



# Wrist Flexors and Extensors

## Purpose:

Designed to **improve the strength and function of the wrist flexors and extensors** [Flexor Carpi Radialis, Palmaris Longus & Flexor Carpi Ulnaris; Extensor Carpi Radialis Longus, Extensor Carpi Radialis Brevis & Extensor Carpi Ulnaris].

*NOTE: this exercise incorporates our **Thumb, Finger Flexors and Extensors** exercise as the finger flexors and extensors are required to maintain the grip on your Powerball®. However, as the stronger wrist muscles are involved the effort required from the finger muscles is lessened.*

## Useful For:

Anyone who needs or wants to maintain or develop grip strength. Suits a wide variety of sports people for whom grip strength is important. Tennis, squash, badminton, softball, baseball, golf, javelin, pole-vault, climbing etc.

In the non-sporting arena; anyone involved in manual work e.g. plumbers, electricians, carpenters etc.

Can be utilised as part of rehabilitation, recovery and maintenance following:

- **Lateral epicondylitis (tennis elbow)**
- **Medial epicondylitis (golfer's elbow)**
- **Carpal Tunnel Syndrome**
- **Repetitive strain injury to wrist/hand (R.S.I.)**
- **Osteoarthritis\* (at lower RPM's Powerball® can promote range of movement and stimulate the production of synovial fluid, helping to lubricate the joint and maintain function).**

## Let's Begin

- 1 Grip Powerball® firmly between thumb and four digits, making sure the ball is seated securely in the palm of the hand [see figure 1].
- 2 Now, start your Powerball® - if you don't know how to, check out the **Getting Started** page on **Powerballs.com** for videos and instructions.
- 3 Initially try to keep the RPM at a low level; up to 5,000 or 6,000rpm is fine for most people, as this is an intensive workout for relatively small muscles – **with this exercise it's very important that your arm remains static and you're spinning only through the wrist.**



figure 1 - Power grip

At higher RPM's, the force required to retain your grip on the ball may be more than you can generate with your fingertips. Your Powerball® may be damaged if you lose control and drop it.

## Recommended Guideline Programme

**Initial Session:** 3 X 30 seconds with a 1 minute break between each one. Use this session to establish the RPM at which you are challenged but can still maintain a solid grip on Powerball®.

**Progression:**

- Week 1:** 3 X 30 seconds with a 1 minute break between each one on **alternate days**.
- Week 2:** 3 X 30 seconds with a 1 minute break between each one **daily**.
- Week 3:** 3 X 60 seconds with a 1 minute break between each one on **alternate days**.
- Week 4:** 3 X 60 seconds with a 1 minute break between each one **daily**.

**Further progression can be achieved by increasing the frequency, the repetitions or the duration.**

## Wrist Flexors and Extensors

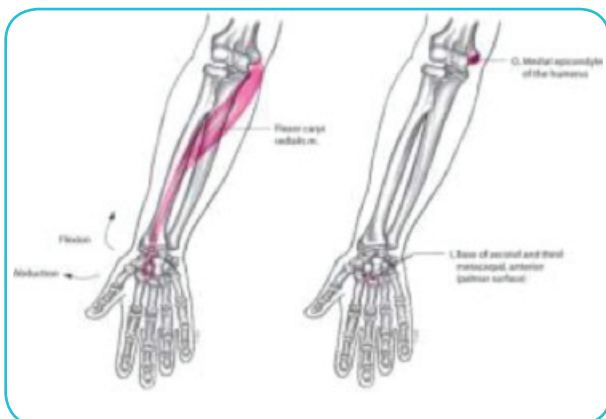
### Caution:

In the case of Osteoarthritis, the *rhythmic* movement required at lower RPM's can be highly beneficial in maintaining range of movement in the wrist joint. However, it is easy to overdo things with arthritic conditions and therefore caution is advised.

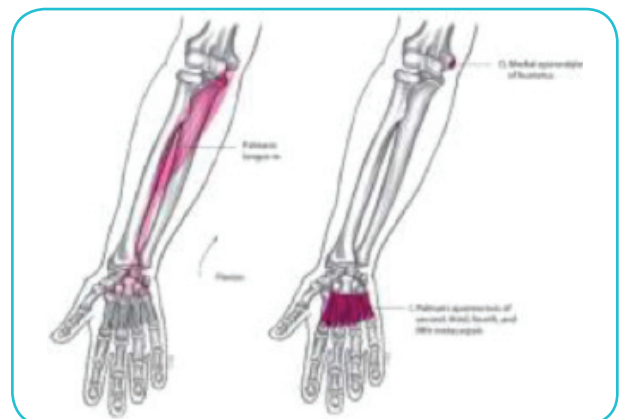
Please note; *this exercise is not recommended for autoimmune types of arthritis such as Rheumatoid Arthritis.*

Some muscle fatigue is to be expected with this exercise much in the same way your muscles might react to a gym workout. However, if you experience actual pain, you should reduce the exercise frequency, repetitions or duration. If the pain persists or increases, you should discontinue the exercise and consult a healthcare professional to establish the cause.

## Muscles involved in this exercise



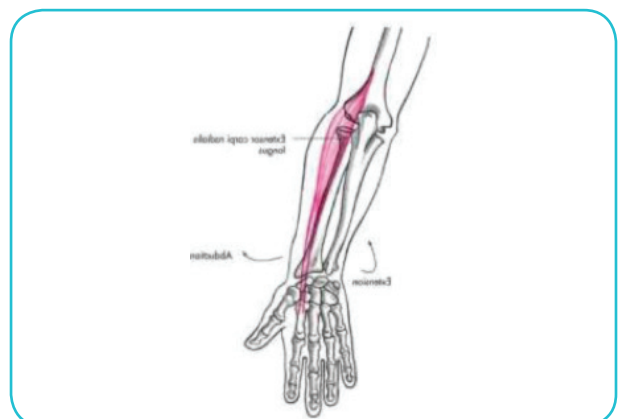
*Flexor Carpi Radialis*



*Palmaris Longus*

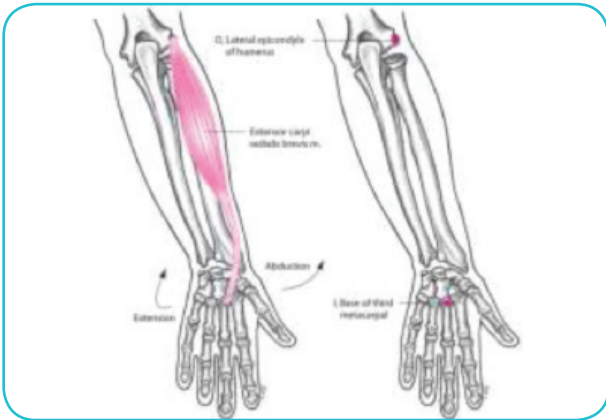


*Flexor Carpi Ulnaris*

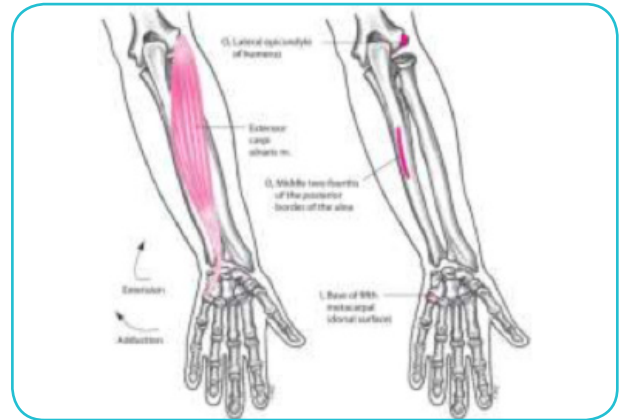


*Extensor Carpi Radialis Longus*

## Wrist Flexors and Extensors



*Extensor Carpi Radialis Brevis*



*Extensor Carpi Ulnaris*



### Remember

You are looking to achieve a smooth, progressive spin which will test your fingers by requiring them to grip Powerball® firmly as the speed increases; if you have strong, injury-free fingers, you may find that 5,000 - 6,000rpm isn't challenging the muscles sufficiently. Therefore simply increase the spin speed until you arrive at a point where there is gentle fatigue building in the tissue and you're having to work hard to maintain that firm grip around the shell to avoid dropping Powerball®. Holding this state for 30 - 60 seconds will produce definite results.



### Learn More

As always, progress is achieved by following a regular exercise programme, further details regarding usage frequency, repetition and spin technique can be found on our website [powerballs.com](http://powerballs.com).



### Important

Should you experience any pain or discomfort when exercising with Powerball® or in general, speak to your physio or qualified healthcare practitioner to get the best advice and support.