

## **Increasing Muscle Strength without Drugs**

Since non-invasive shockwaves were used forty years ago to remove kidney stones and became standard procedure in all hospitals worldwide for having no side effects, they have been used in many other applications. At first there was a question of bone if the urologist was not accurate when aiming at the stone; bone fractures were healed and became a tool for orthopaedics. The technology was soon adopted by physiotherapists to heal joints and remove calcifications. Where skin was cut as well as bone broken, the orthopaedics were healing non-healing wounds.

Eventually the sports medicine specialists tried these machines. Where they differed from doctors is that they had clients rather than patients; they were treating fit people. If an athlete had been treated for an injury it was observed that their performance was better than before. The same was seen in race horses. At first it was thought that an analgesic effect was masking pain allowing the horse or person greater exertion.

Dr Ken Craig in New Zealand used measuring equipment on athletes to record performance and found strength increased up to 12 % in three weeks without any change in training or diet and entirely without drugs. Not only was strength increased but energy output reduced. In motor car terms, the car went faster on less fuel.

Weight lifters increased their lifting weight. Volley ball players increased their jumping height and golfers increased their swing speed increasing the distance they projected the ball. A race horse that had been treated for an injury and was due for retirement was allowed back on the track and won with better times than before the injury.

What remains to be observed is an effect on endurance sports. Will it enable a cyclist racing over a hundred miles a day to increase the effort for many hours over a number of weeks? The reduction of energy expenditure for a given muscle movement suggests that stamina can be increased. If that is so, cycling, which has been plagued by doping scandals, can now speed along clear roads.

Maybe the main beneficiaries of muscle enhancement will be the infirm who struggle to move and can gain independence. Instead of needing hospitalisation or home help, these people will be able to manage for themselves and the self-esteem that generates will put their lives on an upward spiral rather than downwards.

The technology used is made by CellSonic Limited, a company involved with shockwaves since 1987 when they were first used at St Thomas' Hospital in London to break kidney stones. The company owner and founder, Andrew Hague, was first selling machines made in Switzerland and after the supplier closed he set up production in India where advanced electronics and software is readily available. India is also politically stable.

A sudden bang is made by flashing 25,000 volts across a one millimetre gap. The machine does nothing other than bang. It does it four times a second and the gap is in a hand-held head of water so that the sound pulse is directed forward by the shape of a metal reflector. Gel has to be placed on the body between the sound head and the skin to transmit the sound wave in the same way that ultrasound is transmitted when scanning. The high voltage is only used to make a bang. What travels into the body is only sound. The sound pulse is a pressure wave going faster than the speed of sound because of the pressure.

Wound healing studies show that the essential feature of the bang is the speed of the pulse rather than the energy. A wound will fail to heal if there is infection and inadequate blood flow. CellSonic

kills infection and increases perfusion. It is the speed of the pressure wave that ruptures bacteria, viruses and parasites. On healthy cells, it has no effect. Mutated cells replicating more mutating cells are killed and that observation is the starting point for the next step to mechanically killing cancer. Meanwhile, what is happening to the micro-tears in muscle fibre? The immune system detects an injury so sends stem cells in the increased blood flow to the site. Tissues are regenerated and it would appear that additional muscle fibres develop.

The latest studies into post-activity stresses show that CellSonic treatments reduce or eliminate the problems of muscles recovering after exertion. In other words, CellSonic can be used after a sporting event as well as a few days before.

The sports doctor's skill will be to know where to aim the CellSonic pulses, how many and how often. A simple protocol to start with is 100 pulses per square centimetre at energy level 4 with a head focussed at infinity. The variables are the focus, number of pulses and energy level which is on a scale from one to ten. Thus, it will take more than just zapping with a machine to win; the athlete working with an empathetic doctor has the best chance.

### **References:**

The influence of medical shockwaves on muscle activation patterns and performance in healthy athletes: a preliminary report. Dr Ken Craig.

Guidance and Reference. Mark Wilson

Treating a New Zealand Olympic weight lifter





A racehorse called Garland.

See what happened in Garland's first race after the treatment.

Click on <https://www.youtube.com/watch?v=tlOpE1wFigw#t=82>

A brief video by Dr Craig of his volleyball optimisation project underway. At the end it shows him using the CellSonic to fire desired muscles.

<https://www.youtube.com/watch?v=UOe2dpQRoxc>