

# INJURY PREVENTION



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A QUICK GUIDE TO HIGHLY EFFECTIVE EXERCISES  
THAT HELP KEEP YOU OUT OF DOCTORS OFFICE AND ON THE WALL

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A scenic landscape featuring a range of mountains under a clear blue sky. A bright sunburst effect is visible on the left side, casting rays across the scene. The foreground shows some sparse vegetation and rocks.

# INTRODUCTION

*The musculoskeletal system is a complex structure comprised of many muscles, ligaments, bones, and connective tissue all communicating and moving fluidly with one another; when things are working appropriately of course. However, often times communications become muffled and movements become jittery, especially under the strenuous positions climbing places our bodies in. Under low intensity and low frequency movement, these interdependent structures may not ever develop pain or impairments in movement but continue to increase intensity and frequency and more often than not something will fail.*

Rock climbing, boiled down to absolute simplicity, is a small number of movements and static positions placed in progressively more strenuous situations (high intensity) performed over and over again (high frequency). Rock climbing is a true whole-body exercise, and when mechanics are not appropriately addressed it is more prone to failure.

From one long-time climber to another, this guide is designed to keep you out of the doctor's office and on the wall, projecting longer, and most importantly climbing happier. Please remember that this guide is to keep you out of pain, not manage any pains you currently have. If pain is currently a problem for you, please seek the guidance and advice of your Physical Therapist or Doctor.

INJURY PREVENTION | UPPER EXTREMITY

# UPPER EXTREMITY

*WELL REGARDED AS A CLIMBERS MAIN  
CONNECTION TO THE ROCK. TAKE CARE OF IT, AND  
IT WILL TAKE CARE OF YOU.*

# WALL SLIDE

## STARTING POSITION

Facing a wall, feet 1ft away and hip width apart. Rest the pinky side of your hand on the wall, palms facing towards each other. Shoulders drawn slightly up and back.

## MOVEMENT

Gently press your hands into the wall  
Slide both hands up along the wall  
As you slide your hands up gradually draw your shoulders towards your ears and keep moderately firm pressure through your hands by driving your elbows towards the wall (not touching the wall). Maintain pressure and return to starting position.

## MODIFICATION

Use a foam roller on the wall, and focus on pushing your elbows into the roller as you go through the movement.



# REVERSE-Ts



## STARTING POSITION

Face away from the wall, feet 1ft away and hip width apart. Hips and knees slightly bent. Arms up at 90°, elbows bent at 90°, back of fingers gently touching the wall.

## MOVEMENT

Draw shoulder blades together. Try to keep the back of your shoulders touching the wall.

Draw belly button towards your spine to maintain your low back against wall. Elbow off the wall.

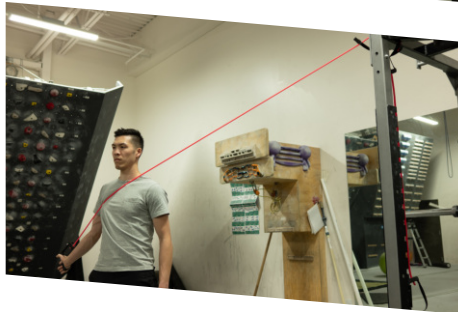
Slide back of fingers up along the wall until unable to keep shoulders or low back against the wall.



## MODIFICATION

Same starting position, except lying on your back on the floor with knees bent up.

# DIAGONALS



## STARTING POSITION

Perform with either cable machine or resistance band, anchored at the highest or lower points possible. For example a resistance band can be anchored at the top or bottom of a closed door in your house.

## MOVEMENT TIPS

Sequence of muscle activation is key.

When pulling away from your body, first move shoulder blade followed by shoulder, elbow wrist and hand.

When pulling towards your body, reverse the sequence above.

## TIP

Notice that these movements are not straight arm pulls. They also involve opening/closing of the hand/fingers, flexion/extension of the wrist, rotation of the forearm, and rotation at the shoulder.

Work on the movement itself, before adding resistance.

# QUADRUPED LAT STRETCH



## STARTING POSITION

On all fours (knees and elbows), forearms resting on the floor, hands and elbows together, shoulders directly above elbows.



## MOVEMENT

Rock backwards, keeping your elbows together. Do not let your head dip down between your arms.

Hold for a minimum of 30 seconds, maximum of 60 seconds



## MODIFICATION

Weights may be placed on the outside of your elbows to help keep them together.

For a greater stretch, try keeping your hands apart, while keeping your elbows together.



# ***DUMBBELL WRIST EXTENSION***



## **STARTING POSITION**

Grip the dumbbell in your hand, palm down.

2 Positions:

1. Elbows bent ~90 degrees, forearms supported on thigh
2. Elbows straight, forearms support on bench



## **MOVEMENT**

Bring the dumbbell up towards the ceiling and in, almost as if you were attempting to touch the free ends of the dumbbell together

# OPEN HAND WRIST EXTENSION



*For the following finger exercise, a Metolius ball with resistance band is recommended, but a wide resistance band or carabiner with rubber bands may be used to perform this.*

## STARTING POSITION

Fingers secured in rubber bands/loops, fingers maintained open and spread apart as much as possible. Wrist in the bent forward position.

## MOVEMENT

Extend your wrist back as far as possible, while maintaining your fingers open and spread out as much as possible.

## MODIFICATION

change the angle of your elbow (e.g. straight, 90 degrees, fully locked off, etc...)



# DUMBBELL FOREARM ROTATION



## STARTING POSITION

Grip the outside of the dumbbell in your hand, palm down. The Non-gripped side of the dumbbell should be between your hands.

## 2 Positions:

1. Elbows bent ~90 degrees, forearms supported on thigh
2. Elbows straight, forearms support on bench



## MOVEMENT

1. Rotate the dumbbell to point up towards the ceiling.
2. Slowly lower the dumbbell to point away from each other.
3. Rotate back up towards the ceiling.
4. Slow lower the dumbbell to point towards each other.



## TIP

Quick up, slow down. High reps, low weight

# FOREARM FLEXOR STRETCH



## STARTING POSITION

4 Positions:

Standing over a bench

1. Fingers pointing forward
2. Fingers pointing out to the side
3. Fingers pointing toward your feet

Kneeling on knees

1. Fingers pointing towards your feet

## PROTOCOL

Hold these positions for 30-60 seconds

Perform 2-3 reps

## TIPS

Start with the easiest, and progress to the most difficult

# FOREARM EXTENSOR STRETCH



## POSITION

Elbow straight. Palm down, Closed fist, Wrist bent down.  
Opposite hand pulling wrist further down.

Rotate elbow inward for stronger stretch.

## PROTOCOL

Hold these positions for 30-60 seconds  
Perform 2-3 reps



# FINGER EXTENSION/ ABDUCTION



*For the following finger exercise, a Metolius ball or carabiner with rubber bands may be used to perform this.*

## STARTING POSITION

Closed Fist position, wrist begins fully flexed down  
3 forearm positions:

1. Palm facing up
2. Palm facing down
3. Palm facing inward



## MOVEMENT

From a closed fist position, open your hand, and spread your fingers as far apart as possible, while bringing your wrist into as much of a cocked-up position as possible.

## TIP

Modify this exercise into your warm-up routine by holding the finger spread position for 30 seconds. Repeat 10 times.

# HOOK GRIP FINGER ABDUCTION



## STARTING POSITION

Start with your hand positioned as per the picture. You may push the further knuckle into your leg, or against the palm on your opposite hand to help you maintain the position.



## MOVEMENT

Spread your middle knuckle as far apart from each other as possible. Hold for a minimum of 5 minutes.

## TIP

This exercise requires no equipment and should be done often. Waiting on the bus or in traffic? Will people think you're weird? Yes.

# DUMBBELL ROLLOUTS

## STARTING POSITION

Standing, arms at your side, dumbbell gripped in your hand.

OR

Kneeled at a bench, palms up, forearms supported on bench, dumbbell gripped in your hand.

## MOVEMENT

Slowly roll the dumbbell down to your finger tips by opening your hand





# TENDON GLIDES

## STARTING POSITION

Hand open, fingers together

## MOVEMENT

1. Bend your large knuckle as far as you can while keeping the others straight
2. Bend your middle knuckle as far as you can to touch your fingers to the base of your palm (further knuckle straight)
3. Bend your furthest knuckle into your palm and drag your finger tips up your palm to return to the starting position.

## MODIFICATION

The pen roll - Hand up pen gripped in your fingers, roll the pen, try not to drop it!



# SPINE

*The Spine is the bridge between your brain and your limbs, and requires a specific balance of both strength, mobility, and control.*

# LOW BACK STABILITY



## STARTING POSITION

Lying down on firm surface. Knees bent up. Maintain low back flat to firm surface throughout each movement by drawing belly button towards spine

1A



1B



## MOVEMENT

**Level 1a:** March 1 knee up to a hip angle of 90 degrees. Lower same foot back down.

**Level 1b:** Same as Level 1a, except march opposite leg up. Then lower each leg individually down.

**Level 2:** March both legs up individually. Lower 1 foot down. Slide leg straight. Bend back up. march leg back up. Switch legs

**Level 3:** Same as Level 2, but lower both legs, slide straight, bend back up, march back up together.

**Level 4:** Same as Level 2, but from both legs up to 1 leg straightening held off the surface.

**Level 5:** Same as Level 4, but straightening both legs held off the surface.

2



3



4



5



## TIPS

- Blow out like you're blowing out a candle during the movement.
- If you're low back lifts off the floor, go down a level
- If your abdominals have a bell curve like shape, go down a level (your stomach should be maintained flat at all times)

# LOW BACK MOBILITY



## STARTING POSITION

Lying down on firm surface. Knees bent up. Do not allow shoulder blades to lift up off the floor.



## MOVEMENT

Slowly rotated legs to side to side. Allow one side of your buttock to lift up off the floor as your rotate.

## TIP

Stretch your arms out to the side to help keep the backs of your shoulders in contact with the floor.



# ***FLEX-EXTEND MOBILITY***



## **STARTING POSITION**

Hands and knees position.



## **MOVEMENT**

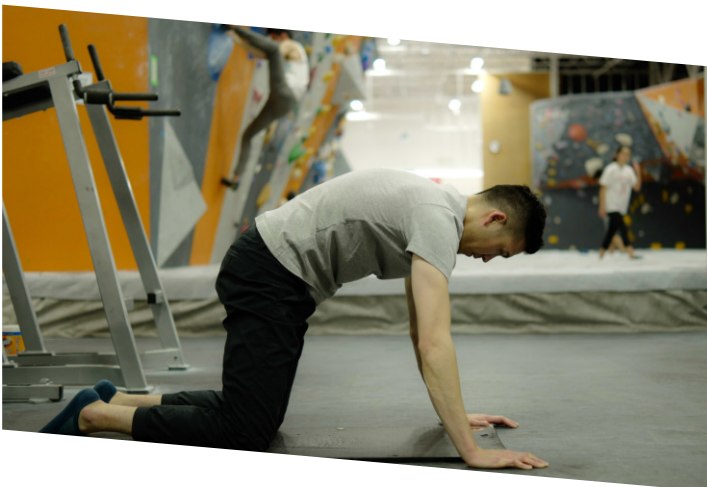
Drop your navel towards the floor. Then hunch the middle of the spine up towards the ceiling.

## **MODIFICATION**

### **GET CREATIVE!**

Mix in some rotation in each position by reaching 1 arm under your other arm.

Disclaimer: if you already have back pain... be gentle and don't push it



# HIP & KNEE

*Often overlooked in training but painful and debilitating when you wreck it, the hip and knee is your first line of control for your lower body.*

# ROMANIAN DEADLIFT

*Targeting the upper Hamstring.*

## STARTING POSITION

Standing on 1 foot, Knee slightly bent

## MOVEMENT

Hinge forward on the stance hip, reaching the opposite leg backwards. Prevent bending through spine and rotation of the opposite hip towards the ceiling.

## MODIFICATION

1. Increase Difficulty: Increase weight on opposite side hand, Perform on an unstable surface (e.g. foam block or bosu ball)
2. Balance: Lightly place opposite arm finger tips on wall or bar.
3. Technique: Maintain a long foam roller placed in opposite hand and on top of opposite foot, as you hinge forward.



# HAMSTRING SLIDERS

*Targeting the lower Hamstring.*

*Equipment needed: furniture sliders, or towel/socks on a slick floor, possibly a yoga mat*

## STARTING POSITION

Lie on back, legs straight, feet on sliders on carpet or on towel/wearing socks on a slick floor

## MOVEMENT

**Level 1:** Slide feet towards butt, lift butt off floor, keep butt off floor while sliding legs back to starting position

**Level 2:** Same as Level 1, except lift 1 foot off floor after lifting butt, and maintain while sliding leg back to starting position.

## MODIFICATION

Rotate your hip outward slightly (knee pointing out towards the side 15-45 degrees) to make this exercise more climbing specific.





# TOE TAPS

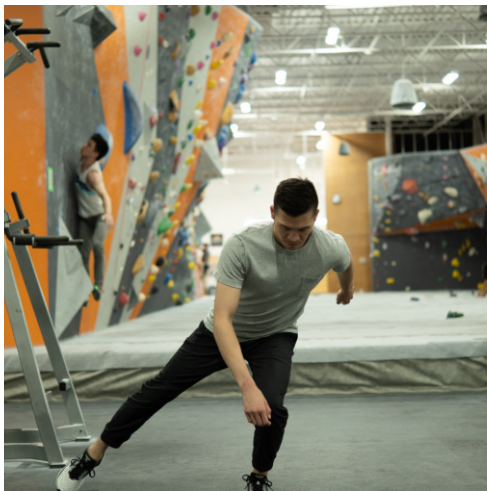


## STARTING POSITION

Standing balanced on 1 foot

## MOVEMENT

Bend at hip, knee, and ankle to tap your toe in varying directions



## MODIFICATIONS

Ankle: Target your ankle by standing on a foam block, Bosu ball, or simply by pushing up onto your toe.

Technique: Keep your knee going over your toes, and use your arms for balance. Practice anywhere, anytime!



# STRETCHES



## **Protocol**

*To Increased Range of Motion: 3 reps. 3x/week. 30 seconds.  
For at least 3 weeks.*

*To Maintain Range of Motion: 3 reps. 1x/week. 30 seconds.*



## **HAMSTRING 90-90**

Lying on your back. Hip 90 degrees with hands grasped behind lower thigh. Straighten knee as much as possible.

## **GLUTES**

Lying on back. Pull knee to chest and hold with arms.



## **HIP ROTATORS**

External Rotators: Sitting up. 1 leg crossed over the other as shown. Use opposite arm elbow to push into the stretch.

Internal Rotators: Lying on back. Knees up and 1 leg crossed as shown. Use 1 hand to push knee away from you.



# CREDITS

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**PHYSICAL THERAPY**

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