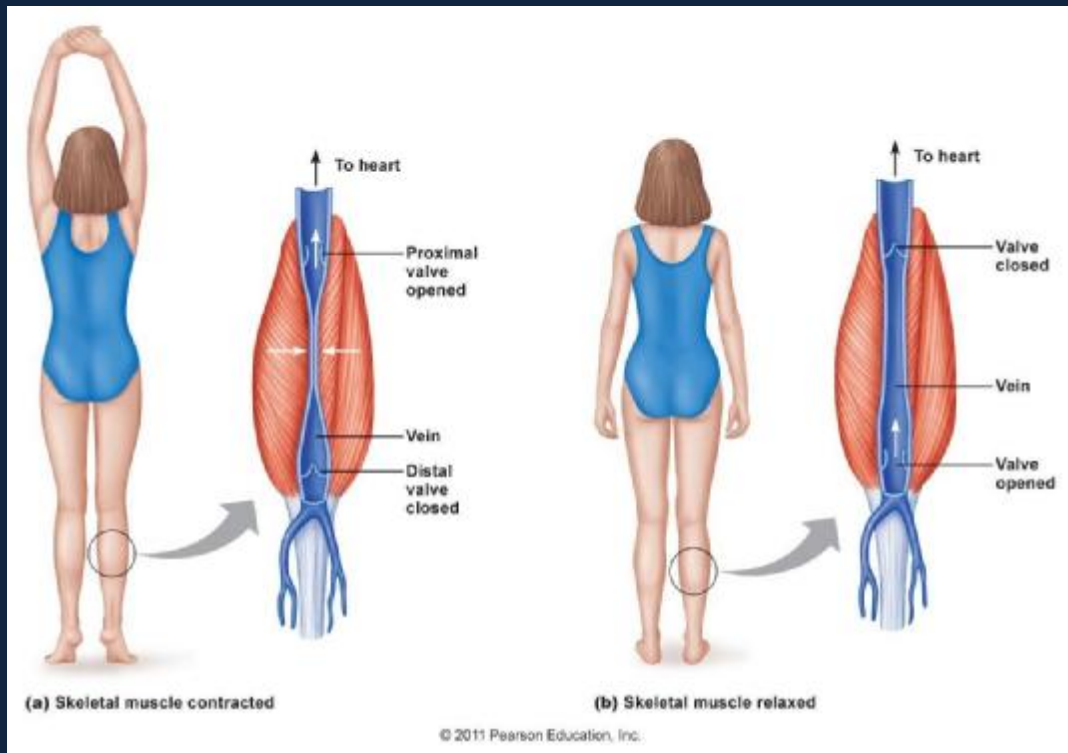




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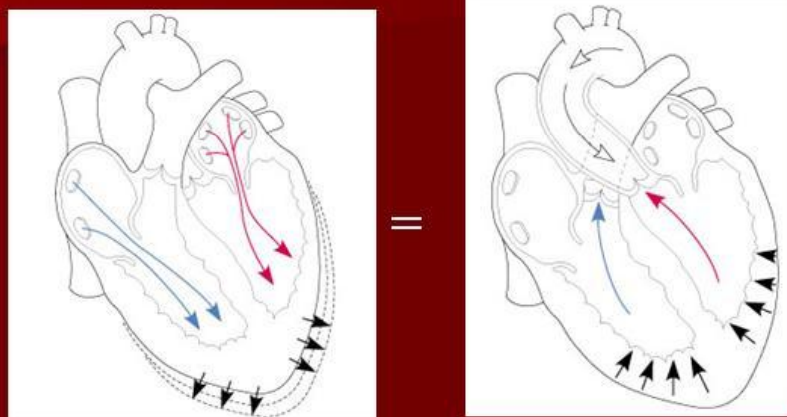
Activité Musculaire & Retour Circulatoire



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Loi du Cœur de Starling

Frank Starling Law of the Heart



Increased blood volume =
increased stretch of myocardium

Increased force to pump blood
out.



Effets Cardiocirculatoires de l'Exercice

Adaptations cardiovasculaire

- Repos:
 - Débit cardiaque 5 l/min; 15 - 20 % distribué vers les muscles squelettiques
- Exercice intense: 25 l/min; 80 % vont vers les muscles
 - Perfusion du SNC non modifiée
 - Baisse de la perfusion rénale et du système digestif



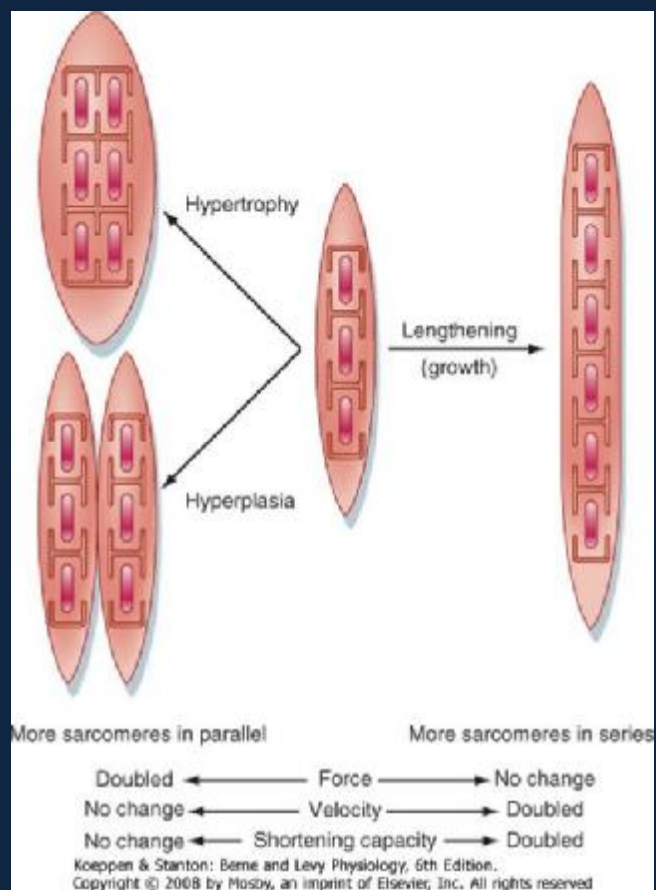
Effets Ventilatoires de l'Exercice

Lung Volume	Resting Volume	Change due to exercise
Tidal Volume (X)	500ml per breath	Increases up to 4 times
Frequency	12-15	Increases up to 60
Minute Ventilation (VE)	6l/min	Up to 175l/min in large aerobically trained athletes
Inspiratory reserve Volume	3000ml	Decreases
Expiratory reserve Volume	1200ml	Decreases
Vital Capacity	4700ml	Slight decrease
Residual Volume	1200ml	Slight decrease
Total Lung capacity	5900ml	Slight decrease



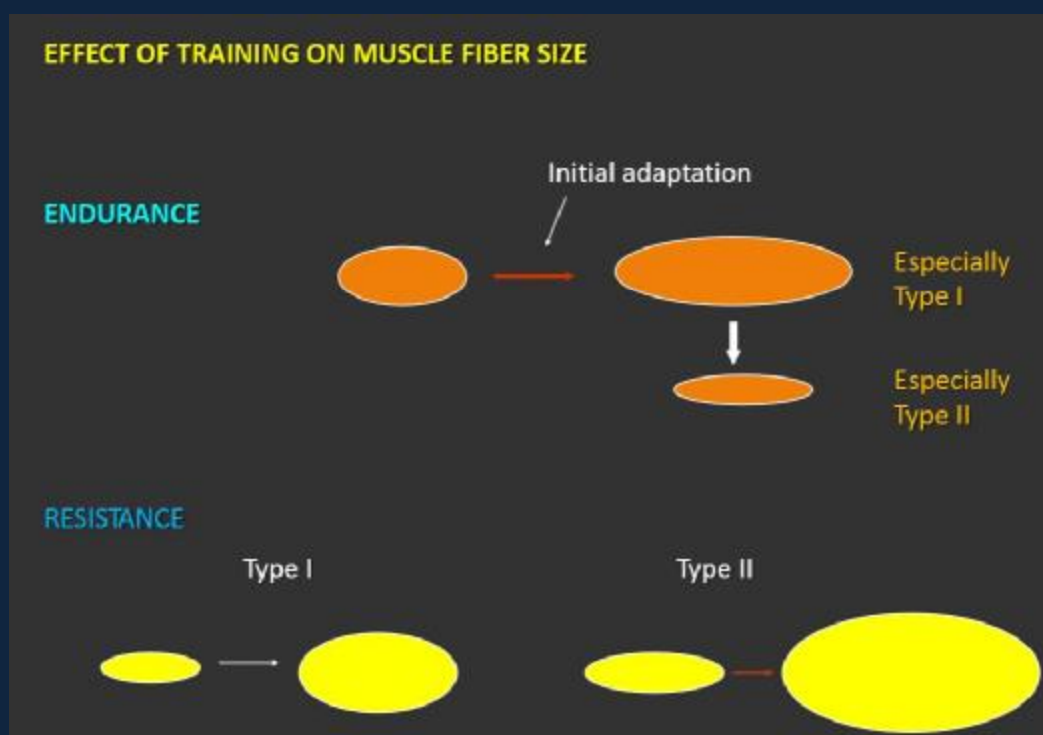
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Mécanismes Théoriques de L'Hypertrophie Musculaire



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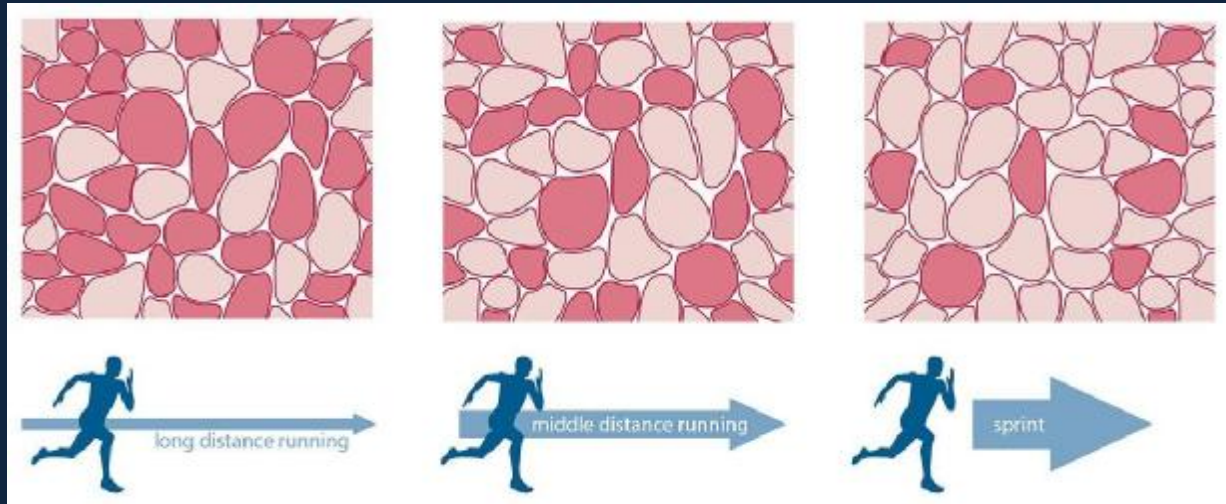
Effets de l'Exercice sur les Fibres Musculaires





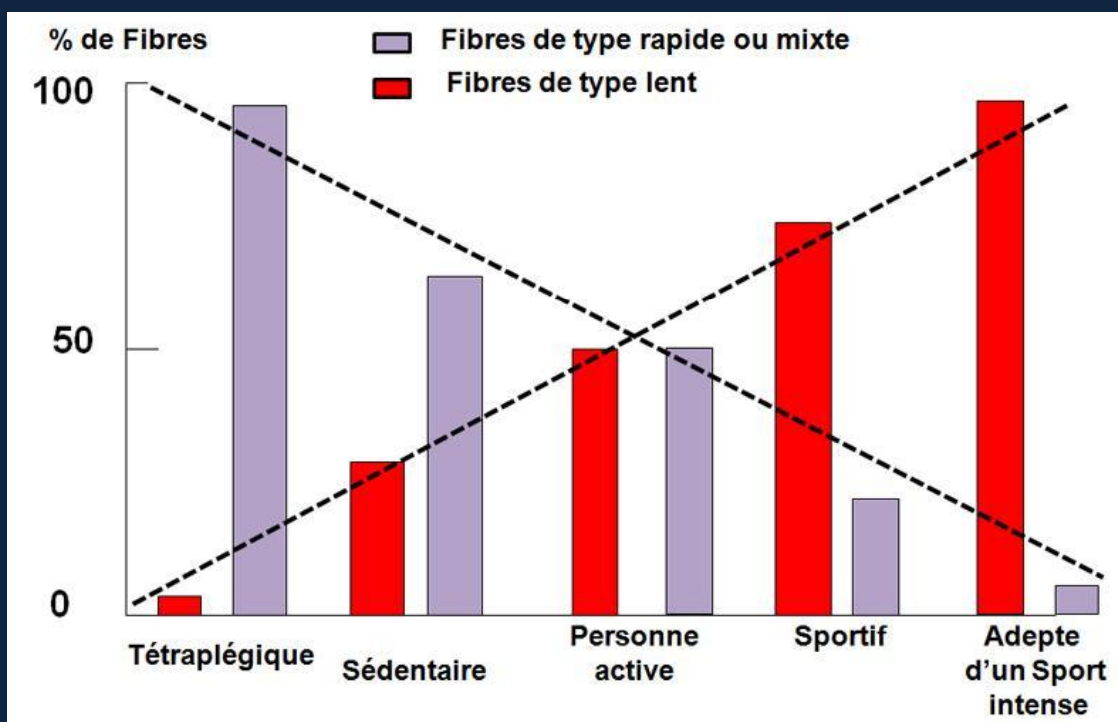
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Effets de l'Exercice sur les Fibres Musculaires



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Effets de l'Exercice sur les Fibres Musculaires





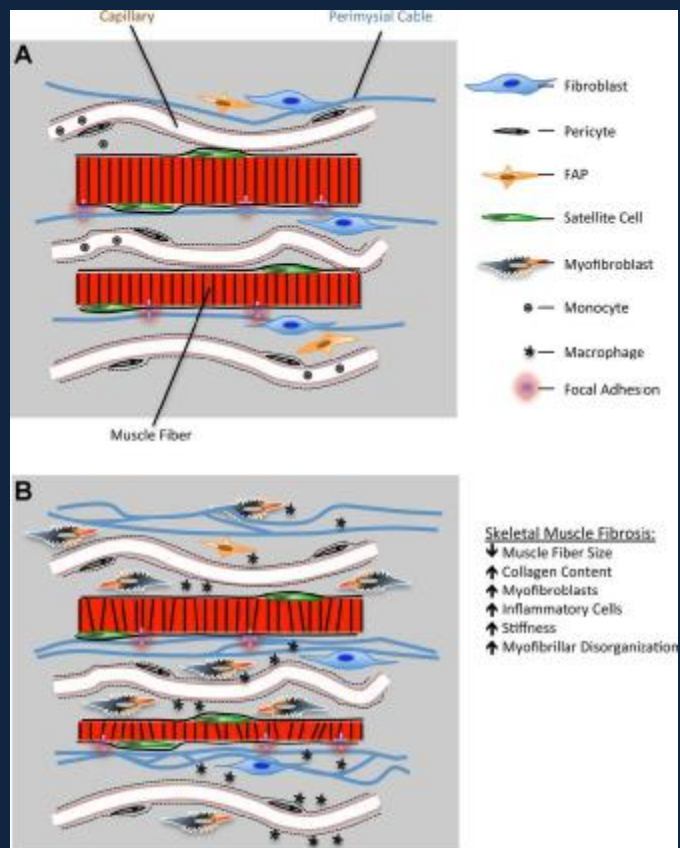
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Biopsie Musculaire



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Effets Secondaires de L'Entrainement Intensif





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Déficiéncie Génétique en Myostatine



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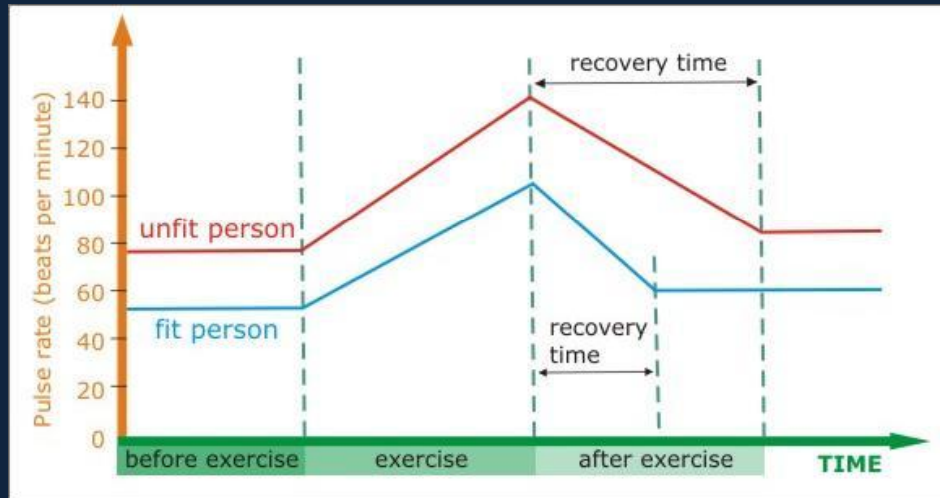
<http://pathias.free.fr/cours/UTB>



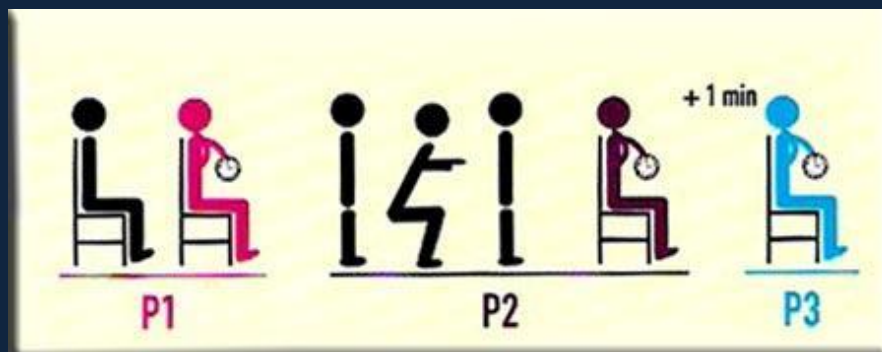
athias.physio@orange.fr



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- P1 = Fc repos;
- P2 = Fc 30 flexions (en 45");
- P3 = FC récup après 1'
- Ruffier
 - $I = [P1 + P2 + P3 - 200] / 10$
 - $I = 0$ → cœur exceptionnel
 - $0 < I < 5$ → cœur robuste entraîné
 - $5 < I < 10$ → cœur banal
 - $10 < I < 15$ → cœur faible
 - $15 < I < 20$ → dangereusement faible



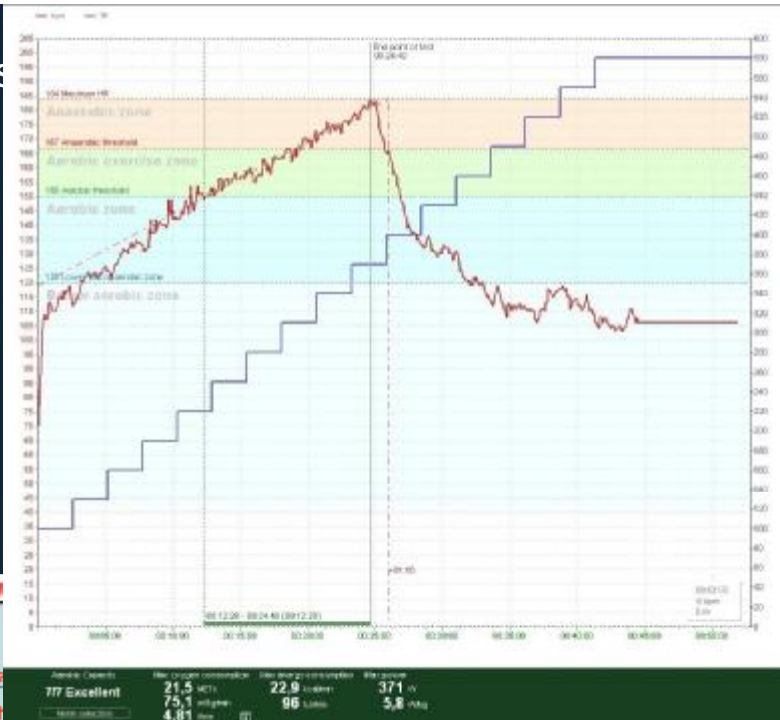
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French 100-years old cycling recordman Robert Marchand testing his functional capacity



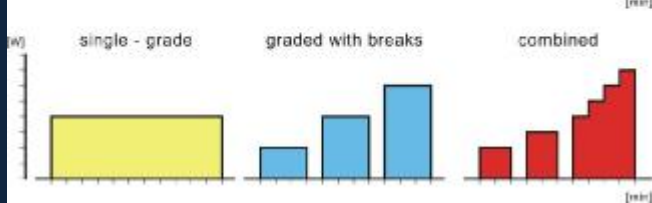
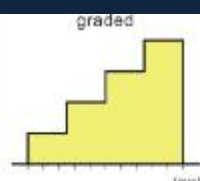
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Limits	Speed @ V
90-95%	Lactate Threshold
80-85%	Aerobic Threshold

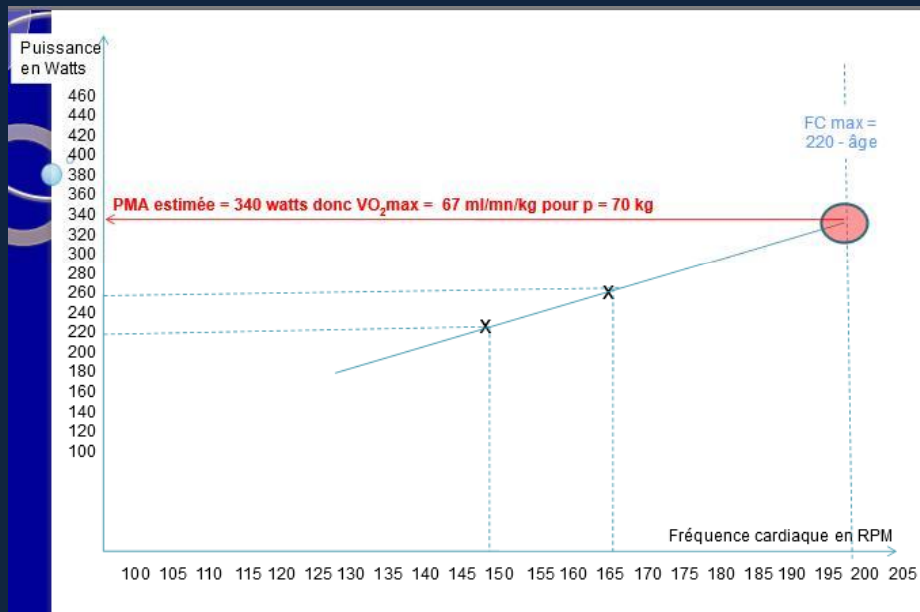
83%

717 Excellent	21.5 kcal/min	22.9 kcal/min	371 v
4.81	75.1	96	5.8





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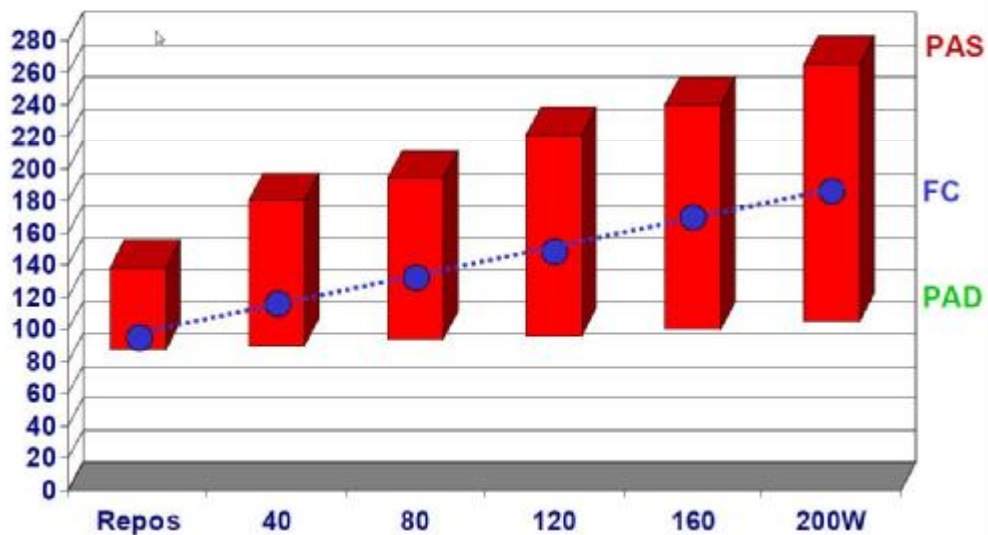


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Hypertension d'effort

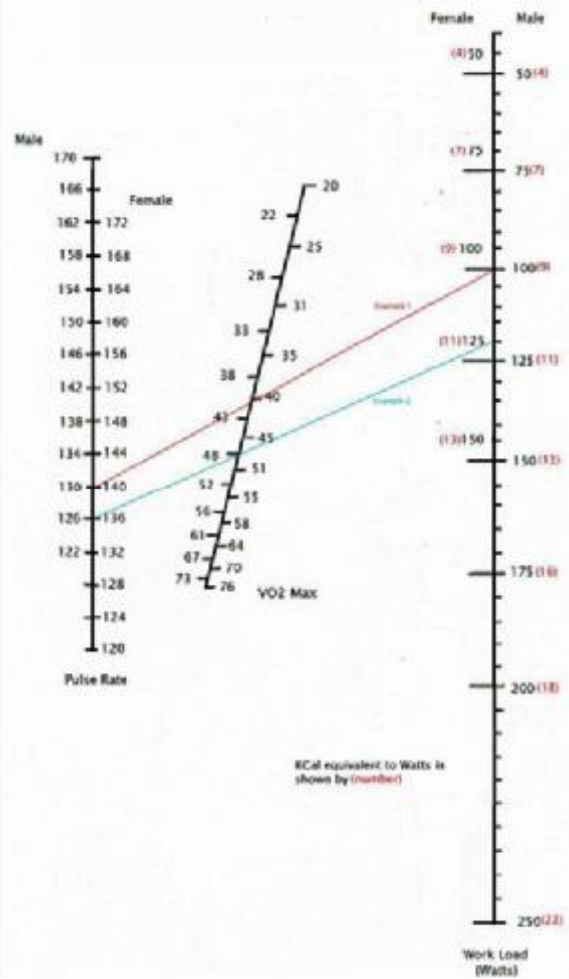
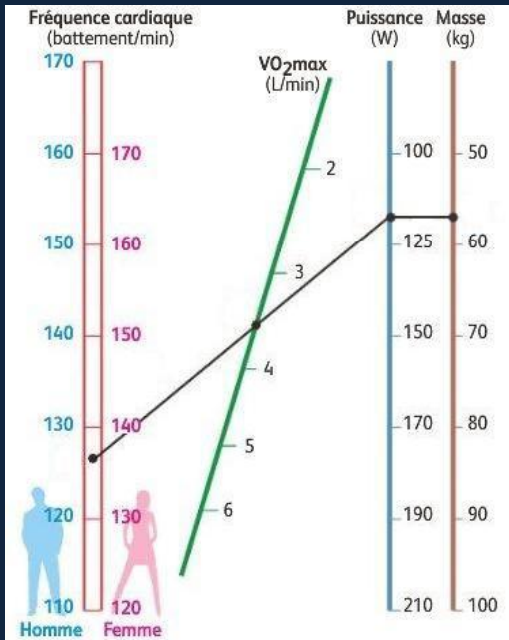
mm Hg

H 53 ans = FMT 167/min - 182 cm / 85 kg

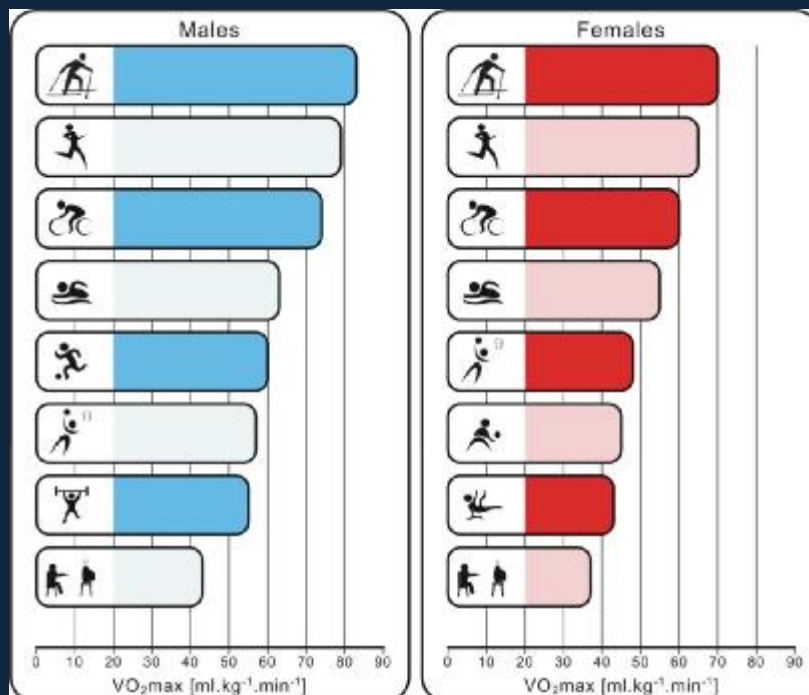




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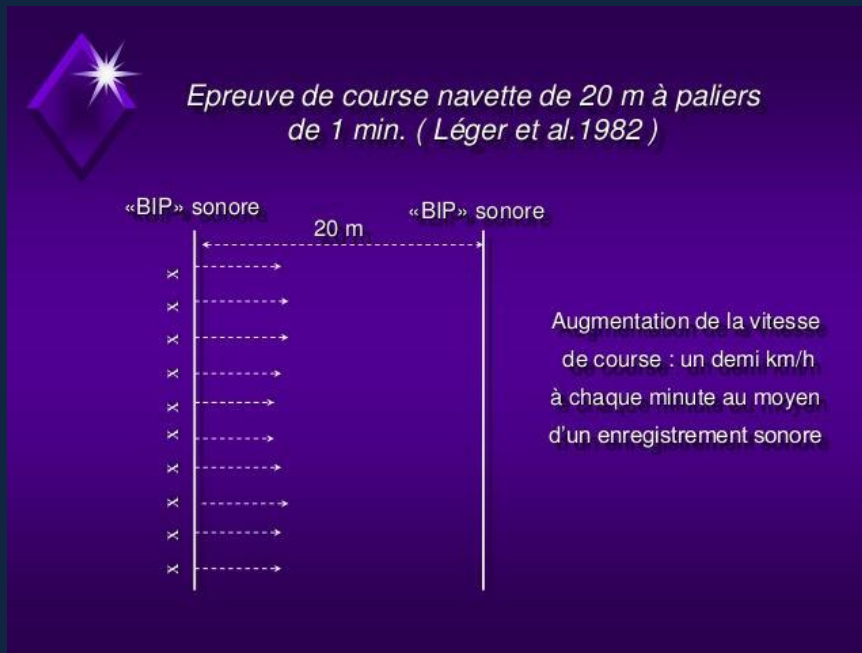


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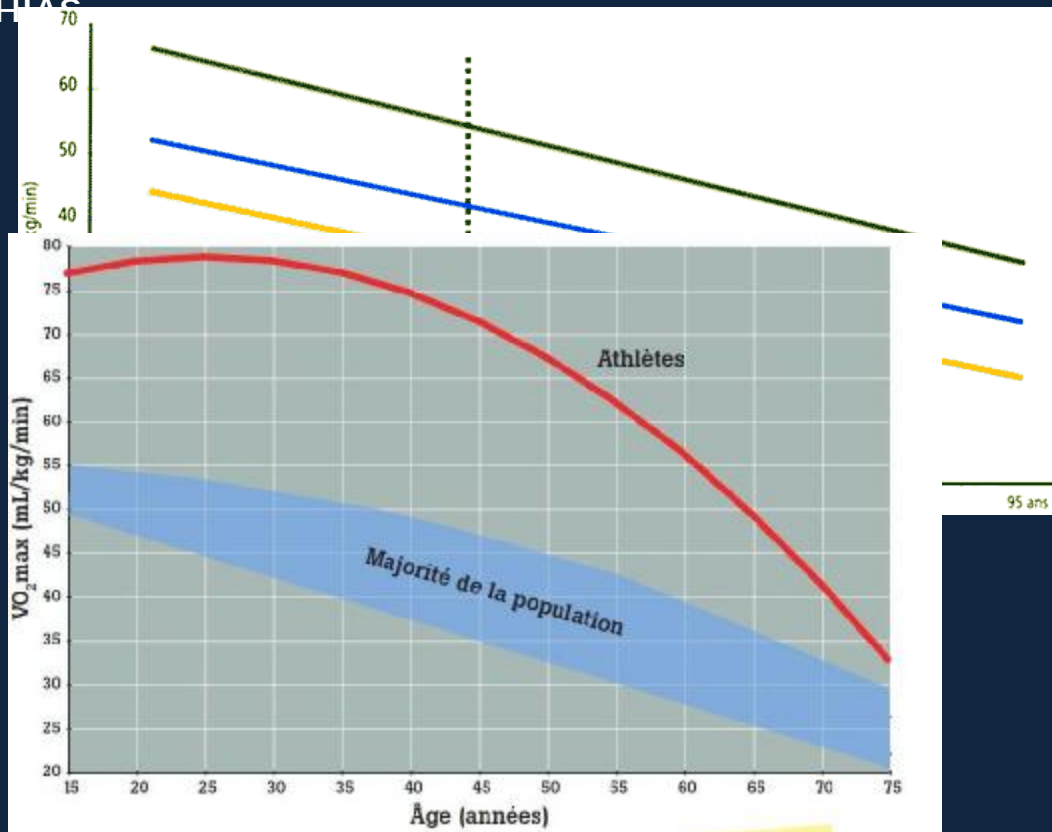




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Marcher 74 minutes par semaine réduirait de 19 % les risques de mortalité. © Garry Knight
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**“What fits your busy schedule better, exercising
one hour a day or being dead 24 hours a day?”**



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<http://pathias.free.fr/cours/UTB>



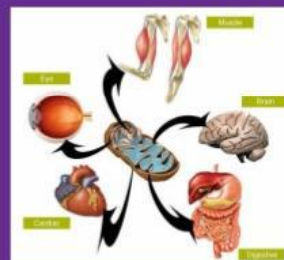
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Mitochondrial Disease

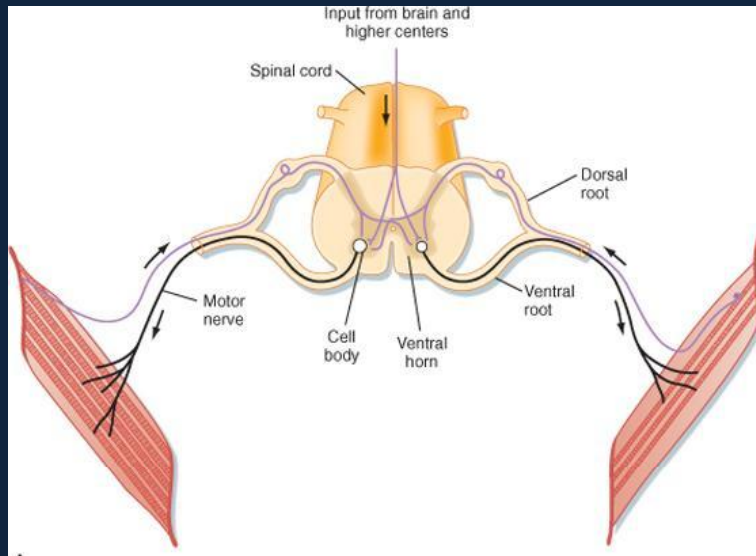
- Primarily affects children but adult onset is becoming more common.
- Damage to cells of the brain, heart, liver, skeletal muscles, kidney and the endocrine and respiratory systems.



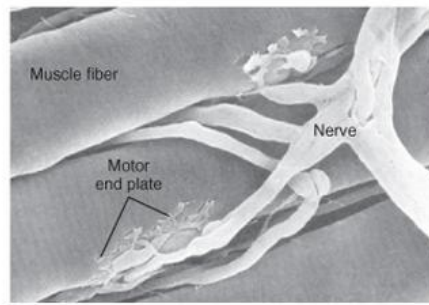
MITOCHONDRIA & CHLOROPLAST



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A

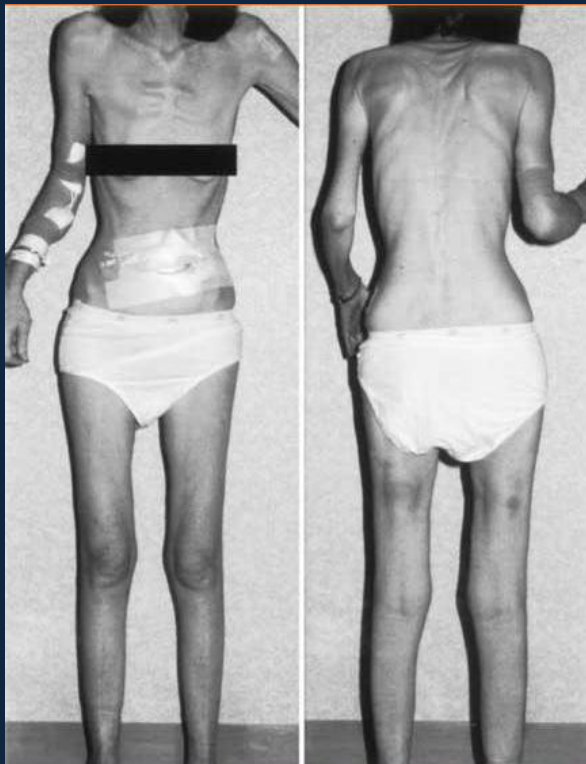


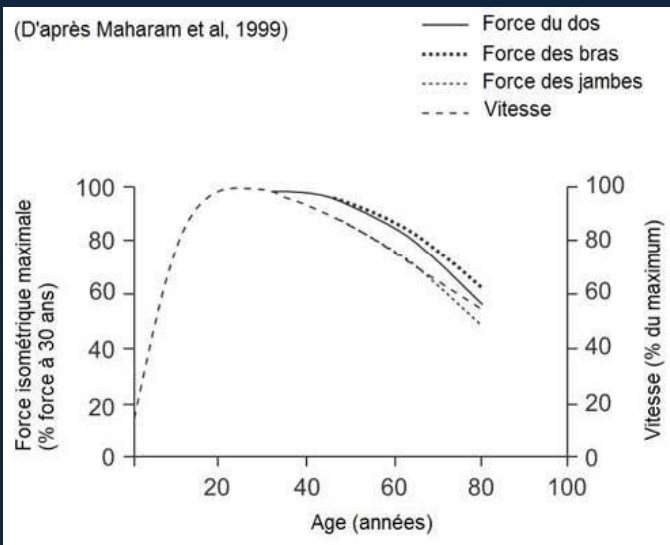
B

Koeppen & Stanton: Berne and Levy Physiology, 6th Edition.
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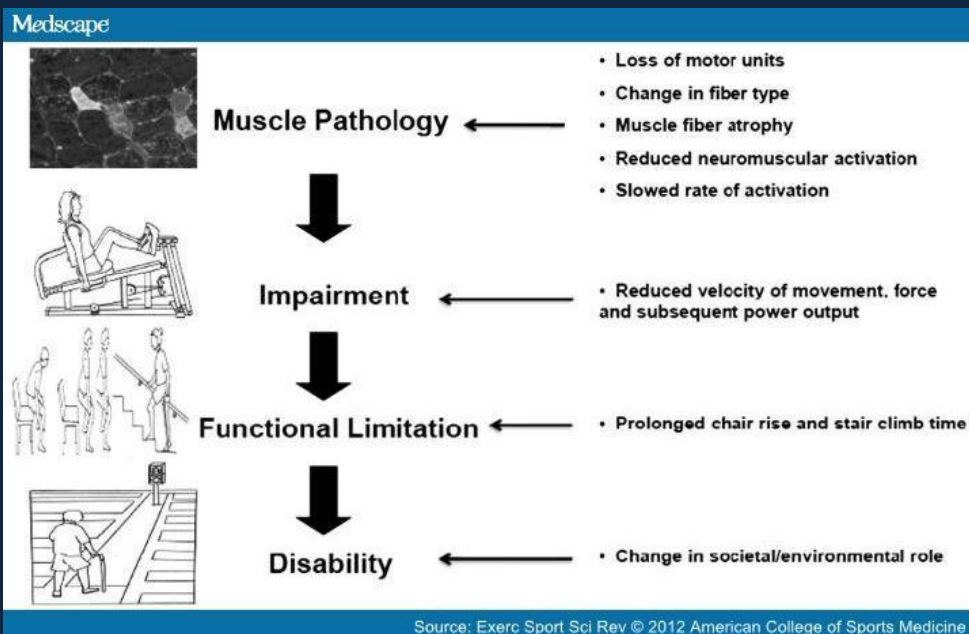


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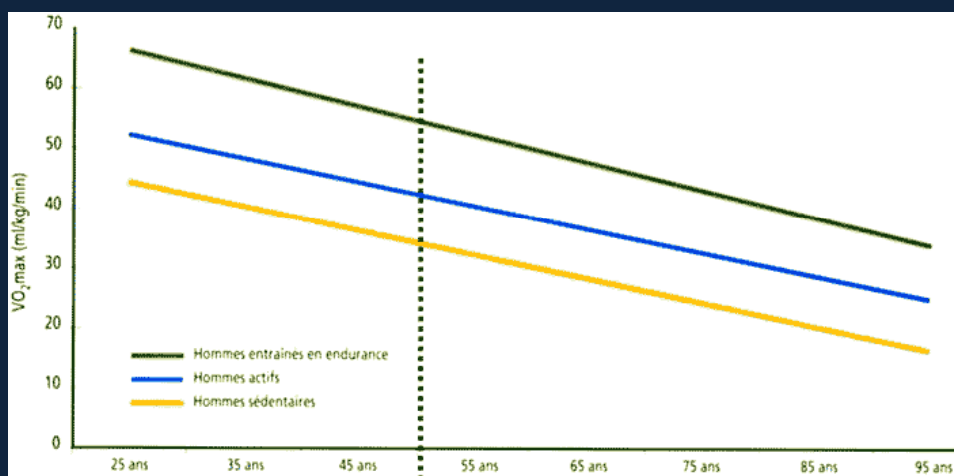
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Source: Exerc Sport Sci Rev © 2012 American College of Sports Medicine



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Un « pack » en 2007 est plus lourd de plus **155 kg** par rapport à 1979...et de plus de **45 kg** par rapport à 1999...

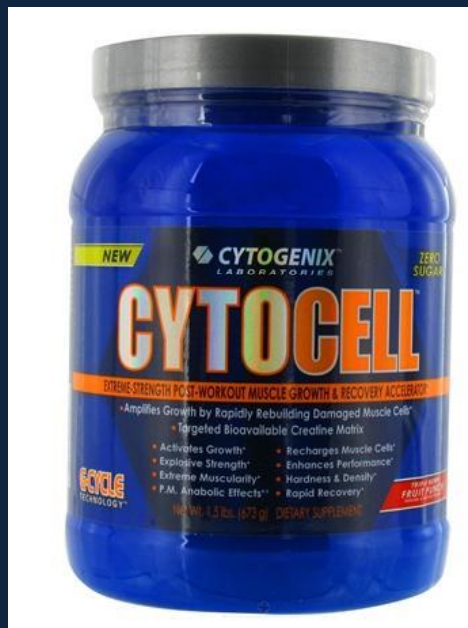


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Each serving of CYTOCELL triggers five critical mechanisms that are considered by researchers and physiologists to be of vital importance to creating the ultimate anabolic environment for post-workout muscle growth to occur.



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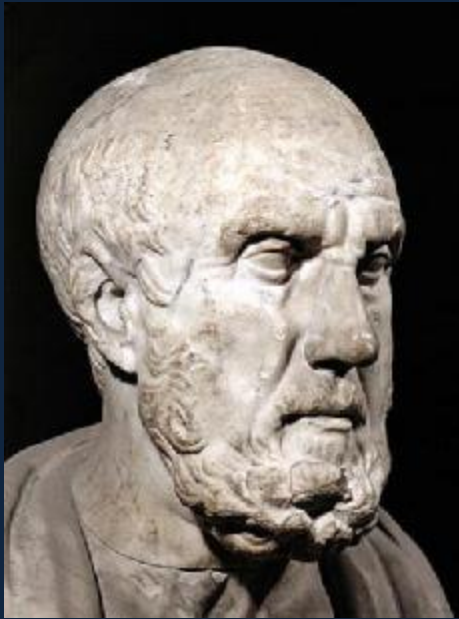
06 Avril 2015, 08h36 | MAJ : 06 Avril 2015, 09h32



La Japonaise Mieko Nagaoka est devenue la première centenaire à boucler une course de 1 500 mètres. (CCTV.)



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"La force qui est
en chacun de nous
est notre
plus grand médecin"

Hippocrate