

Sex Determination

by Armbone

Dimensions





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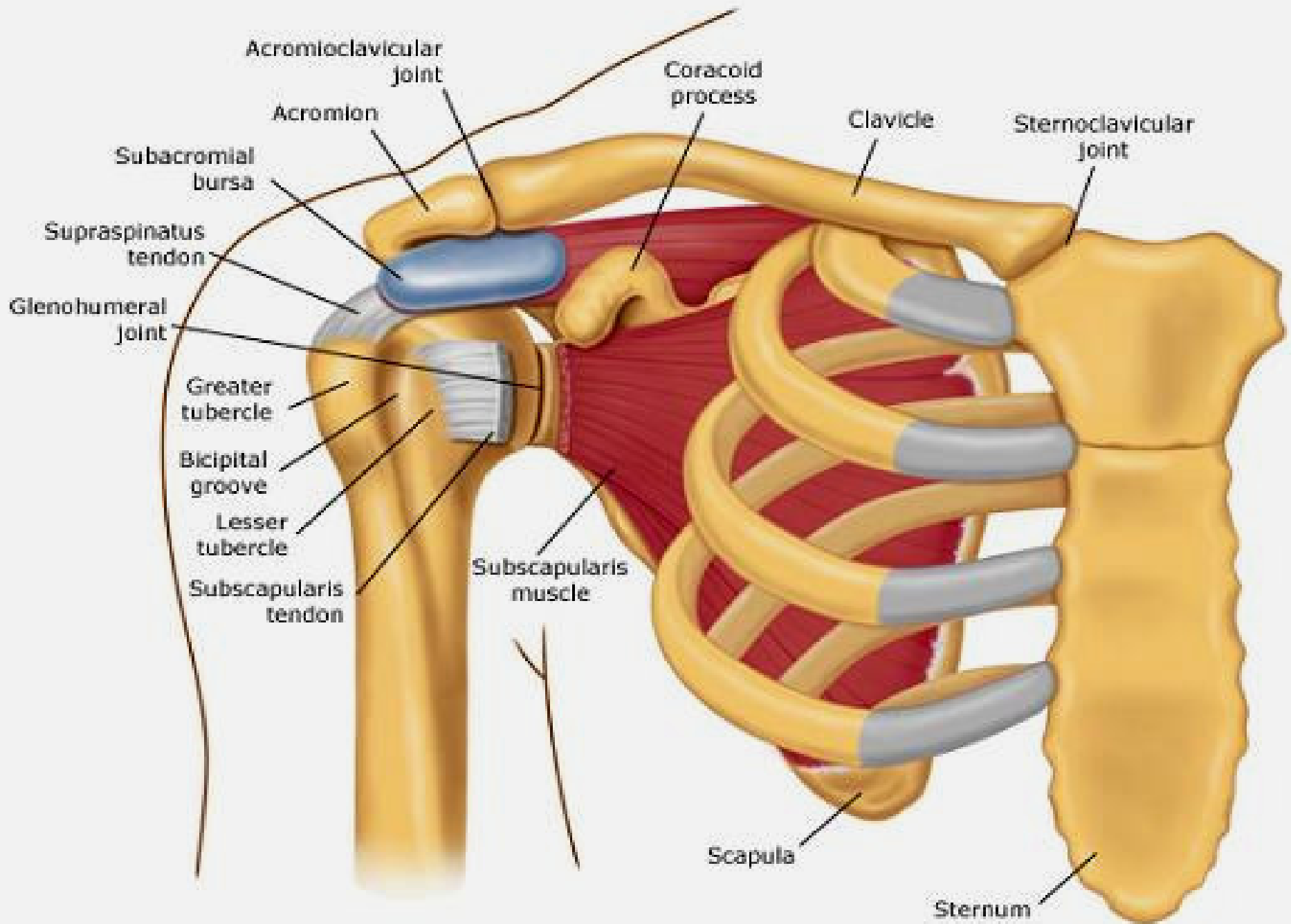
B.Sc. (Physical Therapy)

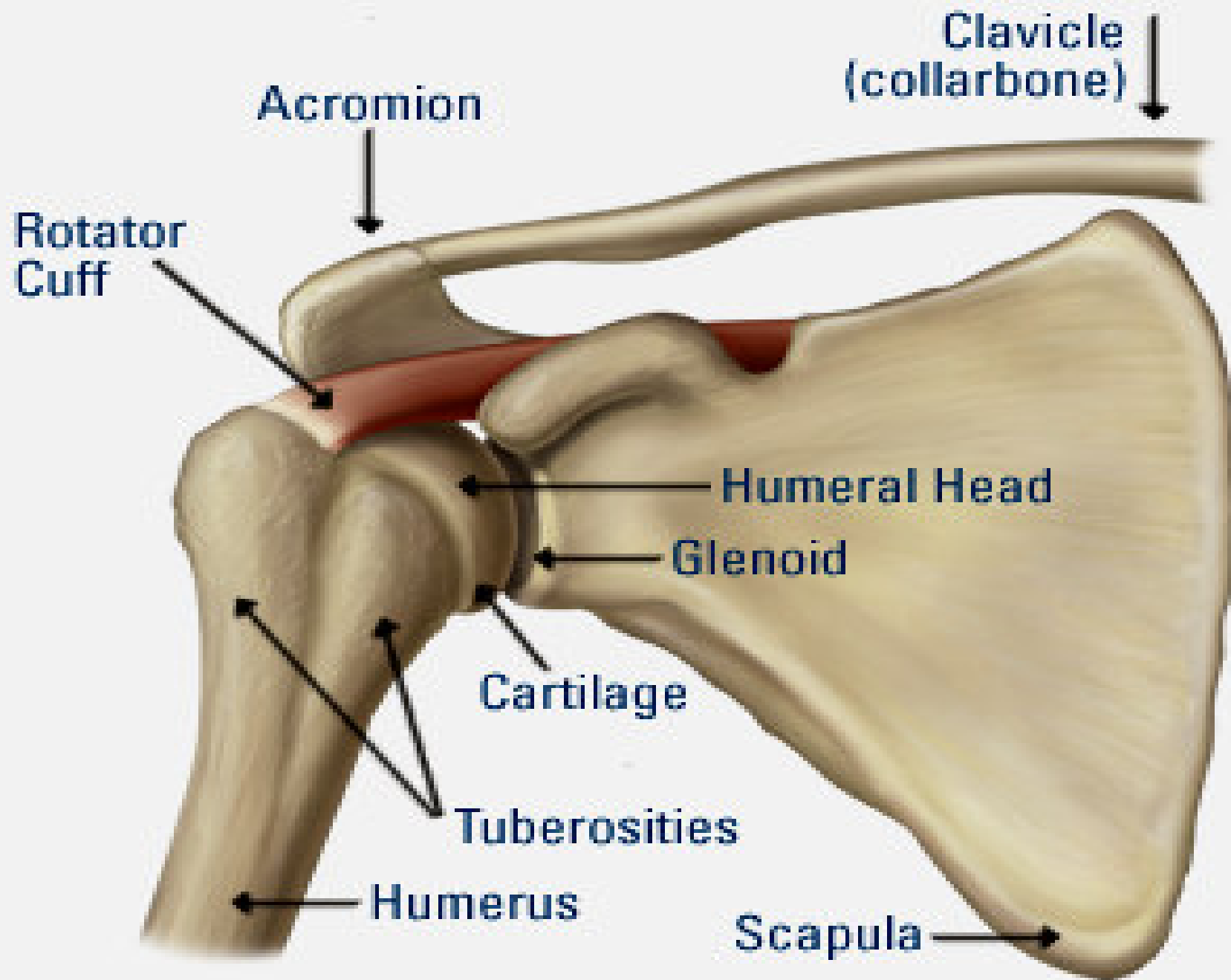
Huachiew Chalermprakiet University



Anatomy of The Shoulder ,Hand & Wrist Joint







Clavicle

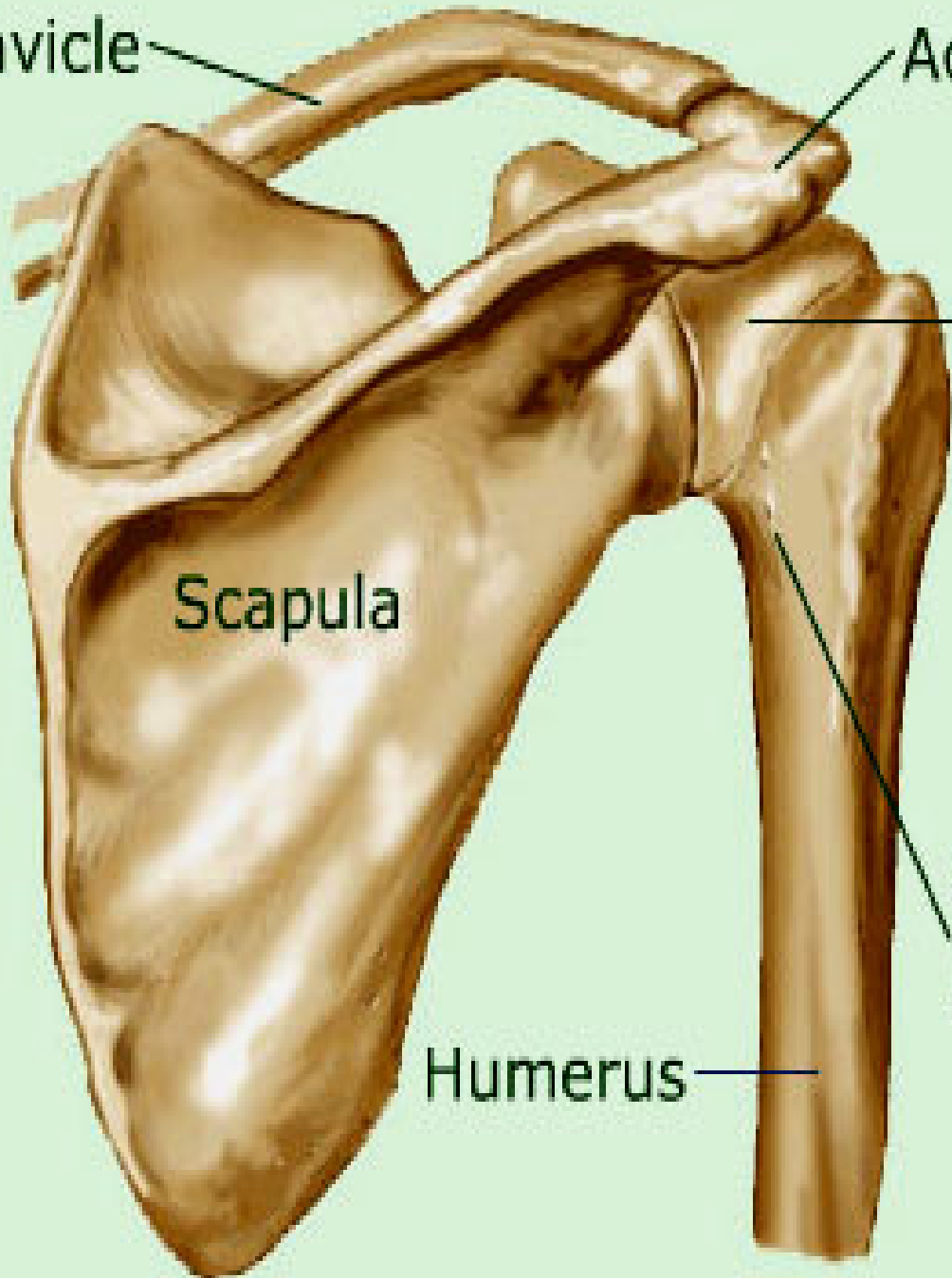
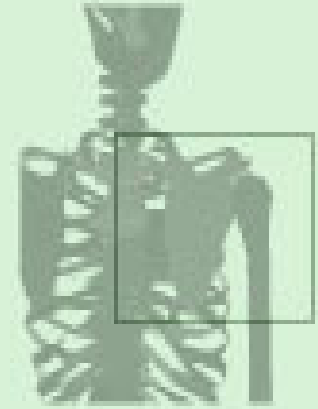
Acromion

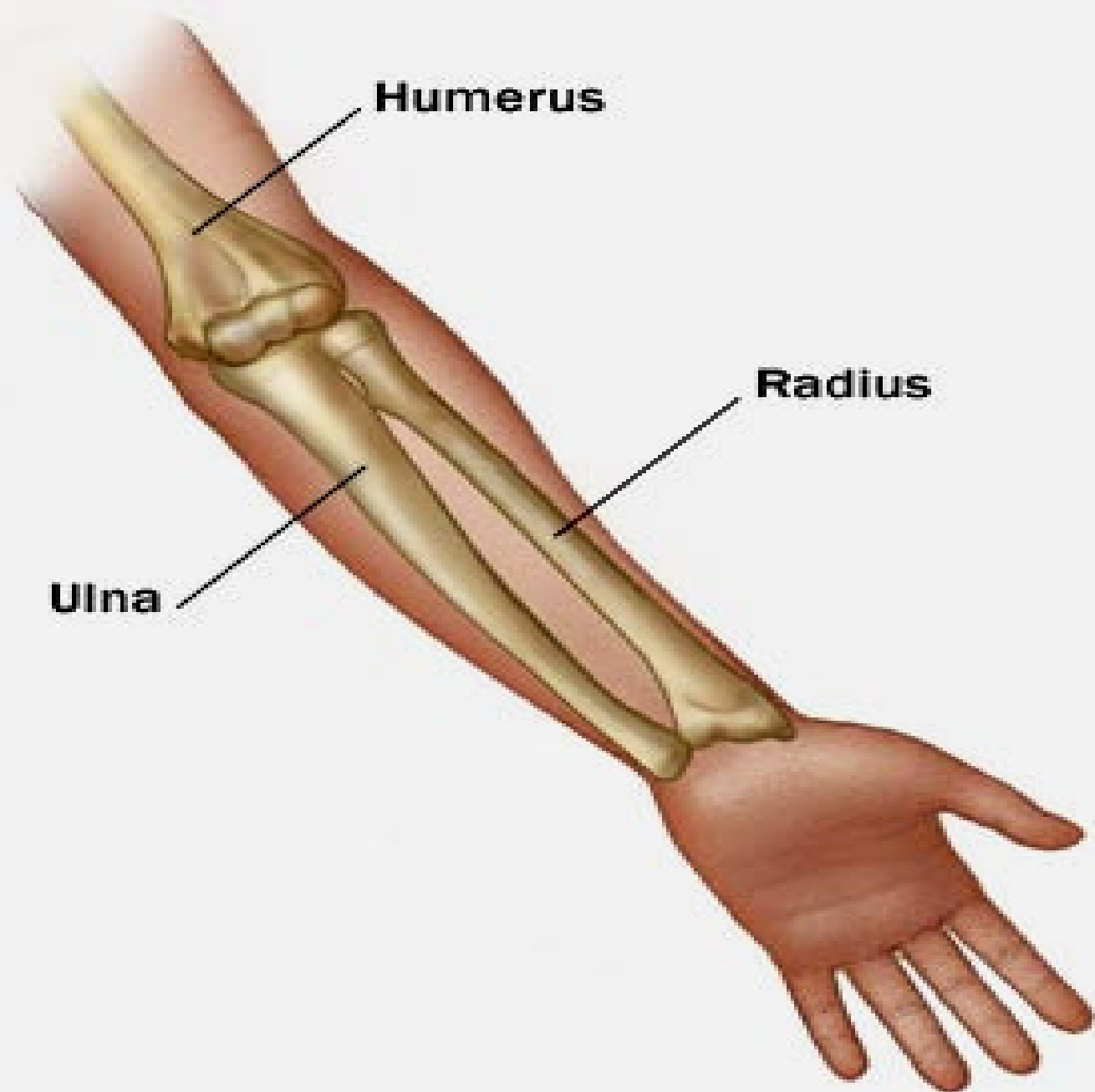
Head
of Humerus

Scapula

Surgical Neck
of Humerus

Humerus

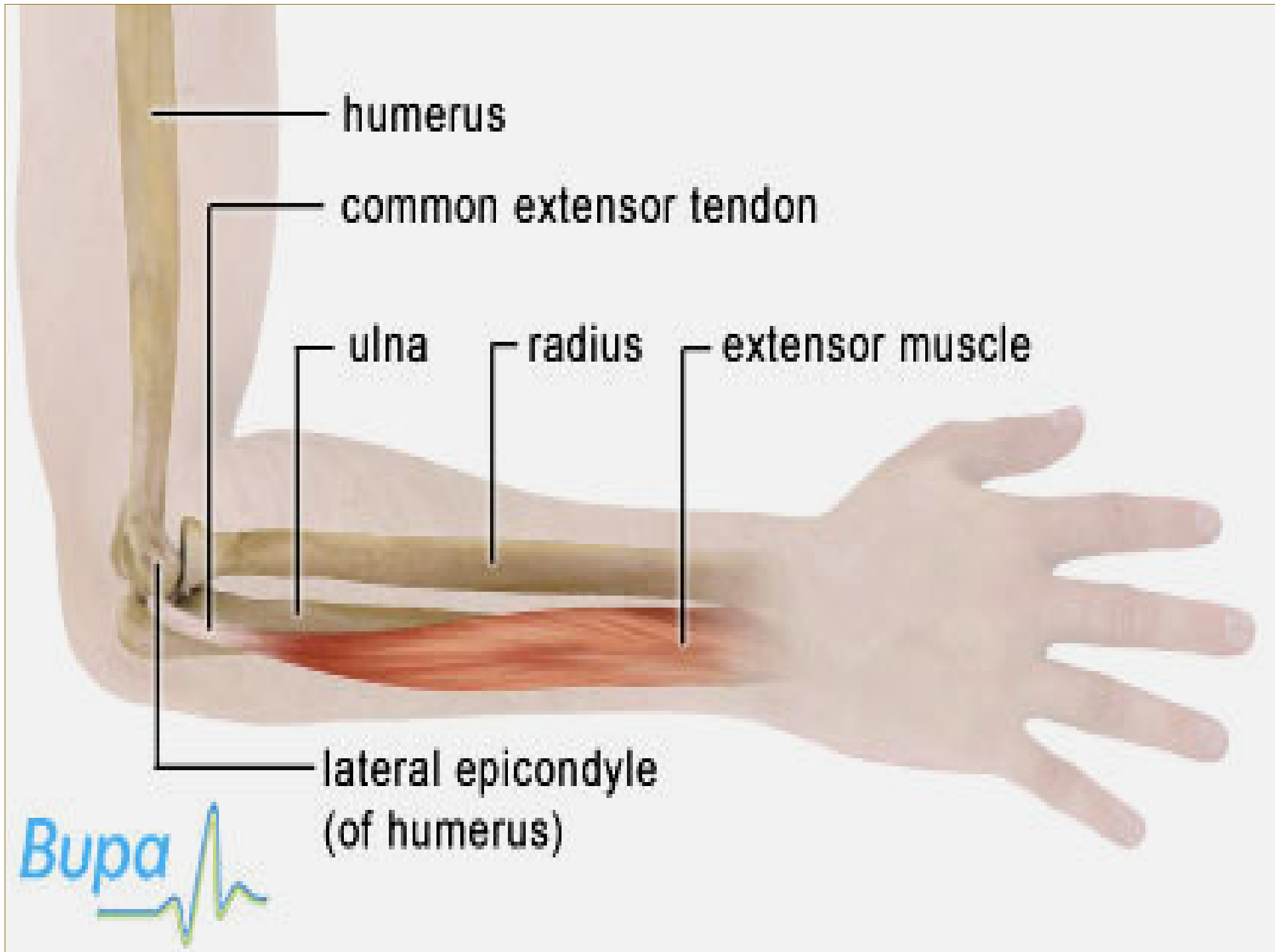




Humerus

Radius

Ulna



MIDDLE
(or long)

INDEX

RING

SMALL

SEGMENTS

Distal phalanx

Middle phalanx

Proximal phalanx

THUMB

Distal phalanx

Proximal phalanx

**RADIAL
BORDER**

CREASES

Distal interphalangeal

Proximal interphalangeal

Palmar digital

Distal palmar

Proximal palmar

Thenar

**ULNAR
BORDER**

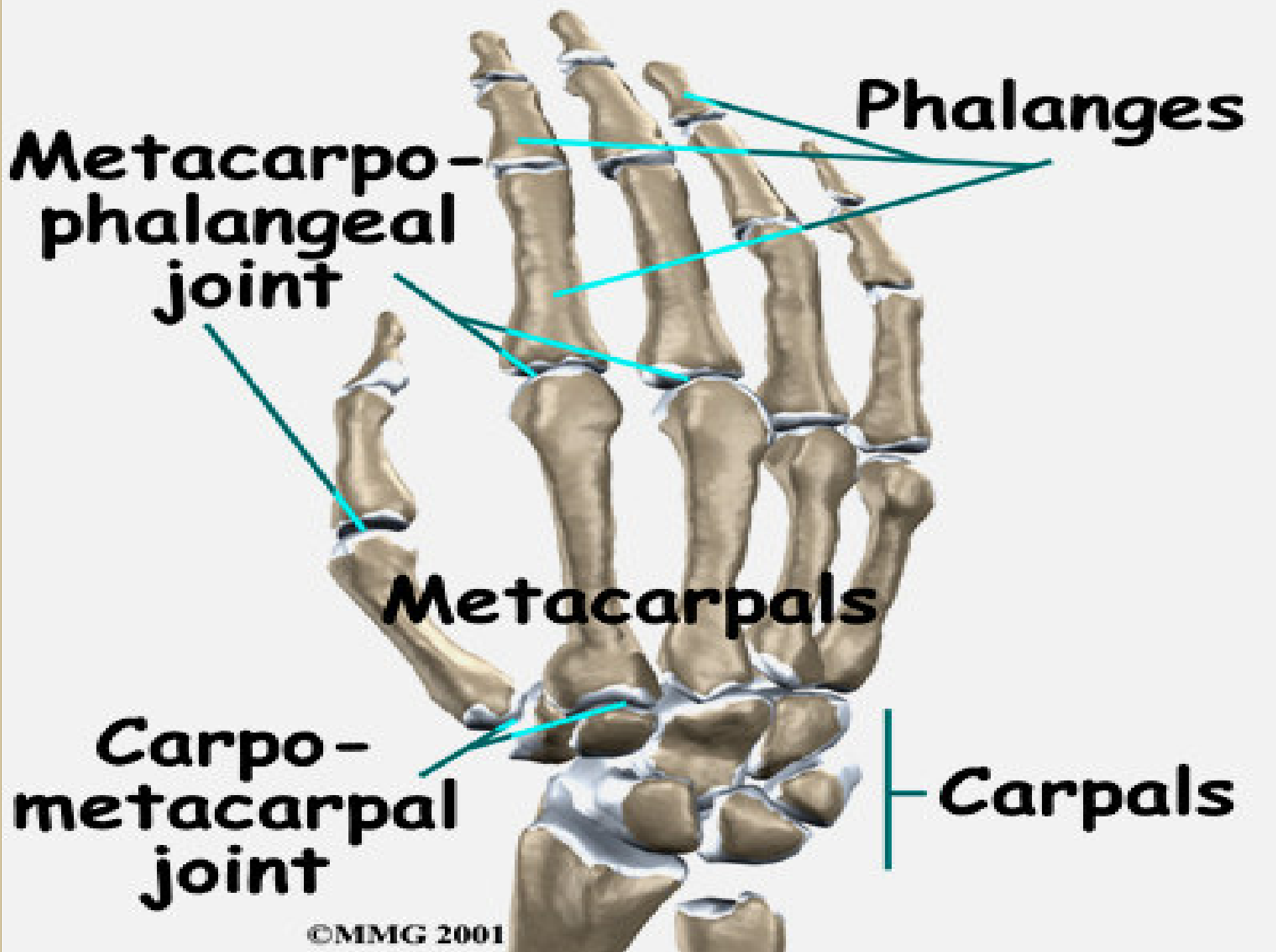
Wrist crease

Hypothenar

Thenar



ASSH



JOINTS.

Distal interphalangeal (DIP)

Proximal interphalangeal (PIP)

Metacarpophalangeal (MCP)

BONES

Interphalangeal

Metacarpophalangeal

Carpometacarpal (basilar joint)

Distal phalanges

Middle phalanges

Proximal phalanges

Metacarpals

Hamate

Pisiform

Triquetrum

Capitate

Lunate

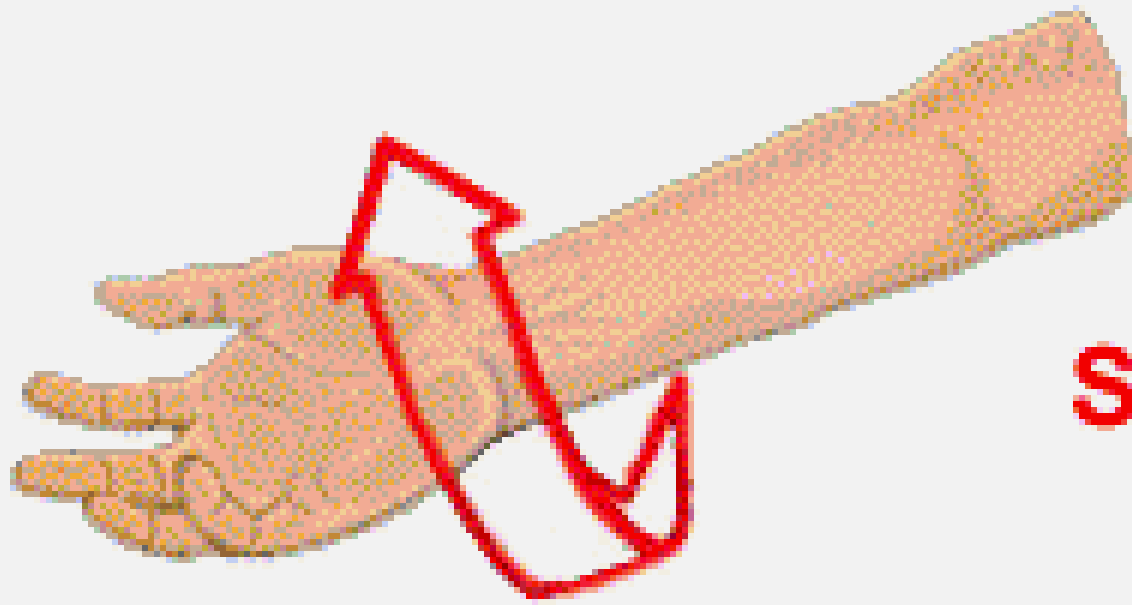
Trapezoid

Trapezium

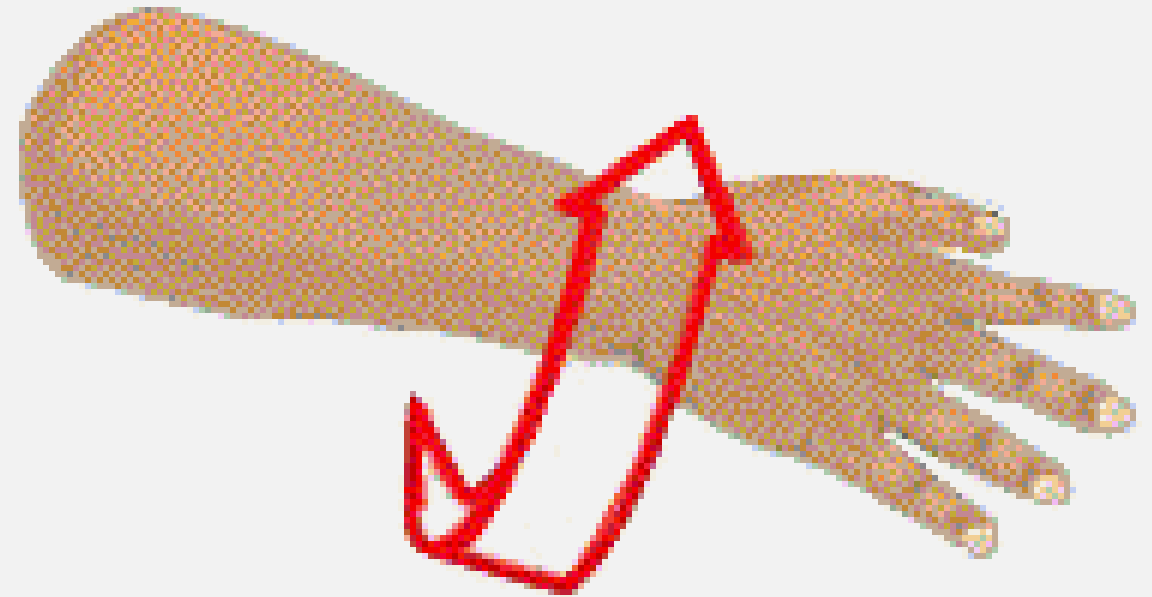
Scaphoid



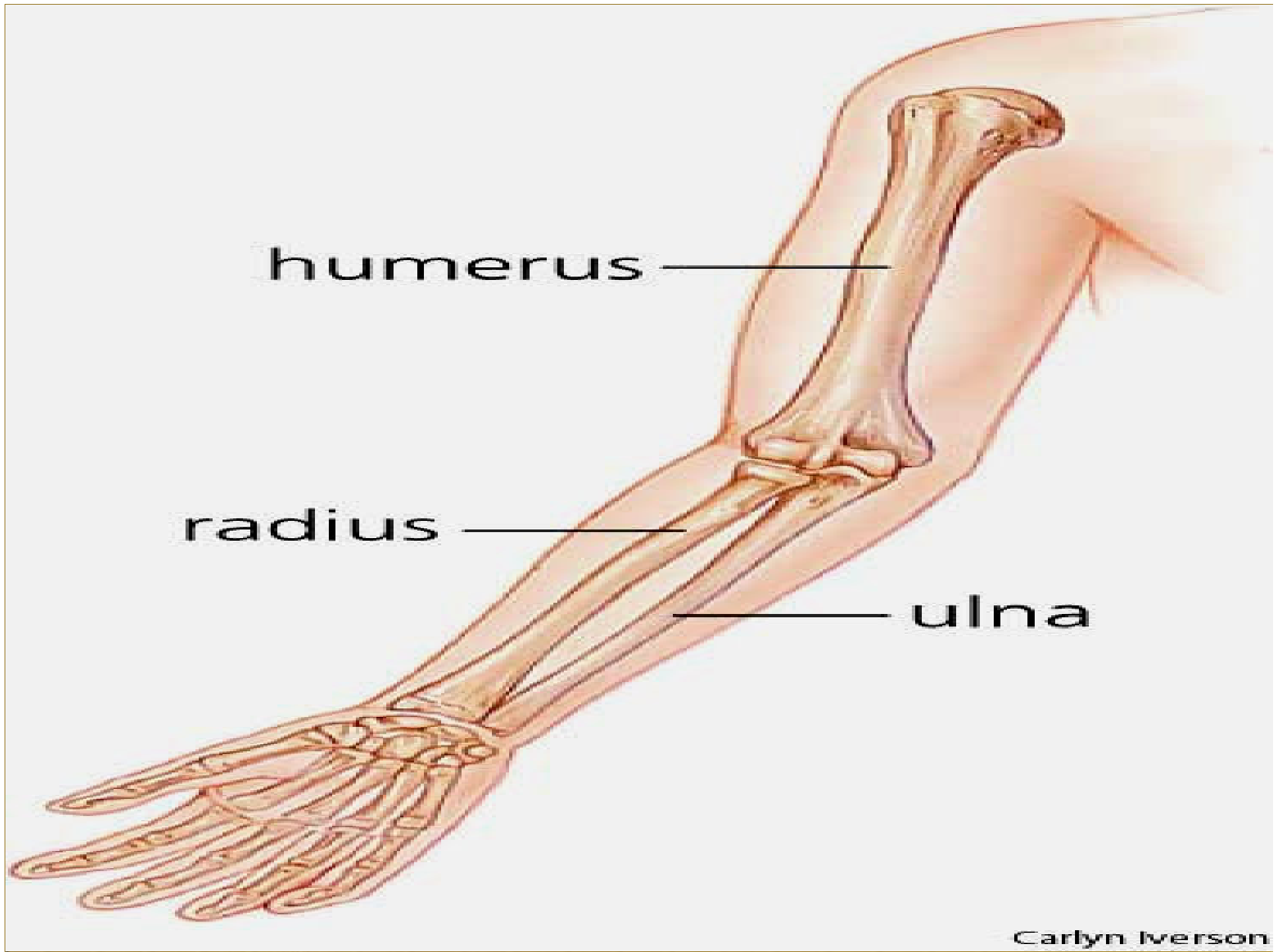
ASSH



Supination



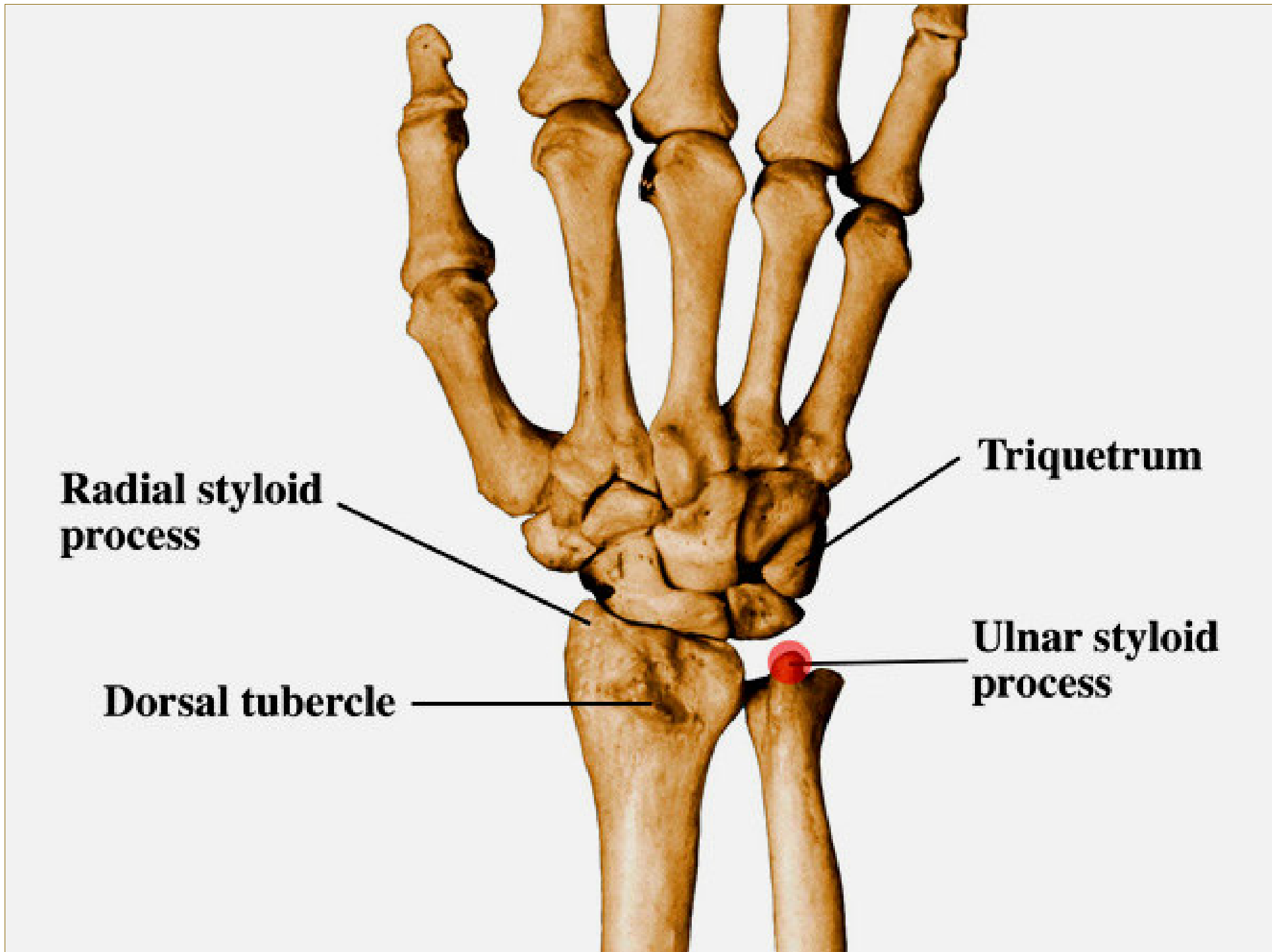
Pronation



humerus

radius

ulna



Radial styloid process

Dorsal tubercle

Triquetrum

Ulnar styloid process

Sex Determination is a vital part of the medico – legal system , Can be difficult in cases where the body is damaged.

The purpose of this study was to develop a technique for sex determination from three armbone dimension



Wrist Circumference

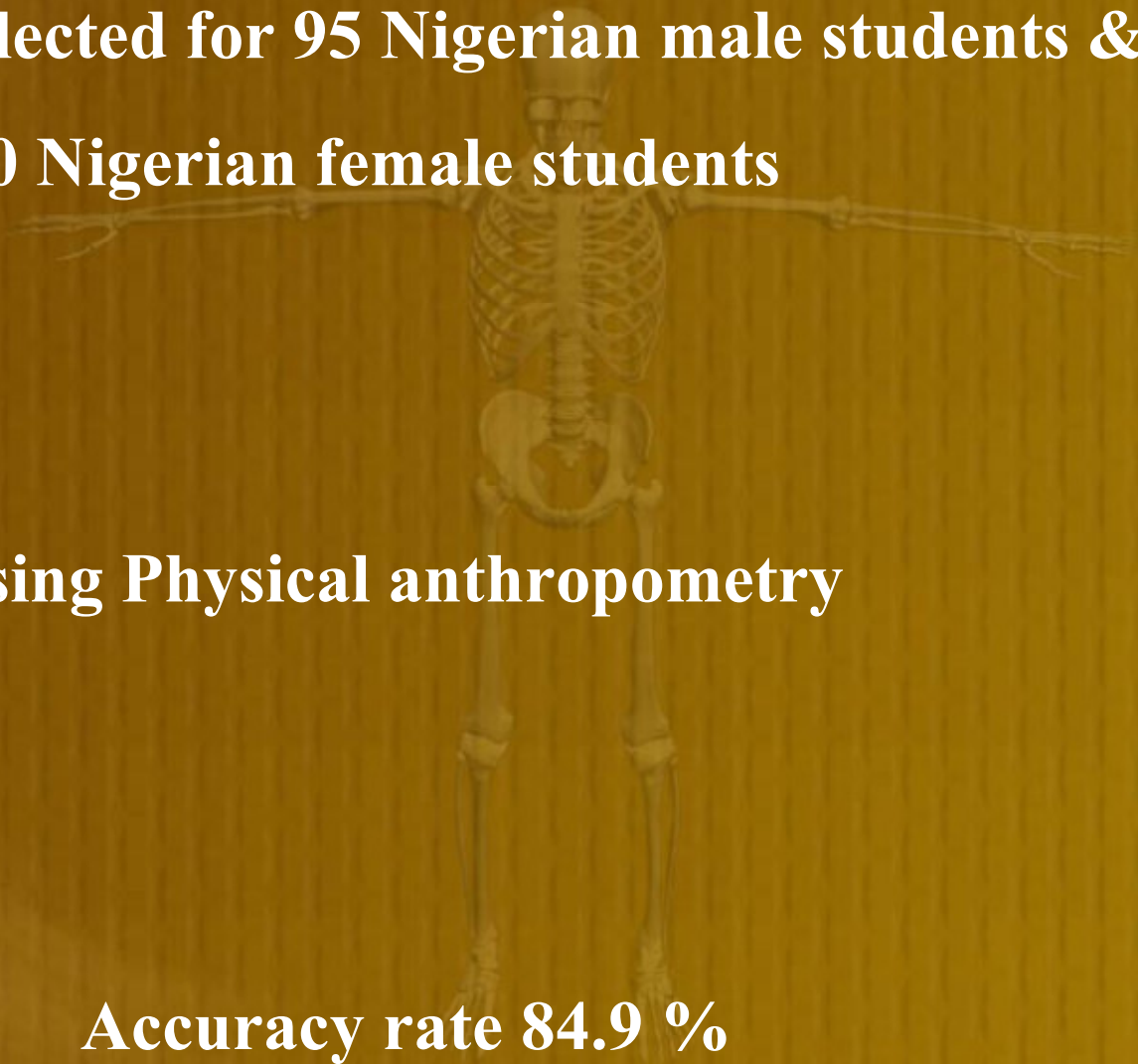
Arm Length

Arm Span

**Data were collected for 95 Nigerian male students &
90 Nigerian female students**

Using Physical anthropometry

Accuracy rate 84.9 %



Material & Methods

The study was conducted in the college of medicine , U. of Maidugury , Borno state , Nigeria , 2004

The subject : 185 physically fit Nigerian students of both sexes (Male = 95 , Female = 90)



Age group of 19-31 yrs. (Males = 21-30 yrs. , Females = 19-28 yrs.)

MacBook

Wrist Circumference



250 x 250



Presented by **60** Jawa Pos

Arm Span

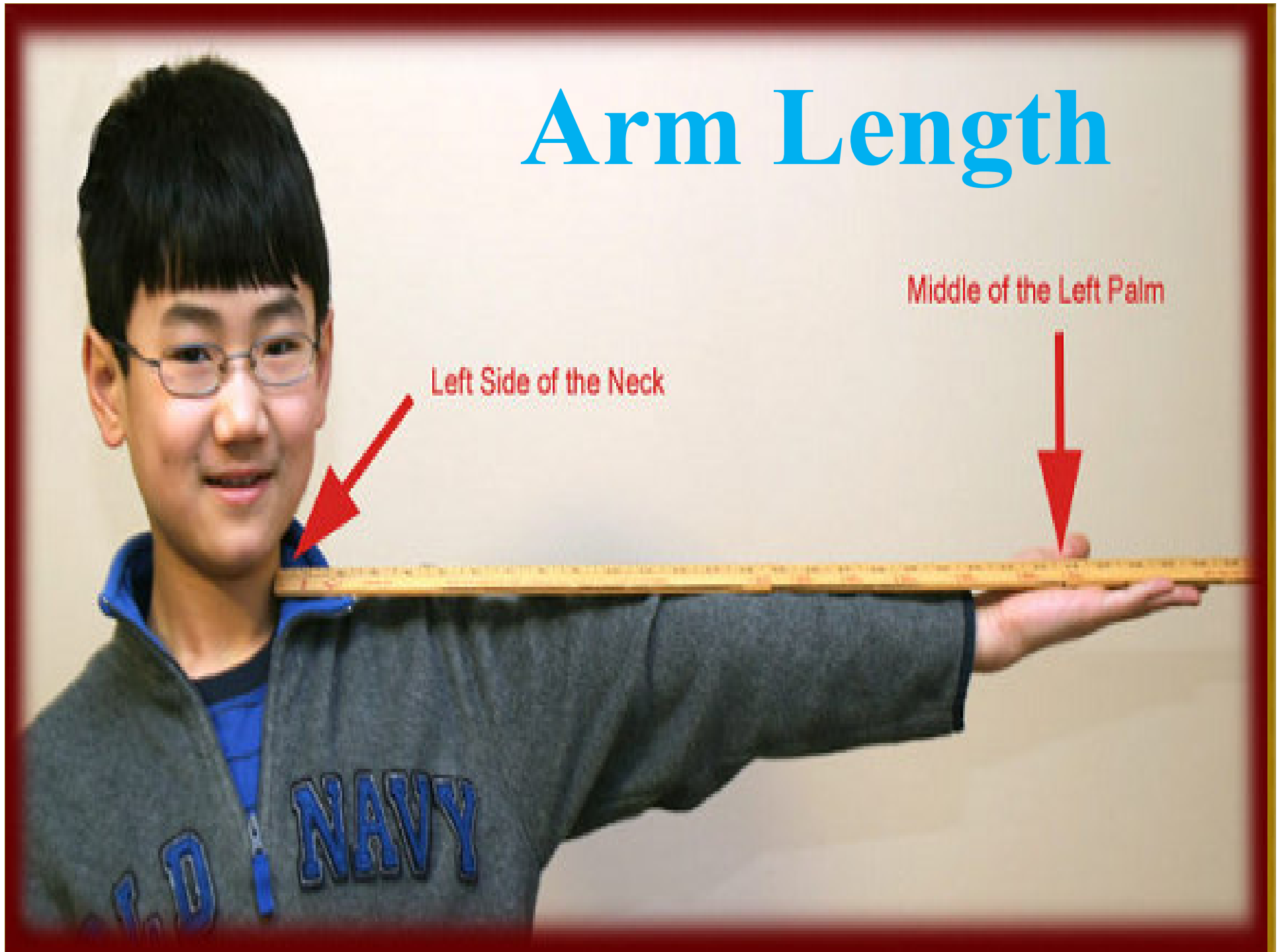


Yao Ming
Houston Rockets

Arm Length

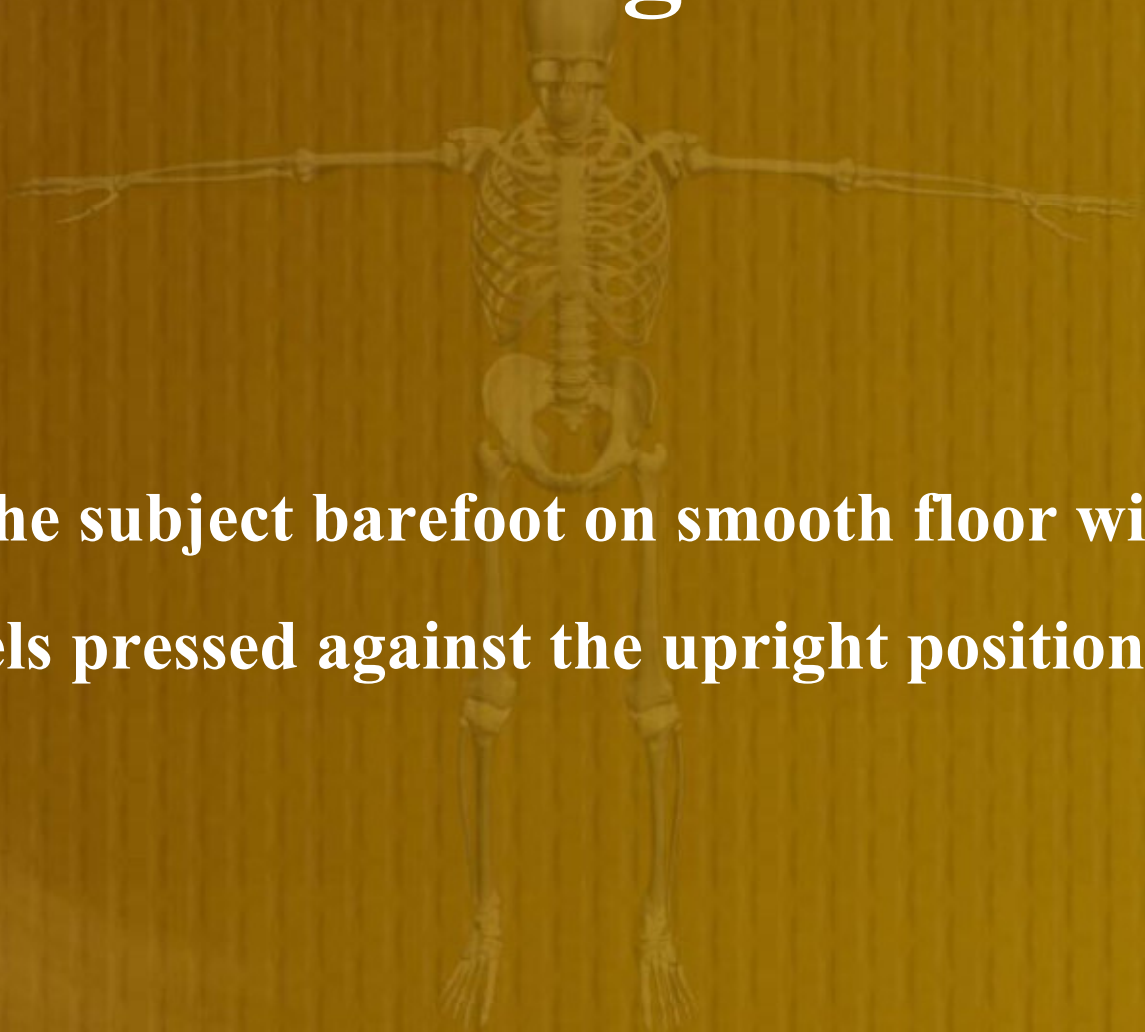
Middle of the Left Palm

Left Side of the Neck



Vertical Height

Measured with the subject barefoot on smooth floor with buttocks and heels pressed against the upright position



Analysis

1. Analytical tool : Statistic Package for Social Science (SPSS)

2. Techniques :

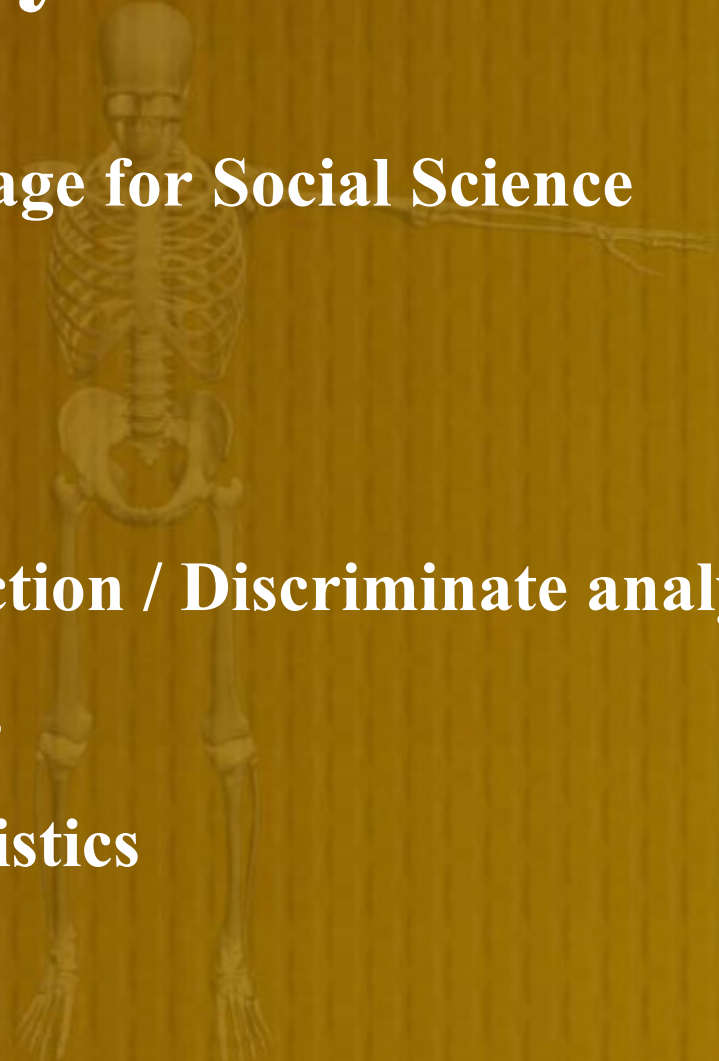
a. Discriminant function / Discriminate analysis

b. Stepwise statistics

c. Classification statistics

d. Regression and

e. Analysis of variance (ANOVA)



Stepwise statistics

Table V.

Discriminant analysis:

stepwise statistics -

variables entered

Step	Entered	Statistic	<i>F</i> statistic	Sig.
1	Achievement motive	0.752	14.86	0.00
2	Obligation disposition	0.672	10.75	0.00

Supergroup	Group	Subgroup
1	1a	1a1, 1a2, 1a3
	1b	1b1, 1b2
	1c	1c1, 1c2, 1c3
2	2a	2a1, 2a2
	2b	2b1, 2b2
3	3a	3a1, 3a2
	3b	3b1, 3b2
	3c	3c1, 3c2
4	4a	4a1, 4a2
	4b	4b1, 4b2, 4b3, 4b4
	4c	4c1, 4c2, 4c3
	4d	4d1, 4d2
5	5a	5a1, 5a2
	5b	5b1, 5b2, 5b3, 5b4
	5c	5c1, 5c2, 5c3
6	6a	6a1, 6a2
	6b	6b1, 6b2, 6b3
	6c	6c1, 6c2
	6d	6d1, 6d2
7	7a	7a1, 7a2, 7a3
	7b	7b1, 7b2

Classification statistics



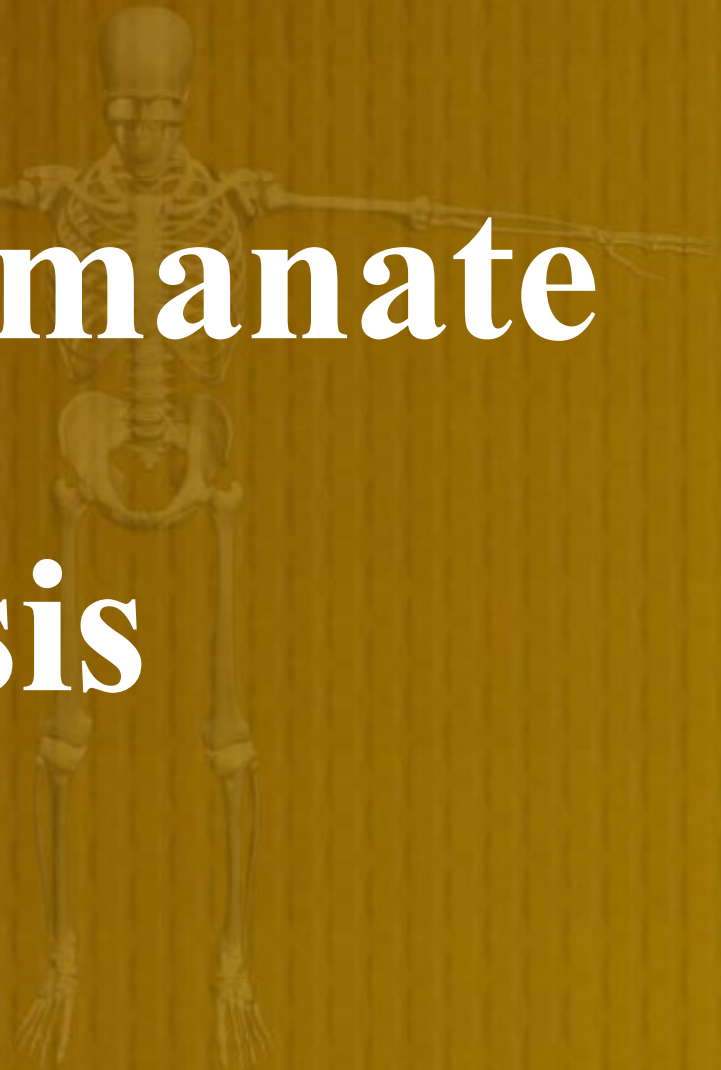
RESULT



Age	Mean	S.D.	F	Sig.
Males	23.48	± 1.79	73.681	0.000
Females	24.53	± 1.26	73.681	0.000

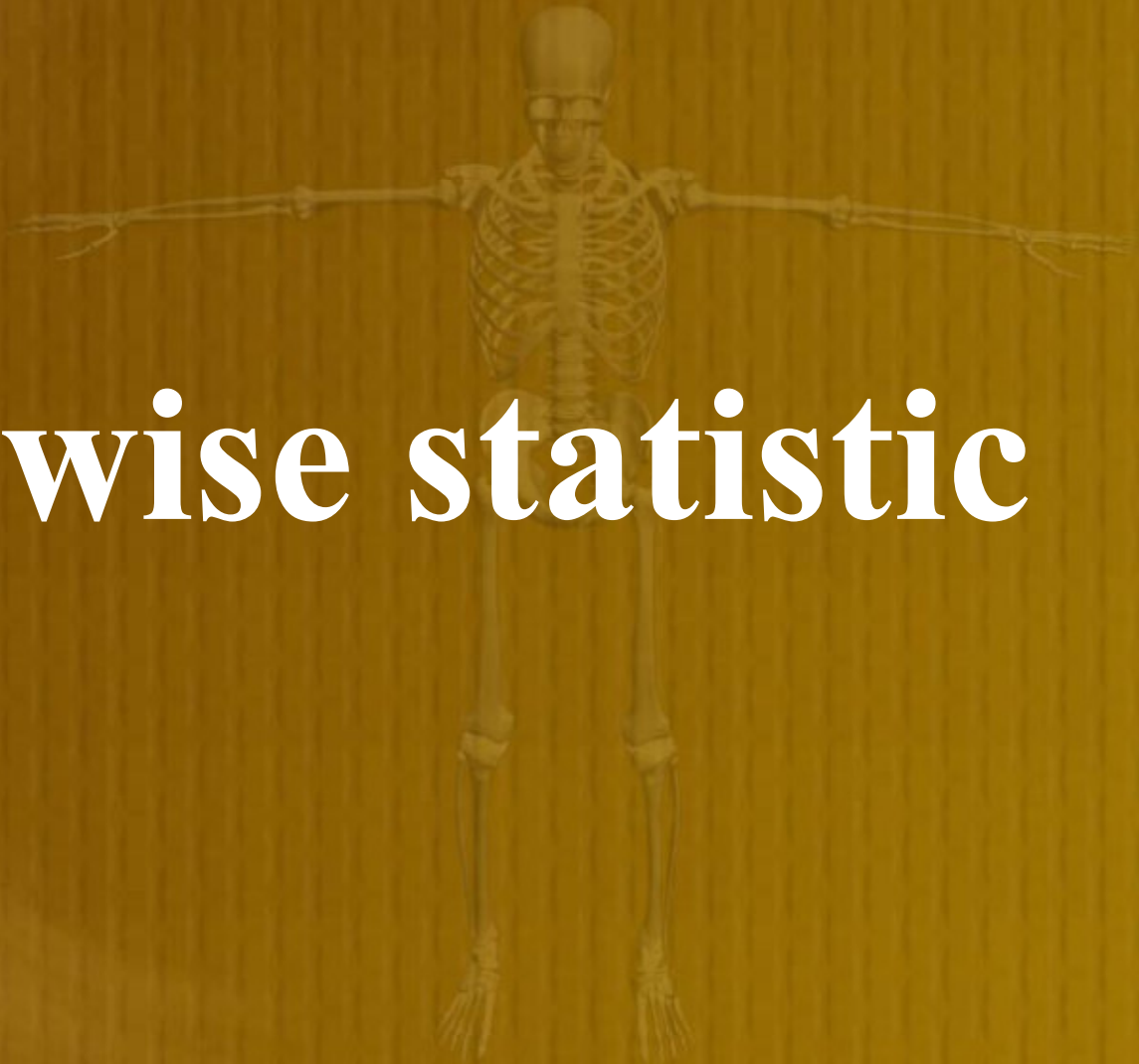
Parameter	Males^a	S.D.^a	Females^b	S.D.^b	F	Sig.
Wrist Circumference	16.17 cm	±0.76	14.72 cm	±0.67	190.446	0.000
Arm Length	81.82 cm	±4.48	76.33 cm	±3.29	89.206	0.000
Arm Span	1.88 m	±0.09	1.74 m	±0.07	122.247	0.000
Height	1.75 m	±0.08	1.64 m	±0.06	130.030	0.000

Discriminate analysis



Total data collected	% eqv. of data	Number valid	Valid (%)	Number invalid	Invalid (%)	No. of valid males^a	No. of valid females^b
187	100	185	98.9	2	1.1	95	90

Stepwise statistic



Step	Entered	Wilk's lambda			
		Statistics	df1	df2	df3
1	Wrist Circumference	.494	1	1	183.000
2	Arm Span	.451	2	1	183.000

Step	Wilk's lambda			
	Statistics	df1	df2	df3
1	187.797	1	183.000	0.000
2	110.758	2	182.000	0.000

Classification

results



Sex		Predicted group membership		Total
		Males	Females	
Original count	Male	77	18	95
	Female	10	81	91
%	Male	81.1	18.9	100.0
	Female	11.1	89.0	100.0
Cross validated count	Male	77	18	95
	Female	10	81	91
%	Male	81.1	18.9	100.0
	Female	11.0	89.0	100.0

Result

Females were sig. smaller than their male counter-part in all three arm-bone dimension

Arm Span can be estimated relationship between wrist circumference and stature



Arm Length multiplied by 2 gives Arm Span

THANK U for Urs.

seminar listen

