

# 7.2

## Bone Diseases

### Scoliosis

Side to side curvature of the Spine

Treated with surgery, brace, or electrical stimulation

<http://en.wikipedia.org/wiki/Scoliosis>

# Osteoporosis

Reduction in mass and density  
of bones tissue

## Symptoms

Hunchback

fractures

## Risk Factors

Family History

Small Body size

Woman

Early menopause

Low calcium in diet

Sedentary lifestyle

Smoking

Alcohol Use

## Rickets

Not enough Vitamin D

The body cannot absorb calcium

Treatment is Vitamin D  
supplements

<http://en.wikipedia.org/wiki/Image:XrayRicketsLegssmall.jpg>

## Joint Diseases

### Osteoarthritis

Aging of bone by rubbing together

This is caused by great amount of  
use of a joint.

## Rheumatoid arthritis

Autoimmune disease in which the joint tissue is attacked

As the cartilage goes the bones sometimes fuse

No cure, but physical therapy and aspirin can help.

## 7.3

### Skeletal Motion

Name a machine and all its working parts.

The body has ~~levelers~~<sup>levers</sup>. These give the body a mechanical advantage.

Mechanical Advantage is the number of times a machine multimes the effort force.

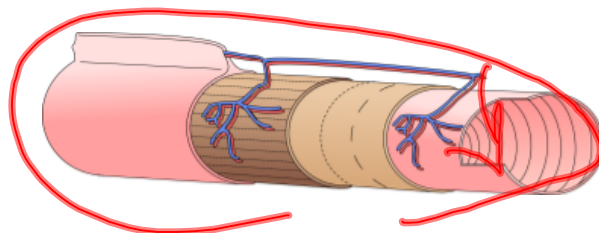
This means the mechanical advantage of your arm is greater than that mechanical advantage of your finger.

## Three types of muscle

Smooth muscle- found in Stomach muscles and intestines.

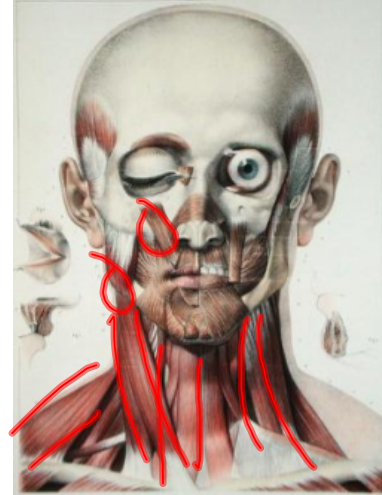
You can not directly control it.

[http://en.wikipedia.org/wiki/Image:Glatte\\_Muskelzellen.jpg](http://en.wikipedia.org/wiki/Image:Glatte_Muskelzellen.jpg)



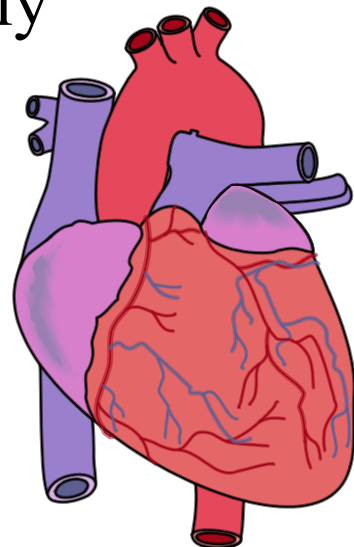
Skeletal Muscle- muscles that move bones. You decide if you want to Contract or relax these muscles.

Tendons keep skeletal muscles attached to bone. Tendons are made of strong bands of elastic tissue.



Cardiac Muscles- walls of the heart are made of cardiac muscle.

You can NOT voluntarily control these muscles.



## Muscle Action

Muscles are made up of bundles of long string like structures called fibers. These can contract. When they contract, they shorten. The shortening of the muscles pulls the bone.

Glucose is a muscles main fuel.

Muscles work together in pairs. Muscles can only pull bones (never push)

When you exercise the size of the muscles fibers increase and thus increases in strength.

Muscle tone- refers to the readiness of your muscles to contract.

They are usually slightly contracted and ready when you need them.

They relax and contract regularly to maintain tone.

To take one step actually requires over 200 muscles from shoulder to toes.