BONUS #2a – Manipulating Friction

- The magnitude of F_{lim} between contacting surfaces is frequently of great importance in athletic activities.
- Clearly describe **five** examples in which an athlete attempts to manipulate *sliding friction* (either increase or decrease) to his or her advantage and specifically describe what the athlete does to affect friction (i.e., provide an indication whether change in the coefficient of friction or the normal reaction force is primarily responsible for the observed change).
- Note: you may not use examples that involve aquatic sports or wheels. Your examples must clearly involve *sliding friction*.

- Example:
  - A surfer waxes their board with board wax to **increase the friction force** between their feet and the board.
  - The **increase in friction is due to an increase in the coefficient of friction** caused by the wax.

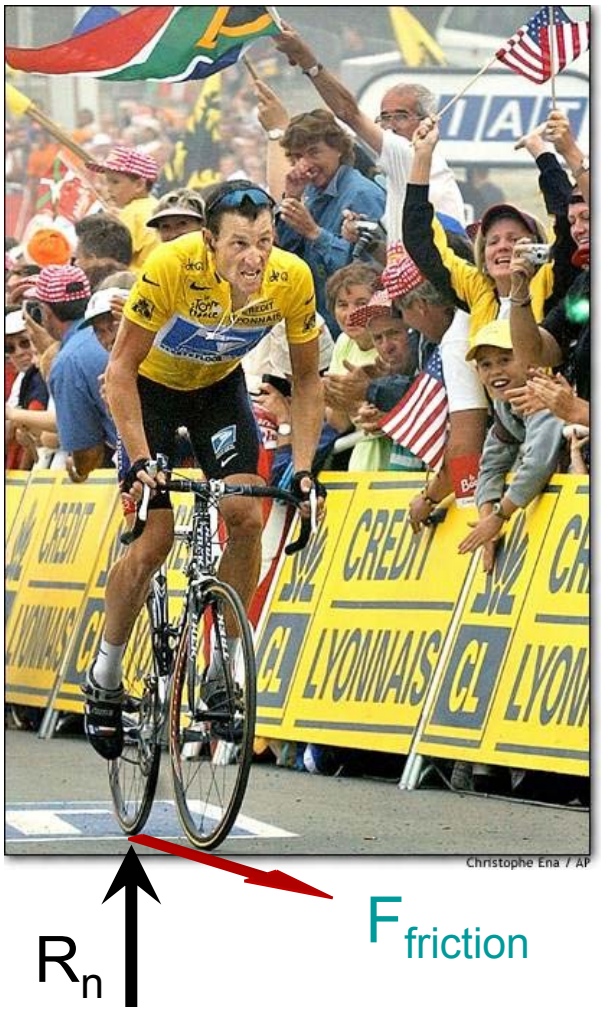
BONUS #2b – Finding Friction

- Find **five** photographs (from magazines or newspapers) in which *sliding* friction forces are clearly acting. On these images, draw and label the normal reaction force (R_n) and the friction force ($F_{friction}$) and specifically describe *what these forces are acting on and what purpose they are serving*.
- I have provided a couple of examples below to help you understand what is required.
- Note 1: you do not have to do any calculations—simply draw and label the appropriate forces and describe they are acting on and what purpose they serve.
- Note 2: you may not use examples that involve aquatic sports or wheels.

In this image, the normal reaction force (in black) and friction force (in yellow) are acting on the pitcher's lead foot. They are acting to prevent the foot from sliding forward.

A poor example

- This is a poor example because…
  - It involves wheels
  - No description of what the forces are acting upon.
  - It is taken from an oblique/frontal view which then requires the friction force to be drawn out of (or into) the page.
- Choose photos on which you can CLEARLY show the normal reaction and friction forces.



Due next Friday (Oct 31)

- Type written descriptions for part 2a
- Labeled photographs and descriptions for part 2b
- Work must be independent.
- Electronic submissions (e-mail) are encouraged.