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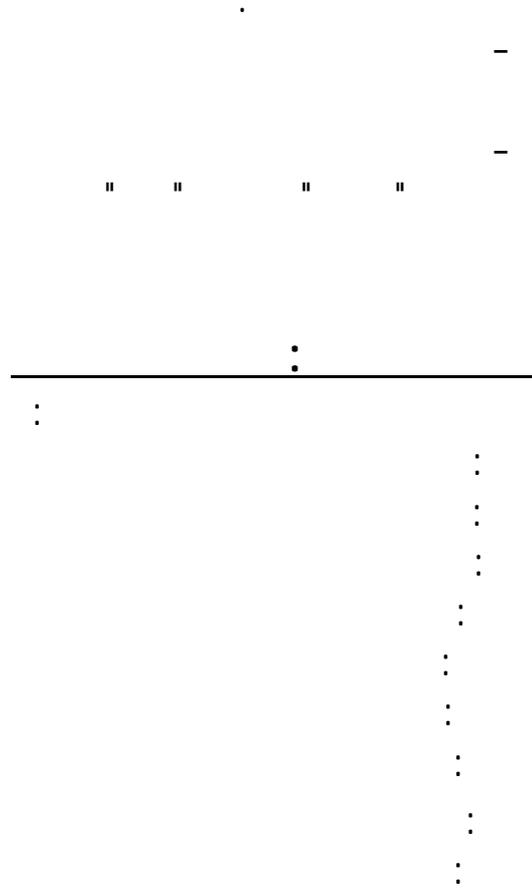
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_____ (1) سورة المؤمنون آية ١٤ .

Biomechanics



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Dorsolateral -

Ventromedial -

Sclerotome

Osteoblasts

Chondroblasts

(Somites)

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(Paraxial mesoderm)

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(Mesenchyme

(Ventral & Medial Walls)

(Polymorphous)

(Neural) Notochord)

):

Groove

.(Sclerotome

Chondrification

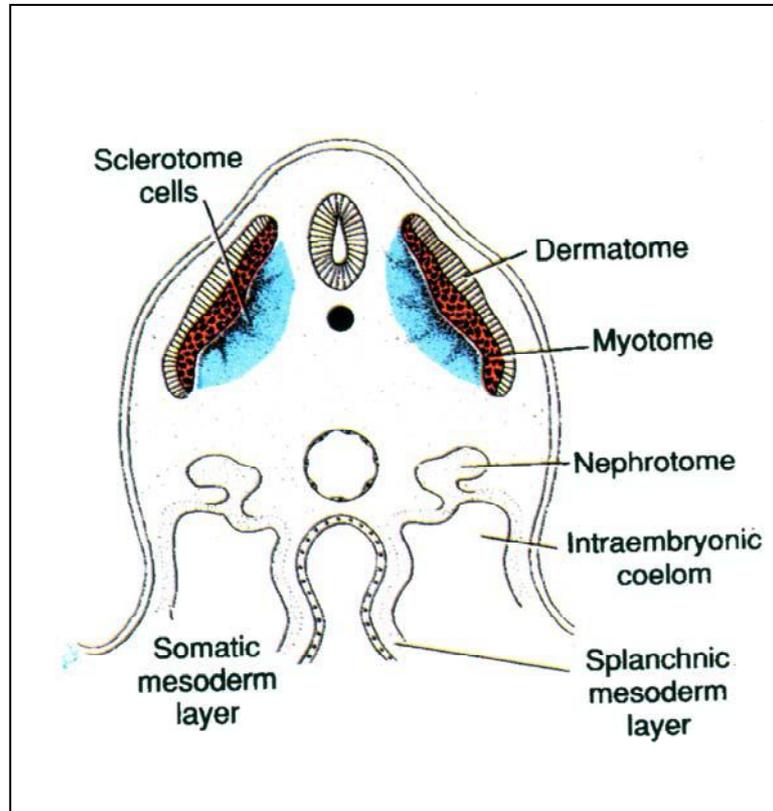
Centers

Dorsolateral)

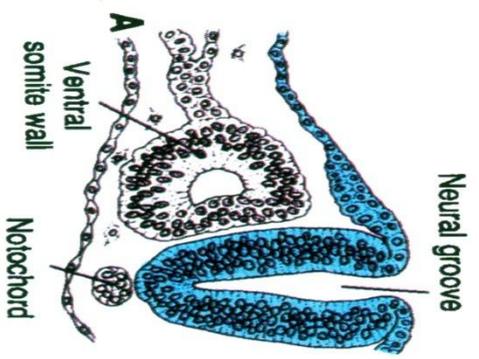
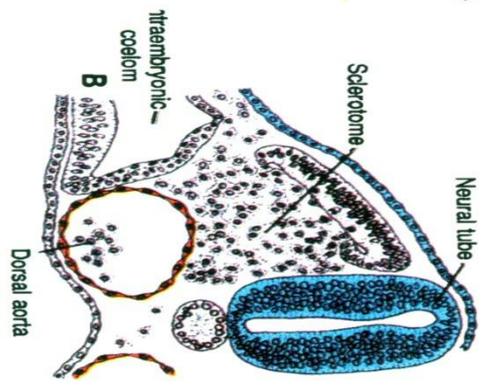
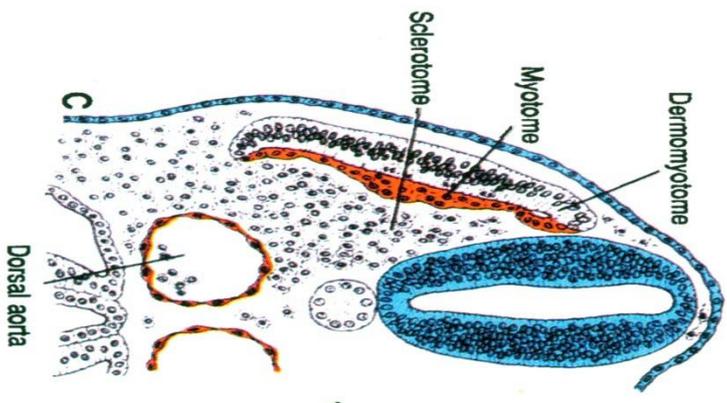
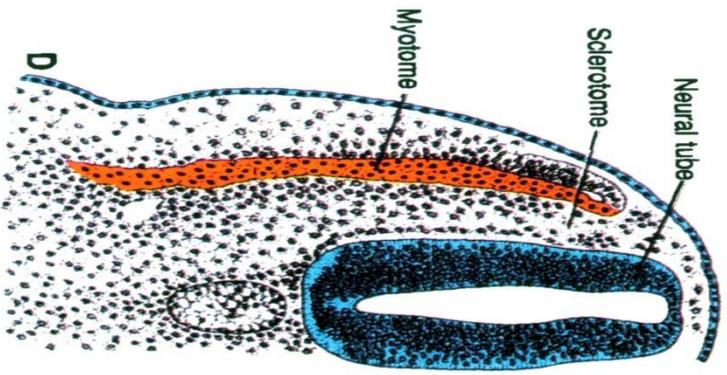
(Myotome)

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Somites



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Notochord

Somite

Ventromedial

.Sclerotome

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Sclerotomes

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Vertebral ()

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Arch

Transverse Process

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Body of Vertebra

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Center of Ossification

Sclerotomes

Myotomes

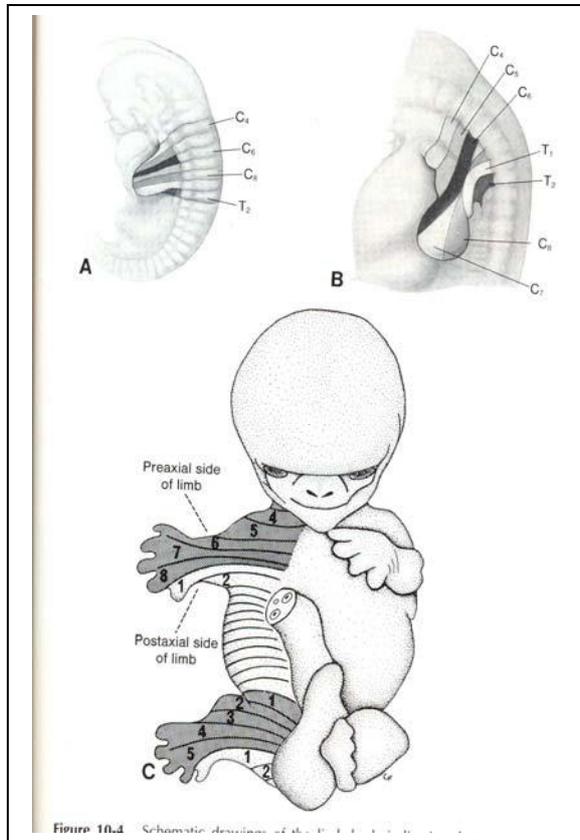
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Mesenchymal Cells



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Mesenchymal Cells

Mesenchymal Cells

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(Myotubes)

() Myofilaments

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Sharpey fibars :

⁽¹⁾ د. محمد الباز ، خلق الإنسان بين الطب والقرآن.

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Lennard)

(Nilsson

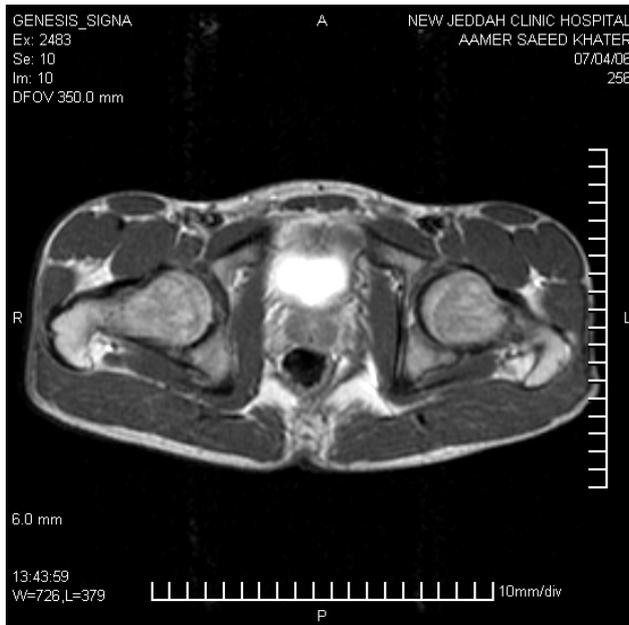


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العظام في يد و زراع جنين بالغ من العمر ١٢ أسبوع
بالتصوير الطبي



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جنين في الشهر الرابع يرى العظم في أسفل الساق وبقية
الهيكل العظمي غضروفاً

Membranous Bones



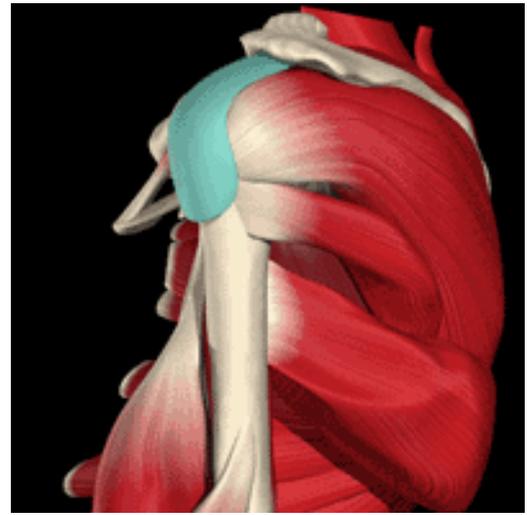
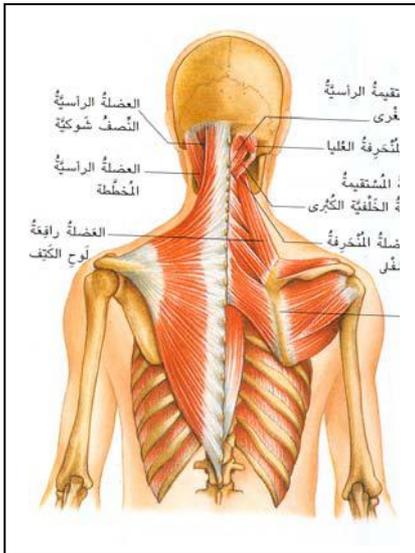
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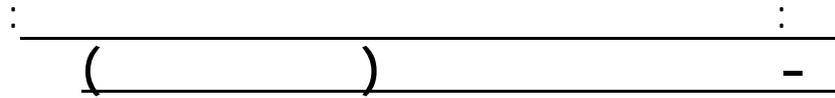
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 الصورة تشير إلى العضلات في الجزء الخلفي للفقرات العنقية والصدرية وعظمة اللوح موضحة الأشكال المختلفة وتوزيع ألياف العضلات السطحية والغائرة.

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Periosteum & Endosteum

Periosteum

Endosteum

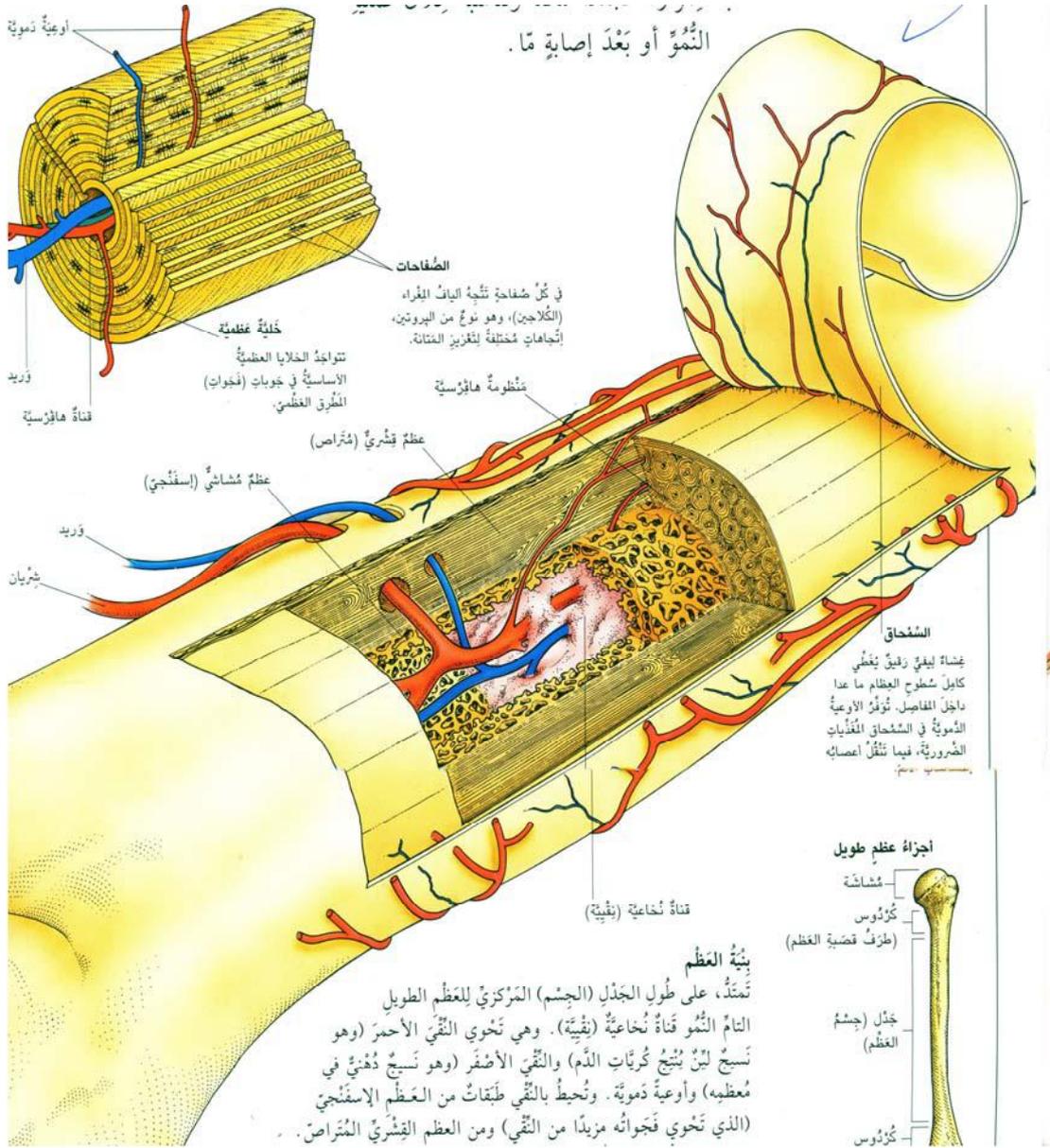
Periosteal collagen

Sharpey's fibers

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Osteoprogenitor

Osseous tissue



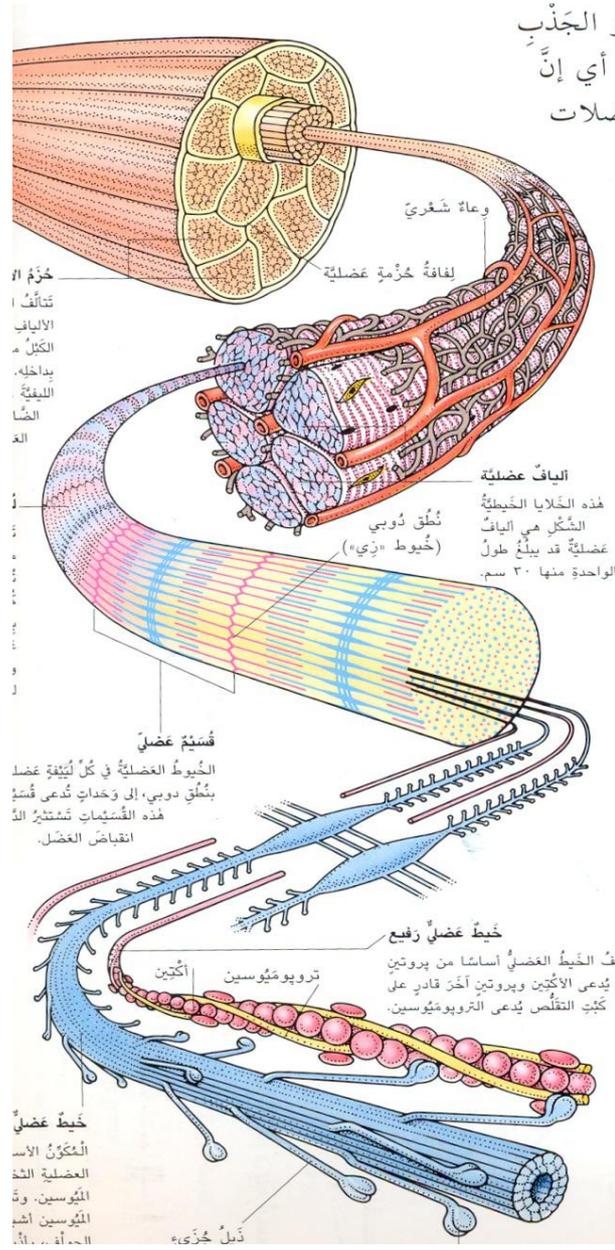
[] ()

Muscular Tissue

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Contractile proteins



Skeletal

muscle

Cross striations

myosin

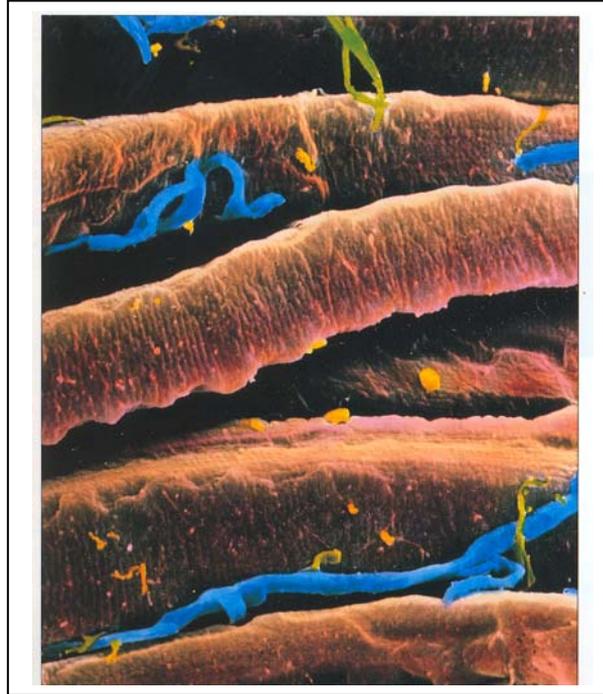
action striations

filaments

muscle fibers

myoblasts

()
صورة مجهرية
بالمسح الإلكتروني
لألياف العضلات
الهيكلية والأوعية
الشعرية $\times 1300$



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dark bands light bands

Anisotropic) (A bands) A

(I bands) I (Isotropic)

I Z

Sarcomere ()

.Z Z

(thin thick)

H (H A band)

(line M)M H

. creatin kinas M

Phosphocreatine ()

ATP ADP

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Innervations

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terminal bouton

Motor end – plate

:myoneural junction

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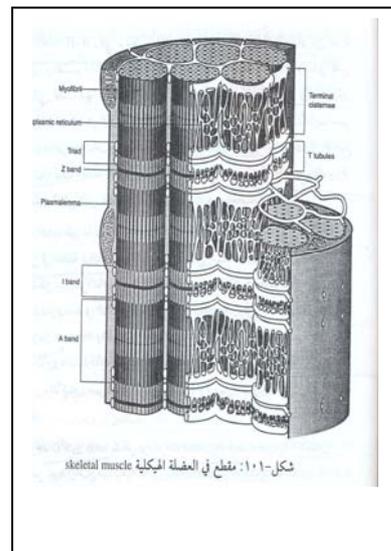
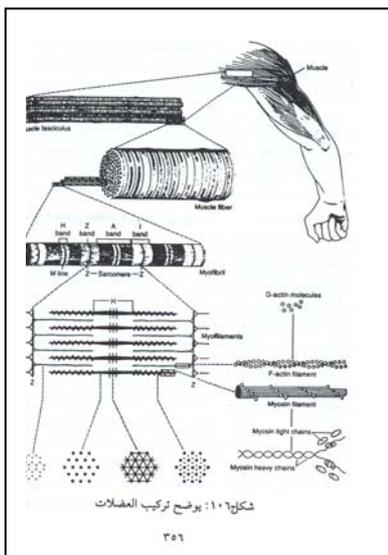
Mechanism of Contraction

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Huxley

. overlap

Siliding filament hypothesis



System of Energy Production

Phosphocreatine

ATP

% - .

red fibers :

Intermediate fibers

white fibers

mitochondrial

myoglobin
cytochromes

.Oxidative phosphorylation

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⁽¹⁾ سورة الانفطار : آية ٧.

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⁽¹⁾ سورة آل عمران : آية ٦.

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⁽¹⁾ الاستشفاء بالصلاة، رابطة العالم الإسلامي، هيئة الإعجاز العلمي.

⋮

⋮

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⋮

(Biomechanics)

⁽¹⁾ الاستشفاء بالصلاة ، زهير القراص ، هيئة الإعجاز العلمي في القرآن والسنة.

"bio"

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mechanics

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Stomatodeum

Cephalic Portion

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Somites

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⁽¹⁾ د/ يوسف الحاج - موسوعة الإعجاز العلمي في القرآن الكريم والسنة المطهرة

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