SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
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DEPARTMENT OF AGRICULTURAL ENGINEERING

19AGE307-ERGONOMICS OF FARM MACHINERY AND IMPLEMENTS

TOPIC –III ANTHROPOMETRIC DIMENSIONS AND STRENGTH PARAMETERS

ANTHROPOMETRIC DIMENSIONS

- Involve the quantitative assessment of body size, shape, and composition.
- Common measurements include height, weight, limb lengths, circumferences, and skinfold thickness.
- Play a crucial role in various fields such as ergonomics, biomechanics, and design, workspaces.

TYPICAL ANTHROPOMETRIC MEASUREMENTS

a. Height, standing

b. Height, sitting

c. Weight

d. Waist circumference

e. Waist-to-hip ratio

f. Waist-to-height ratio

g. Body Mass Index

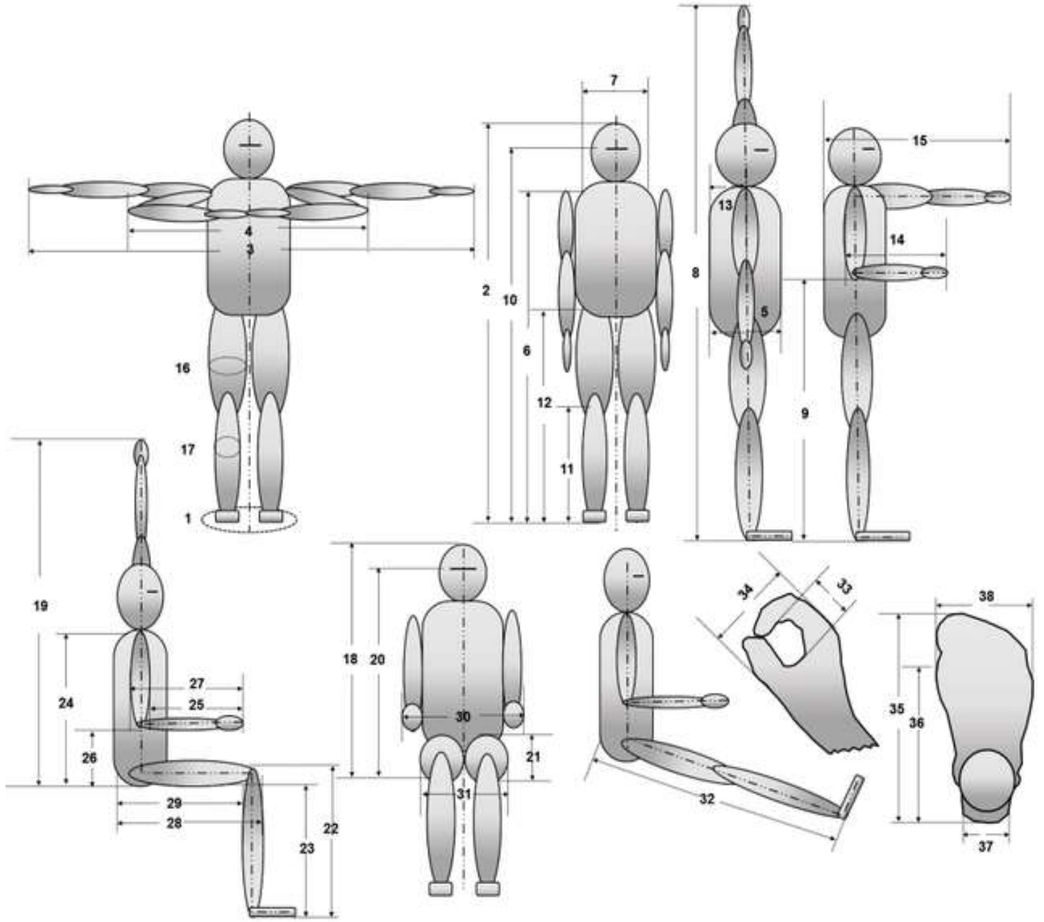
STRENGTH PARAMETERS

- ✓ Define an individual's physical capacity to exert force.
- ✓ Include muscular strength, endurance, power, and flexibility.
- ✓ Key determinant of overall physical capability.

RELATIONSHIP BETWEEN ANTHROPOMETRIC DIMENSIONS AND STRENGTH PARAMETERS

- Anthropometric dimensions and strength parameters is intricate.
- Body composition, influenced by anthropometry, can affect strength-to-weight ratios.
- Anthropometric dimensions influence strength and movement patterns.
- Integral components of human physiology with broad implications for health, design, and athletic performance.

ANTHROPOMETRIC DIMENSIONS



1 Weight, kg
2 Stature
3 Span
4 Span akimbo
5 Abdominal extension to wall
6 Acromial height
7 Biacromial breadth
8 Vertical grip reach
9 Olecranon height
10 Eye height
11 Knee height
12 Trochanteric height
13 Wall to acromion distance
14 Elbow grip length
15 Shoulder grip length
16 Thigh circumference
17 Calf circumference
18 Sitting height
19 Vertical grip reach (sitting)
20 Eye height (Sitting)
21 Thigh clearance height sitting
22 Knee height (sitting)
23 Popliteal height (sitting)
24 Acromion height (Sitting)
25 Coronoid fossa to hand length
26 Elbow rest height
27 Fore arm hand length
28 Buttock knee length
29 Buttock popliteal length
30 Elbow-elbow breadth sitting
31 Hip breadth (sitting)
32 Functional leg length
33 Grip diameter (Inside)
34 Grip diameter (outside)
35 Foot length
36 Instep length
37 Heel breadth
38 Foot breadth

PROCEDURE FOR MEASURING ANTHROPOMETRIC DIMENSIONS

1) Isolate the equipments and prepare the subject.

2) Let the subject stand on the pentagonal platform of anthropometric equipment type A.

3) Measure the height, while standing, and while sitting in accordance with the instruments depicted.

4) Note the dimensions where the equipment type A and then introduce equipment type B. Vice-versa is also possible

5) Record each reading according to specifications

6) Put the subject into the anthropometric seat and take the dimensions as per the diagram.

7) Repeat similarly to different number of subjects

ANTHROPOMETRY DIMENSIONS

Fig. 10.1 Equipments used for anthropometric measurements.

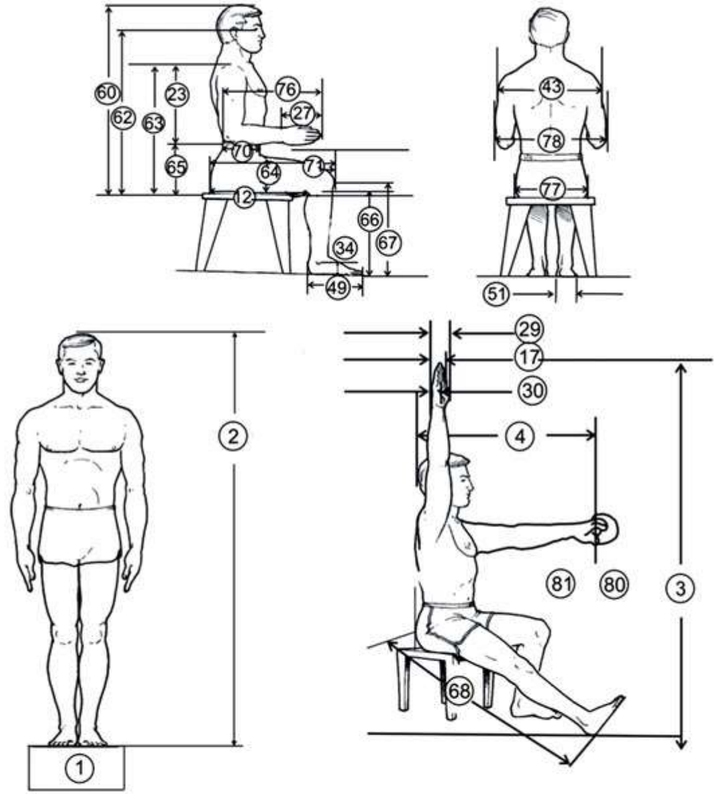


Fig.10.10 Measurement of Major Anthropometry Dimensions

(Legend as mentioned in Table.10.1)

ANTHROPOMETRY DIMENSIONS

Fig. 10.2 Eye height

Fig.10.3 Olecranon

Fig. 10.4 Biacromial breadth

Fig. 10.5 Vertical grip reach

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Thank You