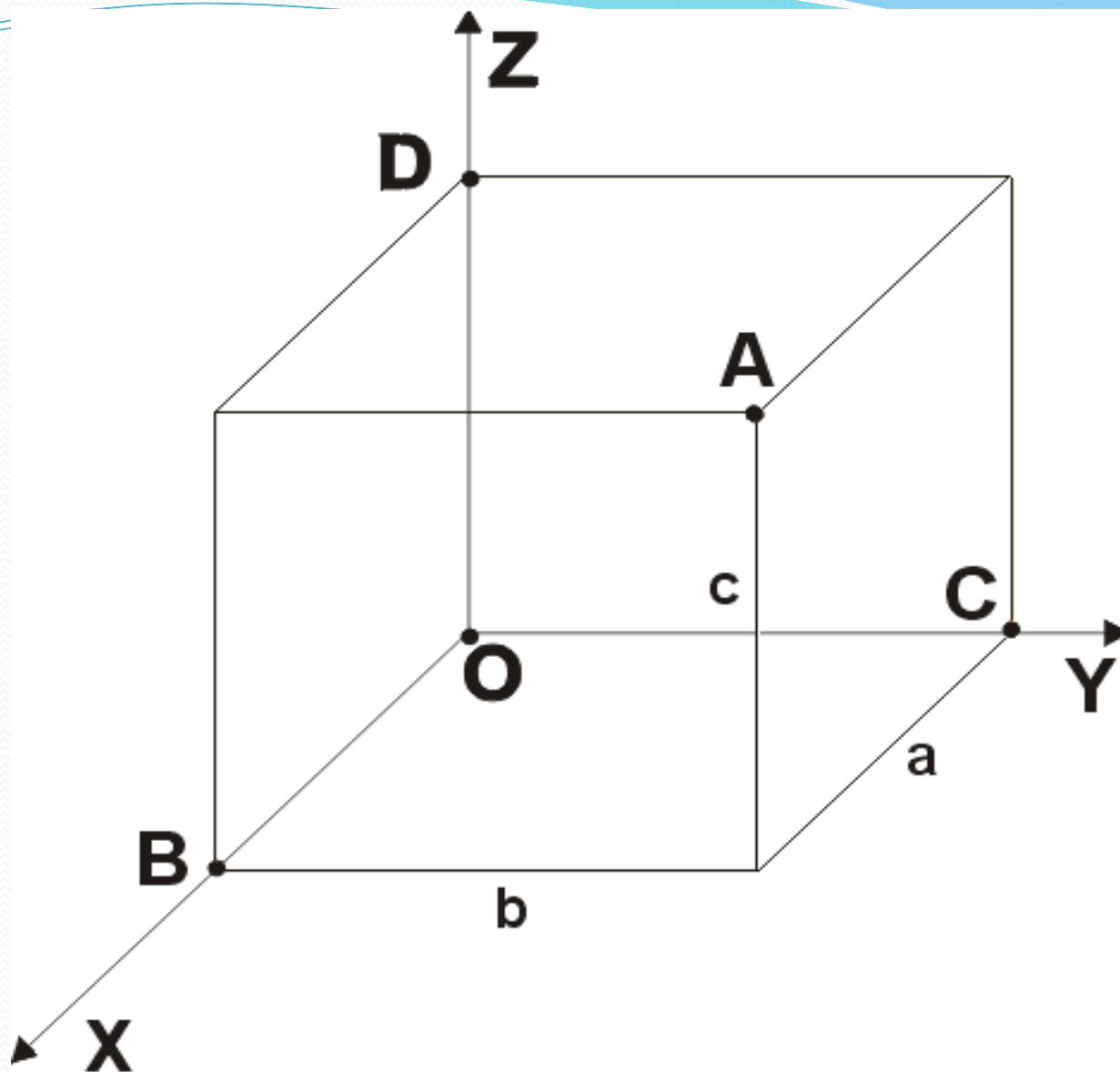


Mavzu: Odam tayanch-harakat apparati biomexanikasi

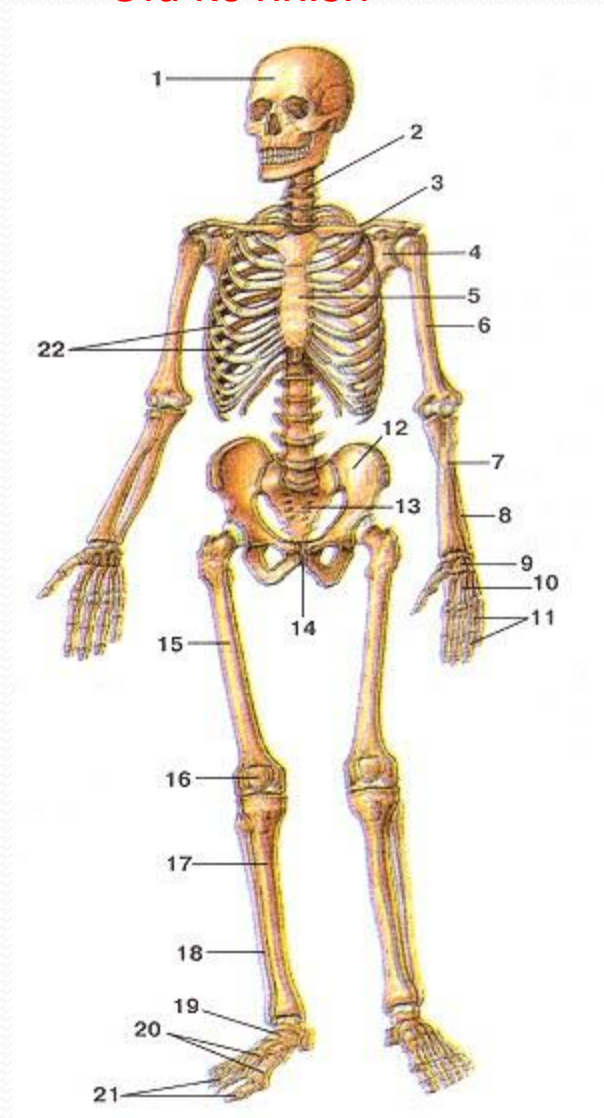
Reja:

1. Biomexanik zanjirlar.
2. Mushaklar biodinamikasi.
3. Mushaklarni tuzilishi.
4. Mushaklarni mexanik xususiyatlari va ishi.

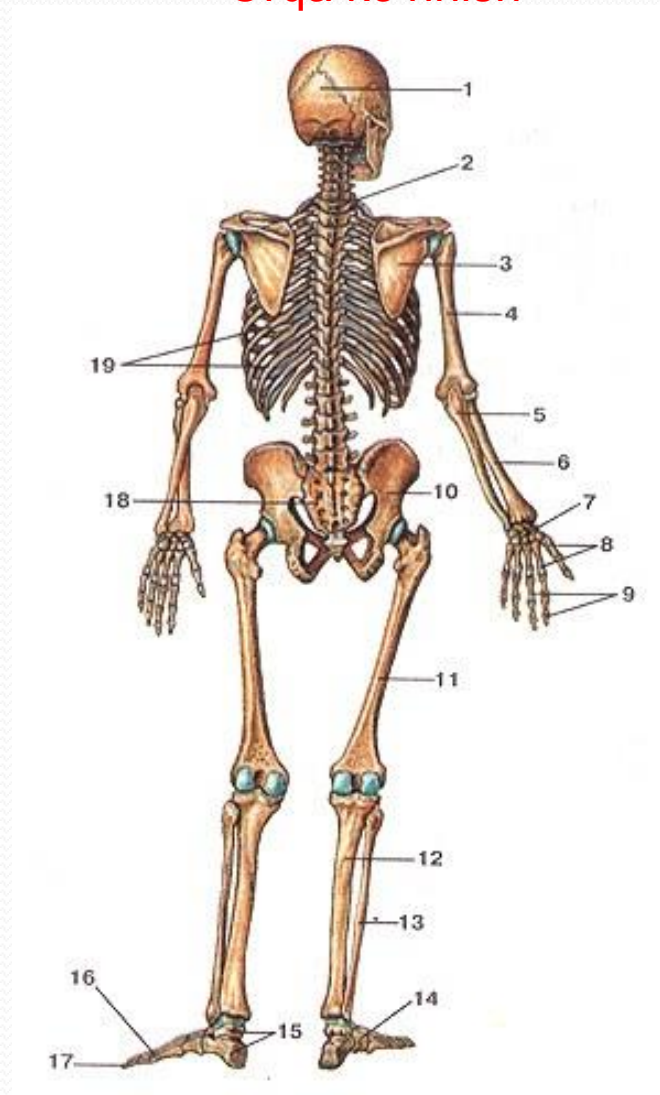


Odam skleti

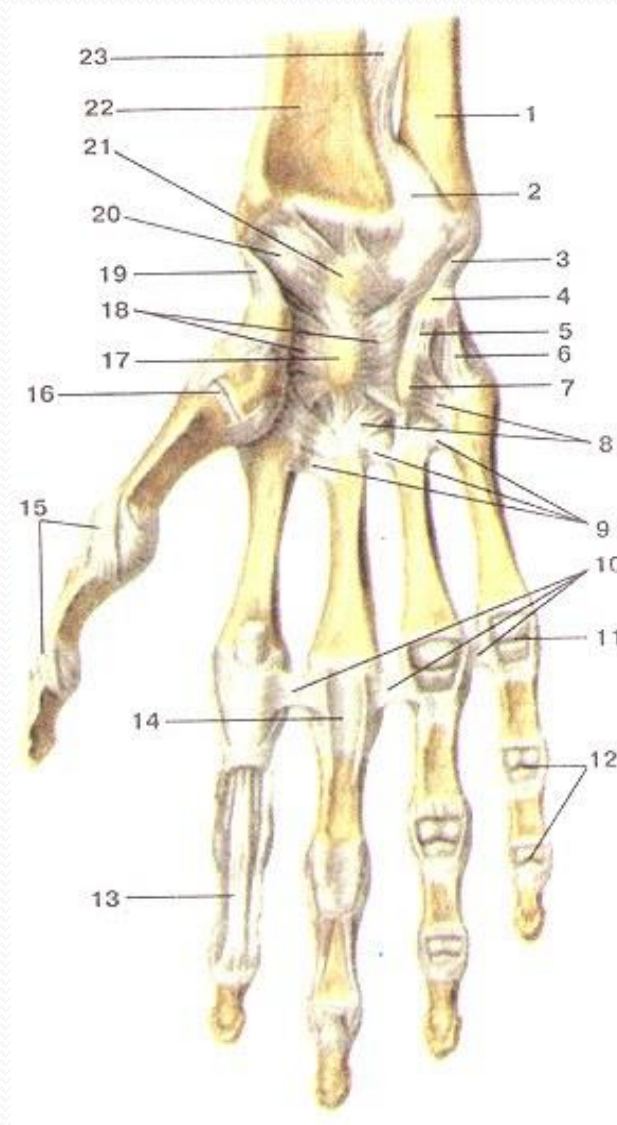
Old ko'rinish



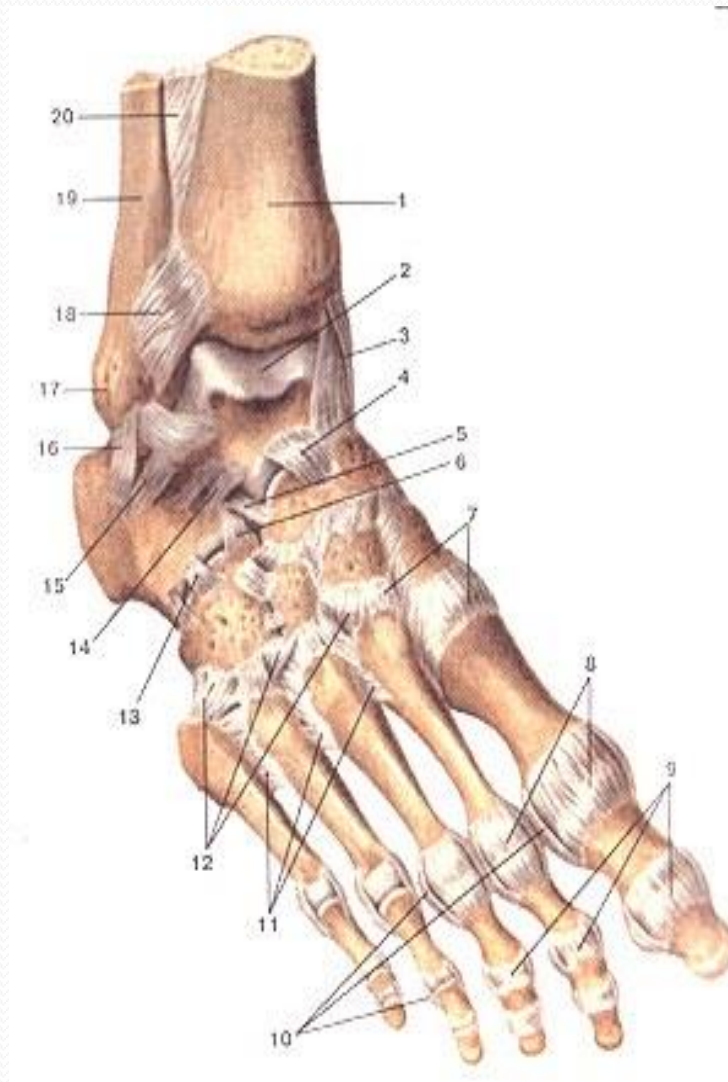
Orqa ko'rinish



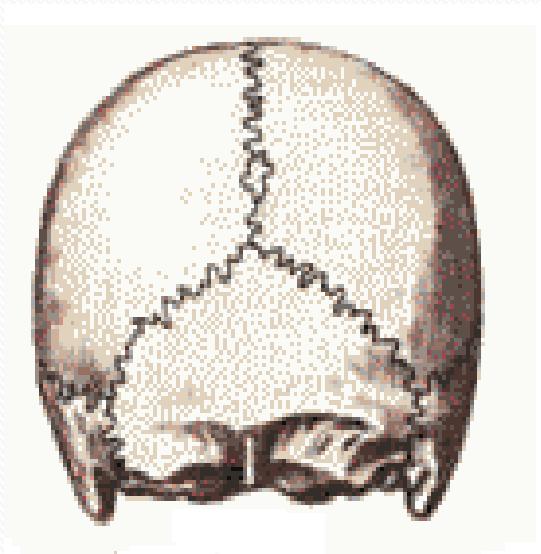
Bilak-panja bo'g'inlari va bog'lamlari



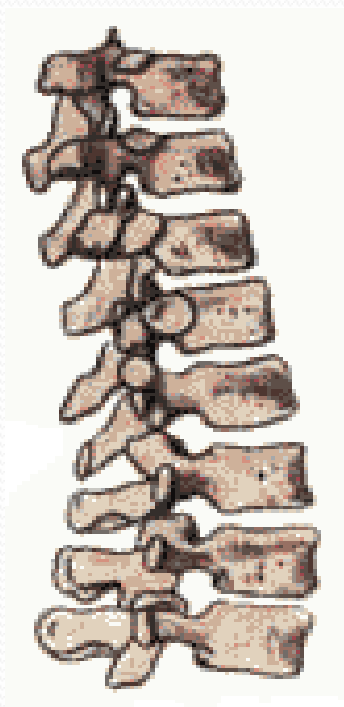
Boldir -panja bo'g'inlari va bog'lamlari



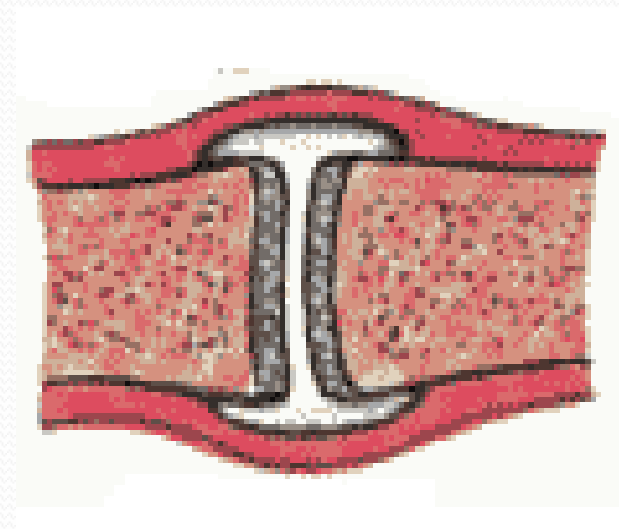
Suyaklar birikmalarini tiplari



Qo'zg'almas



Yarim qo'zgaluvchan



Harakatlanuvchi
birikma-bo'g'in

Bo'g'inlar turlari



chanoq-son

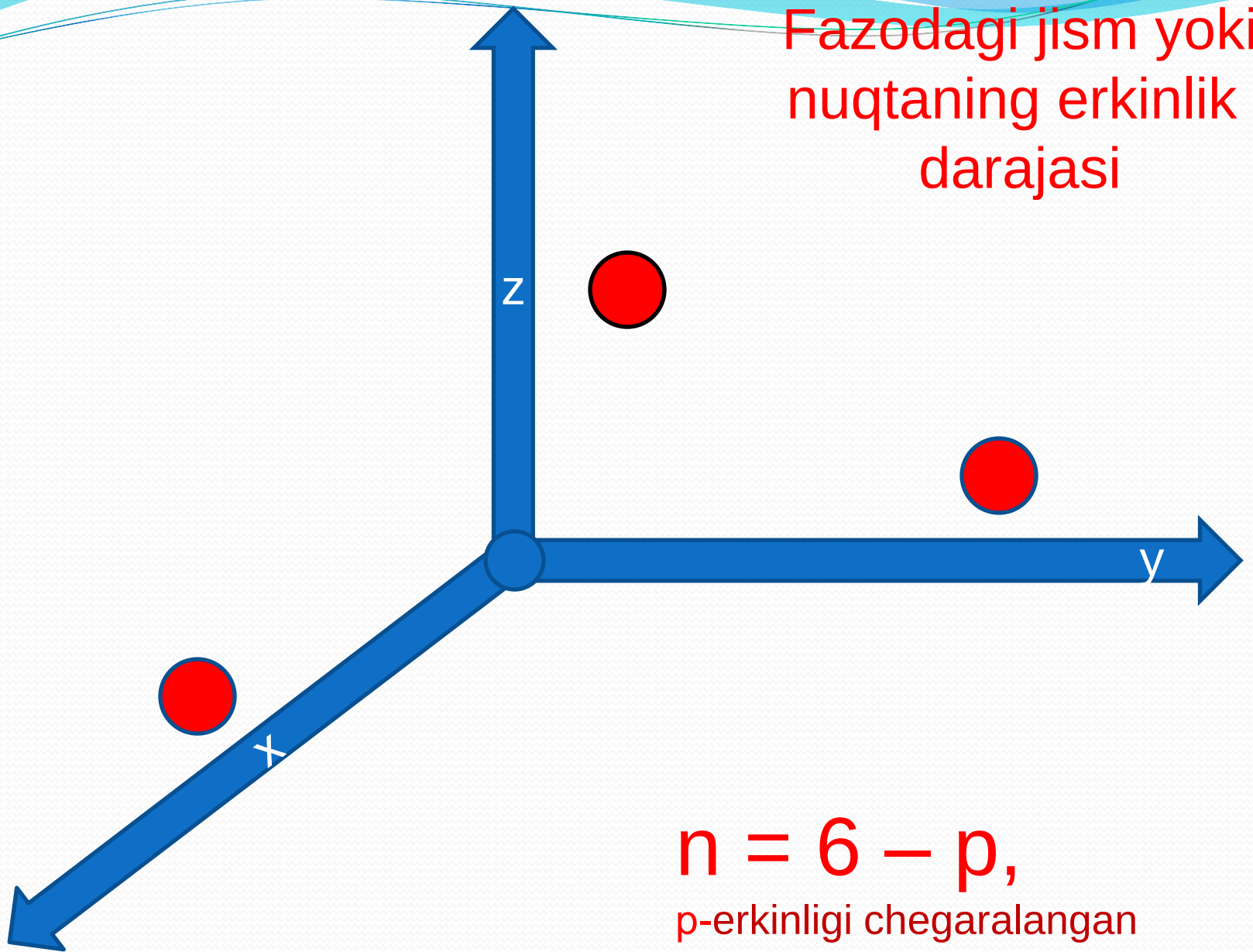


tirsak



tizza

Fazodagi jism yoki
nuqtaning erkinlik
darajasi



$$n = 6 - p,$$

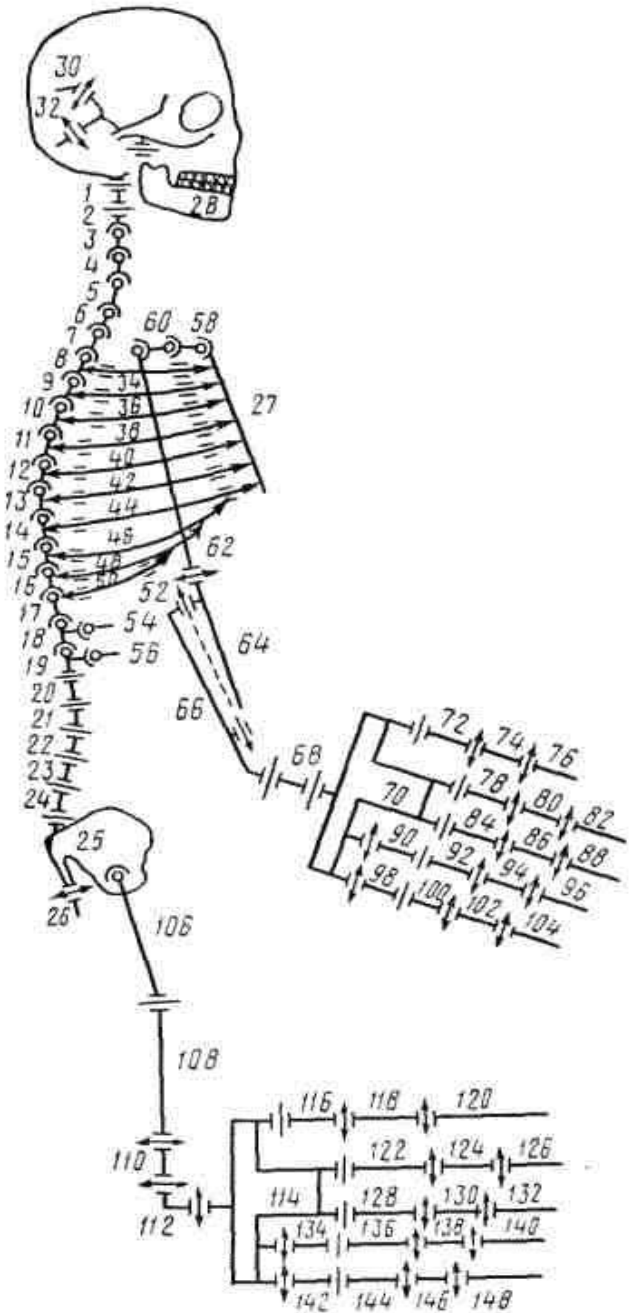
p-erkinligi chegaralangan
bo'g'inlar soni

Odam tayanch-harakat apparati tuzilmasi

Biomexanik zanjir

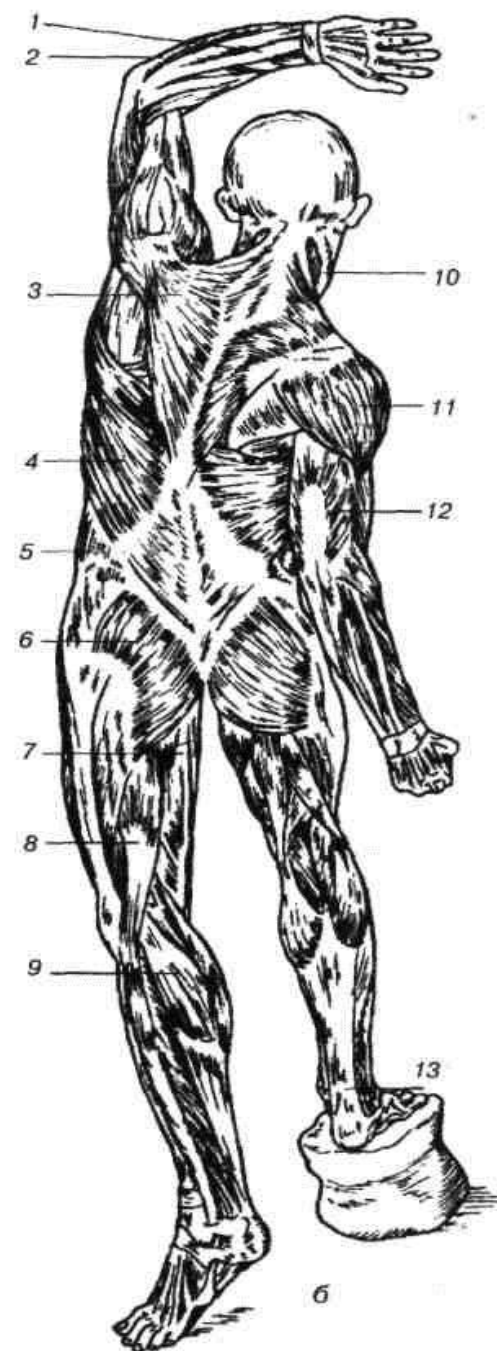
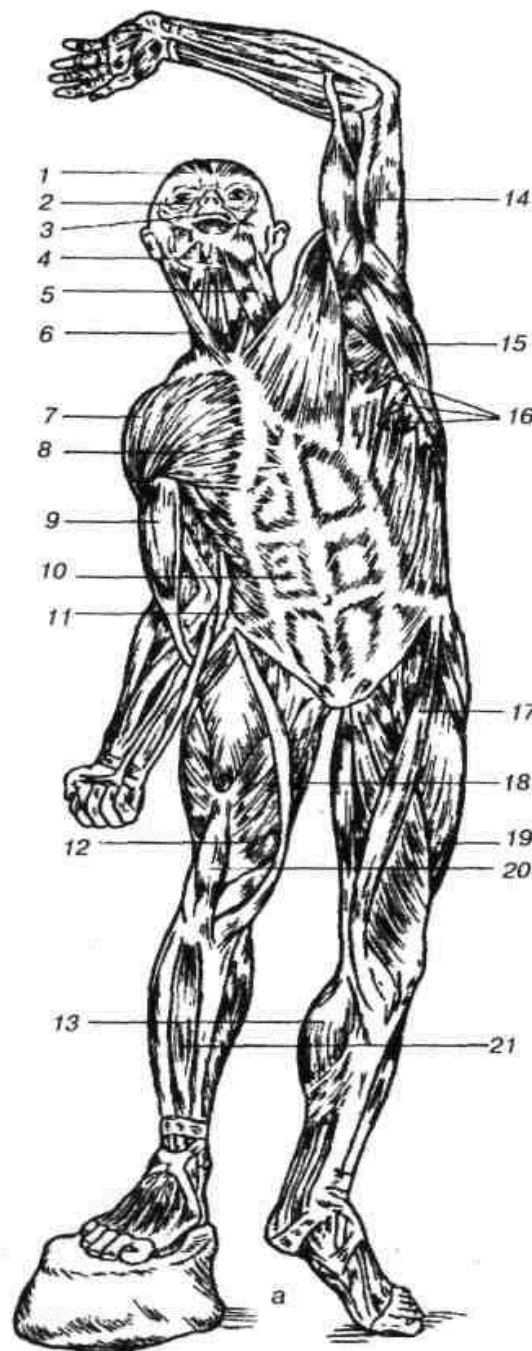
$$n = 6N - \sum_{i=3}^5 iP_i$$

n-erkinlik darajasi;
N-harakatlanuvch suyaklar soni;
i-erkinlikni chegaralanganlik soni;
P-erkinligi chegaralangan bo'g'inlar soni;
29 ta bo'g'inni erkinlik darajasi uch;
33 ta bo'g'inni erkinlik darajasi ikki;
88 ta bo'g'inni erkinlik darajasi bir;
Bo'g'inlarni umumiy erkinlik darajasi 244.



Odam tanasida
600ga yaqin
mushak bor

Mushaklarning
umumiy massasi
odam massasini
40%ini tashkil
etadi



Mushaklar tasnifi

Sinflari	Ko'rinishi	Mushak qismlari
Shakli bo'icha	Urchuqsimon Kvadrat Uchburchak Trapetsiyasimon Lentasimon Doirasimon	Kallak, qorincha, dum
Kallaklari soni bo'icha	Ikki kallakli Uch kallakli To'rt kallakli	

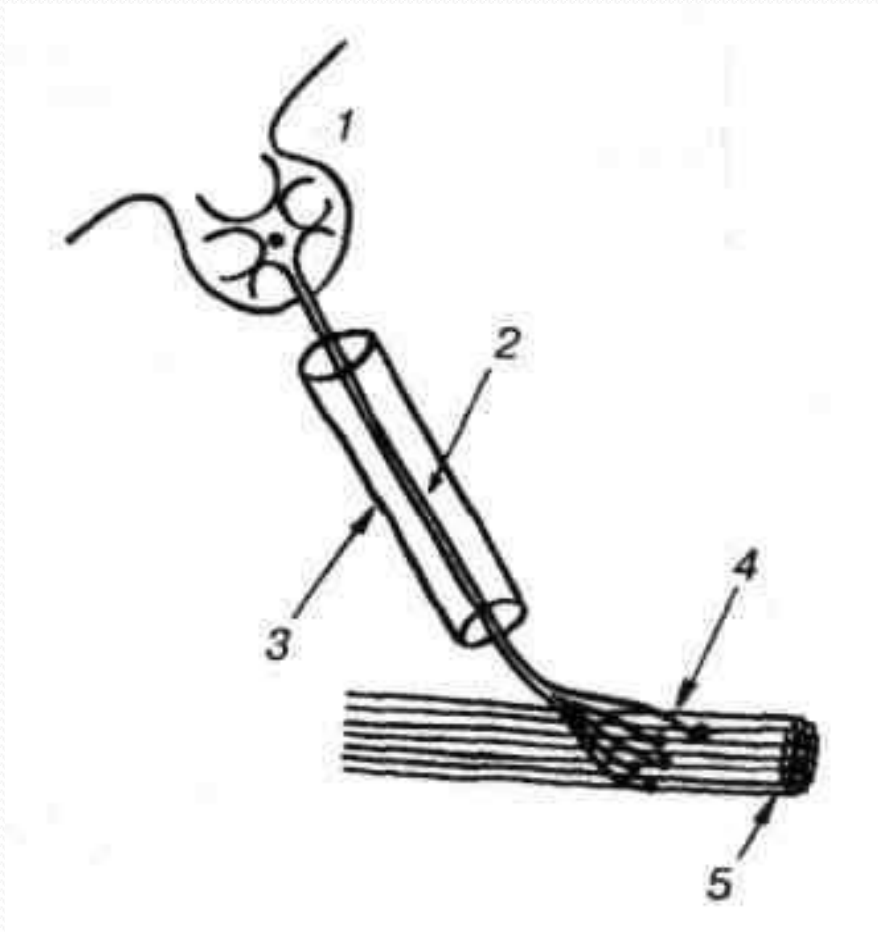
Mushaklar tasnifi(davomi)

Sinflari	Ko'rinishi	Mushak qismlari
Qorichalar soni bo'yicha Mushak bog'lamlari yo'nalishi bo'yicha	Bir qorinli Ikki qorinli Birpatli Ikki patli Ko'p patli	Kallak, qorincha,
Joylashishi bo'yicha	Yuzaki Chuqur Medial Lateral	dum

Mushaklar tasnifi(davomi)

Sinflari	Ko'rinishi	Mushak qismlari
Funksiyasi bo'yicha	Eguvchi Yoyuvchi Burovchi Ko'tauvchi Qisuvchi Suruvchi Tortuvchi Yuklovchi	Kallak, qorincha, dum

MOTONEYRON VA HARAKATLANTIRUVCHI BIRLIK



1-asab xujayrasi;

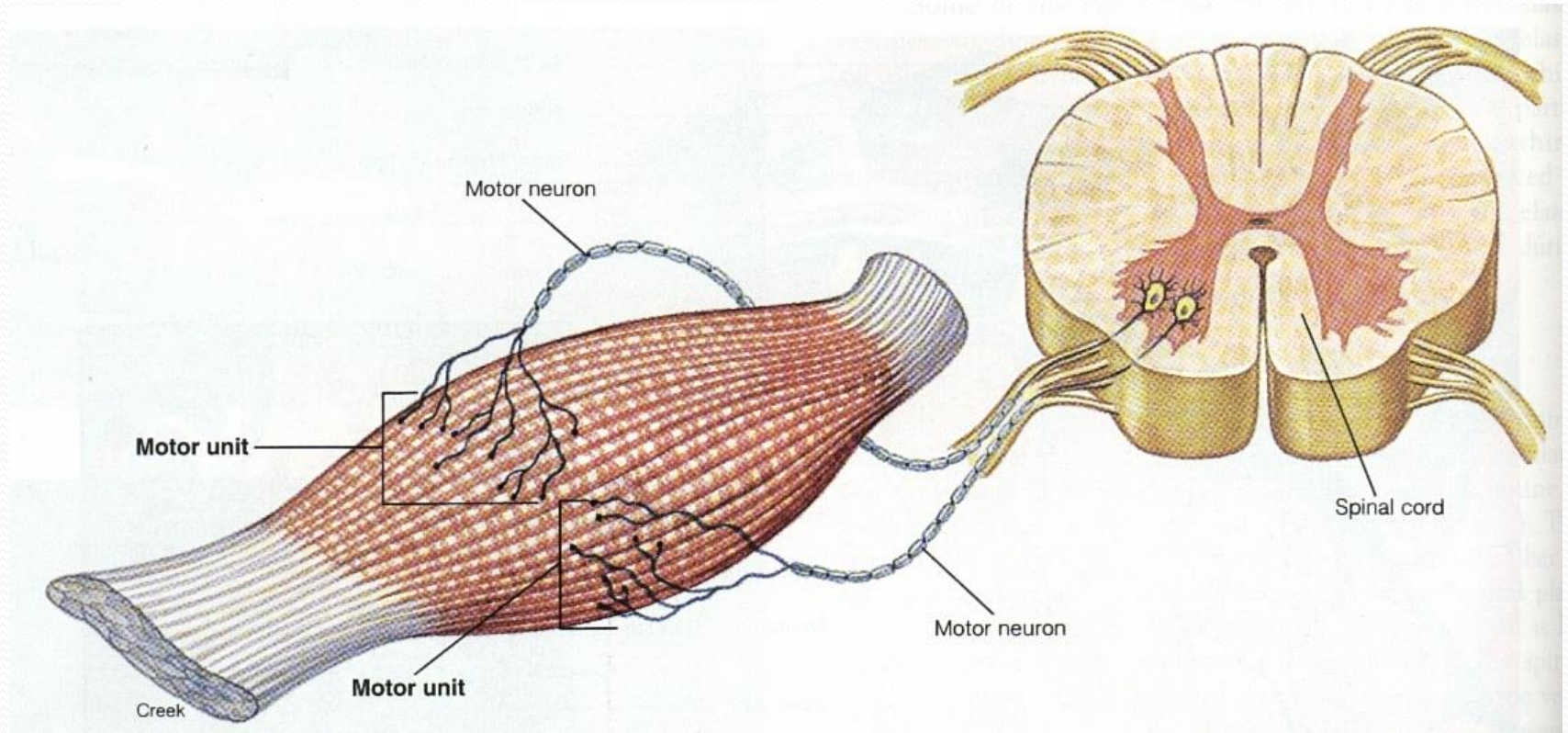
2-asab tolasi;

3-asab nayi;

4-yassi uch;

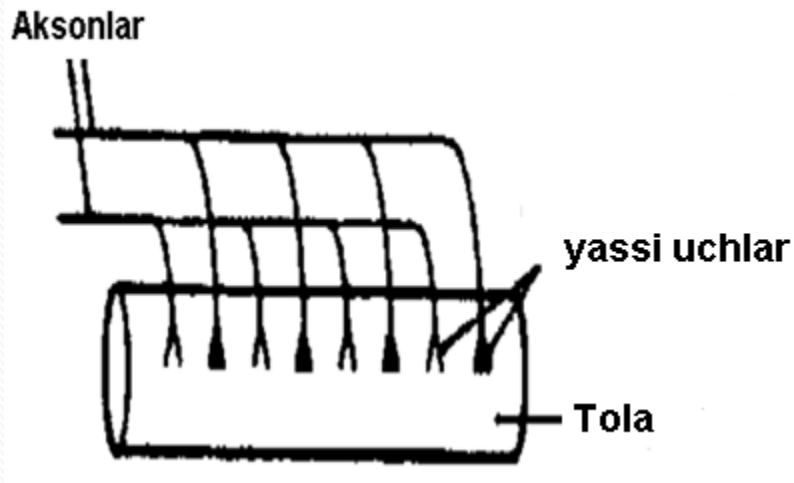
5-mushak tolasi.

Mobilizatsiya (Recruitment) –ishga tushishi



MUSHAK TOLALARI

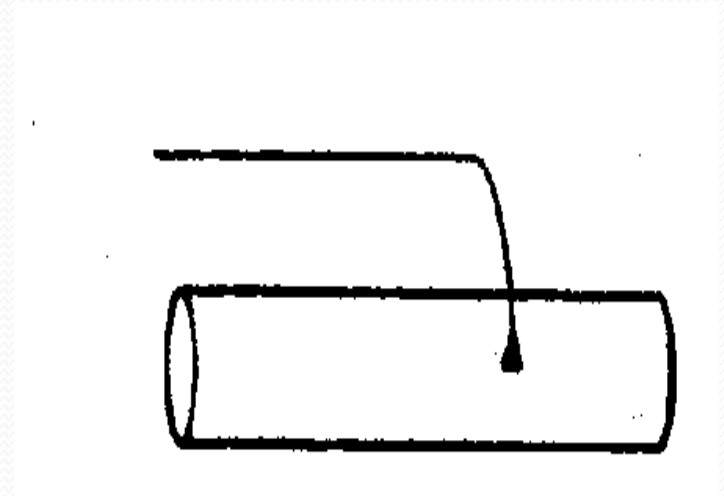
Sekin qisqaruvchi



Impulsni o'tkazish tezligi $2-8 \text{ m} \cdot \text{s}^{-1}$

Manba ATF-aerobli jarayon

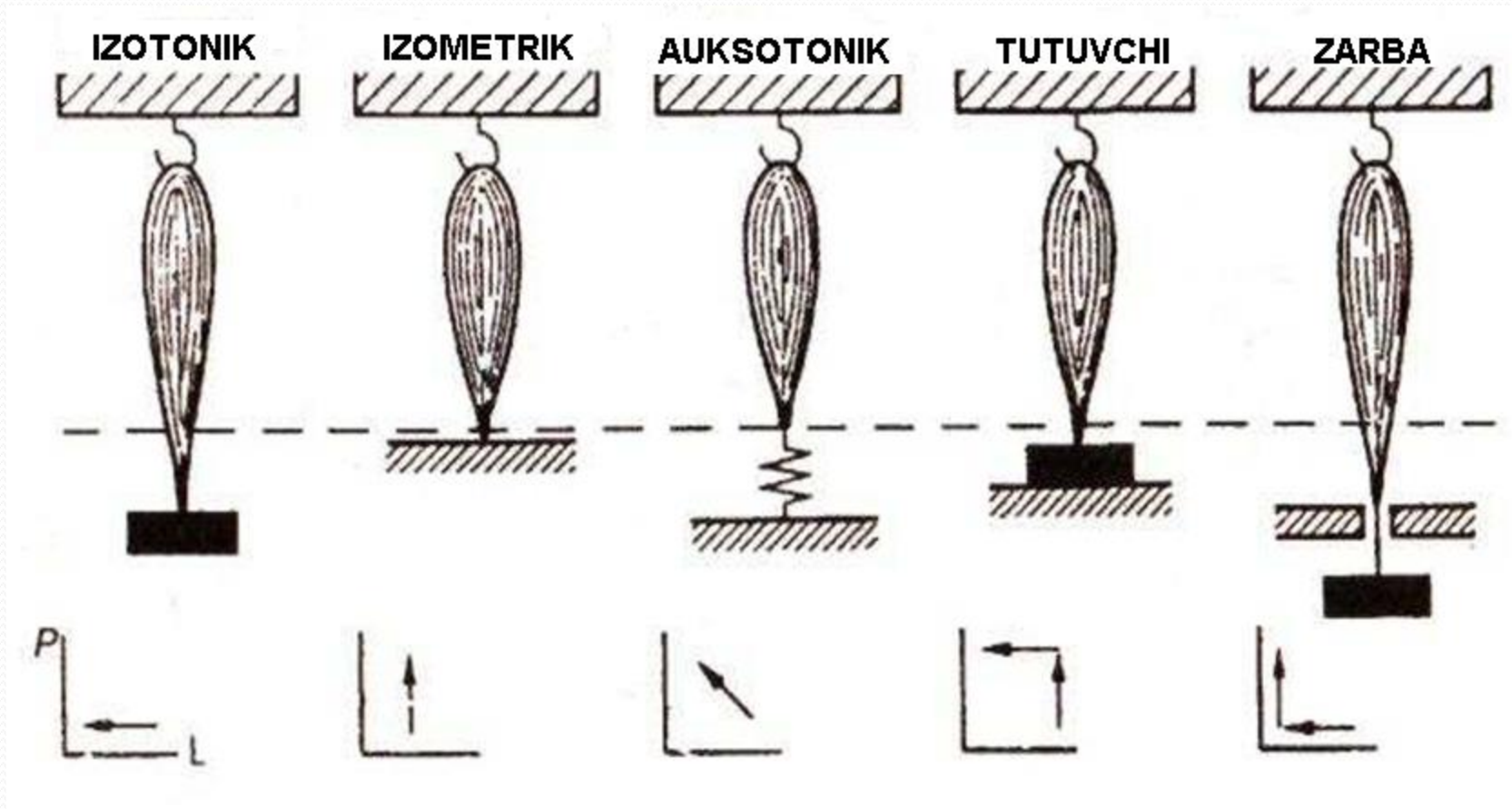
Tez qisqaruvchi



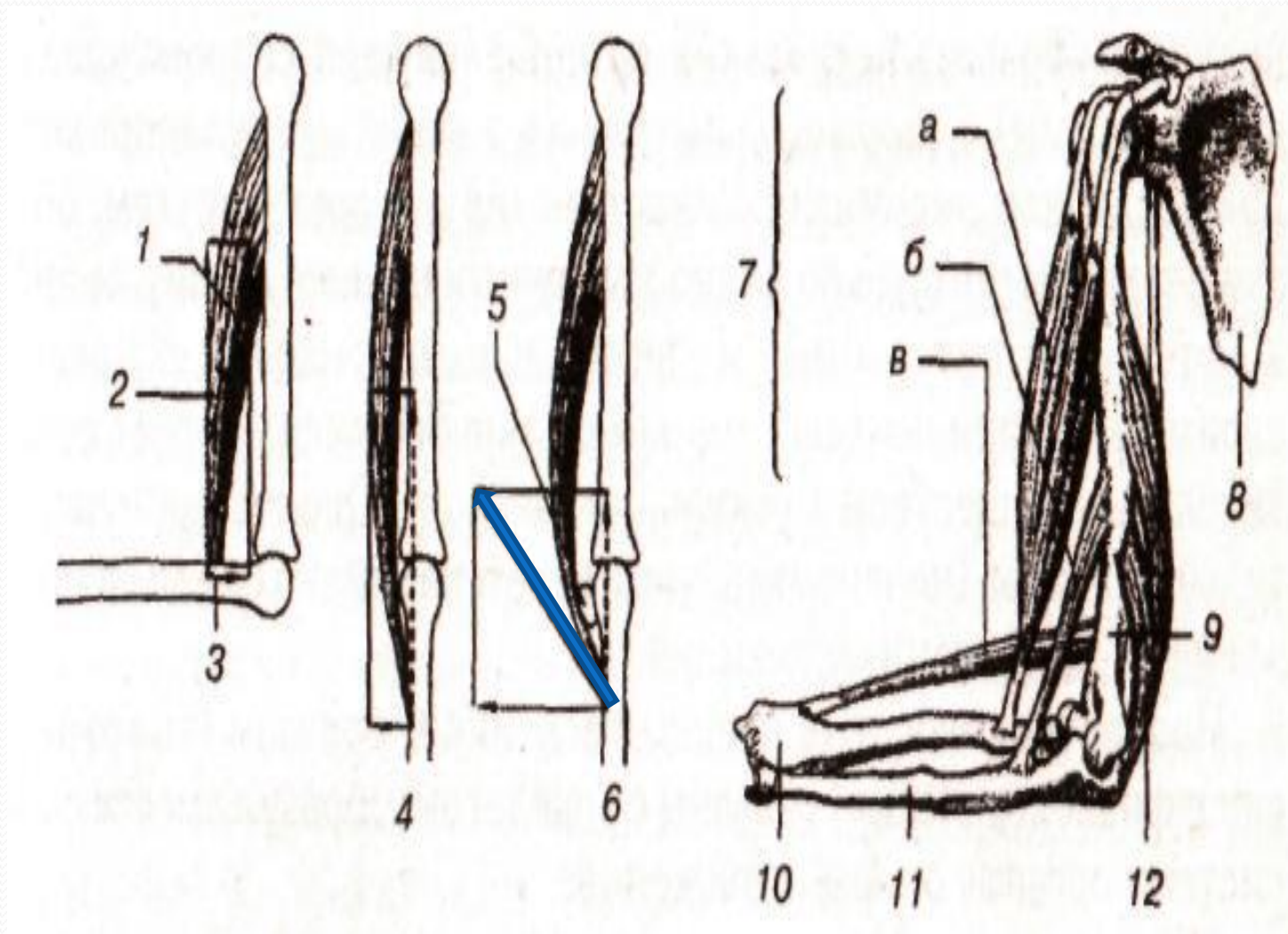
Impulsni o'tkazish tezligi $8-40 \text{ m} \cdot \text{s}^{-1}$

Manba ATF-anaerobli jarayon

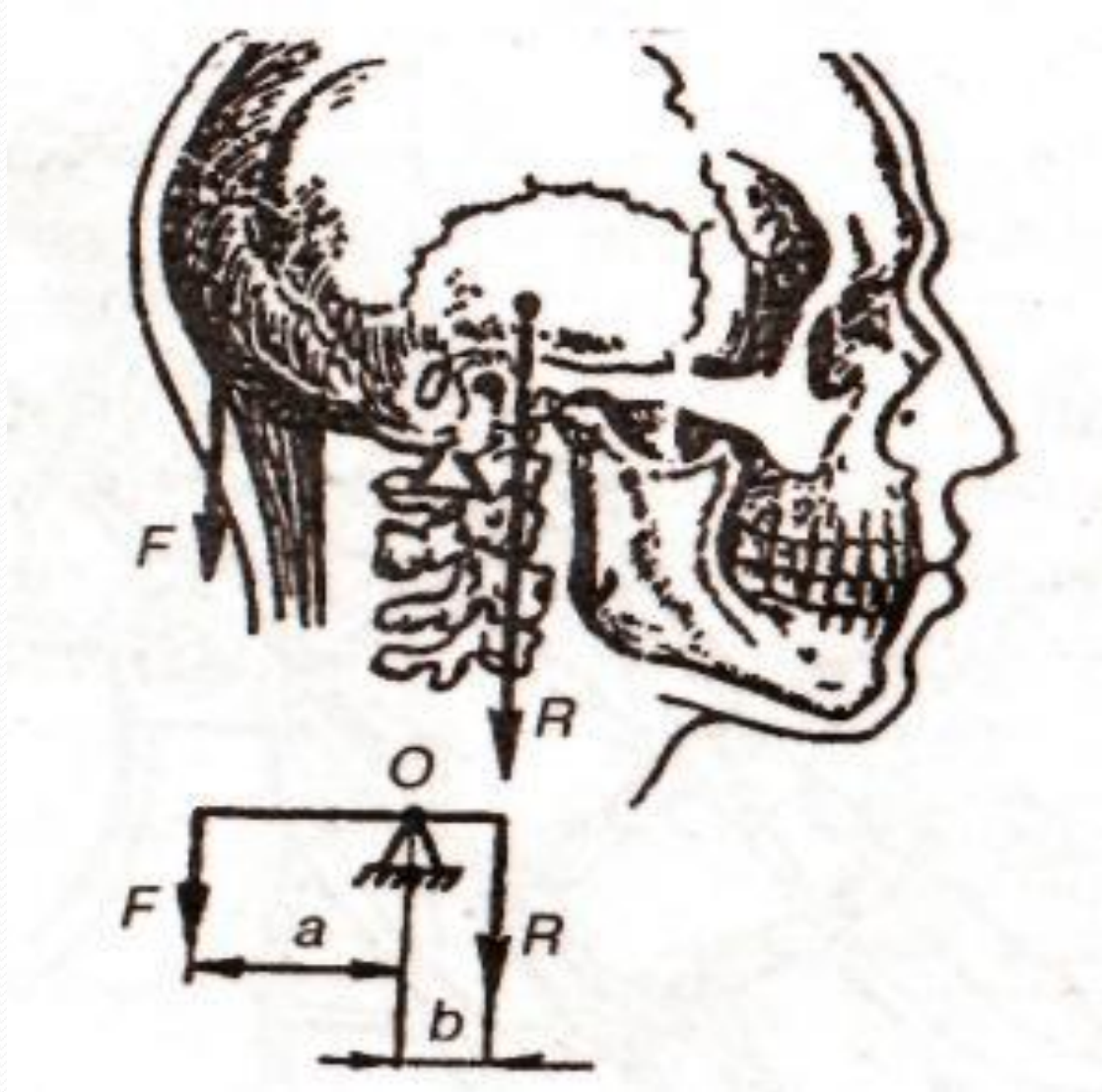
MUSHAKLARNI QISQARISH TURLARI



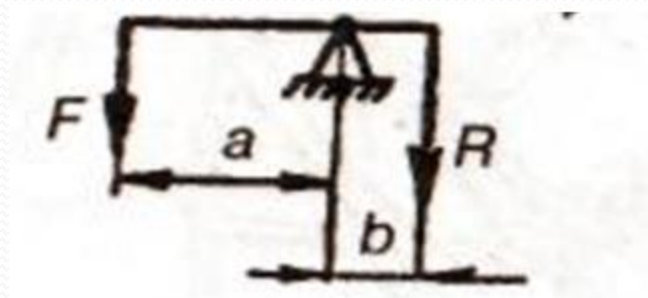
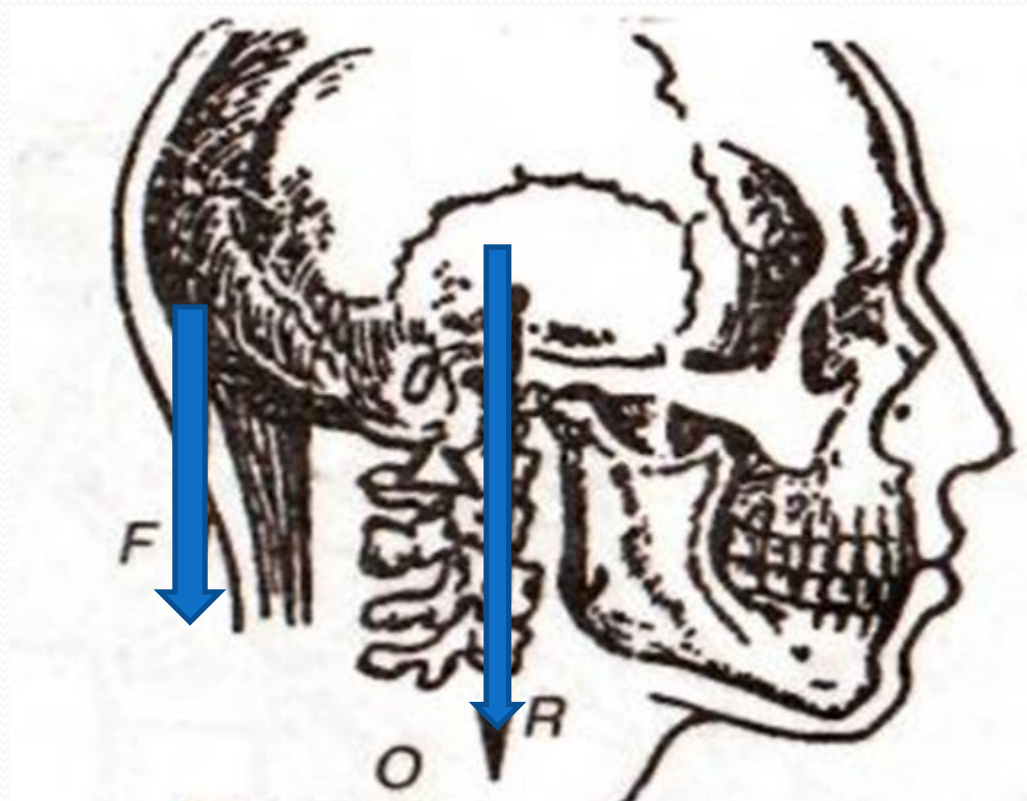
Mushaklarni suyak richaglariga ta'siri



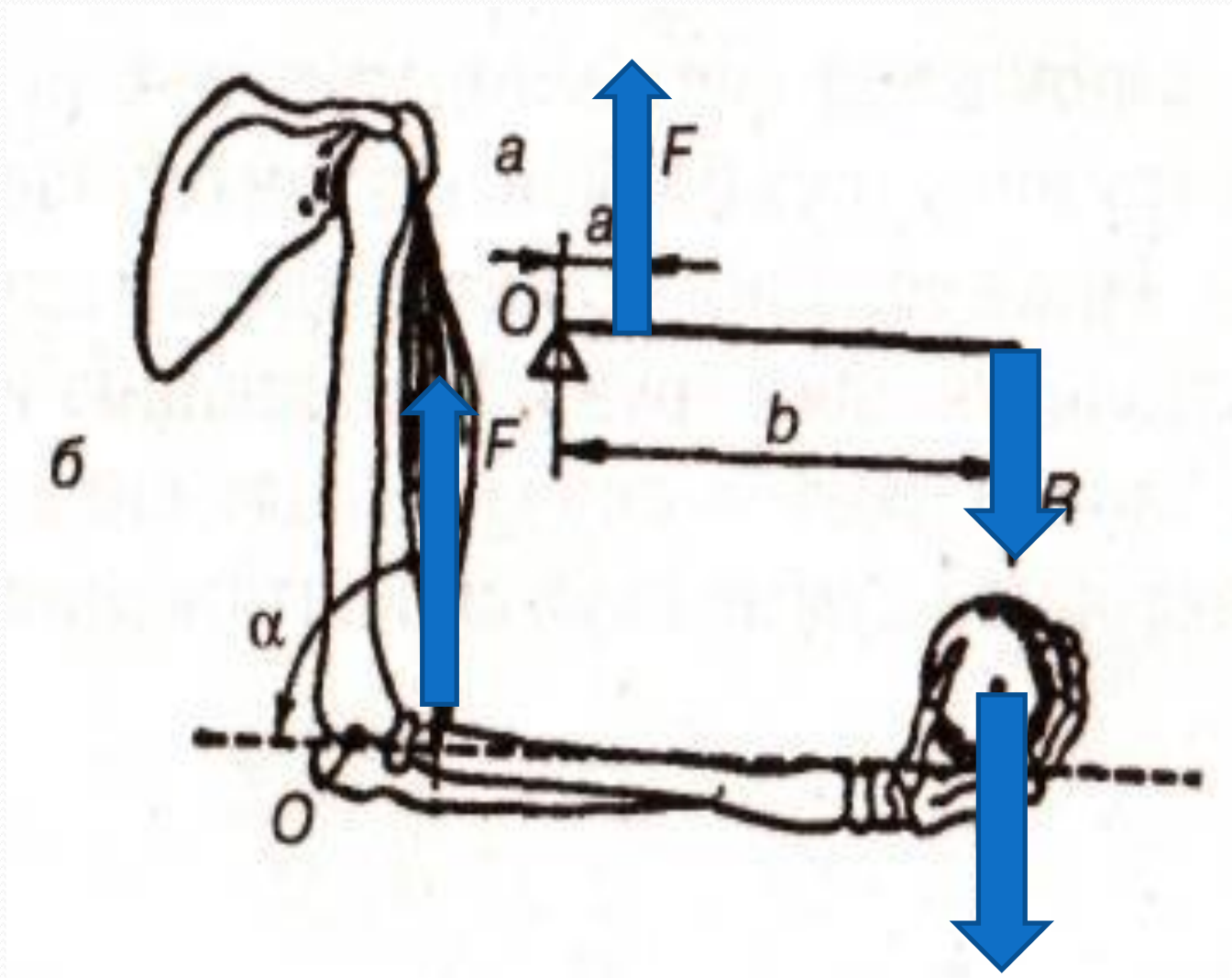
Mushaklarni suyak richaglariga ta'siri



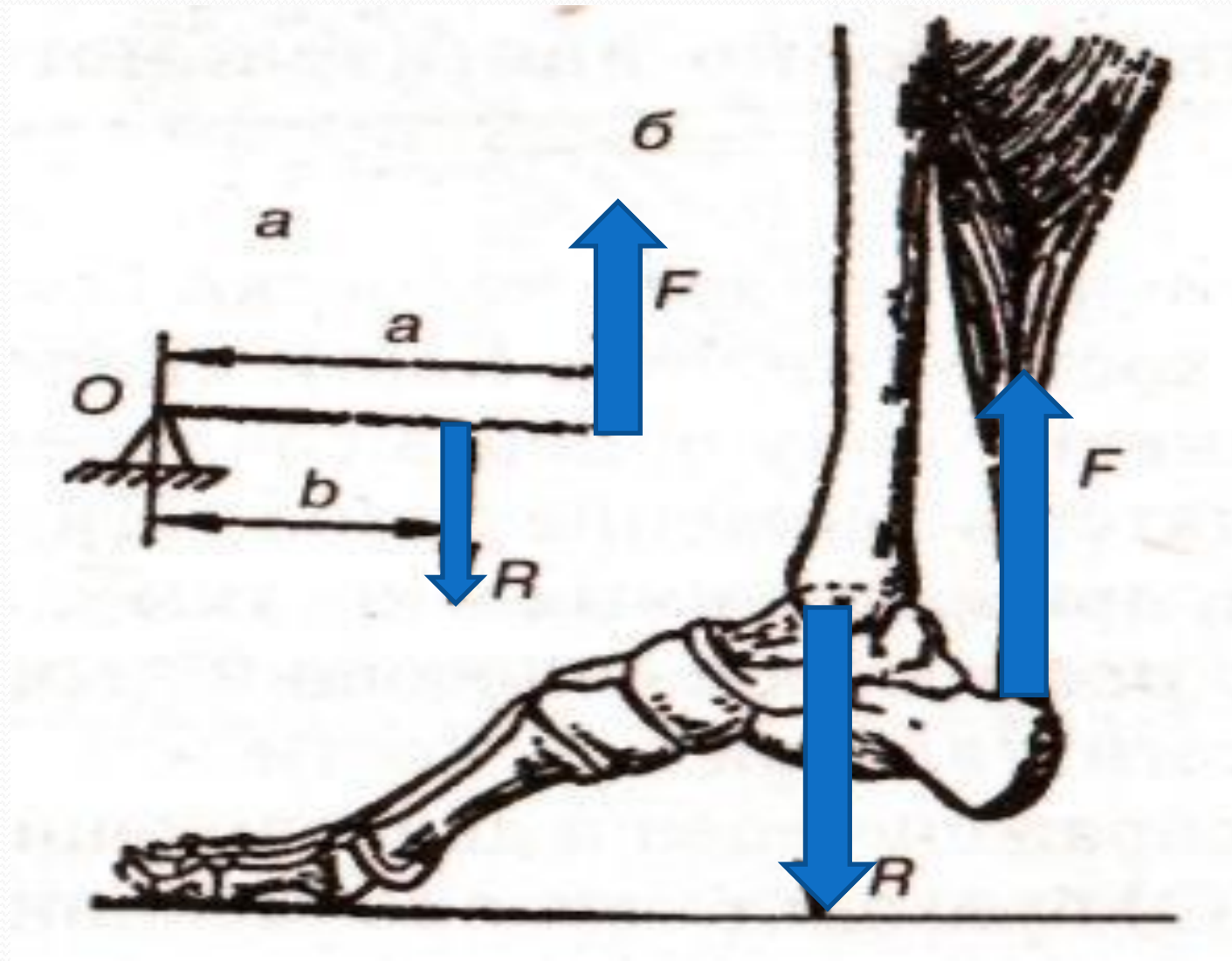
Mushaklarni suyak richaglariga ta'siri



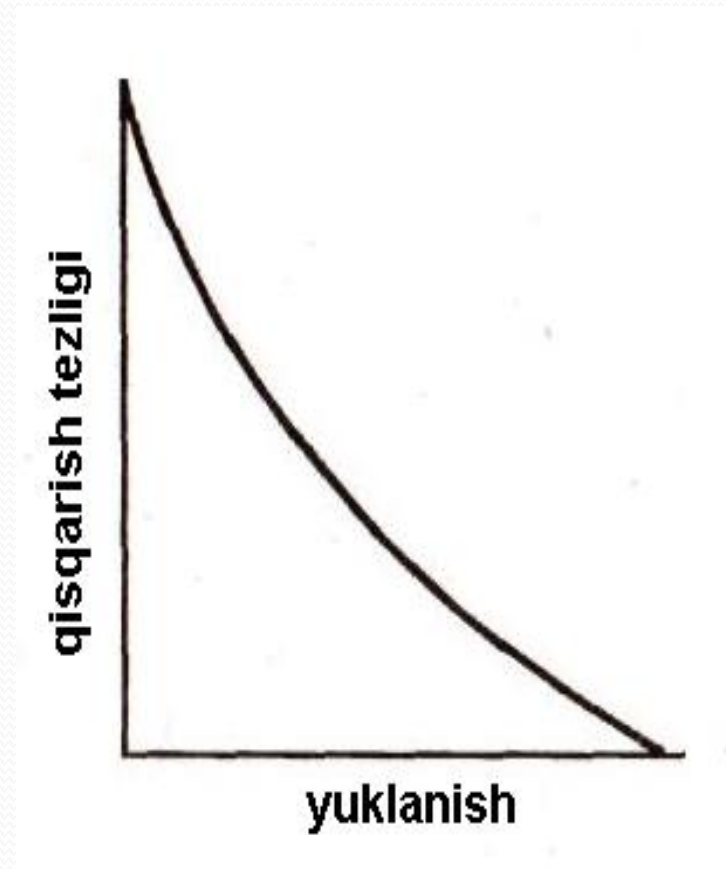
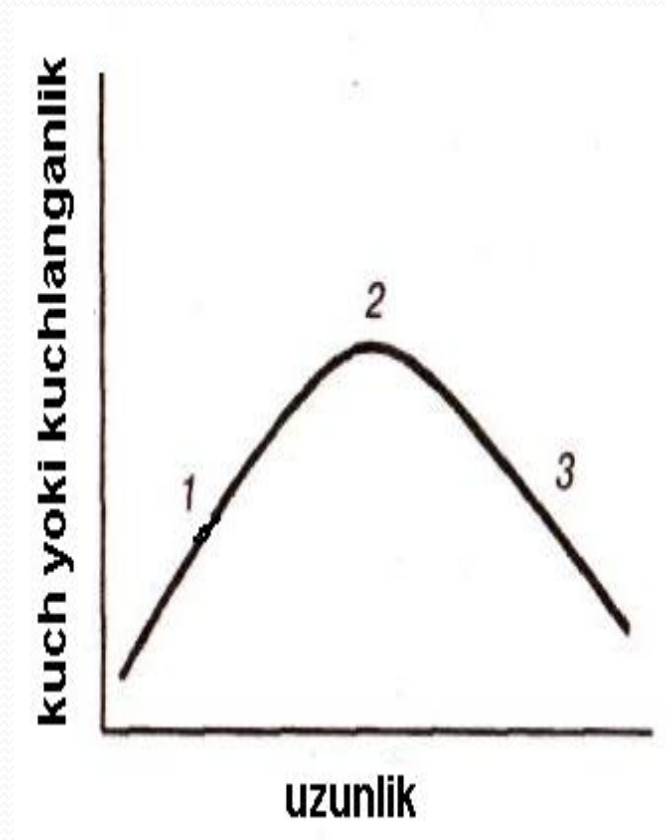
Mushaklarni suyak richaglariga ta'siri



Mushaklarni suyak richaglariga ta'siri



Mushakning mexanik xususiyatlari



Yuklanish, qisqarish va mushakni mexanik ishini bog'likligi

