



# **Rappelling Manual**

# Rappelling

## TRIP LEADER REQUIREMENTS

- **Assistant Trip Leader** – 2 rappels in the last 3 yrs; Demonstrate how to Fireman Belay and set up rappel device safely; Perform tandem rappel, rescue and lower rappeller from above; First Aid/CPR certified
  - Assists in fitting and checking gear and participants for safety
  - First rappeller down line if familiar with self belay skill
  - Manages Fireman Belaying from bottom of rappel
  - Carries first aid kit and administers basic first aid if needed - can be designated Medic Guide
  - Carries 2-way radio for communication
  - Wears Trip Leader handkerchief to designate as a Trip Leader
  - Wears whistle to communicate in emergencies
- **Lead Trip Leader** – Serving as main Trip Leader of the group; Can demonstrate how to set up anchor system and top belay safely; 20 hrs experience leading activity; Wilderness First Responder Certified
  - Recons area for activity within 1-2 months prior to activity or in same season
  - Completes Trip Report prior to and after activity
  - Checks gear for safety prior to, during and after activity
  - Checks participants for safety and leads safety discussion
  - Carries first aid kit if not designated to Assistant Trip Leader
  - Carries 2-way radio for communication (if needed on approach)
  - Performs top belays as needed for Participants (REQUIRED for all first time Participants)
  - Wears Trip Leader handkerchief to identify as a Trip Leader
  - Wears whistle to communicate in emergencies
  - Communicates with Base Commander at the beginning, middle and end of activity via phone or In Reach Beacon
  - Completes Incident Report and/or SOAP Note if any concerning situation occurs on activity
  - Reports any damaged gear or safety concerns from trip

# Rappelling - Activity Plan

## PRIOR TO ACTIVITY

### GEAR

- **Provided by Mt Mamas:**
  - First Aid Kit per activity
  - Whistle per Guide
  - 2-way radios
  - Emergency Beacon (if needed)
  - Static ropes
  - Anchor systems, rappelling gear (webbing, quad anchors, Totem, locking carabiners, 8's, slings)
  - Several additional harnesses, helmets, rappel devices/carabiners to borrow
- **Provided by Participants:**
  - Helmet
  - Hair tie (long hair)
  - Harness
  - Rappel device with locking carabiner (8/ATC-X, ATS/Critter/Prana/Squwurel)
  - Pants
  - T shirt and Long sleeve shirt
  - Fleece or puffy coat (if cool weather)
  - Waterproof jacket
  - Thick gloves (leather only)
  - Daypack
  - 1-2 L water
  - 1 snack per hour on activity
  - Running shoes or boots
  - Sunscreen
  - Sunglasses
  - Camera
  - Personal first aid kit
  - Knife
  - Microspikes (if ice on rappel)

## POSSIBLE ACTIVITY LOCATIONS

- Red Ledges, Diamond Fk Cyn (Intro Clinic, Intermediate)
- Echo Picnic Area, AF Cyn (Intro Clinic)
- Battle creek Falls, PG (Intro Clinic)
- Mammoth Wall, PG (Intro Clinic, Intermediate, Extreme)
- Bar M Cliffs, Moab (Intermediate)

## INDIVIDUAL DEFINITIONS

- **Participant** – Individual participating in activity
  - Notify Mt Mamas of any health concerns or injuries prior to activity
  - Report if activity appears too strenuous or difficult
- **Assistant Trip Leader** – Assists Lead Trip Leader with activity
- **Lead Trip Leader** – Leads activity with Assistant Trip Leader (if needed due to group size)
- **Medic Trip Leader** – Trip Leader designated per activity with first aid/CPR certification
  - Main Trip Leader in charge of minor accidents or injuries
  - Designated Trip Leader to stay with injured individual if case of evacuation
  - Last in group and will assist any in the back of the group with any concerns
  - Carries 2-way radio for communication (during hike in and out)
- **Base Commander** – Individual not participating in activity that Trip Leader Guide is to report to prior to before, during and after activity of safe completion of activity.
  - Will notify emergency contacts and/or Search and Rescue if group is late or lost

## BEGINNING ACTIVITY

### SAFE GEAR (GEAR CHECK)

- Check Mt Mama gear for safety: first aid kit, 2-way radios, emergency Beacon (if needed), static ropes, webbing, quad anchors/cordage, Totem, locking carabiners, 8's, ATS, Squwrel rappelling devices, harnesses
- Set up anchors (Appendix D) and rappel systems (Appendix E). Have at least 2-3 rappels next to each other for better group management.
- Check Participants gear for safety - helmets, harnesses, rappelling devices, gloves
  - Gear
    - Helmets - fits snugly - have look up, down and shake side to side (Appendix A)
    - Harness - doubled back, not fraying (Appendix B)
    - Rappel device/locking carabiner (Appendix C)
    - Gloves (must be leather)
  - Trip Leaders are NOT required or responsible to size or fix broken gear - participants should ensure gear is safe and sized correctly prior to activity
  - Trip Leaders can refuse participation of any Participant if gear is determined to be unsafe.
- Trip Leaders can demonstrate how to adjust gear
  - Helmets - can change positions of side tabs to move attachment more to the front or back for comfort; adjustments for size are usually in the back
  - Harnesses - discuss and show buckling **single (double back) and double plate harnesses**
  - Rappel device and locking carabiner attached to belay loop (rock climbing harnesses) or rappel loop (rappelling harnesses)

### SAFE PARTICIPANTS

- Trip Leader to Participant Ratio 1:6
- Check Participants for safety: appropriate clothing, appropriate health, appropriate gear

### SAFETY TALK

- **Circle Up** - when participants arrive, gather them together in a circle and have them share 3 things:
  - Name
  - Experience in the activity
  - Goal for the activity

- **Safety talk:** describe the activity and safety items for participants to be aware of (5 items):
  - Environment – weather, trail and rappelling area conditions, location, distance, route, time expected, bathrooms/cell phone service
  - Gear – what gear we will be using and how to use it
    - Helmets (see Appendix A)
    - Harnesses (see Appendix B)
    - Rappelling Devices (see Appendix C)
  - People – sunscreen/hat/sunglasses, food/water, appropriate clothing
    - Wear helmets/gloves at all times at the top and bottom of the rappel
    - Hair tied up and under helmet
    - No necklaces, bracelets, hanging earrings
    - No clothing with loose ties
    - Tuck jackets, shirts into harness
  - Dangers – describe any dangers that could occur
    - Mountain Safety - Rapid weather changes, hazards along the route (rock slides, river crossings, cliffs, wrong turns, etc) - some approaches require some scrambling
    - Rappel Top Area - always wear helmet, stay back from cliff area unless clipped into anchor, must be clipped in if at least 3 ft from edge
    - Rappel Bottom Area - always wear helmet when within 30 ft of bottom of rappel
    - Falling rock - if someone kicks a rock, drops a bottle, or any item falls from above, yell “ROCK”; when someone yells “rock”, look straight ahead, lean close to rock wall, and shrug shoulders to protect neck
    - Ropes - don’t step on rope
  - Safety – what you will be doing to mitigate those dangers (see above)
    - Always have a PAS (personal anchor system) for each participant to use on their harnesses or on the anchor before attaching themselves to the rope

**RAPPELLING LESSON (PROGRESSION)** - Trip Leaders can use their own discretion to determine which drills and skills would best meet the goals of the Participants. A progression is a series of steps that logically build on one another, increase in difficulty, and are focused specifically on participants. There are always several ways to teach a lesson. Every Participant needs different things, some will need to spend time on a skill and others can skip ones.

- Teaching Tips
  - Trip Leader Body Language
    - Posture - relaxed, stand and face them
    - Hand Gestures - waving, thumbs up, hand shakes or high fives
    - Facial Expressions and Eye Contact - make eye contact, smile
  - Teaching Theory
    - Understand the Teaching/Learning Cycle (see Appendix F)
    - Understand Different Learning Styles (see Appendix G)
- Choose which skills would be appropriate for your group in the selections below

## ON THE WALL

- **Rappelling Demonstration**
  - **Tying in** – The Participant will clip into anchor system via PAS (personal anchor system or sling and carabiner) when within 3 ft of the rappel station. Trip Leader will set up courtesy rigging if needed if top of rappel requires more protection for Participants. Trip Leader will assist Participant in putting rope on rappel device safely and setting up top belay.
  - **Top Belay** - (REQUIRED for new rappellers or anyone the Trip Leader feels needs additional support) The Lead Trip Leader attaches belay device (figure 8, Munter hitch, ATC) to anchor and then is anchored to the rappel station anchor themselves. Can attach a second belay device to Lead Trip Leader if needed for extra support on belay or redirect. Monitor rope rubbing and edge protection. (Appendix H)
  - **Fireman (Bottom) Belay** - For additional security, ALL Participants must have a Fireman Belay. The Fireman Belay is provided by the Assistant Trip Leader or managed by the Assistant Trip Leader once Participants are taught how to perform safely. The Fireman Belay holds the rope and pulls if the participant is descending too quickly. Rope should be straight from belayer to rappeller with a little “wiggle” in the rope. No “J’s” or slack in the rope.
  - **CRASH Safety Check** - Before climbing, the Lead Trip Leader and Participant must perform a safety check of all critical points.
    - Carabiner → Squeeze the carabiner to ensure the gate is locked

- Rope → Check that the rope is tied correctly into the climber's harness, running freely to the masterpoint of the anchor & oriented correctly through the belay device
- Attitude → Assess the team's mental readiness for the climb
- Shoes & Stuff → Check for any extraneous stuff on the climber that should be removed. Check that they are wearing properly fitted climbing shoes.
- Harness & Helmet → Check that all harnesses are secure and correctly buckled. Check that helmets are on and correctly fitted. Hair tied back.
- **Belayer-Participant Commands:** (using walkie talkies)
  - **Before rappelling** –
    - “Belay On?” asked by Participant after they are attached to rappel device and clipped into anchor system.
    - “Belay On” from Belayer when they are on belay. Trip Leader or Participant unclips from anchor system.
    - “Rappelling” from Participant when ready to rappel.
    - “Rappel On” from Belayer when ready to assist in belaying as Participant rappels.
  - **While rappelling** - the following commands can be called by rappeler if needed from belayer: “Take” - for a tighter rope. “Slack” - for a looser rope.
  - **After rappelling** – when rappeler is on the ground safely, rappeler yells
    - “Belay Off” - from Participant when rappeler is on the ground safely.
    - “Off Belay” from Belayer (2-way radios may be needed to communicate this for long rappels or rappels with noise) Participant removes rope from rappel device.
    - “Off Rope” from Participant when rappeler is detached from rope.
    - “Off Rope” from Belayer. Lead Trip Leader (on top) pulls up top belay rope for next Participant.
- **Route Awareness** - know any obstacles such as trees, waterfalls, or overhangs, that may be present on the rappel
- **Balance/Footwork** –
  - Feet shoulder width apart or will spin
  - Knees bent and sitting in harness when rappelling for better balance in case obstacles are encountered along rappel



- Flat feet on the rock or they will hit their knees
- Keep checking over shoulder and below to note any obstacles or water below
- Feet below hips or Participant will flip
- **Tips for scared Participants -**
  - Describe the safety and function of the anchor
  - Reiterate multiple belay options
  - “Take a step, let out some rope, take a step, let out some rope”
  - Can offer a tandem rappel (Trip Leader can rappel next to participant on another rope)

## **WRAP UP AND CLOSING**

- **Review**
  - Review Lesson - how the days went, clarify any questions
    - Have participants review their trip
    - Focus on positives
  - Review skills - ask questions on new skills acquired
  - Review Goals and Progress - successes and struggles
  - Make a plan for practice at home - discuss skills to work on or upcoming trainings
- **Preview** - what they could learn next
  - Build on new learning
  - Invite them back - look up upcoming trips online

(based on the Professional Ski Instructors Association/American Association of Snowboard Instructors (PSIA/AASI) certification courses "Delivering the Beginner Experience -Alpine" and "Alpine - Level 1")

# Risk Management Plan

Rappelling has large inherent risks. Without good Risk Management it is impossible to create the “safe and joy-filled environment” that Mt Mamas seeks to offer every Participant. Managing risk involves using good judgment to make sound decisions in a dynamic environment. This section contains a general overview of common risk factors on Rappelling trips as well as an outline of expected practices for activities. Additionally, you will find the Emergency Action Plan detailed step by step on what to do if you are faced with some common injuries while during the activity and also for emergency situations.

Objective Risk Factors exist inherently in the activity itself

Subjective Risk Factors exist as a result of human engagement in the activity

## RISK MANAGEMENT PRACTICES

- **Ratios:** Trip Leaders should maintain a **1:6 Lead Trip Leader to Participant ratio** for each rappelling group and groups can be increased with additional Assistant Trip Leaders to maintain the Trip Leader to Participant ratio.
- **Training:** Mt Mamas requires all Lead and Assistant Trip Leaders to be able to demonstrate proper technique and skills listed at the beginning of this manual.
- **Gear Safety:** Helmets, harnesses, rappelling gear, gloves, etc will be brought by participants and Trip Leaders will assess generally for safety.
- **Gear Inspection:** Trip Leaders will assess gear for safety prior to trip. Trip Leaders are NOT required or responsible to size or fix broken gear - Participants should ensure gear is safe and sized correctly prior to activity. Trip Leaders can refuse participation of any Participant if gear is determined to be unsafe.
- **Planning & Preparation:** Good risk management begins with good planning and preparation. Trip Leaders will select an appropriate activity site and route that takes into account (among other things) expected weather, terrain, temperatures, timing, other users, group size, background, experience, physical condition, and goals for the day. Trip reports, waivers, and checklists will all be utilized online prior to the activity to ensure the group is prepared before each trip.
- **Participant Fitness Level:** Must be able to participate in athletic activity without difficulty. Individuals are responsible to notify Trip Leader PRIOR to the trip if they are not feeling their fitness level is adequate.

# Emergency Action Plan

## Rappelling

### PREVENTION

- Trip Leader
  - Trained in First Aid/CPR and/or Wilderness First Responder/CPR
  - Completes Trip Report prior to activity (office will update medical and emergency contact information on Participants)
  - Carry First Aid Kit at all times during activity
  - Use walkie talkies (one for each Trip Leader for approach)
  - Carry In Reach Beacon (if needed)
  - Check for safe gear, safe participants and have safety chat prior to activity
  - Notify Base Commander of group status and the beginning, middle, and end of activity by phone or beacon
- Base Commander
  - Receive notifications from Trip Leader at the beginning, middle and end of activity
  - Be available during activity to notify emergency contacts of tardiness of group or assist in emergency evacuation or contacting emergency services if needed
- Office
  - Update Trip Report with medical and emergency contact information on participants
  - Email Trip Leader and Base Commander the Trip Report and Emergency Contact and Medical Information prior to activity

### LOST OR LATE RETURNING GROUPS

- Prior to activity
  - The Trip Leader will fill out a preliminary **Trip Report** complete with proposed location of activity, possible evacuation routes, and expected times for leaving and returning.
  - Every trip will have a **designated “Late Time”** the the Base Commander will notify emergency contacts of delay.
  - Every trip will have a **designated “Emergency Time”** when the Base Commander will notify Search and Rescue if the Base Commander has not been notified of the safe exit of all participants from activity.

- The Trip Leader can **notify the Base Commander during an activity if the predicted times need to be adjusted.**

## INJURIES

- **Minor Injuries:** (minor scrape, sprain, etc.)
  - The designated Medic Trip Leader (generally the rear Assistant Guide or Trip Leader with most medical experience) will administer first aid while the other Trip Leader manages the rest of the group. The affected participant should be kept calm and comfortable. A Trip Leader, or volunteer with medical experience, should remain with the injured participant until they are able to return to the rest of the group. An **Incident Report** should be completed on site if possible or after and signed by both patient and Trip Leader. Take clear **photos** of any wounds or injuries when it is convenient.
- **Major Injuries:**
  - The designated Medic Trip Leader will stay with the participant and assist while the Lead or Assistant Trip Leader manages the rest of the group. The Lead Trip Leader or designated Assistant Trip Leader will make phone calls to the appropriate emergency number below. **An Incident and SOAP Note** should be completed at the time of the event if possible. Take clear **photos** of any wounds or injuries when it is convenient.

## COMMUNICATION

- In a Life/Limb Emergency or Property-threatening emergency
  - Try the National Park/State Park/Forest Service/BLM-specific emergency numbers
  - If no park-specific numbers exist, call 911
  - If 911 does not work, use emergency beacon to notify Search and Rescue
- In ALL Emergency Situations, after care has been secured, **notify Base Commander**. If Base Commander is not available, call Emergency Backup Personell (Emily Hacken 801-860-4591) or Marilyn Boucher (801-803-1398). Call each number three times in succession, if no one answers the three phone calls, wait 15 minutes, and move on to the next person.

## EVACUATIONS

- If a participant is injured and requires evacuation, follow these procedures based on the situation:
  - The participant can walk - Trip Leaders will assist the participant in walking/skiing/ hiking out.
  - The participant can't walk – Trip leaders will assess if the participants will

need to be carried out (if this can be done safely).

- o The participant can't be carried – if due to a possible head/neck injury or other injury, then notify 911 and/or search and rescue.
- Trip Leaders will assess all locations in an activity to determine easy access to vehicles and alternate escape routes prior to activity. Trip Leaders will document this in the Trip Report and discuss this with Participants at the beginning of activity.

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# APPENDICES

## APPENDIX A

### Helmets

Helmets protect our heads from anything that might fall from up above such as rocks or carabiners and also in case we bump our heads on the wall while climbing. Helmets must be worn by everyone at all times within the designated helmet zone. Helmets should be sized and fitted correctly (Helmet size can also be adjusted by twisting the dial located at the back of the helmet. Chin straps should be strapped all times and tightened so the helmet is secure but still comfortable. Check that the helmet is secure by shaking head gently back and forth. If you are going to set a helmet down, make sure to set it with the dome facing up so that it does not roll away.

## APPENDIX B

### Harnesses

Harnesses are made from super strong materials and are specially designed to catch us and keep us safe while rock climbing. Loosen the the buckles fully before trying to put the harness on. Step through the leg loops making sure the webbing is not twisted and pull the harness up so the waist strap is above the hip bones. Pull to tighten the waist strap. (It should be tight enough that you are not able to fit more than 2 fingers between your body and the harness). Tighten the leg loops so they are comfortable and not loose. **If the harness has 1 buckle you MUST make sure you feed the webbing back through itself, known as “doubling back”. If the harness has 2 buckles then it automatically doubles back** - make sure the webbing is through both appropriately.

## APPENDIX C

### Rappel Devices

Each participant will have their own rappel device and locking carabiner for rappels. Trip Leader will review use of each different rappel device used prior to rappels and double checks participant can safely use.

Approved rappel devices:

- Figure 8, ATC’X, ATS, Prana, Sqwurel, Crittr
  - [“Introduction to Rope Decending Devices”](#) Celessense

## APPENDIX D

### Anchors - Approved

- **Bolted anchors only** - 2 solid bolts
- **Quad** -
  - 10-30 ft 7 mm cordage tied with triple Fisherman’s knot and two overhand knots; 4 locking carabiners - 2 connected to bolts (one each) and 2 connected through 3 strands of cordage to rope.
  - Resources
    - [“Building a Quad Anchor”](#) by Explore and Traverse
    - [“Quad Anchors - Everything You Should Know”](#) by Summit Seekers Experience (shows quad with a sling - slings are not approved for rappelling clinics)

## APPENDIX E

### Releasable Systems

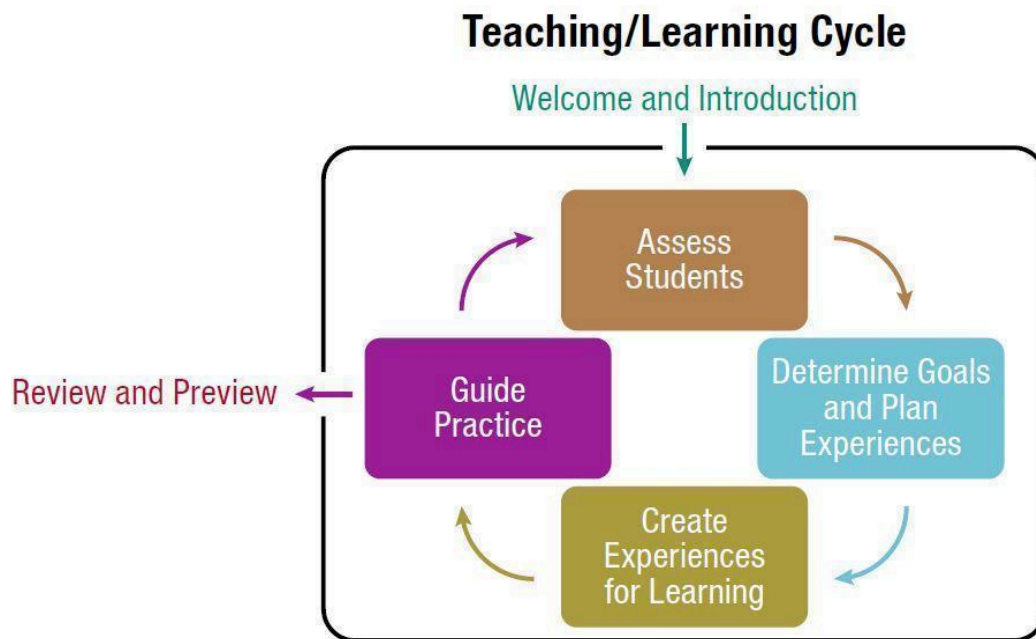
- **Totem “Jester”** - totem set up in jester mode allows for lowering and tandem rappelling (rappelling on second line)  
[“Rigging the Jester Contingency Anchor”](#) by North Wash Outdoors

### Non Releasable Systems

- **8 knot** on a bite tied to carabiners - allows for tandem rappelling but no lowering (use only if Totems are not available)

## APPENDIX F

### Teaching/Learning Cycle



- **Assess the Student**
  - Before you can build a lesson plan for the day, you need to assess your student's physical abilities and technical understanding. Warm-up activities will give you an opportunity to see how comfortable your guests are on snow, while building good group rapport. Observe their movements, stance, balance, and agility.
- **Determine Goals and Plan Experiences**
  - Ask questions about their goals and motivations for taking a lesson.
  - As the lesson progresses, remember to make sure the group goals align with what each student wants to learn and their motivations for taking a lesson.
- **Create Experiences for Learning**
  - Organize students and the lesson environment by choosing appropriate terrain based on ability and snow conditions. Interact with support, and encourage your students.
- **Guide Practice**
  - Create space to spend one-on-one time with each of your students while others practice or explore movements. Repetition of movements anchors



the actual learning and sliding experience. Guided practice also lets you handle an ability split. Challenge your more advanced students with difficult tasks while you spend individualized time on guests who may be struggling. This also gives students independence while allowing you individualize the lesson.

- Review and Preview
  - At the end of the lesson, make sure to review the experience, preview the next lesson, and invite your students back to your school and the sport. The debrief is an opportunity for your students to discuss their progress and the goals they accomplished. This content should come from the student. It is your job to facilitate the debrief and make a link to what another day on snow would do for them.

(Adapted from: “Delivering the Beginner Experience” Course, PSIA/AASI)

## APPENDIX G

### Different Learning Styles

- VAK Model - Learning Preferences - create multisensory lessons (describe a skill, demonstrate a skill, then have them try the skill)
  - V - Visual - pictures, images and demonstrations
  - A - Auditory - descriptions, talking about experiences
  - K - Kinesthetic - process through feelings and experiences

(Adapted from: “Delivering the Beginner Experience” Course, PSIA/AASI)

## APPENDIX H

**Top Belaying** - The belayer uses a descender device or system to control the rope anchored above. The rappeler is already attached to a second rope for rappelling. The belayer is the backup if the rappeler loses control and lets go of the rope.

- Technique
  - Rappeler is attached to rappelling rope with rappel device
  - Top rope is a second rope attached to an anchor above
  - Rope is attached to the rappeler with a Figure 8 follow through knot tied through the rappellers harness or a Figure 8 on a bight attached to a carabiner and attached to the rappellers belay loop.

- Rope moves through a descender device that is attached to the anchor NOT the belayer. Belayer slowly allows rope to move through the device as the rappeler goes down and stops it at any time the rappeler is going too fast or lets go.
- Backup belay - have the rope redirected through another descender device attached to the belayer or use a “capture” device such as a prusik above the belay device
- Be aware that there must be space between the moving top rope and the static rappel rope to prevent wear to either rope
- Use edge protectors on top rope belay if needed to prevent rope wear
- Maintain smooth rope flow
- Approved descender devices or systems
  - MMO (Munter/Mule/Overhand) - “[Safest way to rappel/Belay rappel](#)” Summit Seekers Experience
  - Munter only - “[How to top belay a rappel](#)” Erik Holmes
  - Figure 8 (substitute device in for the Munter knot on video)
  - ATC (substitute device in for the Munter knot on video)

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