water knot, in certain conditions, can slip very slightly but very consistently, with cyclic loading & unloading at relatively low forces; it is the tail on the exterior that slips (this would be the blue tail in the image presented here). In tests using 9/16 in (14.3 mm) tubular nylon webbing, repeated loading and unloading with 250 lbs (113 kg) caused one of the 3 in (76 mm) tails to work back into the knot in just over 800 loading cycles. Another test showed similar results for Spectra tape (but not for new, 1 inch tubular nylon). And yet the knot can be loaded to rupture without slippage. These results validate the need to leave adequate tails and inspect water knots before each use. With single overhand knot safeties on either end, the combination eventually seized and the slipping stopped.[3]

Although used extensively in climbing and caving, there is some opinion that the water knot is unsafe. According to Walter Siebert, several deaths have been reported due to failure of this knot. In Germany, the knot is sometimes called *todesknoten*, which means death knot.[4]

Variations

The Figure-8 Water Knot (or Figure 8 Bend or Flemish Bend)[5] is based upon a figure-8 (or Flemish) knot instead of an overhand knot. It is easier to untie.

See also

- List of bend knots
- List of knots

References

1. Craig Luebben, *Knots for Climbers* (Evergreen, Colorado: Chockstone Press, 1993), 19.
2. John 'Lofty' Wiseman SAS *Survival Handbook, Revised Edition*; William Morrow Paperbacks (2009) ISBN 978-1875900060
3. Tom Moyer, *Water Knot Testing (http://www.xmission.com/%7etmoyer/testing/Water_Knot_Testing.pdf)*, 1999 International Technical Rescue Symposium, 1999. accessed 2007-04-07.)
4. Walter Siebert (2007), Deutscher Alpenverein; Österreichischer Alpenverein; Schweizer Alpen-Club, eds., "Warten wir noch ein paar Tote ab" (PDF), *bergundsteigen* (in German), Innsbruck (2/2007), pp. 38-45, retrieved 5 March 2008
5. http://www.animatedknots.com/references.php

Categories: Bend knots | Climbing knots
