

“Fast Twitch” and “Slow Twitch” Muscles

Two fibres: There are two different fibres in muscle

Slow twitch muscle fibres: Contract slowly, but keep going for a long time

Fast twitch muscle fibres: Contract quickly, but rapidly get tired

Endurance or speed

Slow twitch muscle fibres are good for endurance activities like long distance running or cycling. They can work for a long time without getting tired.

Fast twitch muscles are good for rapid movements like jumping to catch a ball, sprinting for the bus or, in our case, throwing fast strikes or kicks. They contract quickly, but get tired fast, as they consume lots of energy.

Most of your muscles are made up of a mixture of both slow and fast twitch muscle fibres. But, your soleus muscle in your lower leg and muscles in your back involved in maintaining posture contain mainly slow twitch muscle fibres. And muscles that move your eyes are made up of fast twitch

Slow twitch and fast twitch muscle fibres make energy in different ways

Muscles that contain a lot of slow twitch fibres are red, because they contain lots of blood vessels. Slow twitch muscle fibres rely on a rich supply of oxygenated blood as they use oxygen to produce energy for muscle contraction.

Fast twitch muscle fibres don't use oxygen to make energy, so they don't need such a rich blood supply. This is why fast twitch muscles are lighter in colour than muscles that contain a lot of slow twitch muscle fibres.

Fast twitch muscle fibres can produce small amounts of energy very quickly whereas slow twitch muscles can produce large amounts of energy slowly.

Fast Twitch vs Slow Twitch

As martial artists, we are looking to hone the fast twitch muscles, as opposed to the slow twitch ones. Body builders and strength athletes look to build the slow twitch muscles, as these are the muscles used for strength. However, we are trying to make our body movements and, especially, our strikes as fast as possible, so large slow twitch muscles are detrimental to this. Newton's laws of motion state that a larger mass takes a greater amount of force (energy) to make it move, so a large muscle mass accelerates slower.

Once the strike is moving, the muscles then need to stay as relaxed as possible until the moment of impact. Muscle strength is not required. The muscle use is purely to get the strike moving initially. This needs the Fast Twitch muscles to be trained, not the Slow Twitch ones.