



Knots 101

Leadership Conference 2017 - Nick Block

What will you learn?

1. Knot Terminology
2. General Knot Information
3. Does Dressing Knots Matter?
4. Tail Lengths
5. Climbing Knots and Their Effect on Breaking Strength
6. Rappel Knots



Knot vs. Hitch vs. Bend



Other Terms to Know

Bight / Loop

Standing end

Working end

Dressing

Setting



Relative Knot Strength (Knot Efficiency)

A knot tied in a rope creates a weak point. In most drop and pull tests, a rope will break at a knot.



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Repeated, dynamic loads can cause virtually any knot to fail. How can you avoid this?



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Dress Your Knots.

Double-Check Your Work.

(Have your partner check too)



How Do Knots Fail?

3 common problems -

Slipping

Capsizing / Rolling

Sliding



The Good News?

The strength of modern climbing ropes makes it extremely difficult to generate enough force to cause knot failure in real-life scenarios.



Dressing A Knot

Is it important?



Knot Dressing Advantages

Proper Knot Identification

Easier to Untie

Strength



A LONGER TAIL IS PREFERRED TO A SHORTER ONE.

When in doubt, make your tail a bit longer than you think you need.



Climbing Knots and Their Effect on Breaking Strength

How much does a knot affect
the strength of your system?





Knot Efficiency

For most climbing specific knots, the efficiency range is typically between 60-80%



Rappel Knots

What's the best knot to use to join two ropes?



Joining Two Ropes

What's the best bend to use to join two ropes?



Joining Two Ropes

Flat Overhand Bend

Pros

Low profile, efficient,
easy to untie

Cons

Weaker than other
bends

Double-Fisherman's

Pros

Strong

Cons

Bulky
Inefficient to tie
Hard to untie

Flemish Bend

Pros

Strong, easy to untie

Cons

Bulky, Inefficient to tie



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So What's the Best Bend?
The Flat Overhand Bend is
best for efficiency, ease of
tying, and low profile.



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But Isn't It the Weakest? In a test with two 10.2mm ropes, the **FOB** failed at 4950 lbs of force.



Questions?

