



WORKSHOP 02:

Running and hiking Form & Shoes

By Laura Chatham

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Land Acknowledgement

As Sustain Athletics, we respectfully acknowledge that we are guests on the lands upon which we live and run—wherever this is and whoever we are.

Much of this land remains the unceded and traditional territories of Indigenous Peoples.²

We encourage our athletes to investigate their unique local history and culture.

Skwxwú7mesh (Squamish), səłilwətał (Tsleil-Waututh) and Syilx Okanagan Nations



Skwxwú7mesh
Úxwumixw
Squamish Nation



Tsleil-Waututh Nation
PEOPLE OF THE INLET



Okanagan Nation Alliance

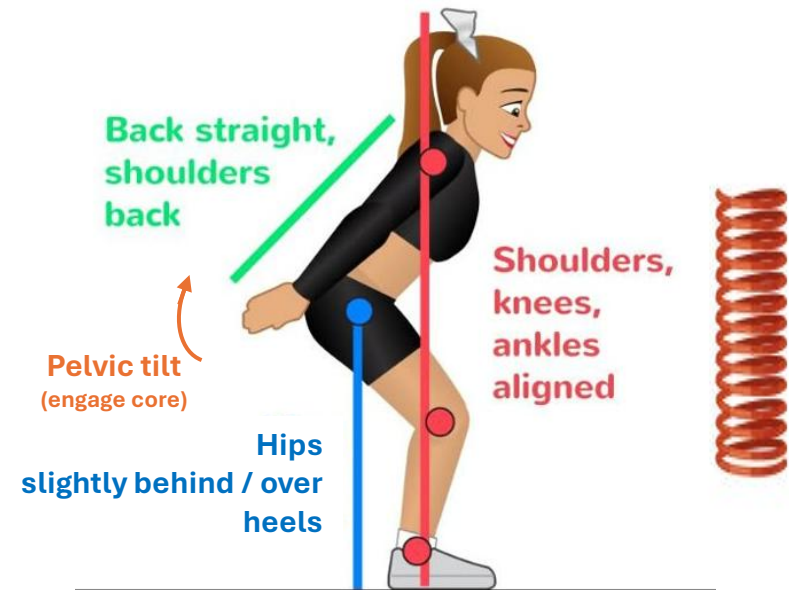
Today's Agenda

- i. The Athletic 'Ready' Stance
- ii. Force & Momentum
- iii. Moving with your Athletic Stance
- iv. Shoes!!



I. The Athletic “Ready” Stance

1. Knees bent and “loose”
2. Back straight
3. Bum out slightly (slight anterior pelvic tilt)
4. Shoulders relaxed back
5. Shoulders *over* Knees *over* Toes
6. Chin up, Vision forward



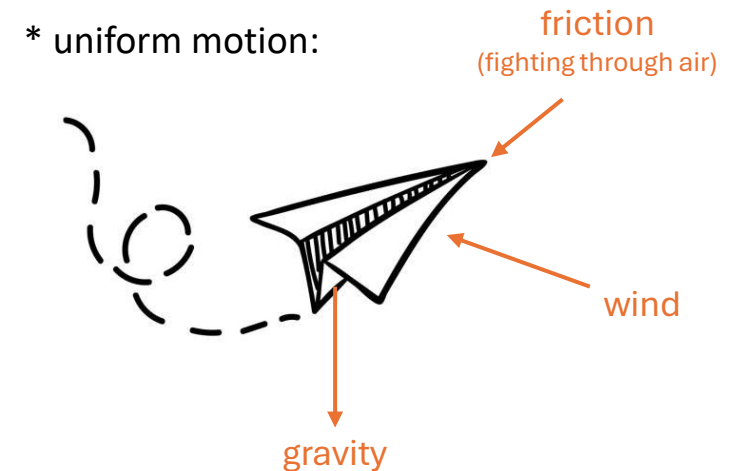
Source: [Cheer Conditioning Academy](#)

→ *Now PLAY! Deeper knee bend, hips forward / back, balls / heels of the feet*

II. Force and Momentum

Newton's Laws of Motion:

1. An object stays at **rest** or in **uniform motion*** unless an **external force** acts upon it



TAKEAWAY: External forces (e.g. pushing off the ground) cause **motion** and **change in motion** (speed or direction).



II. Force and Momentum

Newton's Laws of Motion:

2. **Acceleration** is proportional to the **force applied** to the object and inversely proportional to its **mass**. (for the geeks & curious cats: $F = ma$ or $a = F / m$)

TAKEAWAY: It takes more force to change the speed of a heavier object

→ Carrying more weight requires more force (and strength) to speed up, slow down, or change direction

→ Carrying less weight makes it easier to accelerate and control movement, especially downhill



Smaller bodies DO NOT EQUAL better performance.

Strength and health are the foundation of controlled, sustainable movement.



II. Force and Momentum



Newton's Laws of Motion:

2. *Building on the 2nd law:* When mass is moving, it carries ***momentum***.



The more mass you have, or the faster you're moving, the harder it is to speed up, slow down, or change direction.

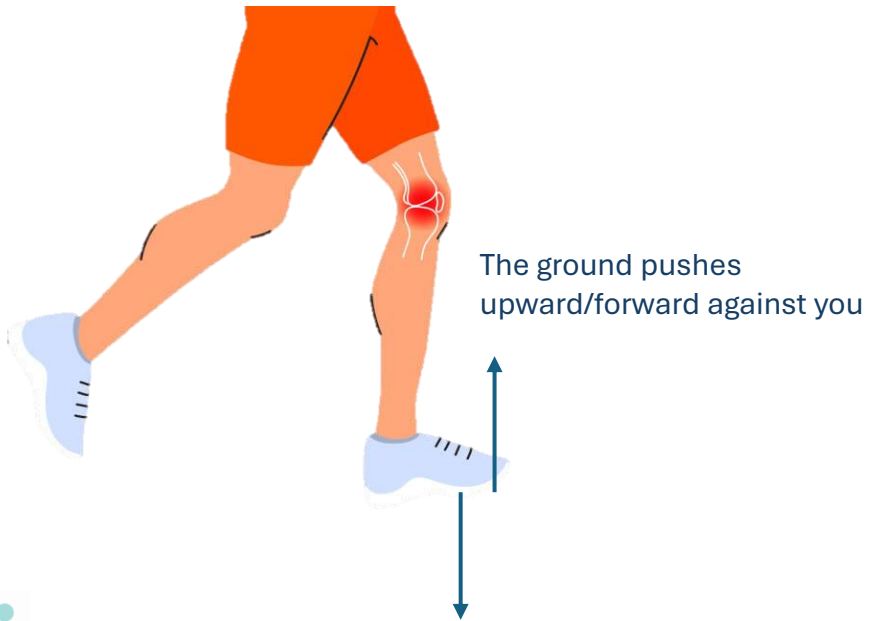
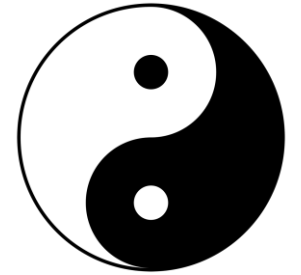
→ When you are transitioning to uphill, it can be useful to keep up speed going in to carry momentum through.



II. Force and Momentum

Newton's Laws of Motion:

3. For every action, there is an equal and opposite reaction



The ground pushes
upward/forward against you

You push backward/down against the ground

TAKEAWAY:

If you apply force (e.g., into the ground), an equal force pushes back

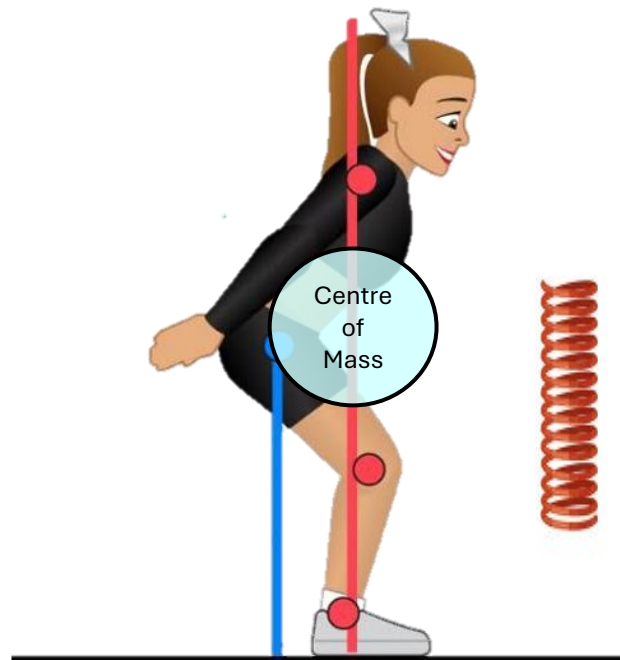
→ The *direction* of that force depends on how and where you apply it.

→ This allows you to move forward, upwards, side-to-side, etc.

→ Body alignment and support (e.g., *joints and muscles*) determine whether that force helps you move forward efficiently or increases strain.

III. Moving in Your Athletic Stance

Combining Athletic Stance with Newton's Laws:

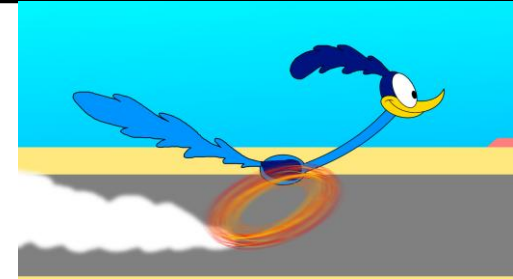


NOW WHEN YOU WALK OR RUN:

1. Maintain aspects of your Ready Stance:
~ *Stacked through your Centre of Mass, Straight Back, Vision Up* ~
2. Land your **feet directly below** your centre of mass
3. Most **injuries occur during ground contact** – keep your **steps light** and brief to **avoid heavy impact** → if you trip while using light feet, you're more likely to catch yourself!
4. **Don't watch your feet!** Vision forward to the ground coming up, register where to place your feet, then trust them to do it right ~ this takes practice.

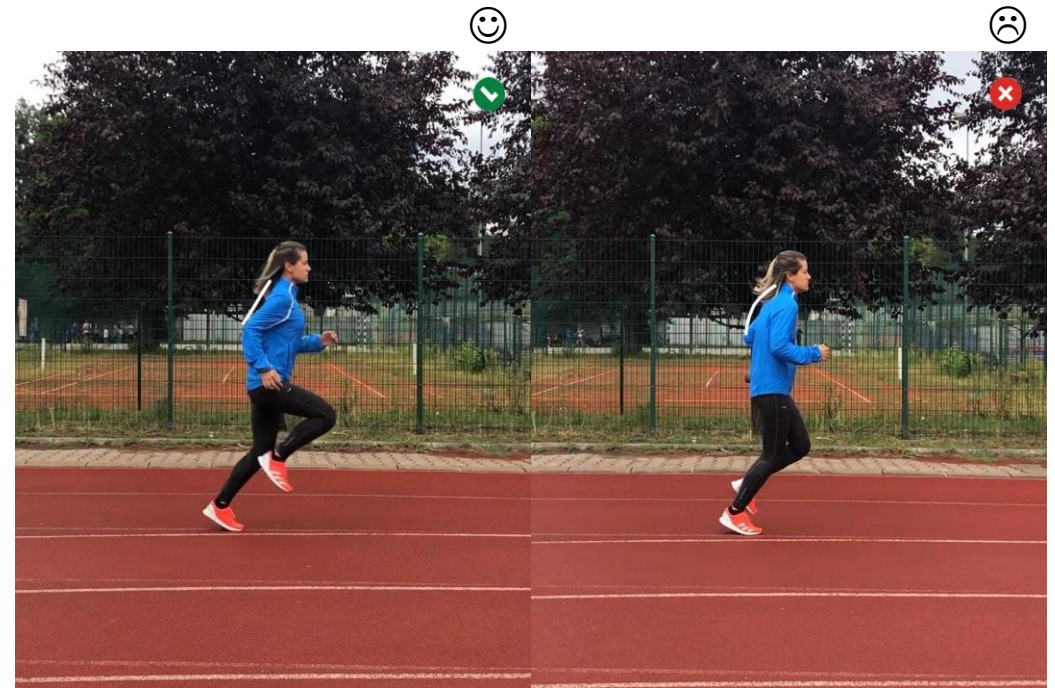
→ Try the three 'ABC' movements that make up the basic form of a run stride: [\[Physitrack video\]](#)

→ Quick cadence reduces overstriding. [\[Runners World, 2024\]](#)



IV. Shoes!!

Examples:



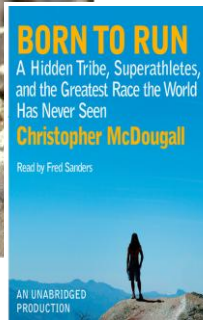
IV. Shoes!!

Examples:



IV. Shoes!!

Haven't you heard? The 'experts' disagree! And, *oh my*, are the companies trying to sell you something...



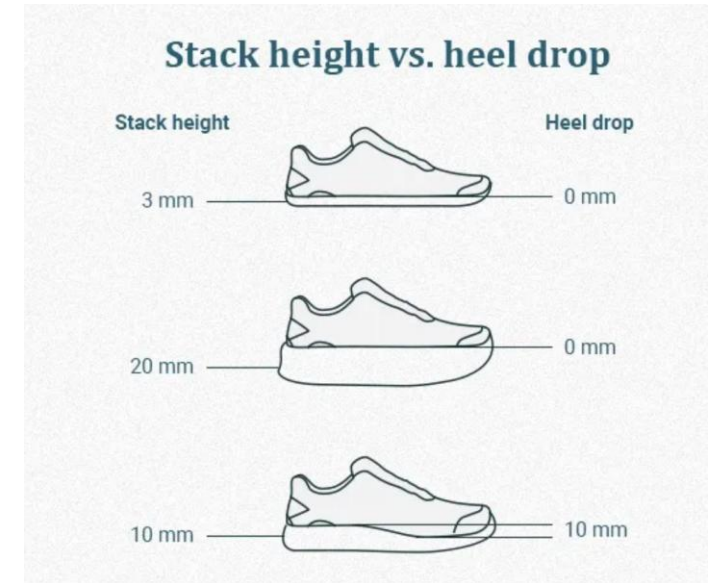
Source: Tarahumara Huarache Sandals, [Earth Runners](#)



IV. Shoes!!

Some definitions:

- **Drop (Heel-to-Toe):** height difference between a shoe under the heel versus under the toes.
- **Stack Height:** height between the sole of your foot and the ground; *e.g.* below heel or forefoot.
- **Cushion:** the plushness of the stack.



Source: [Run to the Finish](#)

IV. Shoes!!

What we do know:

- ***Don't force drastic change.*** It's not necessarily flat or high-drop shoes themselves that are causing issues. It's going too quickly from one to the other.
 - Progress gradually for stronger adaptations. Work with a physio if possible, or if there's pain.
- Go with what's ***comfortable, supportive, and helpful to building strength.***



Image: Why Things Hurt



Thank-You!



SUSTAIN ATHLETICS

UPCOMING EVENTS:

February 21, 10am | KELOWNA – Pop-up Running Clinic

February 23, 6pm | KELOWNA – Run Club Social - I'll be there!

March 12, 7pm | ZOOM – Workshop 03: Nutrition I

April 9, 7pm | ZOOM – Workshop 04: Member's Choice!

→ Join events through [Heylo](#) or email info@sustainathletics.com