

# Running And Lower BACK Basics

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- The most common cause of back pain after running is tight hamstrings (chain reaction).
- Carrying something on your back (e.g. backpack... etc.!) will cause your COG (center of gravity) to shift backwards.
- The compensatory 'forward lean' is usually exaggerated, placing undue strain on the hamstrings while running.
- Coupled with "having to look down", the two cause pain and long term discomfort (especially after exercise).

*What to do about it...*

## 1. Improve running technique.

The majority of people run "bent over" - even slightly - due to the reflex of "looking down at your feet" when you jog. Try this....

Stand upright, with your back "as long, tall, and straight as possible"; look directly forward (head neutral). Open chest and imagine your "shoulders sitting on your hips which are sitting on your heels" - stacked in a perfect tower.

Now maintain the position from the neck down BUT, try and look at your toes.

It is not easy to "stand tall and look down"! ... understandable why backs ache after running (particularly on uneven surfaces, where you have to look down in order to prevent a fall).

### *Technical Tips*

**#1 Look up more often.** Even when trail running, try to vary head and eye position frequently. Optimal "visual focus" is directly ahead at eye level.

### **#2 Think "running from the hips".**

All movement originates in the CORE. The core houses our centre of mass (for males, just above naval; for females, just below). It is this "weight" that must shift to overcome inertia for motion to occur. Therefore, it makes sense to initiate movement in the core.

Imagine both hips have magnets attached to them, and while you are running, they are being "drawn forward" toward a larger "force".

Imagine strings projecting from your hips, knees, shoulders and forehead. All of these are pulling your forward at the same rate (so the body moves as a unit - projecting forward, not downward).

Make your spine TALL when you run (without hyperextending the back); project your body upwards through the centre of your head. S-t-r-et-ch.

Pelvic tilt. Amazing how much power the "pelvis possesses", being the origin and insertion of most postural and core / lower body prime-movers (muscles) in the body. Try a slight pelvic tilt to alter the COG while running (i.e. tilt hips backwards lightly, and bring bottom of pelvis forward... the lower back is 'rounded' if you do this properly... the opposite of hyperextension).

NOTE : do not exaggerate this movement.

### **#3 Do not over-stride.**

Focus on lifting the thigh UP (or, drawing a "finger painting" line down the back of your thigh/hamstrings with your heel) when you stride, instead of "reaching forward" with your foot. This will allow for longer strides without placing excess strain on the hamstring.

2. Stretch hamstrings! And on that note, ensure you stretch the quads immediately before / after the hams. Other muscles to stretch :

**abductors / adductors** (the medial and lateral thigh muscles that move the legs away from the midline of the body - i.e. like in jumping jacks)

**gluts (butt) and hip flexors** (run from top of femur to spine and flex leg at hip - i.e. the most important "lift" when you are running, walking, climbing, etc.)

**abdominals, chest, and back muscles** (rotators and postural)

*Why?*

- Muscles work in opposition : prime movers (agonists) have helpers (synergists) and opposites (antagonists). They all work to produce smooth, efficient movement. They also help protect one another; if agonists are tight, antagonists will also contract to protect the joint.  
I.e. tight quads will produce tight hamstrings and vice versa.
- Muscles also work in chains; most muscles overlap in the body, so strain in one area will spread "down or up the line" and affect other muscles. In this case, tight hamstrings are often linked to strain below : in the calves (e.g. gastroc and soleus), and strain above : the core (back and shoulders; abs and chest).

*Stretches for the hamstrings*

**#1** Sit with legs extended in front of you, knees slightly bent. Keeping the back straight (relatively), bend from the waist toward your feet. Best done with a pillow / rolled sweatshirt etc. under the back of the knees so legs can be 100% relaxed.

**#2** From standing position, place heel on elevated surface (e.g. a log) with the knee slightly bent. Bend from the waist, keeping leg directly in front of chest.

**\*NOTE : avoid any hamstring stretches that involve bending down from standing position. This causes a tidal wave of blood to crash toward the brain... and subsequently away from the brain when you stand up! I.e. fainting can occur. Also, the position puts undue stress on the spine.**

3. Strengthen your core.

Those abs and back muscles are going to support your running form more efficiently with less strain if they are strong. Weak abs can exacerbate hamstring problems as the back muscles tighten to compensate, and in turn affect the hams.

See attached pictures for Dolphin Push ups (dynamic, all-inclusive core strengthening!)

**Also effective - and a break from the ole' "sit-up routine"- are ....**

**#1 Supports**, or static "holds" where core strength is paramount for maintaining a linear body position. Front, back and side supports (e.g. front support is in push-up position). Goal : no swooping, swaying, bending, or dipping. STRAIGHT CORE.

**#2 Dead Bugs**

Lie supine on floor with arms and legs IN THE AIR.

Lower opposite arms and legs (e.g. right arm, left leg) to the ground and return to the air.

Repeat with other arm/leg.

**#3 Back : Opp. Arm / Leg**

Begin on hands and knees.

Extend (straighten and lift) opposite arm and leg until level with back (no higher).

Repeat with other side.

## 4. Stretch (in general)

Stretching is relaxing, rejuvenating, and healing. Although not “proven”, it appears to help maintain muscle length, fiber alignment (when combined with massage) and efficient functioning (minimizing pain).

### **“Rules” for stretching**

- Hold a stretch until you feel the muscle RELAX. The muscle will initially “pull back” (stretch and golgi tendon reflexes) against a stretch to “protect” the muscle. After 10-20 seconds, it figures out that you are not out to “get it” and the muscle relaxes.
- EXHALE during a stretch ... while VISUALIZING the muscle relaxing and lengthening.
- PNF : stretch for 6-12 sec., then contract for 6 sec.; relax 100% for a second; stretch again for 12+ sec. (This is called proprioceptive neuromuscular facilitation!! and essentially ‘tricks’ the muscle into a stretch before it figures out that you are no longer contracting).
- Use your BRAIN. The neuro component of movement is in a constant state of “inhibition”. It doesn’t have to be like this... but “reducing inhibition” means ‘training the brain and body’ to work together. Think of relaxing. Focus on the back muscles “turning into cooked spaghetti” (i.e. malleable and fluid). Etc.....
- Stretch muscles in opposition (front/back, inside/outside).
- Gentle, ROM (range of motion) movements have been found to produce similar “recovery results” as stretching. After stretching, consider moving joints in the largest ROM possible : VERY gently and VERY slowly. BREATHE the same way!