

# A comparison of our units of measurement in impact sports, with those used traditionally

<p style="text-align: center;"><b>Force measurement limitations</b></p>	<p style="text-align: center;"><b>Maximum flexibility with an entirely new science.</b></p>
<p>Units of force are Newton, dyne, kilogram-force, pound force or poundal. This is appropriate to inanimate objects but not humans as the energy component exists beyond the time frame force measurements are taken over.</p> <p>Measuring human force accurately requires a whole new approach.</p>	<p>Only a StrikeMate can simultaneously measure (in SI units) both the power and the energy within an impact. We then combine these together as a franklin (f) a weighted compound of the two. The franklin (f) is a measurement of 'human force' or 'destructive capability'. This is based on substantial data and waveform analysis collected on every known impact over years of live research</p>
<p>Scientific studies are prone to publishing any one of these Units</p>	<p>franklins (f) are very simple, the harder you hit, the bigger the number from, 150(f) to 200,000(f)</p>
<p>Piezoelectric sensors or strain gauges are normally connected to a punch bag to garner data for later analysis. Results can take weeks as they are subject to interpretation. The heavier the bag the higher the force registered for the same impact. As no standardised punching surface has ever been devised all previous studies are incomparable and basically meaningless.</p>	<p>All StrikeMate are standardised during manufacture to be broadly identical achieved with individual calibration and a mathematical regression. StrikeMate give real time readings on a PC</p>
<p>No analysis of the force of an impact available</p>	<p>We measure simultaneously: -</p> <ol style="list-style-type: none"> <li>1. Power (which is speed related, so we refer to it as 'speed power'), we chose to display it, in foot/pounds weight per second <sup>7</sup></li> <li>2. Energy (which is the moving body weight, so we refer to it as 'compressive energy' because this characteristic gives a strike its penetrative capability). We chose to display the units as 'calories X 10<sup>7</sup>'.</li> </ol> <p>This technology is destined to become the de facto standard for measurement and statistics in all impact sports.</p>
<p>In the fighting arts, heavy punch bags used for the rigging of sensors are dangerous to use by kids, women and professionals wanting to train for maximum power over sustained periods. We know of no existing technology that can measure impacts on a playing field.</p>	<p>StrikeMate is safe* for kids and women</p> <p>*under supervision</p>

<p>Force sensors only work over a comparatively narrow range.</p>	<p>Accelerometers work over a huge range from a light slap to way beyond the force generated by a Baseball bat or worse</p>
<p>Manchester university's school of aerospace and civil engineering (MACE) measured the force and speed of 4 of Ricky Hatton (he is a former WBA (Super), IBF, IBO and <i>The Ring</i> Light Welterweight Champion, and WBA Welterweight Champion) punches before he broke the system. The results were complicated by a re-evaluation some weeks later, producing wildly different numbers. Technologies may have moved on since then, however, the system although connected to a Laptop produced data for interpretation and evaluation by scientists</p>	<p>No cost involved other than initial purchase, so hit it as many times as you like or if you belong to an Association or a club enquire about equipment on rental.</p> <p>Real time data displayed on a PC</p>
<p>The cost for the kit and scientists to measure Ricky Hatton's 4 punches in 2007 was £10-£12000 according to the Managing Director of Bioscience UK</p>	<p>UK rental from £100.00 a month</p>
<p>Sensors normally attached to a 100-pound punch bag</p>	<p>StrikeMate is small light and portable</p>
<p>Punch bags generate power through massive deceleration over a very short distance i.e. they are inherently solid</p>	<p>We provide controlled compression over 12 cm, more human-like, encouraging power generation with a more tactile experience</p>

Our equipment is currently being used in 10 countries, it measures the same everywhere.