

# COGNITIVE ATHLETICS SMART PADDLE



# USER MANUAL



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# Introduction

## Who is Cognitive Athletics?

Cognitive Athletics is a hi-tech company that specialises in training and testing equipment for martial arts. Our technology enables the creation of objective measurements that could not be measured before.

Our goal is to provide innovative technology to the world and as a result, to unite all martial arts from around the globe.

We are Cognitive Athletics.

## What is the Smart Paddle System?

The Cognitive Athletic Smart Paddle System is a unique training system that enables both coaches and athletes to objectively measure and analyse various performance parameters of martial arts training.

## What does the Smart Paddle System measure?

### 1. **Response Time**

The time it takes an athlete to respond to stimuli.

### 2. **Decision Making**

The time it takes an athlete to respond to stimuli when given multiple options (fakes, strikes).

### 3. **Stamina**

The amount of time an athlete can sustain prolonged physical or mental effort.

### 4. **Power**

The power or strength of a punch or kick.

### 5. **Height**

### 6. **Number of Strikes**

### 7. **Number of Mistakes**

## Health Warning

- ✓ Before using CA Products, you should get a medical check-up.

- ✓ It is important that you warm up and stretch before each workout, and that you train responsibly.
- ✓ If you experience any pain, feel weak, dizzy, or exhausted, or become short of breath, immediately stop your workout.
- ✓ When you work out, you assume all inherent risks.
- ✓ Not recommended during pregnancy.

## Proper Handling

- ✓ Training with the Smart Paddle should be supervised/operated by a qualified coach.
- ✓ Do not strike on or near the Smart Paddle's Control Panel or Handle, as this can lead to injury or damage to the product.
- ✓ Always use the Products in a safe environment.
- ✓ Follow the usage instructions fully in order for the system to work properly.
- ✓ In the case that the Smart Paddle is opened/the internal components are exposed

in any way, stop operation immediately and refer to Customer Support.

## Getting to Know the Cognitive Athletics System

### What does the Cognitive Athletics System consist of?



The Cognitive Athletics System consists of:

1. Cognitive Athletics Smart Paddle
2. Cognitive Athletics App
3. Event Platform



## **How does the Cognitive Athletics System Work?**

The Smart Paddle works by generating signals, prompting the athlete to respond in various modes, each tracking specific performance metrics. All data is viewed and managed through the Cognitive Athletics App, where athletes and coaches can track and analyse progress.

## **Android and iOS Requirements**

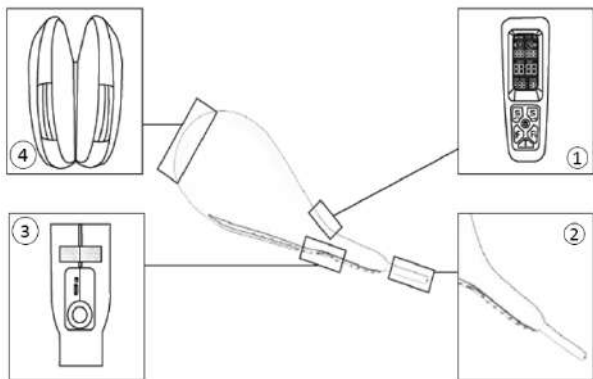
The Cognitive Athletics App run on Android 5.0 and above and iOS 13.0 and above.

## **Downloading the Cognitive Athletics App**

The Cognitive Athletics App is available for download from the App Store and Google Play.

# Smart Paddle Set Up and Basics

## Smart Paddle Components



1. Control Panel
2. Handle with safety strap
3. Charge spot and reset button
4. Signal lights

## Handle

The handle of the Cognitive Athletic Smart Paddle is built using special technology that allows for high

levels of shock absorption, reducing the impact received by the Smart Paddle Operator.

## **Safety Strap**

The safety strap attached to the handle prevents the Smart Paddle from falling during training.

## **Strike Area**

The soft surface of the Cognitive Athletic Smart Paddle is the athlete's target area.

## **Signal Lights**

At each side of the Cognitive Athletic Smart Paddle there are signal lights which flash in different colours, depending on the training exercise (any timed mode from beginning to end) or function being carried out. For further information, see [Training Signal Lights](#).

## **Height Sensor**

The **Height** sensor, on the underside of the handle, uses ultrasonic sensor technology to measure the height of each strike.

## Charger Port

The Smart Paddle is charged through the micro-USB charger port on the underside of the handle.

## Reset Button

The **Reset** button clears the Smart Paddle cache memory of current activity and restarts the system. It does not clear the data from the Smart Paddle.

## Control Panel and Screen

The [control panel](#) is where the Cognitive Athletic Smart Paddle Operator can set a range of training exercises and see the status of their Smart Paddle.

## Smart Paddle Control Panel Components



No.	Description
1	<b>Power/Clear.</b> Used to turn the Smart Paddle on and off, and to return to the <b>Home</b> screen during a training activity.
2	<b>T</b> button. Used for switching between exercise and connection modes.
3	<b>Strike Left/Left.</b> Used to activate the left strike signal on the Smart Paddle and for navigation / selection.

No.	Description
4	<b>Strike Right/Right.</b> Used to activate the right strike signal on the Smart Paddle and for navigation / selection.
5	<b>Fake Left/Up.</b> Used to activate the left fake signal on the Smart Paddle and for setting the timer.
6	<b>Fake Right/Down.</b> Used to activate the right fake signal on the Smart Paddle and for setting the timer.

For further information see [Training Basics](#).

## Smart Paddle Screen Components



No.	Description
1	Battery status indicator
2	<b>Time Interval Icon.</b> Flashes during selection of Time Interval Mode.
3	<b>Stamina Icon.</b> Flashes during selection of Stamina Mode.
3*	<b>Fake Icon.</b> Displayed when an athlete responds to Fake signals activated by the operator.

No.	Description
4, 5	<b>Left</b> and <b>Right</b> arrows displayed during timer and mode configuration. The arrows indicate which side the strike was received on.
6	Strike Counter (positioned under <b>Time Interval Icon</b> )
7	Fake-Mistake Counter (positioned under <b>Fake Icon</b> )
8	<b>Height.</b> Shown only during freestyle mode
9	<b>Timer.</b> Used only during timed modes
10	<b>Height and Time</b> indicator.
11	<b>Power</b>
12	<b>Power Indicator.</b> Displays power levels 1-7; 1 being the weakest and 7 – the strongest.
13	<b>Response Time</b>
14	<b>Response Time Indicator.</b> Displays the measured response time (up to 3 seconds).



## Charging and Starting Up the Smart Paddle

Before using the CA Smart Paddle, make sure it is sufficiently charged. To charge the Smart Paddle, insert a micro USB cable into the charging port.

- ✓ Use a standard USB-to-Micro USB cable and connect it to the USB port on a computer or a USB wall charger.
- ✓ The 4 bars within the battery icon on the Smart Paddle screen will light up and flicker, indicating that the Smart Paddle is charging. It should take 3-4 hours to completely charge the battery (at which point all 4 bars will be steadily lit).
- ✓ Do not attempt to operate your Cognitive Athletics Smart Paddle while it is being charged.



## Training Signal Lights

The Cognitive Athletics Smart Paddle has three training light signals – **Strike**, **Fake**, and **Stamina**.

These are represented by three different colours:

- ✓ **Green (Strike)** signals the Athlete to strike the target area on the side of which the signal light appeared. The strike must occur within three seconds to be counted.
- ✓ **Blue (Fake)** signals the Athlete **not** to strike the target area. If they do, this will be counted as a mistake.

A fake is valid for two seconds; however, it can be overridden with a Fake-to-Strike command, if one of the Strike buttons is pressed within a two-second timeframe. Using Fake and Fake-to-Strike commands helps to keep the Athlete to remain alert at all times.

- ✓ **Purple (Stamina)** signals the Athlete to strike the Smart Paddle as many times as possible during the selected time period.

## Training Modes

The Smart Paddle operates in three modes:

- [Freestyle](#)
- [Time Interval](#)
- [Stamina](#)

## Freestyle

There are no time restrictions in freestyle mode and both **Strike** and **Fake** signals can be used.

## Time interval

Time interval mode lets the Smart Paddle Operator set a timeframe for the athlete's exercise. In this mode, both **Strike** and **Fake** signals can be activated.

To begin a **Time Interval** exercise:

1. Press the **T** button, to reach the selection screen. The **Time Interval** and **Stamina** icons will be displayed.
2. Press the **Left** button to select **Time Interval** mode.
3. Press the **Left** button to set minutes.
4. Press the **Right** button to set seconds.
5. Use the **Up** and **Down** buttons to increase or decrease the number of minutes or seconds.
6. Once you have input the required time, press the **T** button.
7. To begin the exercise, press the **T** button again.  
In the final 5 seconds of the exercise, the

timer on the Smart Paddle will begin flashing, to alert the operator.

At the end of the exercise both signal lights will flash red.

## Stamina

Stamina mode is also time-restricted. The Smart Paddle Operator can set a specific time on the control panel (e.g. 2 minutes, 5 minutes) for an exercise.

The connected athlete must then strike the Smart Paddle as many times as possible during the selected time period.

To begin a **Stamina** exercise:

1. Press the **T** button, to reach the selection screen. The **Time Interval** and **Stamina** icons will be displayed.
2. Press the **Right** button to select **Stamina** exercise.
3. Press the **Left** button to set minutes.
4. Press the **Right** button to set seconds.
5. Use the **Up** and **Down** buttons to increase or decrease the number of minutes or seconds.

6. Once you have input the required time, press the **T** button.
7. Press either the **Strike Left** or **Strike Right** button to select which side the stamina exercise will be performed on.
8. Press the **T** button to begin the exercise.
9. Once the **Stamina** exercise has begun, a purple light will appear on the selected side of the Smart Paddle. This will remain lit throughout the entire exercise time.
10. In the final 10 seconds of the exercise, the purple light will begin flashing, to let the athlete know the exercise is almost over. In the final 5 seconds of the exercise, the timer on the CA Smart Paddle will begin flashing, letting the operator know that time is almost up.
11. At the end of the exercise, both signal lights will flash red.

## Support

### Troubleshooting

It is considered a malfunction if any of the below cases occur:

- ✓ The signal lights do not turn off or on
- ✓ The timer does not start
- ✓ Height is not displayed
- ✓ Power is not shown (not relevant in **Stamina** mode)
- ✓ The strike counter does not respond to strikes

If any of the above occur, do the following in the order shown below, until the malfunction ceases:

1. Press the **Clear** button on the Control Panel.
2. Turn the smart Paddle off and on and retry the attempted activity.
3. If the situation does not change, press and hold the **Reset** button on the underside of the Smart Paddle until the Smart Paddle screen turns off.

If the above troubleshooting solutions do not solve the problem, refer to Customer Support immediately.

## Do's and Don'ts

For your experience with the Cognitive Athletics System to be as smooth as possible,

it is important to adhere to the following guidelines:

- ✓ Do not attempt to operate the Smart Paddle when it is connected to a power outlet.
- ✓ Charge the Smart Paddle for at least three to four hours before heavy use.
- ✓ Do not hold the Smart Paddle along or against the body.
- ✓ Do not press any buttons that are not relevant to/during a specific situation – it can cause problems including invalid data
- ✓ To use the full functionality of your app including data reports, ensure you have a continuous internet connection.
- ✓ Do not press more than one button on the Smart Paddle control panel at a time.

- ✓ Do not strike on or near the Control Panel or Handle, as this can lead to injury or damage to the product.
- ✓ Do not submerge the Smart Paddle, or part of it, in water.
- ✓ In order to get an accurate height measurement, ensure that you:
  - ✓ Hold the Smart Paddle parallel to the ground.
  - ✓ Do not cover the height sensor.

## Contact Us

For any questions or queries, please call us on +998.977773368.

Our telephone lines are open from 8 am to 8 pm EST. Alternatively, you can email us at [info@ludus-materials.com](mailto:info@ludus-materials.com)

We aim to reply to emails within 2 working days of receipt.

Our website: [www.ludusalliance.com](http://www.ludusalliance.com)



## Technical Specifications

The CA Smart Paddle captures and measures the most relevant parameters of martial arts training, such as (but not limited to) power, response time, and height for every strike.

The Smart Paddle incorporates various sensors and technology including:

- ✓ Ultrasonic Sensor (Height)
- ✓ Accelerometer 400G 3-AXIS Support (Strike detector and power indicator)
- ✓ Near Field Communications (NFC) used for identifying users
- ✓ Side Emitting LED Light Pipe indicators
- ✓ BLE - Bluetooth (Data transfer and registration)

## Return Policy

Cognitive Athletics offers a 14-day money back guarantee on its paddle (the “Smart Paddle”) provided that:

- (i) the Products were not damaged;
- (ii) the Products were not used;
- (iii) the Products are in its original packaging and
- (iv) you provide us with the original receipt, evidencing the purchase.

### FCC Compliance

#### **FCC Statement**

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device must not be co-located or operating in conjunction with any other antenna or transmitter.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with FCC's radiation exposure limits set forth for an uncontrolled environment

**WARNING:** Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.