

SHAVING OFF THE SECONDS



***Leicestershire
Vision 2020***

Athletics Network

SHAVING OFF THE SECONDS



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SHAVING OFF THE SECONDS

I've always felt that long, slow distance produces long, slow runners."

Sebastian Coe

SHAVING OFF THE SECONDS

- Presentation
- Video
- Flexibility – pre drills warm up
- Drills
- Track session – Untimed
- Cool / Stretch down

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"First focus on making running easy, because if that's all you get, that ain't so bad. Once you can run easy, focus on light. Once you get light, focus on efficient. By the time you're easy, light and efficient, you won't have to worry about getting faster--you will be."

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- DOES BETTER TECHNIQUE MAKE YOU A BETTER RUNNER?
- DOES BETTER TECHNIQUE MAKE YOU A QUICKER RUNNER?
- DOES BETTER TECHNIQUE GIVE YOU LESS INJURIES

• Yes! Yes! Yes!



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LETS DO THE MATHS!

$$\begin{aligned}\int_a^b f(x) dx &= \int_a^b \frac{\sqrt{(x-a)(b-x)} f(x)}{\sqrt{(x-a)(b-x)}} dx \\ &= \int_{-1}^1 \frac{g(\xi)}{\sqrt{1-\xi^2}} d\xi = \sum_{k=1}^n w(\xi_k) g(\xi_k) + R_n(\xi) \\ &= \frac{b-a}{2} \sum_{k=1}^n w(\xi_k) \sqrt{1-\xi_k^2} f\left(\frac{b-a}{2} \xi_k + \frac{b+a}{2}\right) + R_n(\xi)\end{aligned}$$

where $\xi = \frac{2x-b-a}{b-a}$, i.e., $x = \frac{b-a}{2} \xi + \frac{b+a}{2}$, $-1 < \xi < 1$

$$\xi_k = \cos \frac{(2k-1)\pi}{2n}$$

$$w(\xi_k) = \frac{\pi}{n}$$

$$g(\xi) = \frac{b-a}{2} \sqrt{1-\xi^2} f\left(\frac{b-a}{2} \xi + \frac{b+a}{2}\right)$$

$$R_n(\xi) = \frac{\pi}{2^n - 1} \frac{g^{(2n)}(\xi)}{(2n)!}$$

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- 100th of a second per stride
- Average 150 strides per minute
- = 1.5 seconds per minute
- = 1 minute shaved off a 40min 10k!
- Stride length increased by 50mm (2inches)
- Marathon = 31,500 steps = 1 mile saved!

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- Neuroplasticity: The brain's ability to reorganise itself by forming new neural connections throughout life. Neuroplasticity allows the neurons (nerve cells) in the brain to compensate for injury and to adjust their activities in response to new situations or to changes in their environment.



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- How do we make the changes?
- Flexibility
- Exaggerated movements
- Drills
- Practice
- Practice does not make perfect....
- Perfect practice makes perfect!!!!

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- What is good technique?
- High Hips – running tall
- Stable Core – Strong platform to drive from
- Arms – driven back
- Shoulders – relaxed
- Head – still
- Mind – focused