

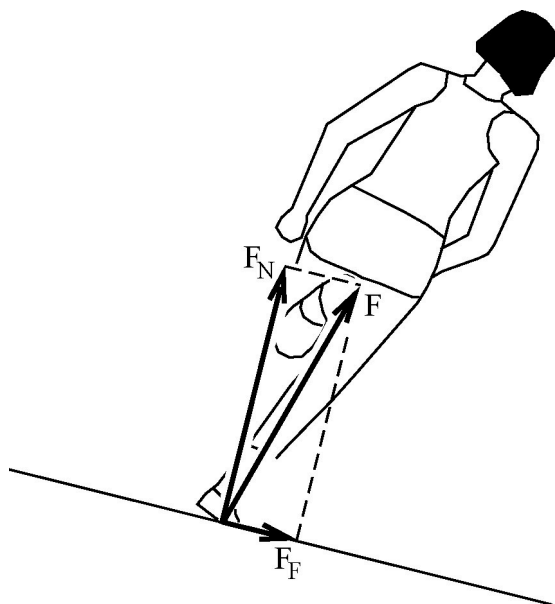
PRESSURE

Pressure = distribution of force over an area

$$P = \frac{F}{A} \quad \text{units: N/m}^2$$

Minimizing pressure: fencing, helmets, baseball glove.

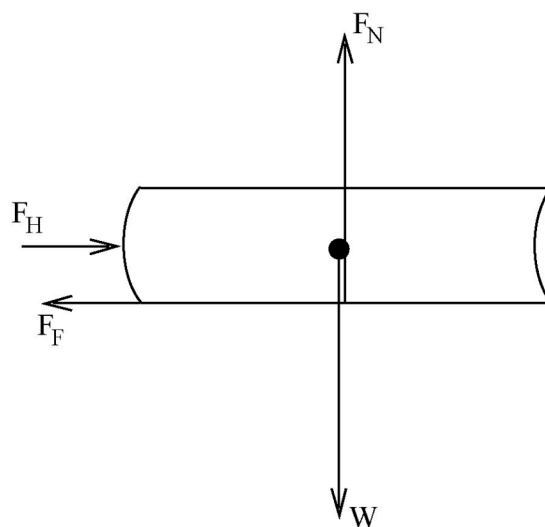
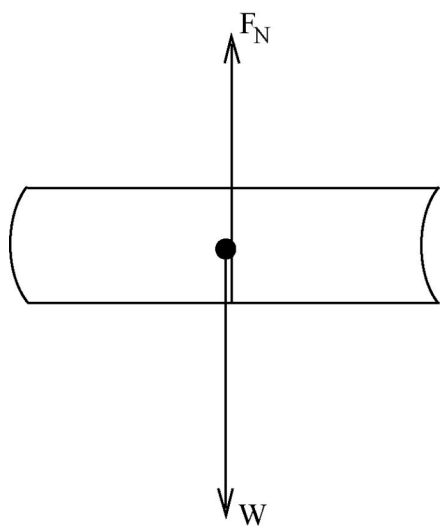
FRICION



F = total ground reaction force

F_N = normal component

F_F = friction component



F_H (N)	F_F (N)
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1	-1
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2	-2
---	----

3	-3
---	----

If $F_N = 10$ N

4	-4
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5	-4
---	----

6	-4
---	----

7	-4
---	----

8	-4
---	----

9	-4
---	----

10	-4
----	----

F_H (N)	F_F (N)
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1	-1
---	----

2	-2
---	----

3	-3
---	----

If $F_N = 20$ N

4	-4
---	----

5	-5
---	----

6	-6
---	----

7	-7
---	----

8	-8
---	----

9	-8
---	----

10	-8
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$$\frac{F_{\text{limit}}}{F_N} = \frac{4}{10} = \frac{8}{20} = 0.4 = \mu \quad \text{This is called Coulomb's Law.}$$

μ = “mu” = “coefficient of limiting friction”

$$F_{\text{limit}} = \mu \cdot F_N$$

- Static μ (μ_S) vs. dynamic μ (μ_D)

When object is static: $F_{\text{limit}} = \mu_S \cdot F_N$

When object is moving: $F_F = \mu_D \cdot F_N$ where $\mu_D < \mu_S$

- μ is not completely independent from normal pressure.