

RUNNING

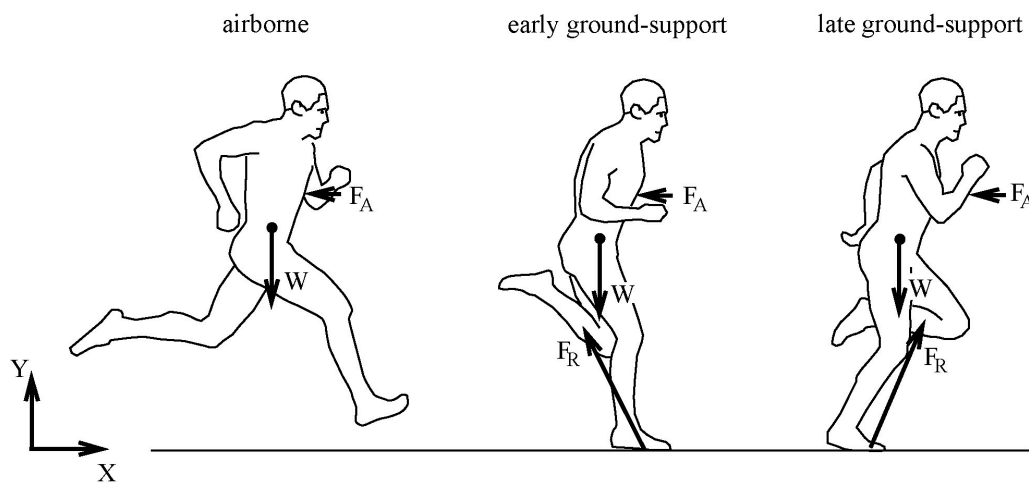
Terminology:

“Stride” = 1 complete cycle. For instance: left foot takeoff to next left foot takeoff.

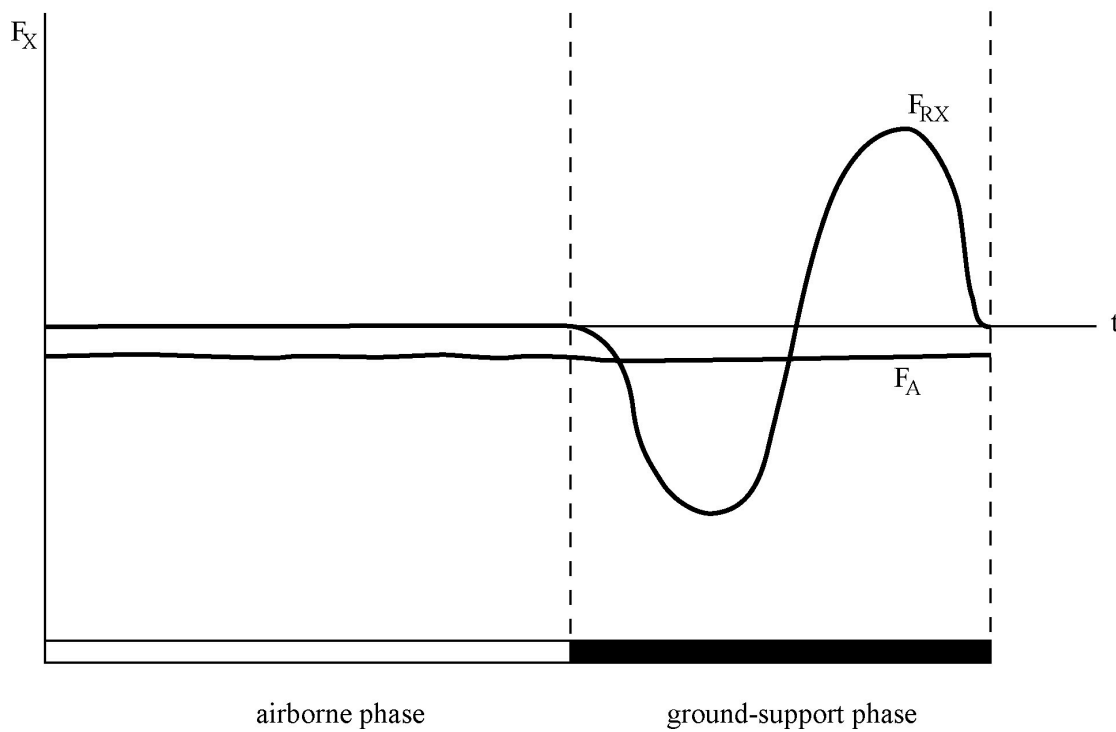
“Step” = half a cycle. For instance: left foot takeoff to right foot takeoff.

Goal: How to maintain the fastest possible running speed.

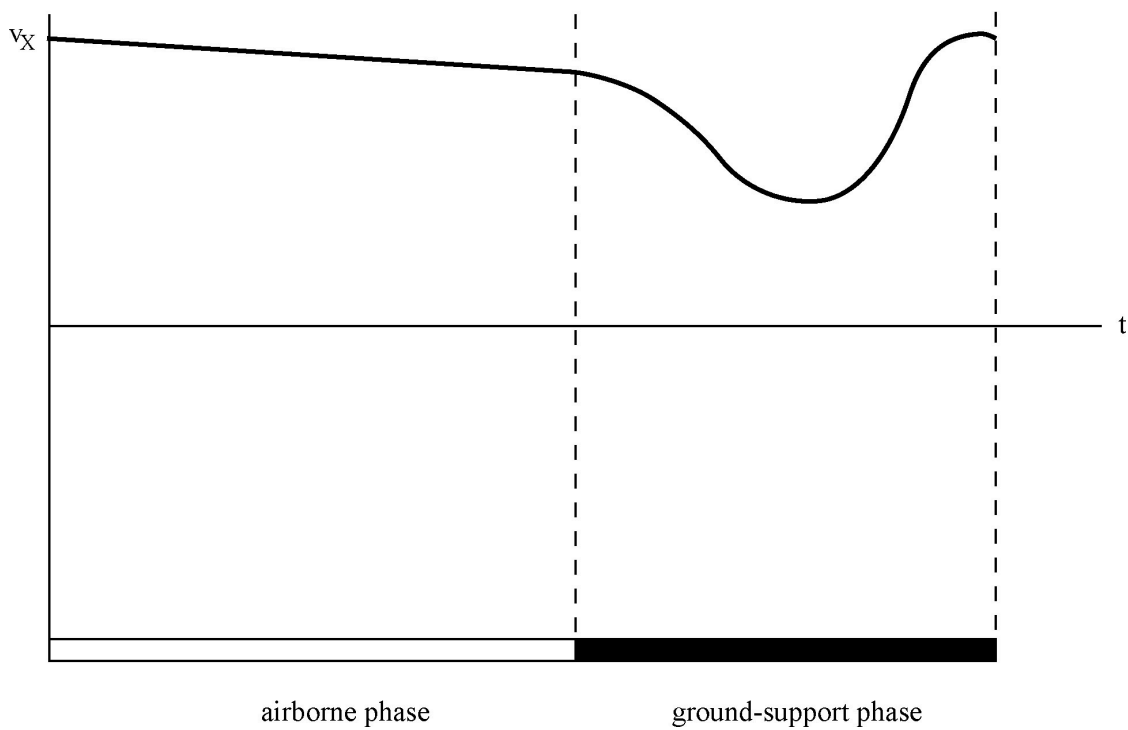
Each step consists of an airborne phase and a ground-support phase:



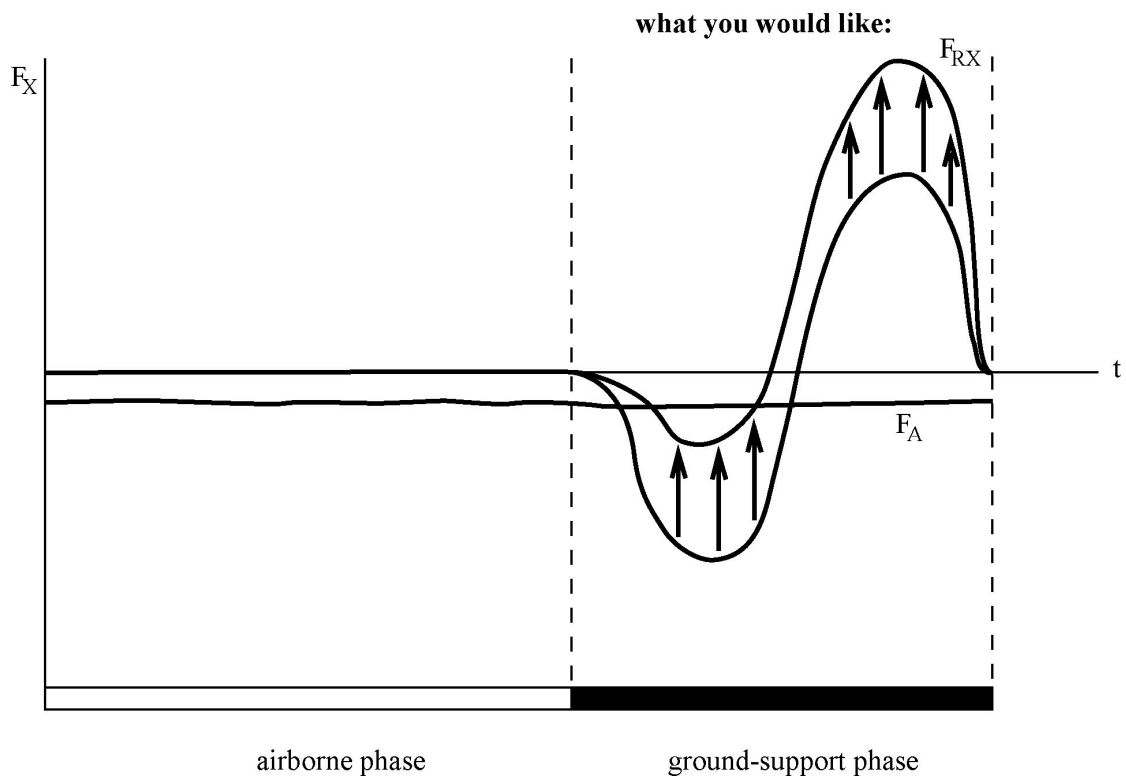
forces:



velocity (changes have been exaggerated):



forces:



Need to:

- 1: minimize braking force
- 2: maximize propulsive force

What to do for optimum results in sprinting:

- active landing —————> minimizes braking force

- extend support leg fully backward —————> maximizes propulsive force

- lift knee of non-support leg —————> maximizes propulsive force

- swing arms hard, in alternation with the legs ———> maximizes propulsive force

- avoid bouncing too high in each step —————> maximizes propulsive force
and minimizes braking force

Another important factor: “relaxation”