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Understanding Grip Strength

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# Introduction

In the early 1990s, IronMind presented the concept that grip strength was composed of 3 main movements: crushing, pinching, and supporting. IronMind went on to align these 3 grip movements with a list of sports and professions, noting whether the need for each movement was high, medium, or low. The purpose was to help people understand their grip strength needs so they could select grip tools and training routines accordingly.

## Crushing, pinching, supporting

The crushing—pinching—supporting framework was easy to grasp, as it were, and with some help from the Internet, it became widely accepted. Thinking, talking, and training grip all revolved around this framework, and it took on the nature of a given.

## Limitations

However, the crushing—pinching—supporting system had its drawbacks. While it was easy to understand at one level, there were overlaps and gaps in the 3 categories. IronMind struggled with these problems when we presented the grip tools in our annual catalogs and tried to accurately tie them to these 3 categories, and when we considered the demands placed on one's grip strength.

For example, why was lifting the Rolling Thunder® commonly viewed as an example of supporting grip even on 1-rep max lifts, the same as deadlift holds for time on a standard bar? While the categories sounded good in principle and explained some things, at some point things got messy and the labels didn't always make sense. It was clear that the crushing—pinching—supporting framework needed an overhaul.

IronMind pondered the gaps and redundancies over the years, and our earliest attempts to improve the categories involved adding layers to the original classification system. However, we knew that besides being clumsy and inelegant, this approach didn't successfully explain the key factors going into grip strength challenges. We knew we were missing the mark.



## Ah ha!

It was a lightbulb moment in 2009 when the Crushed-to-Dust!® (CTD) Cube was born: this system solved all the problems that the earlier crushing—pinching—supporting typology presented. It was the result of years of wrestling with the problem; and when the pieces finally fell into place, we felt we'd taken a quantum leap forward.

## Why bother?

You might ask, what difference does it make? Crushing—pinching—supporting was good enough.

To some extent, that is true—it was better than nothing and it took the grip world a long way toward better understanding grip strength. But IronMind wanted to give its customers and the grip world at large better direction and more accurate information about how its grip tools and grip training aligned with their goals and applications. The world of grip training had evolved hugely over the past 20 years and the time was ripe for a big leap forward in how we approached grip strength . . . the CTD Cube has taken grip strength into the 21st Century.

Here it is, the CTD Cube for building superior grip strength and hand health. No matter what your grip application, the CTD Cube will help you target your training for top performance.



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## CTD Cube for Building Superior Grip Strength

In 2009, IronMind introduced the Crushed-to-Dust!<sup>®</sup> Cube to easily explain how to think about grip strength. The Crushed-to-Dust! (CTD) Cube is a conceptual and practical advance from the crushing—pinching—supporting typology that IronMind put on the map in the early 1990s, and which defined grip strength—until now.

### Grip Strength Has 3 Dimensions

The CTD Cube addresses the **3** primary dimensions of grip strength, each with **2** options:

1. **Prime mover:** where is the power coming from, your **thumb** or your other **4 fingers**?
2. **Hand position:** is your hand **open** or **closed**?
3. **Intensity:** is it **endurance** or a **1-rep max**?

Understanding how each of these 3 dimensions work together is essential when building grip strength.

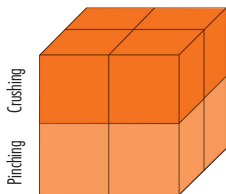
The CTD Cube makes it simple.

Let's look at each of the 3 dimensions

1

## Prime mover

PRIME MOVER



Where is the force coming from?  
When you squat, for example, the power comes from your hips and thighs, not your arms and shoulders, so you train accordingly.

For the grip, there are 2 main types of strength:

**Crushing** – your 4 fingers provide the power, as when shaking hands



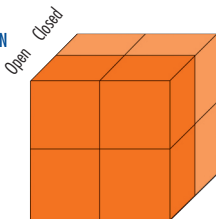
**Pinching** – the thumb provides the power, as when lifting a Blob



Remember, the type of grip strength is defined by where the power comes from: your fingers (crushing) or your thumb (pinching).

# 2 Hand position

## HAND POSITION



For each of these 2 prime movers, let's anchor 2 hand positions, closed or open:

**Crushing – closed hand:**

e.g., when you are finishing off a gripper



**Crushing – open hand:** e.g., when you are lifting a thick bar, such as the Apollon's Axle™ or Rolling Thunder®



**Pinching – closed hand:** e.g., when you are pinch gripping a thin object, like a narrow barbell plate

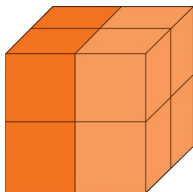


**Pinching – open hand:** e.g., when you are pinch gripping a thick object, like a Blob



Now we have 4 possibilities when thinking about grip strength.

# 3 Intensity



1-RM    Endurance

## INTENSITY

Finally, let's consider the intensity of the effort. To keep things simple, we'll focus on the 2 primary levels:



**1-rep max:** like doing a PR lift on the IronMind Hub, or closing the toughest Captains of Crush® gripper you can



**Endurance:** whether for **time**, such as the CoC Silver Bullet Hold in the grip world, or for **reps**, such as lifting the Inch dumbbell, or doing an obstacle course race or a long traverse in rock climbing



# In summary, there are 8 types of grip strength

Prime mover  
↓  
Thumb or 4 Fingers

Hand position  
↓  
Open or Closed

Intensity  
↓  
1-RM or Endurance

$$2 \times 2 \times 2 = 8$$



Crushing  
Closed  
1-RM



Crushing  
Closed  
Endurance



Crushing  
Open  
1-RM



Crushing  
Open  
Endurance



Pinching  
Closed  
1-RM



Pinching  
Closed  
Endurance



Pinching  
Open  
1-RM



Pinching  
Open  
Endurance



The CTD Cube presents the 8 types of grip strength in one easy-to-understand model

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# Training

## Training Tools

Using the CTD Cube puts you on the fastest, surest route to the superior grip strength and hand health you're seeking. Let's put some teeth into the concept by looking at the training tools and routines that will help you achieve success in each of the 8 different types of grip strength.



### Crushing Grip – Closed Hand

Captains of Crush® (CoC®), IMTUG™, and Zenith grippers and Go-Really-Grip™ Machine\*; exercises like pull-ups, and deadlifts and bentover rows with a regular bar



## Crushing Grip – Open Hand

Rolling Thunder<sup>®</sup>, Apollon's Axle<sup>™</sup>, Olympic Husky Handle<sup>™</sup> Dumbbell Bars



## Pinch Grip – Closed Hand

IMTUG, Titan's Telegraph Key<sup>™\*</sup>



## Pinch Grip – Open Hand

IronMind Hub, Blockbuster Pinch Grip Block



\*These simple machines allow you to train at whatever range of motion you prefer and since they are plate-loaded, you can use as much weight or as little as you like.



# Training Routines

For **maximum strength**, it is best to focus on lower reps with a higher percentage of your maximum effort (lift).

For **maximum endurance**, it is better to use a sustained effort at a lower percentage of your absolute best, so you would use higher reps or holds for time, for example.

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## Crushing Grip

### Maximum Strength – Closed Hand

#### A. Beginner

CoC warm-up gripper	1 x 10*
CoC work-set gripper	2 x 3–10
Expand-Your-Hand Bands™	3 x 12

#### B. Intermediate/Advanced

CoC warm-up gripper	1 x 10
CoC work-set gripper	3 x 3–10
CoC challenge gripper	1–3 attempts
IMTUG or Go-Really	2–3 sets of 5–10 reps
Expand-Your-Hand Bands	3 x 12



In addition to this grip-specific training, things like pull-ups, deadlifts, and bentover rows will tax and build your crushing grip.

\*i.e., 1 set of 10 repetitions



## Maximum Strength – Open Hand

To shift the focus to maximum crushing grip with an open hand, include training on the Rolling Thunder, Apollon's Axle, or Olympic Husky Handle Dumbbell Bars.

### Endurance

To train for endurance rather than maximum strength, modify the above routines by pushing reps into the 10–15 range and also use holds for time. Also, consider using a Zenith gripper to complement your Captains of Crush gripper training.

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## Pinch Grip

### Maximum Strength – Closed Hand

#### A. Beginner

IMTUG warm-up gripper	1 x 10*
IMTUG work-set gripper	2 x 3–10
Expand-Your-Hand Bands	3 x 12

#### B. Intermediate/Advanced

IMTUG warm-up gripper	1 x 10
IMTUG work-set gripper	3 x 3–10
IMTUG challenge gripper	1–3 attempts
Expand-Your-Hand Bands	3 x 12



In all of these applications, IMTUGs are used to focus on the thumb. You can also use the Titan's Telegraph Key instead of or in addition to IMTUG grippers.

\*i.e., 1 set of 10 repetitions

## Maximum Strength – Open Hand

IronMind Hub or Blockbuster Pinch Grip Block: warm up and work to a maximum weight every two weeks, instead of following the pattern of the A or B workout above. After hitting your maximum, you can finish off with a scaled-down version of the A or B workout if you like.

## Endurance

To train for endurance rather than maximum strength, modify the above A and B routines by pushing reps into the 10–15 range and also use holds for time.

Incidentally, many of the classic feats of grip strength involve pinch gripping: lifting plates by the hub, pinch gripping smooth-sided plates, doing chins while pinch gripping rafters, and lifting the Blob.\*\*

\*\*The original blob was one end that had broken off a 100-lb. York dumbbell. Gripmaster Richard Sorin (the first man in the world certified on the Captains of Crush No. 3 gripper) recognized its value as a grip challenge and named it the Blob.

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## Supporting Roles

The lower arm stabilizes the hand, allowing you to deliver maximum grip strength. The extensors also help stabilize the hand, providing power and muscle balance. Here's how you can augment your training in these areas:

### Wrist/forearm

Wrist Reinforcer™, Heavy Hammer II™ Leverage Bar, One Wicked Wrist Roller™, Twist Yo' Wrist™, wrist curls: do any one or two of these after your grip workout, doing 2–3 sets of about 10 reps.



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## Extensors

IronMind's Expand-Your-Hand Bands, which focus on the extensors (the muscles that open your hand), are included in all the training routines for crushing and pinch grip. Their purpose is for muscle balance, and they will help you avoid injuries as well as speed your overall grip strength training. You can also use them for some active rest on your off days, doing 2–3 sets of 10–15 reps. For variety, use the Outer Limits Loops™ and do isometric holds for max weight, reps or time.



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Questions? Comments?  
We are always happy to hear from you.

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