

## BI 199 APWT Discussion 7



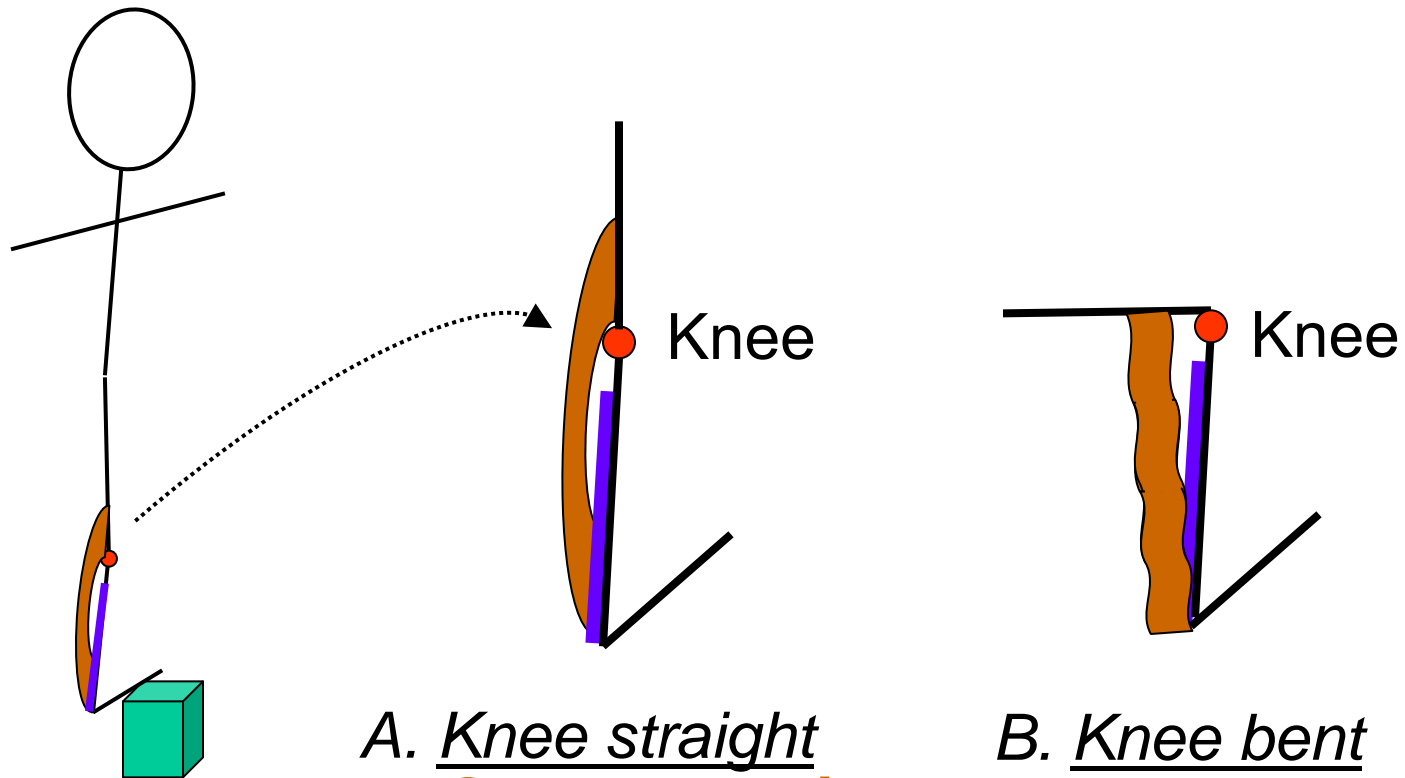
...Personal topic + outline  
due next session!

- I. Announcements **This Thursday topic + thematic poster outline due.** Send .doc/.docx file by way of e-mail attachment to: [lombardi@uoregon.edu](mailto:lombardi@uoregon.edu) Q?
- II. Review of Anatomy Lab 2 Treasure Hunt
- III. Exercise Physiology & Nutrition in the News  
30 lb 30 d? Magic? Lose 179 lb in 32 wk?  
Is this possible? Fasting? What is considered reasonable weight loss? ACSM
- IV. The FROM Principle?
- V. Why Combine/Alternate Push with Pull?  
*Neuromuscular connections, super-setting, time & relaxation advantages*
- VI. Q? + Open Discussion

## **Anatomy Lab Treasure Hunt II. Question 1**

Identify & list *muscles* that are *worked specifically* by the *straight & bent-knee calf raise*.

Which muscles are stressed most by which *unique form* of the calf raise?

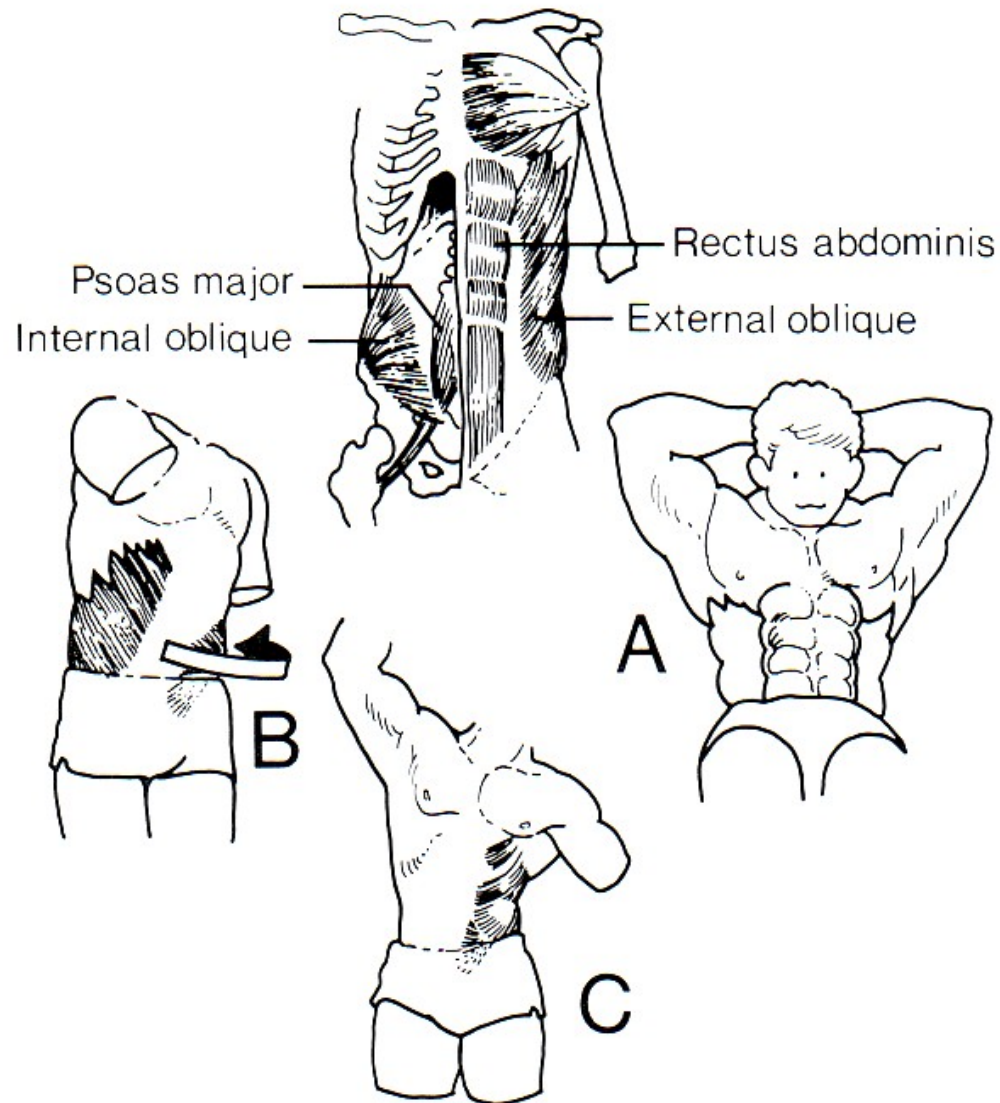


A. Knee straight  
**Gastrocnemius**  
stretched &  
engaged!

B. Knee bent  
Gastrocnemius  
slack, **soleus**  
engaged

## ***Anatomy Lab Treasure Hunt II. Question 2***

Identify muscles that are worked by *trunk twisting* motions?  
If the trunk is twisted *counter-clockwise*, which muscles are *activated*?

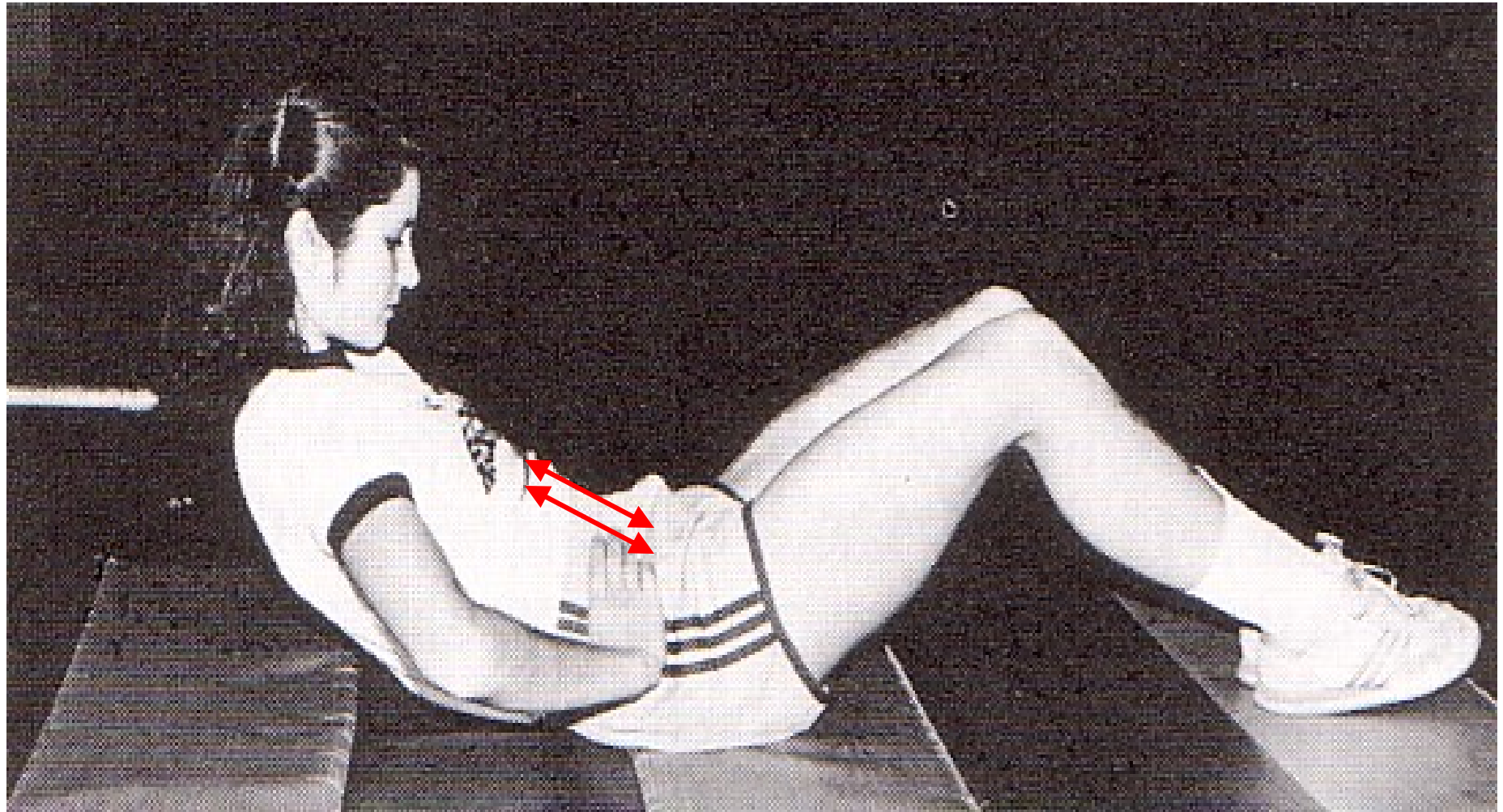


## ***Anatomy Lab Treasure Hunt II. Question 3***

From the supine position, if the *trunk* is moved in a linear fashion (without twisting) toward the *lower extremities* (hip flexion), which *muscles* are *activated*? Identify these muscles at your station.

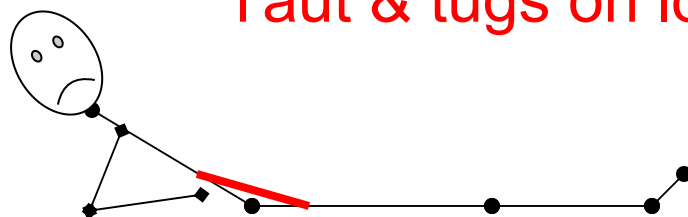
How does keeping the *knees bent at a constant angle* influence the muscles activated?

*Trunk flexion activates rectus abdominis muscles*



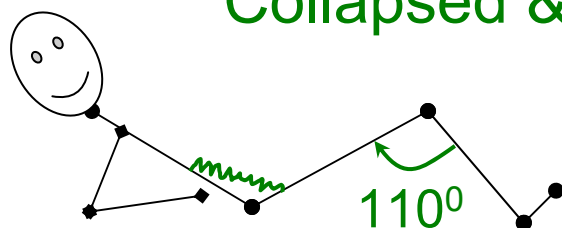
# Iliopsoas with *Knees Straight* vs. *Bent*?

Taut & tugs on lower back!



*Knees Straight*

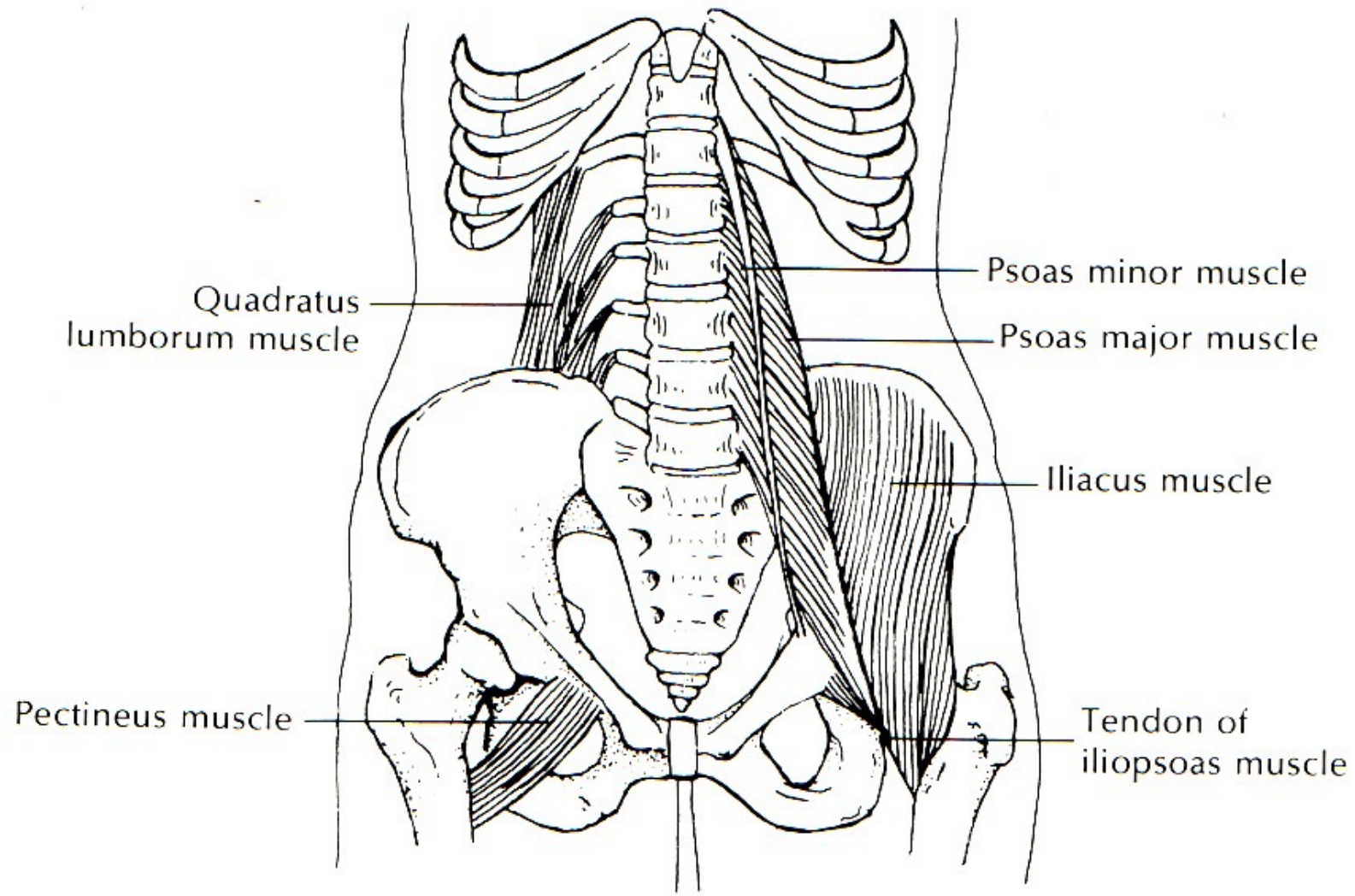
Collapsed & relieves stress!



*Knees Bent*

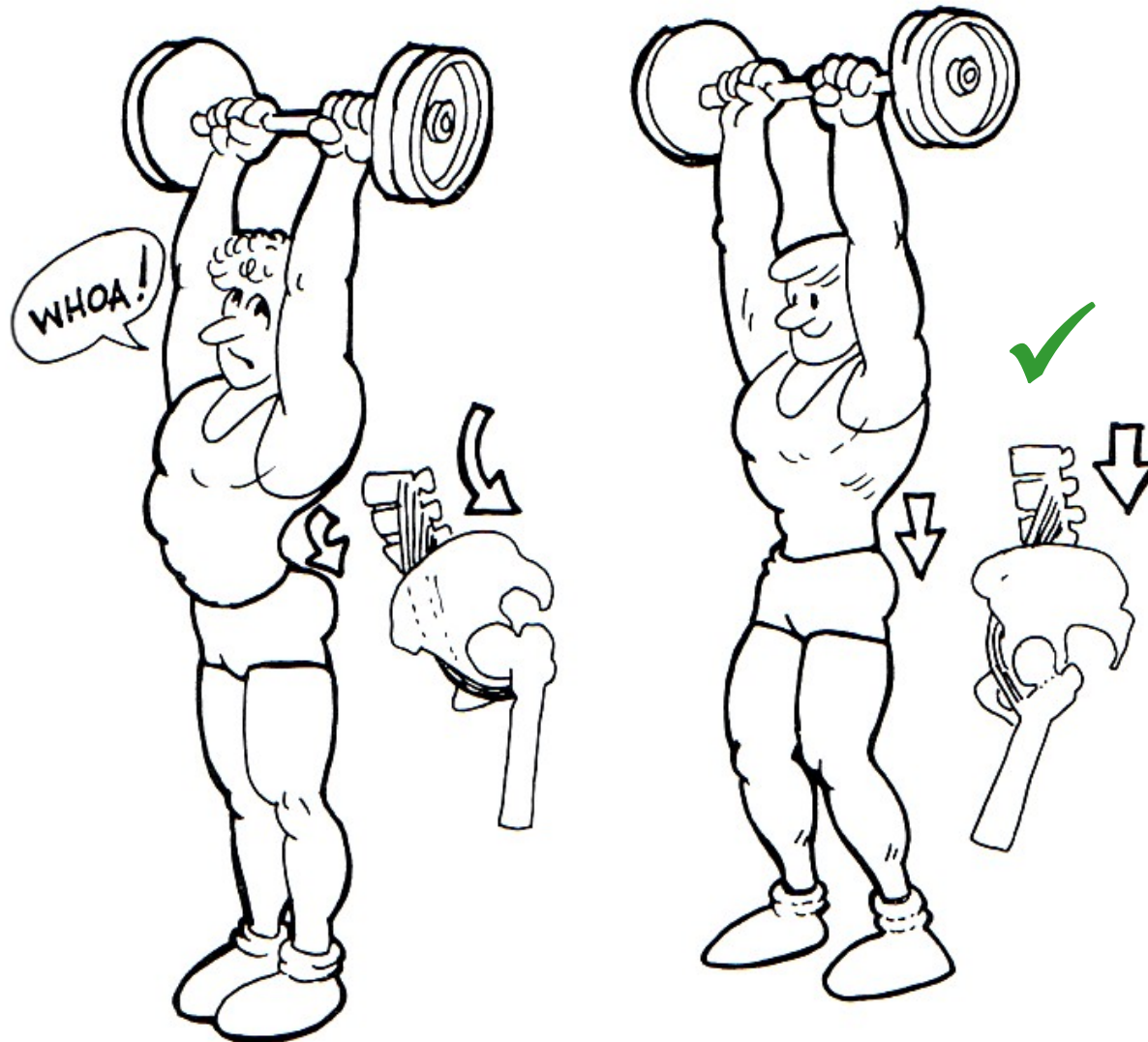
Hip Flexors? *Iliopsoas, rectus femoris, sartorius*  
Feet Anchored vs. *Unanchored*? *Unanchored*

↓ Lower back stress by flexing hips & bending knees





**Contract abdominals, bend knees,  
widen stance to reduce back stress!**



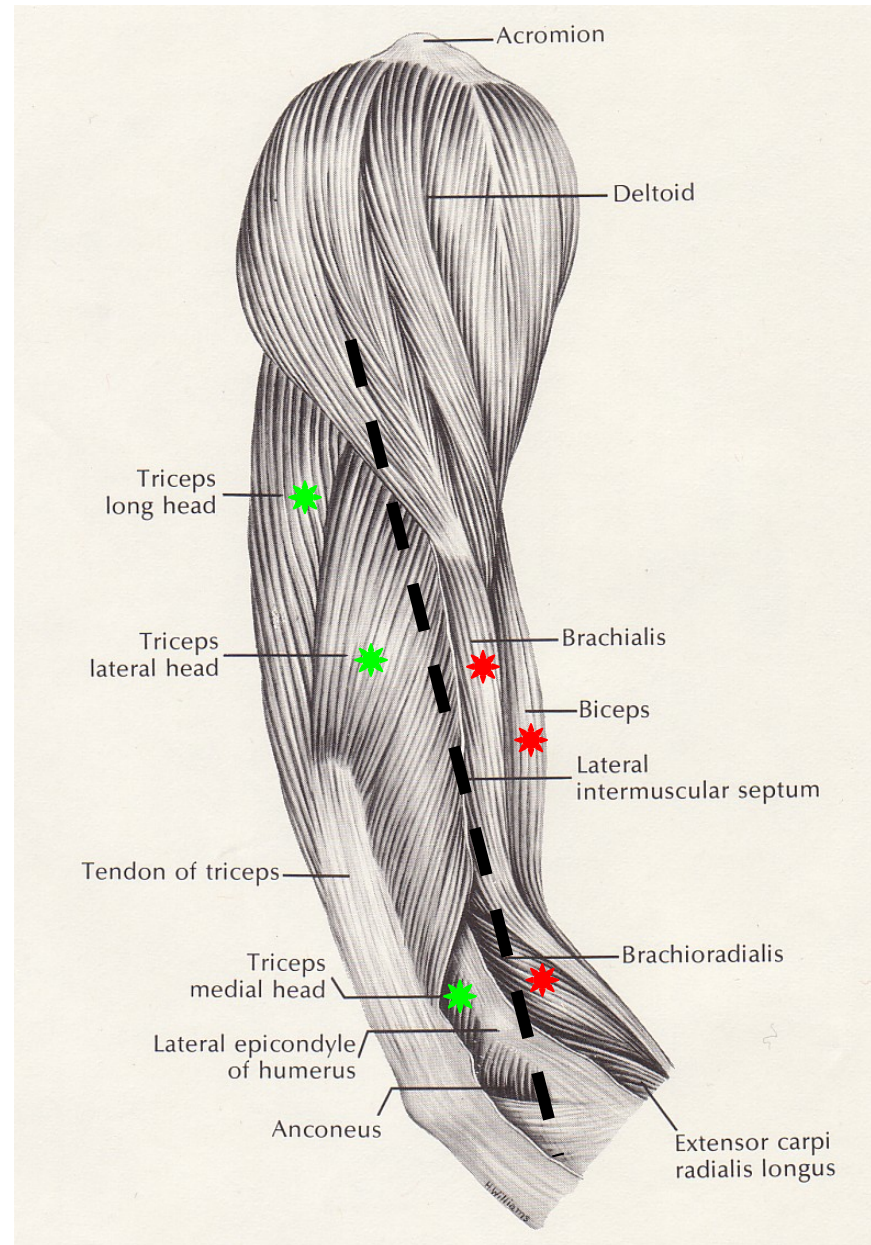


## ***Anatomy Lab Treasure Hunt II. Question 4***

Identify and list *subsections* of *arm muscles* worked by the *triceps extension*.

Identify on each other by way of *superficial anatomy* (but be careful not to touch with gloves!) and on the cadaver.

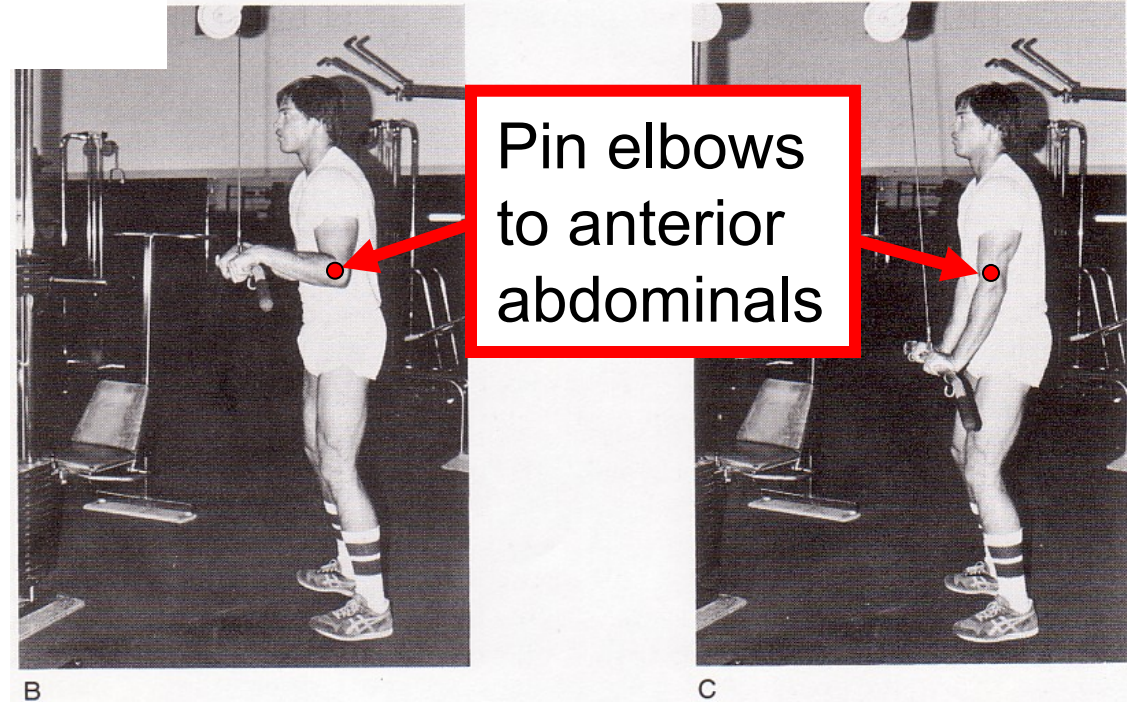
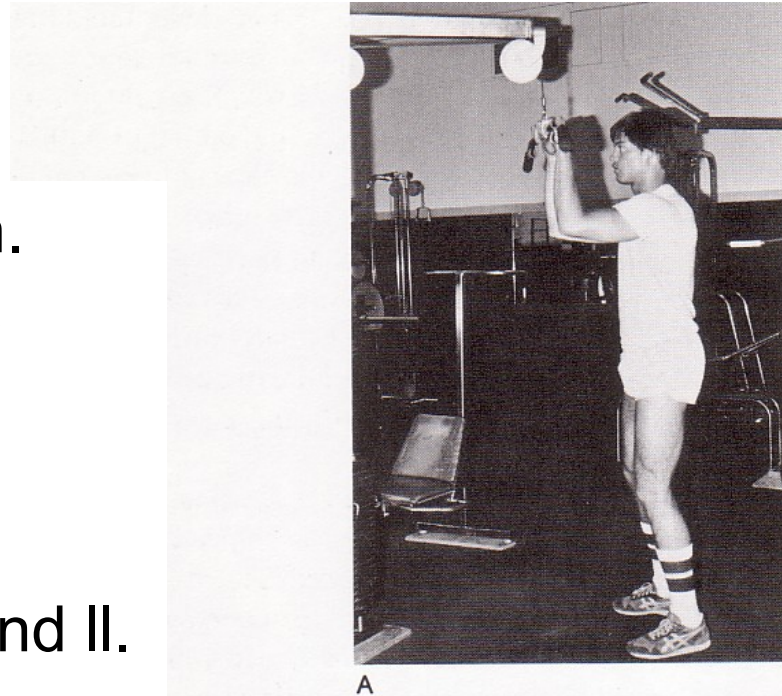
# Push - Pull



# Triceps Extension

1. Isolate axis of rotation.
2. Pin elbows to anterior abdominal side.
3. Fully extend elbows.
4. Flex elbows just beyond II.
5. Pause & extend.

**NB:** Bend knees, contract abdominals! Adjust hands & wrists to maximize range of motion (ROM).



## ***Anatomy Lab Treasure Hunt II. Question 5***

Find the “*hitch-hiker*” muscle on your own body and on the cadaver you’ve identified.

Demonstrate to a partner in your group, the *hand grip for the curl exercise* that is optimal for activating this muscle.

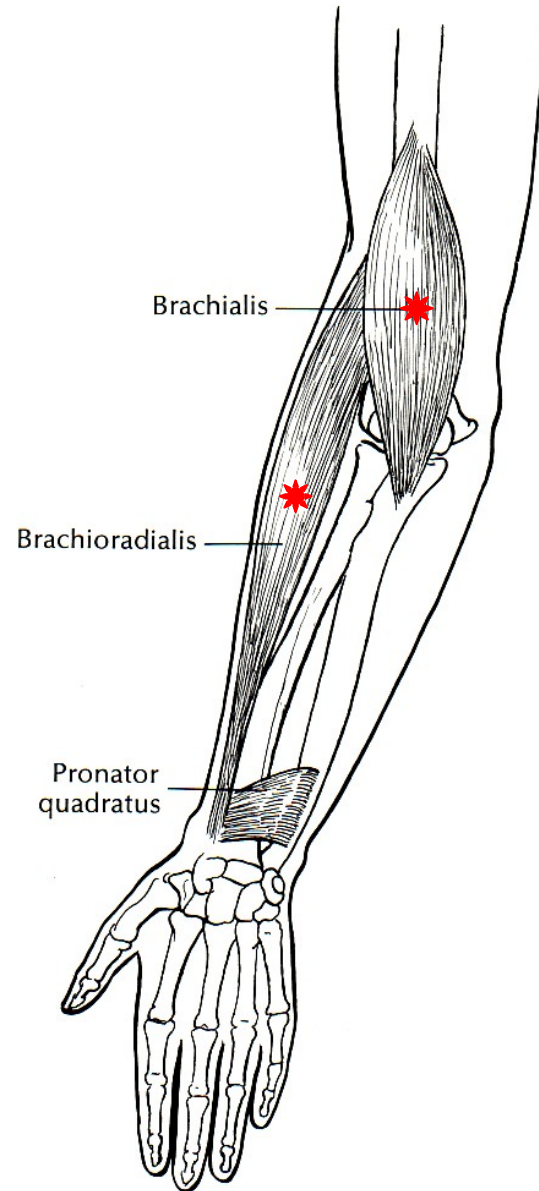
Name and illustrate this grip by drawing a simple sketch.

Identify the *long and short heads of the biceps brachii* and locate the *brachialis*, the prime flexor of the forearm at the elbow.

Which specific hand grips isolate each of these muscles?

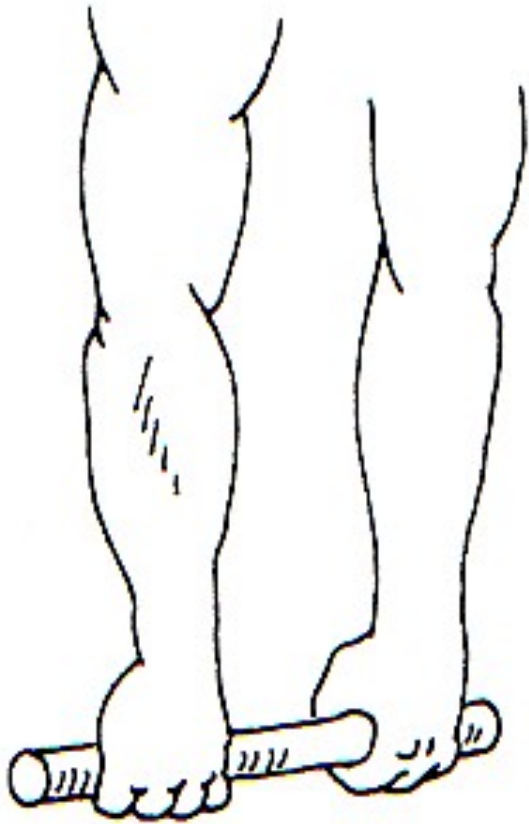


***Brachialis: Prime Flexor of Forearm @  
Elbow Brachioradialis: Hitchhiker Muscle!***

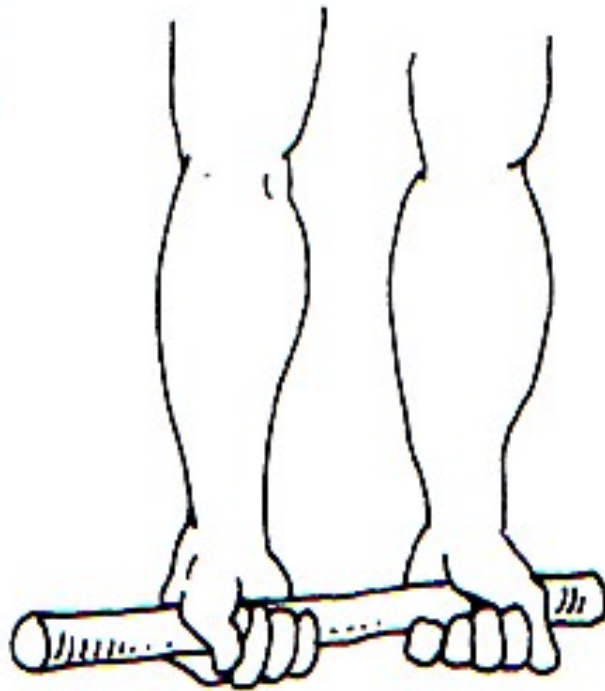


**Pulling or Flexion  
of Forearm @  
Elbow**

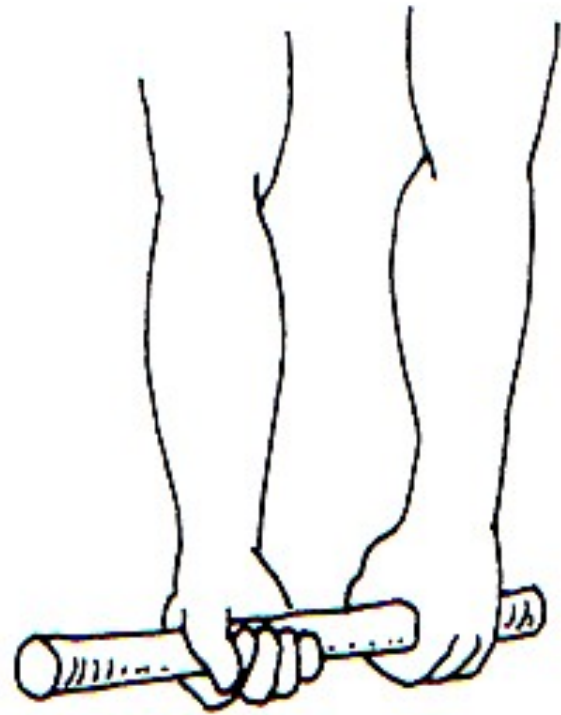
# ***Common grips used in weight training***



Pronated  
/Overhand



Supinated  
/Underhand



Alternate  
/Spotting

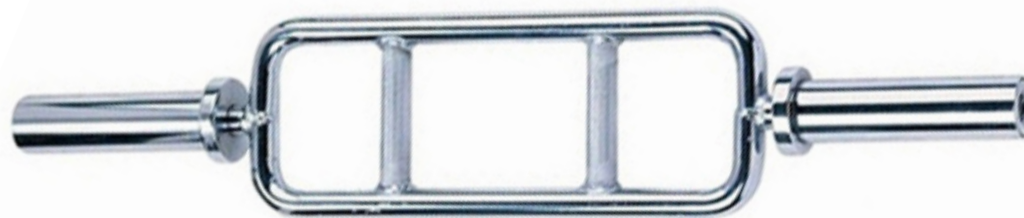
*Mid- or hammer-bar grip activates brachioradialis, but why?*



**A**

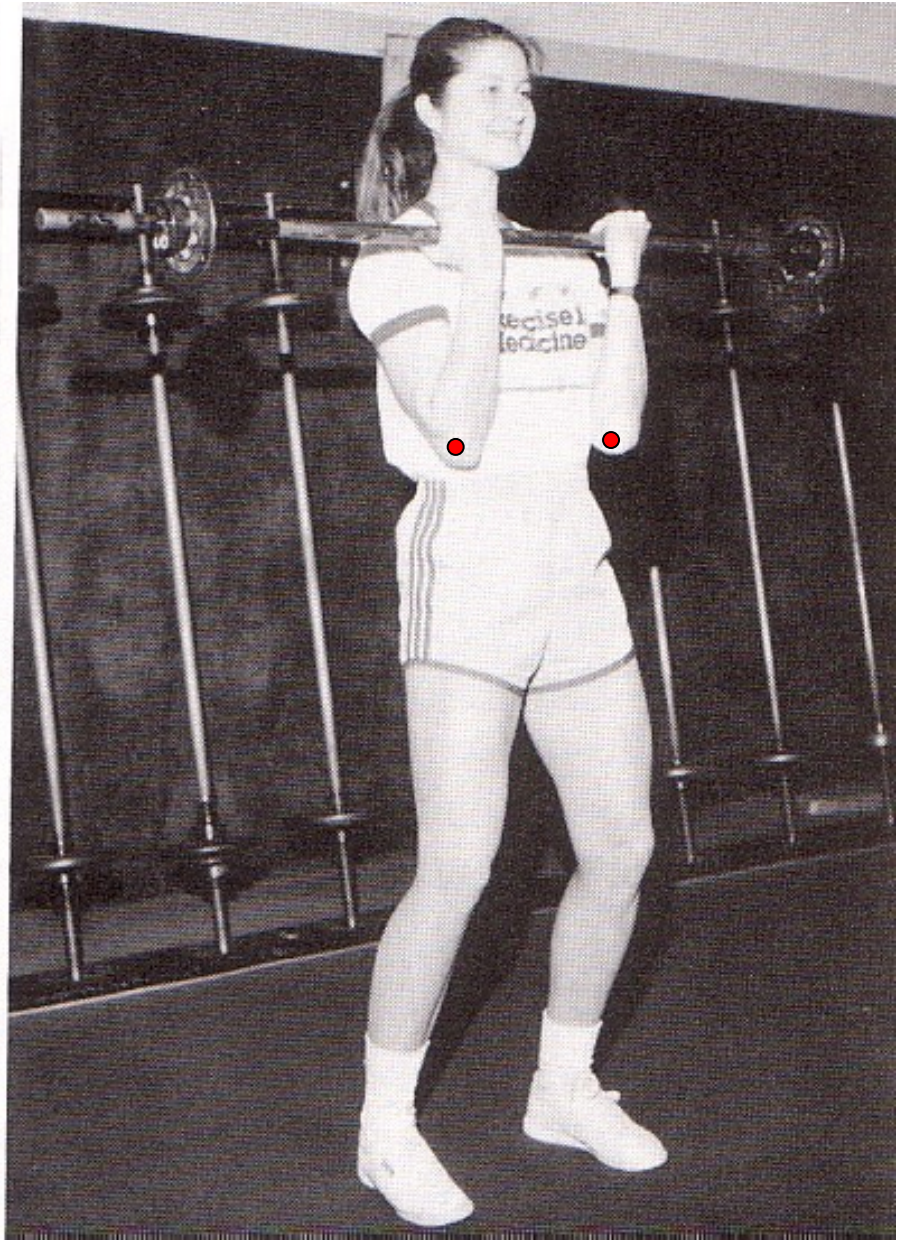
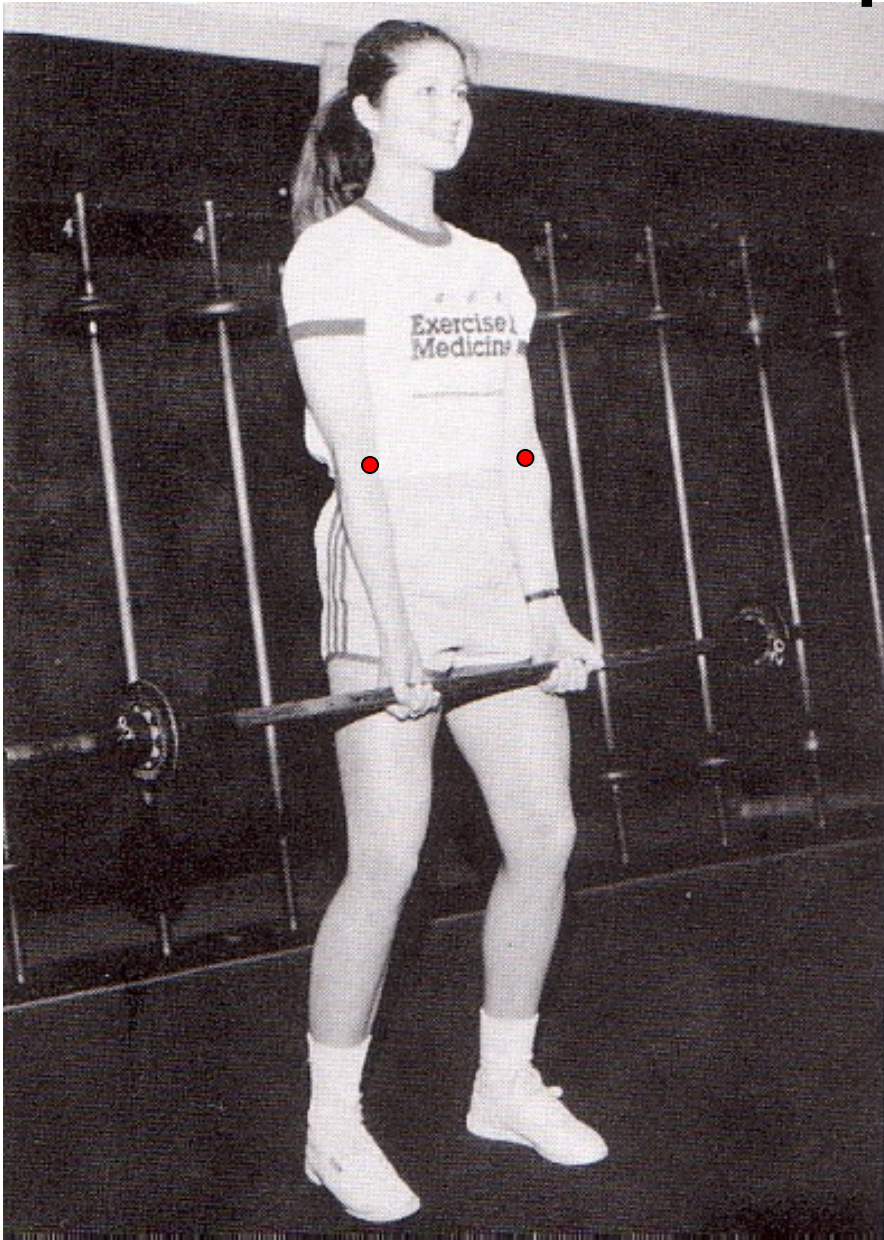


**B**





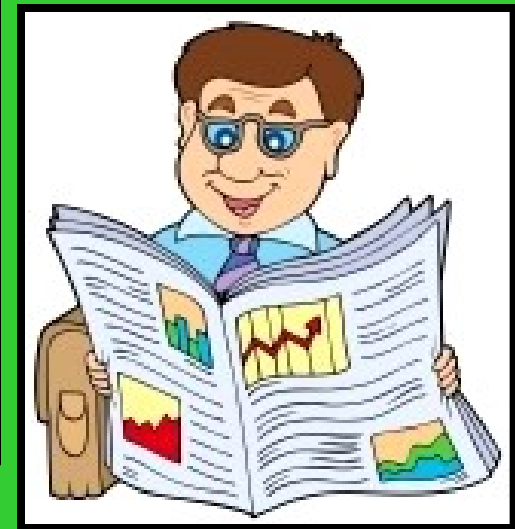
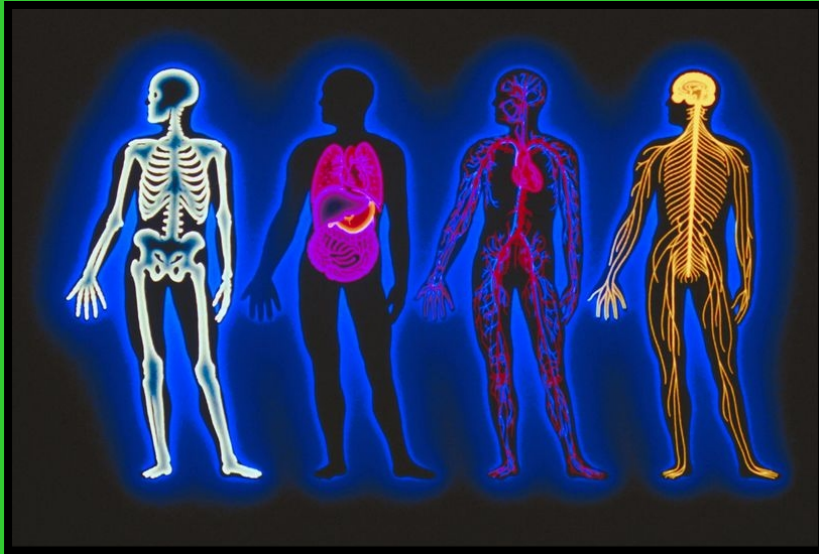
# Biceps Curl



**NB: Knees bent & abdominals contracted!**



# *Physiology & Nutrition in the News!*



# Lose 30 lb in 30 days, Magic?



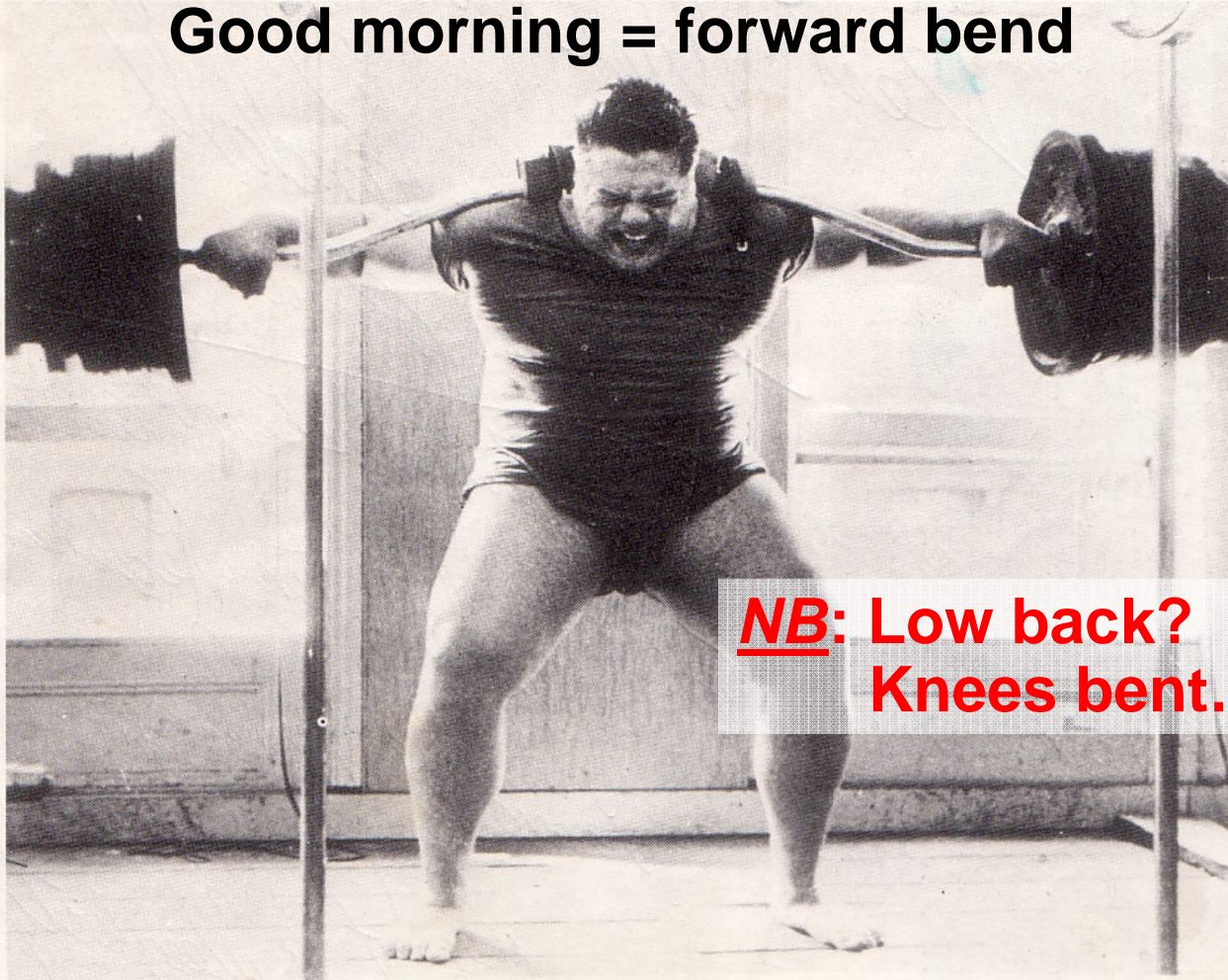
What about science?





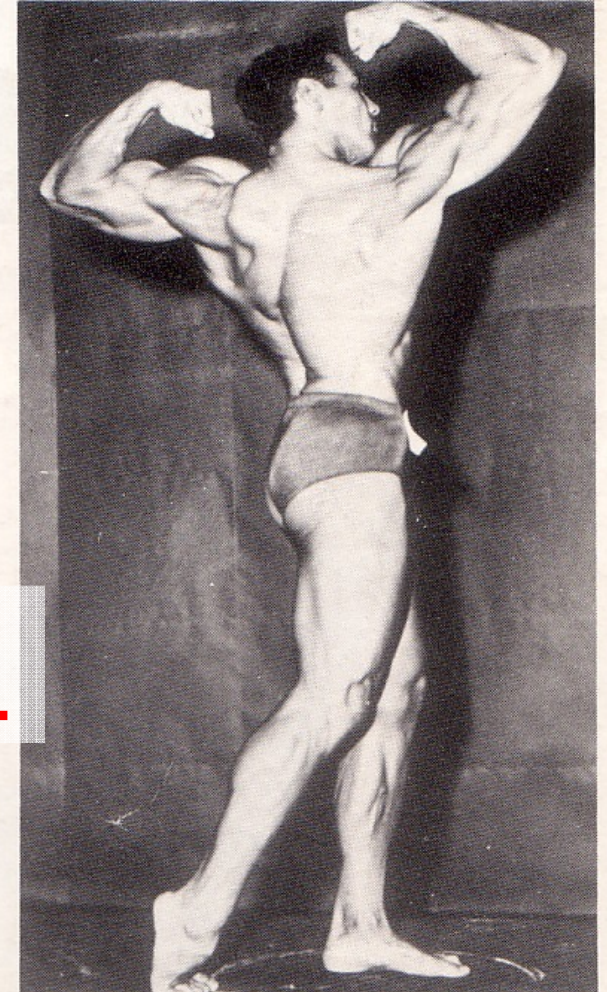
**32-wk Transformation?!! 401 lb to 222 lb!**  
**179 lb in 224 d  $\equiv$  0.8 lb/d  $\equiv$  5.6 lb/wk  $\equiv$  22.4 lb/mo**

**Good morning = forward bend**

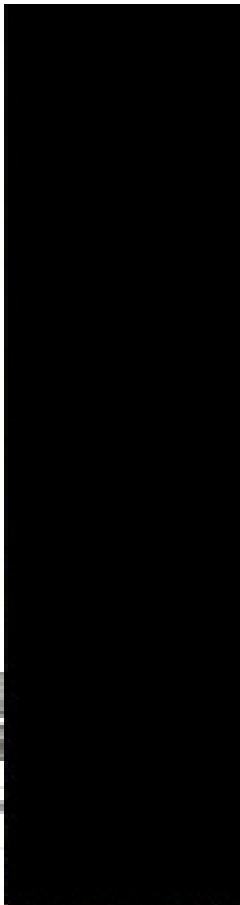
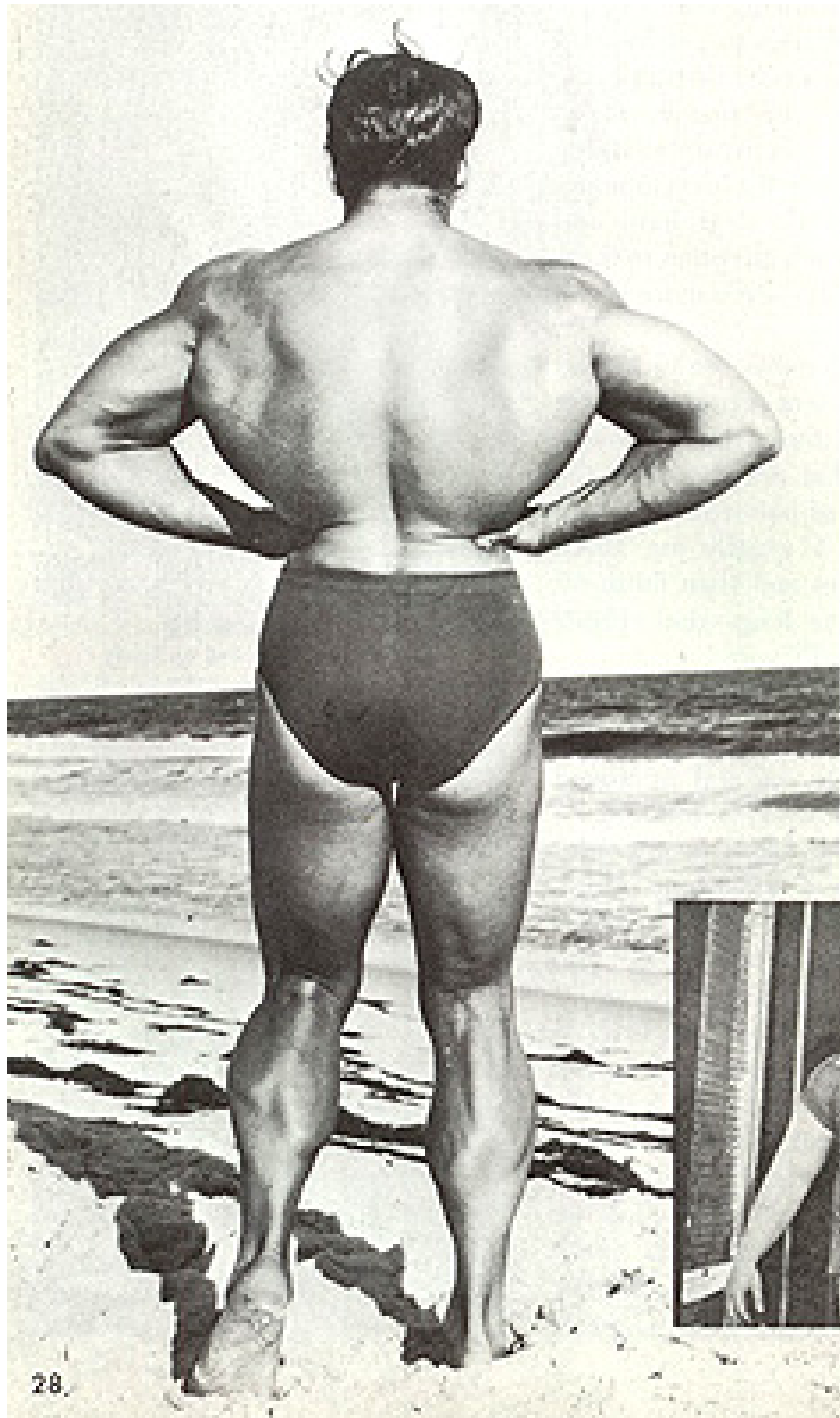


**NB: Low back?  
Knees bent...**

Bruce Randall as he appeared when he weighed over 401 lb~~z~~. performing a Forward Bend exercise with 685 lb~~z~~.

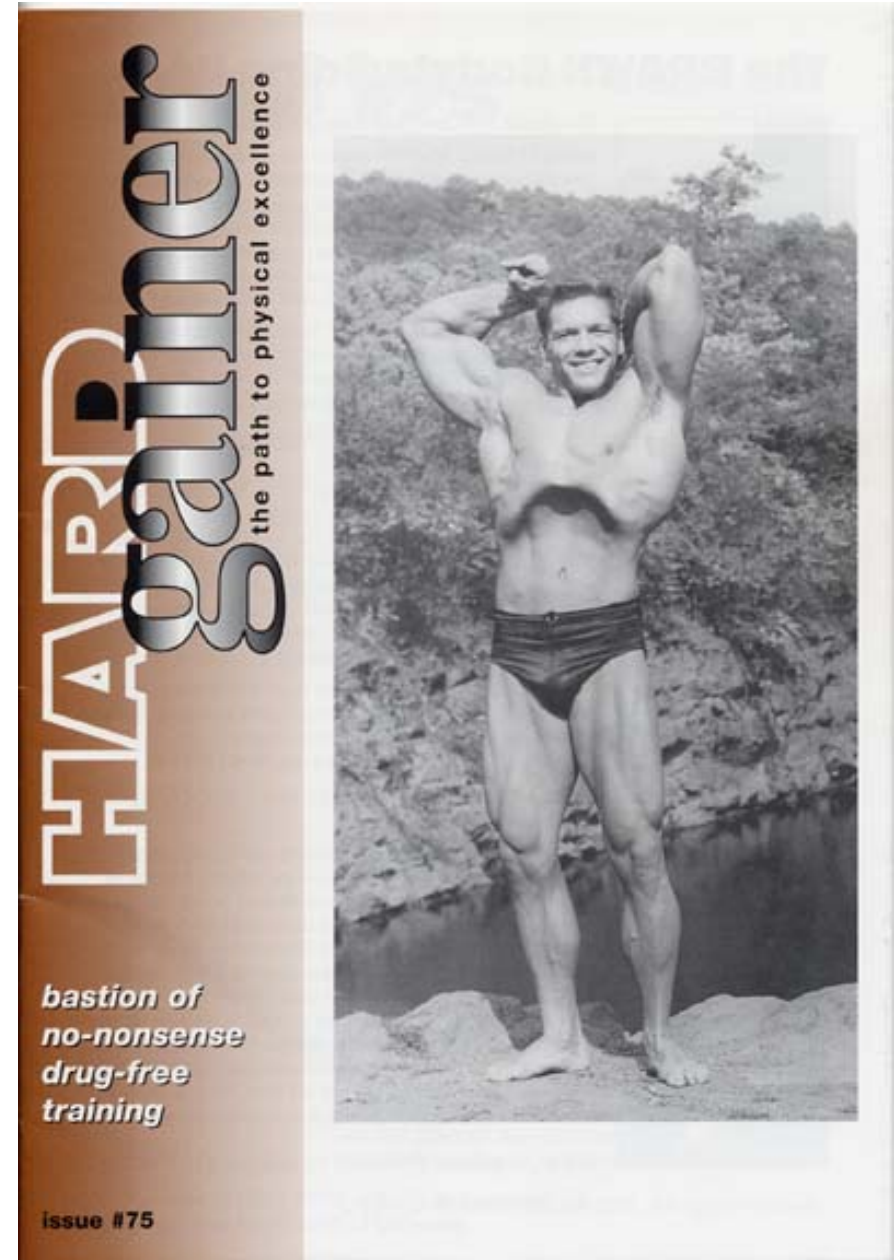
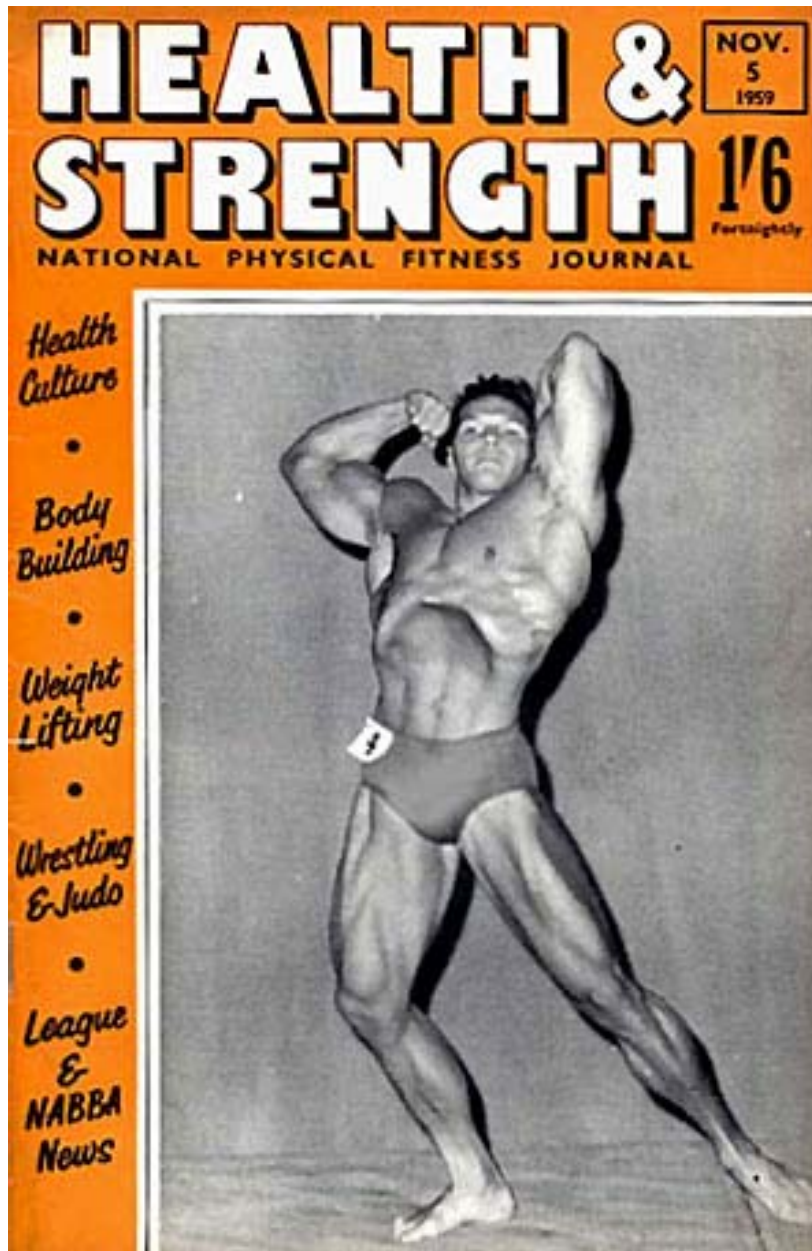


and Bruce Randall as he looked when he won the Mr. Universe Contest at a bodyweight of 222 lb~~z~~.





# Bruce Randall 1959 NABBA Mr. Universe



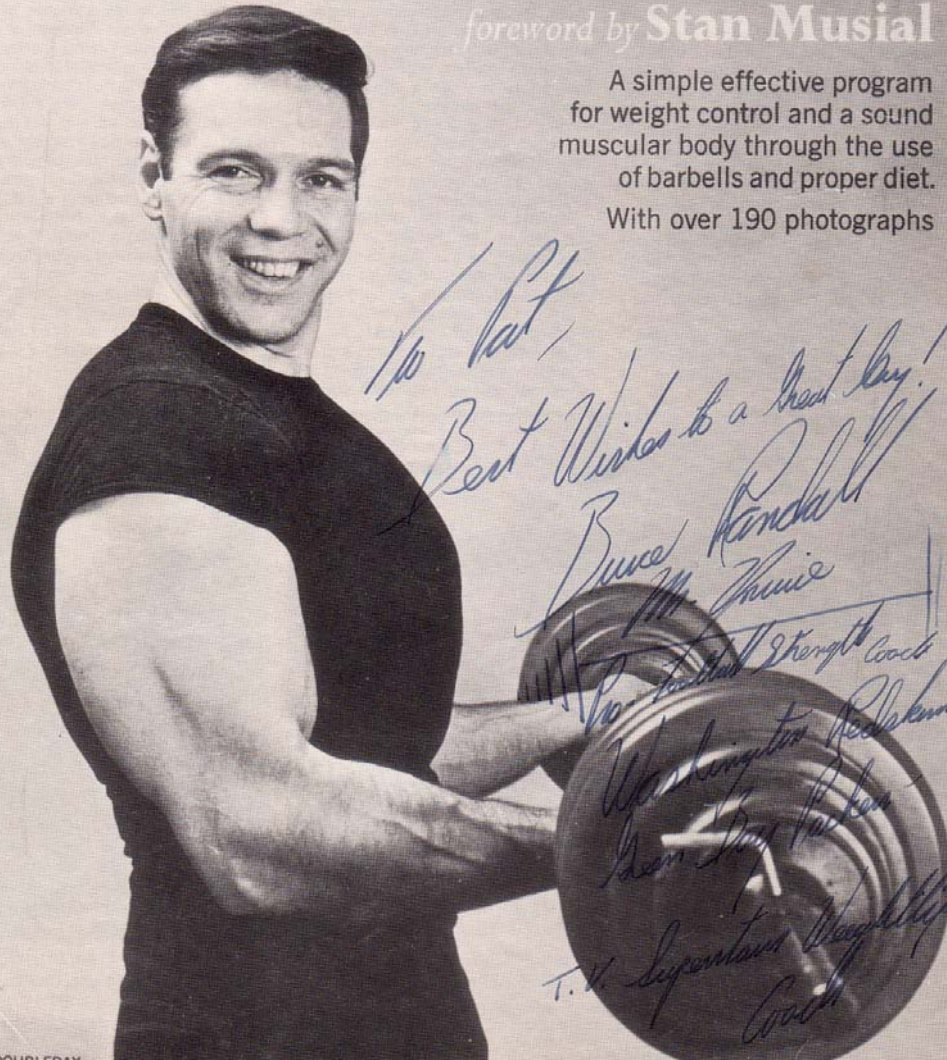
# THE BARBELL WAY TO PHYSICAL FITNESS

## Bruce Randall (Mr. Universe)

foreword by Stan Musial

A simple effective program  
for weight control and a sound  
muscular body through the use  
of barbells and proper diet.

With over 190 photographs





***I'm not sure I believe you!  
Why can't I just starve to  
lose weight?***



**TOTAL FAST =  
No Energy Nutrients  
(No Carbohydrates, Fats  
or Proteins)**

**ONLY**

- 1. Water**
- 2. Vitamins**
- 3. Minerals**

## 60-day Fast???

Lost 60 lb!! Wow!!

Yet

76.7% {  
26 lb Water  
20 lb Lean Body Mass  
14 lb Fat

Fat < 1/4 total wt loss!

***You can lose weight by starving – but it's mostly water & muscle! Also, there can be complications!***

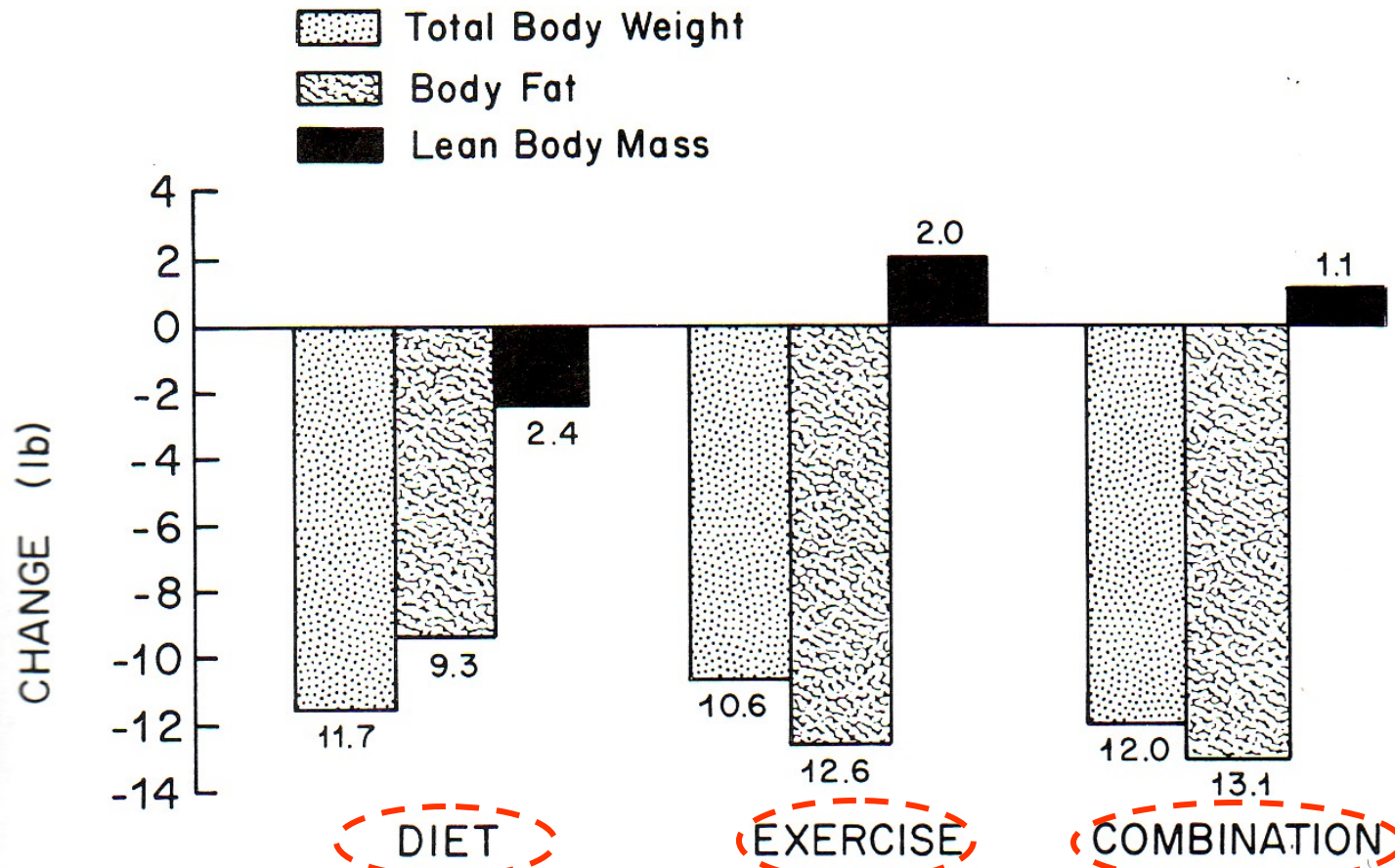


## **Potential Complications of Total Fasting**

**Nausea, diarrhea, persistent vomiting,  
postural hypotension, nutritional  
deficiencies, menstrual irregularities,  
and...sudden death.**

### **Positive Aspect??**

**General loss of appetite within  
first 2 days, maintained  
throughout fasting period.**



**Figure 4-9.** Changes in body weight, body fat, and lean body weight for diet, exercise, and combination groups. (From Zuti W. B., and Golding, L. A.: Comparing diet and exercise as weight reduction tools. *Phys. Sportsmed.* 4:49-53, 1976.)

**NB: Each group 500 kcal deficit/day, 16 weeks**



**Compared to dieting,  
*exercise is superior* in  
inducing % body fat  
reduction & preserving  
lean body mass!**



**Lose no more than 2.2 lb or 1 kg/wk!**

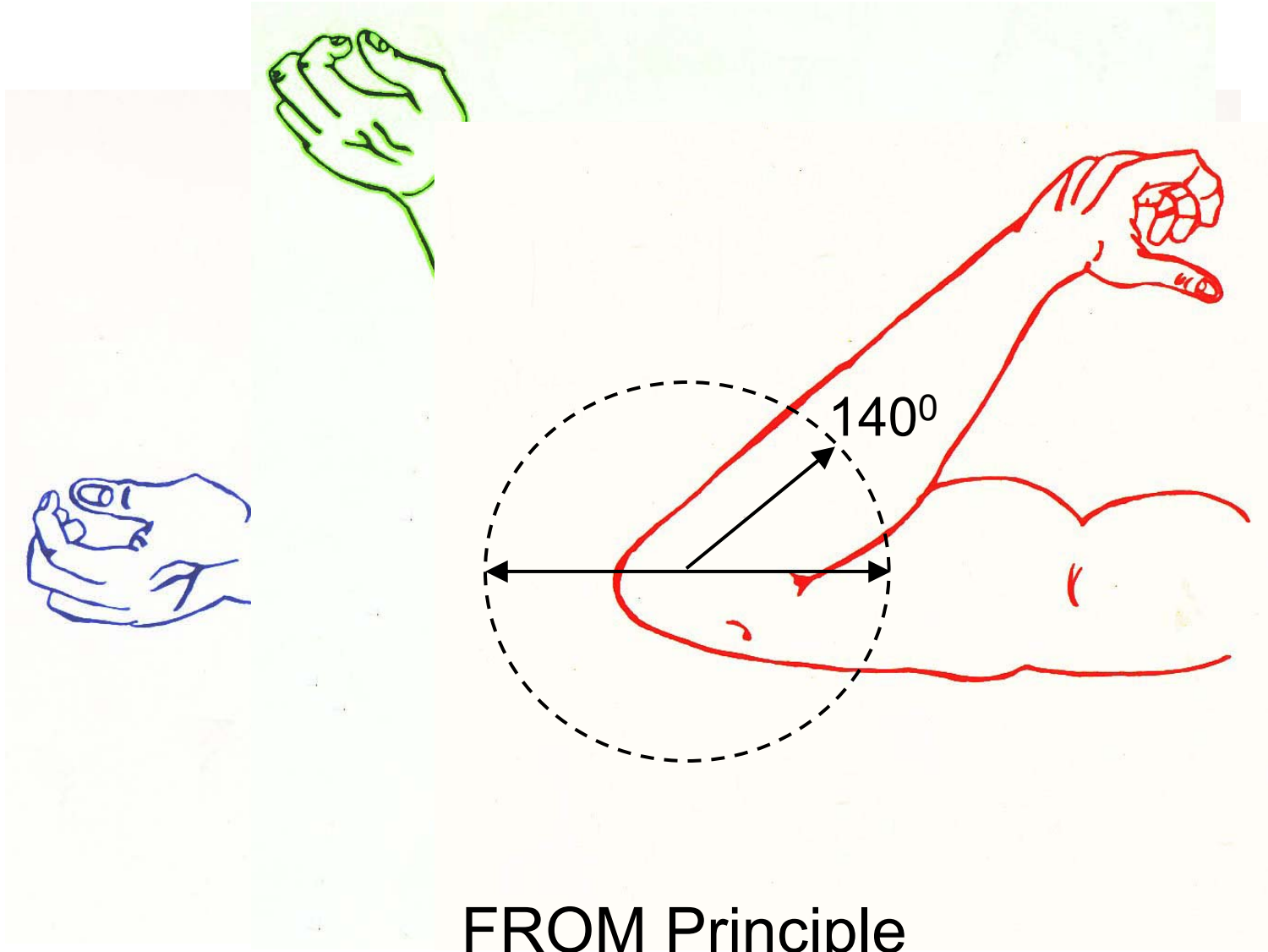


**AMERICAN COLLEGE  
of SPORTS MEDICINE**  
LEADING THE WAY



**ACSM**  
**CERTIFIED**  
**PERSONAL TRAINER<sup>SM</sup>**





FROM Principle

# Agonistic - Antagonistic?

Push - Pull

Prime Move(r) - Resist(er)

Promotes - Opposes

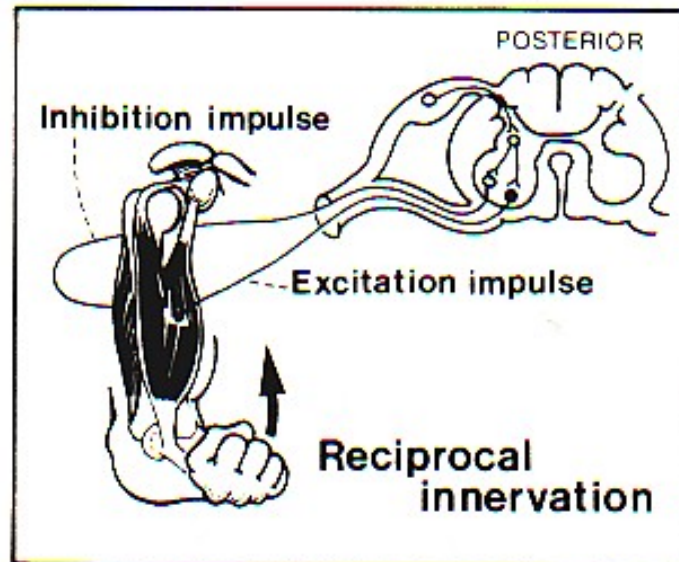
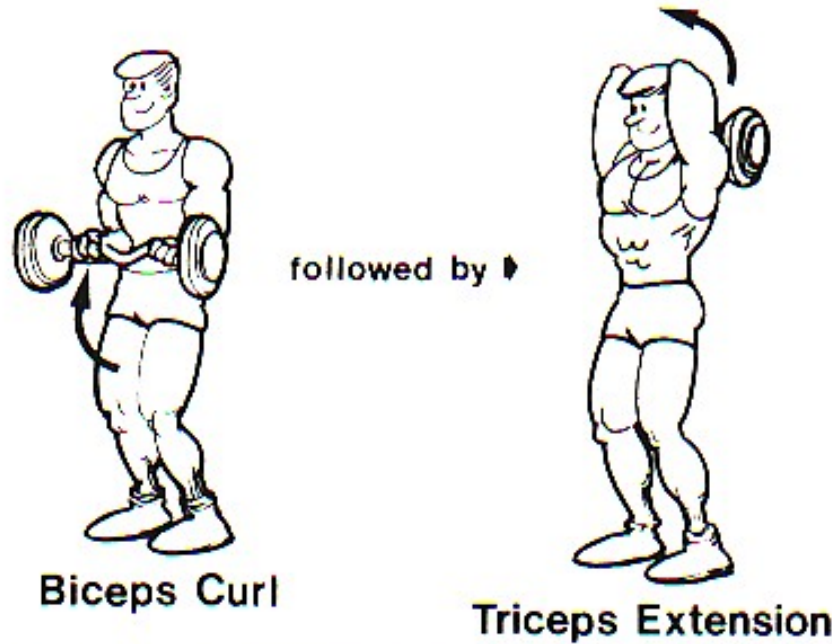
WT Exercise eg?

Bench press? - Bent-over row

Biceps curl? - Triceps extension

Leg extension? - Leg curl

# *Within Same Workout – Superset to Save Time!*



**NB: Antagonistic relaxes while agonistic works.**

**Table H.1** Sample Exercises for Major-Minor, Agonistic-Antagonistic, and Superior-Inferior Programs

<b>Program Type</b>	<b>Muscular Regions</b>	<b>Sample Exercises</b>
Major-Minor (M-M) <sup>a</sup>	Chest and lower extremity	Bench press and accessory chest; squat and accessory thigh and leg exercises.
	Back, shoulder, and arm	Lat pull, military press, biceps curl, triceps extension, and accessory SJA exercises <sup>d</sup>
Agonistic-Antagonistic (A-A) <sup>b</sup>	Chest, shoulder, and triceps	Bench press and accessory chest; military press, triceps extension, and accessory SJA exercises
	Lower extremity, back, and biceps	Squat and accessory thigh and leg exercises; lat pull and accessory back exercises
Superior-Inferior (S-I) <sup>c</sup>	Chest, shoulder, back, and arm	Bench press and accessory chest; military press, lat pull, biceps curl, triceps extension, and accessory SJA exercises
	Lower extremity	Squat and accessory thigh and leg exercises

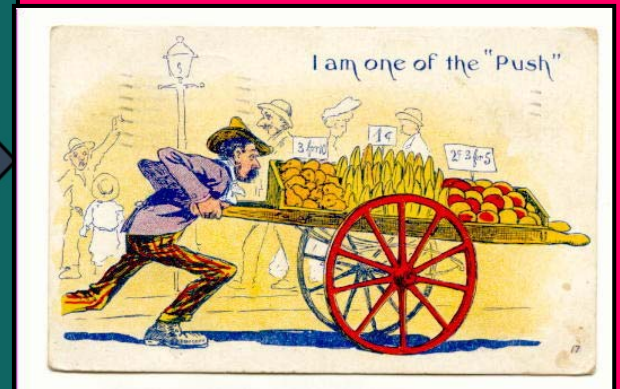
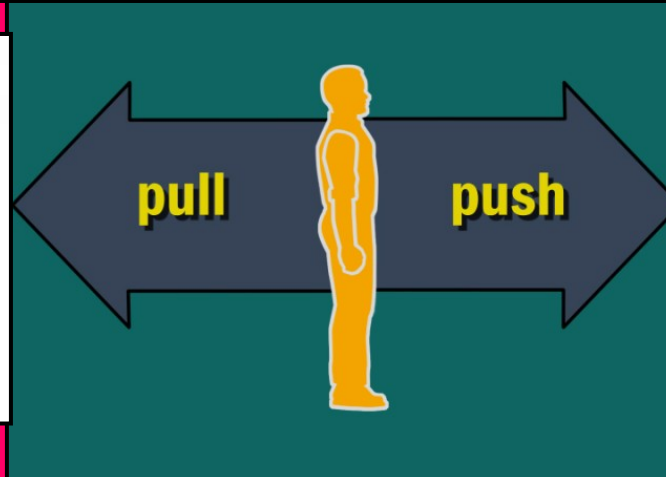
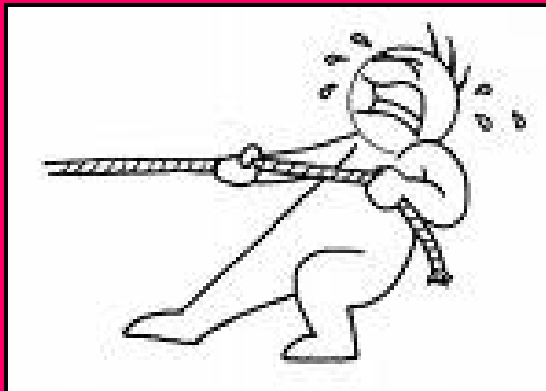
**NB: Some bodybuilding routines push-pull over separate days.**



**NB: Always complement**



**Push with Pull to  
ensure balance!!!**



# Discussion

+ Q?