SOMATOTYPES of WEIGHTLIFTERS

A Parameter for SELECTION of TALENTED WEIGHTLIFTERS

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Defining TALENT

- special ability that allows someone to do something well
- a person or group of people with a special ability to do something well
- a special natural ability or aptitude:
- a capacity for achievement or success; ability
- Potential for success, to become an elite performer
- The ability in one skill above the average
- Talent originates in genetic structures and is therefore largely innate
It has been said that
talent identification is like looking for
a black cat in a dark room!
Generally, young successful athletes (11-17 years) tend to have a somatotype similar to those of adult athletes in their respective sports.

SOMATOTYPE

- human body shape and physique type
Cureton, Tanner ve Carter investigated somatotypes of athletes for different sports.
Knowledge of technique’s mechanism could say who has advantage according to the anthropometrical characteristics or somatotype.
If we are talking about technique or mechanism, we have to count special anthropometric model/s.
SOMATOTYPES (Credit: Encyclopedia Britannica, Inc.)

Human body shape and physique type. The term somatotype is used in the system of classification of human physical types developed by U.S. psychologist W.H. Sheldon.
In Sheldon’s system, human beings can be classified as to body build in terms of three extreme body types:

**Endomorphic**, or round, fat type;

**Mesomorphic**, or muscular type;

**Ectomorphic**, or slim, linear type.
**Endomorphs** have a soft, curvy and round physique and display the opposite characteristics from ectomorphs. They have a sluggish metabolism, gain weight easily and have to work hard to lose body fat. Endomorphs often have a larger frame and tend to have wider hips than shoulders, creating a pear-shaped physique. Some of the sexiest and most beautiful singers and actresses are endomorphs. Similarly, many of the actors and action heroes on the silver screen are endomorphs.
ENDOMORPH CHARACTERISTICS

- Smooth, round body
- Medium/ large joints/ bones
- Small shoulders
- Short limbs
- High levels of body fat (may be overweight)
- Body fat tends to settle in lower regions of body, mainly lower abdomen, butt, hips, and thighs (rather than being distributed evenly throughout body)
- Pear-shaped physique
- Can gain muscle easily, but tends to be underdeveloped
- Difficult to keep lost body fat off
- Lose weight slowly
- Have to work hard to lose weight
- Slow metabolic rate
- Attacks of tiredness/ fatigue
- Fall asleep easily
Mesomorphs could be thought of as the “genetically gifted”. They are characterized by an athletic, strong, compact and naturally lean body. They have excellent posture. Often, their shoulders are wider than their hips and women tend to have an hourglass figure. Mesomorphs are natural born athletes and tend to be lean and muscular without trying. They generally are described as being of “medium” build. The world’s leading tennis players, figure skaters and weightlifters fall into this group.
MESOMORPH CHARACTERISTICS

- Naturally lean
- Naturally muscular
- Naturally strong
- Medium size joints/ bones
- Wider at the shoulders than the hips - i.e. chest dominates over abdominal area
- Broad/ square shoulders
- Female mesomorph: defined hourglass figure
- Male mesomorph: V or rectangular shape
- Efficient metabolism
- Gaining muscle is almost effortless
- Losing fat is almost effortless
- Responds quickly to exercise
An ectomorph has the body type that is most often seen in the pages of fashion magazines. They are slim boned, long limbed, lithe and have very little body fat and little muscle. Ectomorphs tend to have fragile, delicately built bodies and find it difficult to gain weight or add muscle. Supermodels, ballerinas and some basketball players most commonly fall into this group.
ECTOMORPH CHARACTERISTICS:

- Skinny
- Small joints/ boned
- Long arms and legs
- Linear physique - “ruler body shape”
- Small shoulders
- Lightly muscled
- Small chest and buttocks
- Low body fat (without exercising or following low calorie diets)
- Can eat anything they like without weight gain
- Fast and efficient metabolism
- Difficulty gaining weight
- Hyperactive
- Difficulty in gaining muscle mass
Measuring Somatotype

Somatotype is most commonly measured using the Heath-Carter measurement system, in which ratings for endomorphy, mesomorphy and ectomorphy are calculated using various anthropometrical measurements and also sometimes in conjunction with standardized photos (photoscopic method).

In each of the three categories someone is generally classified on a scale from 1 to 7 (though higher ratings are possible), though you cannot score highly on all three. The three numbers together give a somatotype number, with the endomorphy score first, then mesomorphy and finally ectomorphy (e.g. 1-5-2). The scores may also be plotted in a shield diagram or somatograph, representing the somatotype on a two dimensional scale.
SOMATOTYPE AND SPORT

- Weight lifters
- Weight throwers
- Wrestlers
- Water poloists

Reference

- Gymnasts
- Boxers
- Canoeists
- Modern Pentathlon
- Rowers
- Divers
- Cyclists
- Sprinters
- Swimmers

Distance runners
Basketball players
Most of these somatotypes are placed in a relative position to each other. They are all actually a higher tier on a tetrahedron shaped structure. It is flattened to simplify the spatial challenge of visualizing a three dimensional object.
The names with red numbers next to them are somatotypes that are in a relative position to show proximity to similar temperaments. The red numbers are the actual somatotypes which really can't be located on this two-dimensional chart. On a three-dimensional chart they would be on a higher tier close to the top of a tetrahedron.
Somatotypes of 106 male athletes
Position of Weightlifters on somotograph from different races (Tanner 1964)

Sekil 3'de ise Tanner (1964) tarafından bildirilen farklı ırklara mensup haltercilerinin somatokarttaki görünümüleri sunulmuştur.

- Average White
- White
- X Black
- ▲ Asian
Rome 1960
Mexico 1968
Montreal 1976

Şekil 9:

a: Roma, Meksiko ve Montreal olimpiyatlarına katılan haltercilerin somatokart üzerindeki görünümleri
b: Türk Milli Haltercilerinin somatokart üzerindeki görünümleri
c: Elit Türk haltercilerin somatokart üzerindeki görünümleri
SOMATOTYPE ASSESSMENT

- Photoscopic
- Anthropometric*
  - somatotype rating form
  - computer-calculated
- Combined
  - the criterion measure
- Stadiometer
- Weighing scale
- Bone caliper
- Skin caliper
- Anthropometric tape
SOMATOTYPE CALCULATION

Endomorphy

Sum of three skinfolds: triceps, subscapular and supraspinale
Multiply this sum by 170.18 / height
This total (in mm) is “X” in the following calculation:

Endomorphy = -0.7182 + 0.145X - 0.00068X^2 + 0.0000014X^3
Mesomorphy

Record height (H), humerus breadth (HB) and femur breadth (FB), max calf girth and max upper arm girth, with the arm flexed

Calculate corrected arm (AG) and calf girth (CG) by subtracting triceps and medial calf skinfolds from the respective girths.

Substitute these values in the following equation:

Mesomorphy = 0.858HB + 0.601FB + 0.188AG + 0.161CG - 0.131H + 4.5
Ectomorphy

Record height in cm and weight in kg

Divide the height by the cube root of weight to calculate the reciprocal of the ponderal index or RPI. The magnitude of the RPI determines which formula is used to calculate ectomorphy.

If RPI > 40.74, Ectomorphy = 0.732RPI - 28.58

If 39.65 < RPI < 40.74, Ectomorphy = 0.463RPI - 17.615

If RPI < 39.65, Ectomorphy = 0.5
The relevance of somatotype in sport

- Each component independently affects performance in most sports
- Talent identification for sporting potential of individuals
- Tool for matching individuals with sports which they may have advantages for
- Tool for determining training goals and outcomes
- Affects body image and self esteem
Thank you for your attention