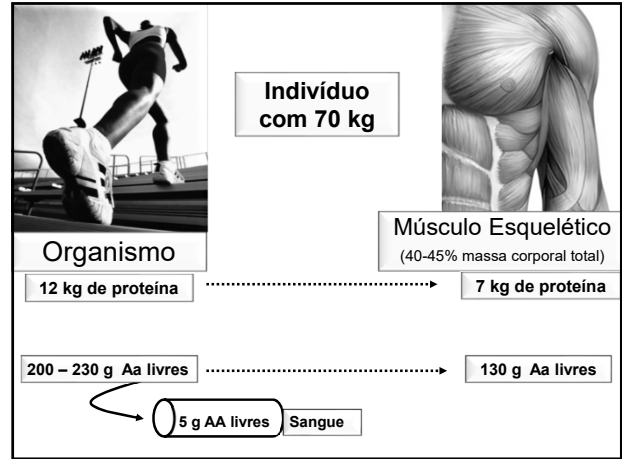




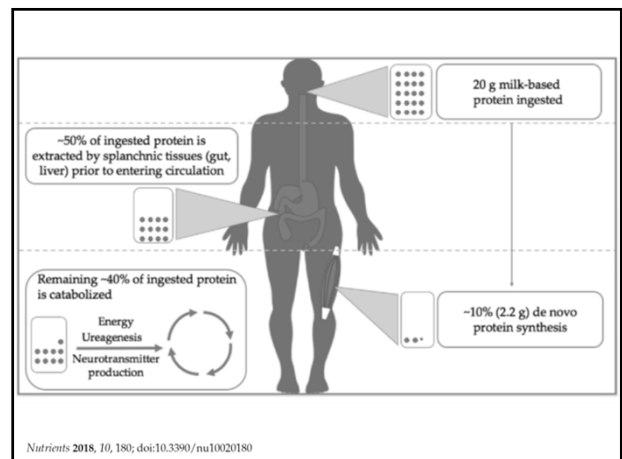
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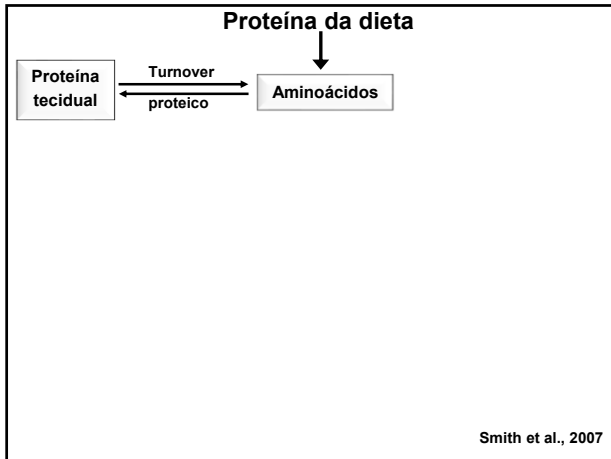
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Metabolismo de Aminoácidos e Proteínas

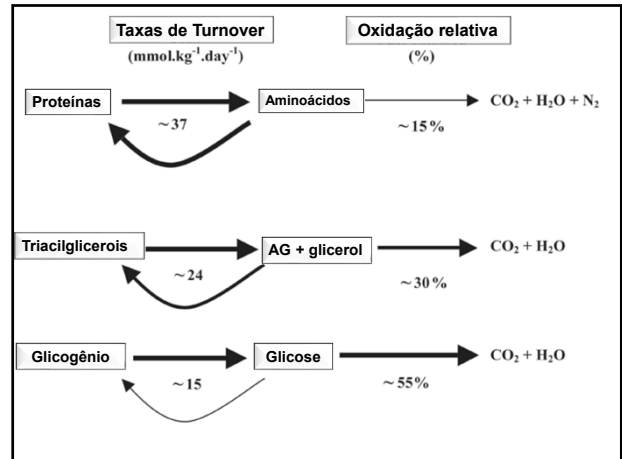
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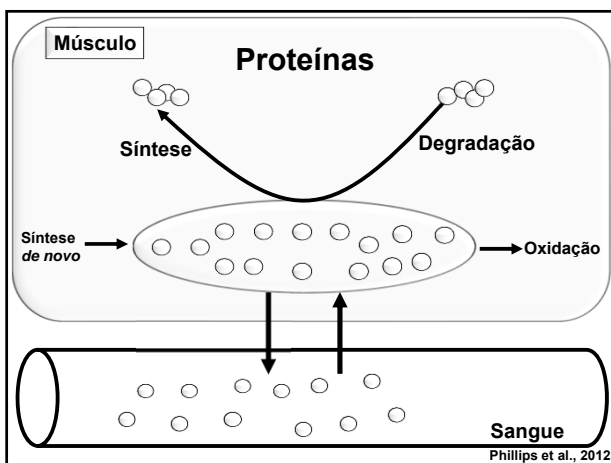
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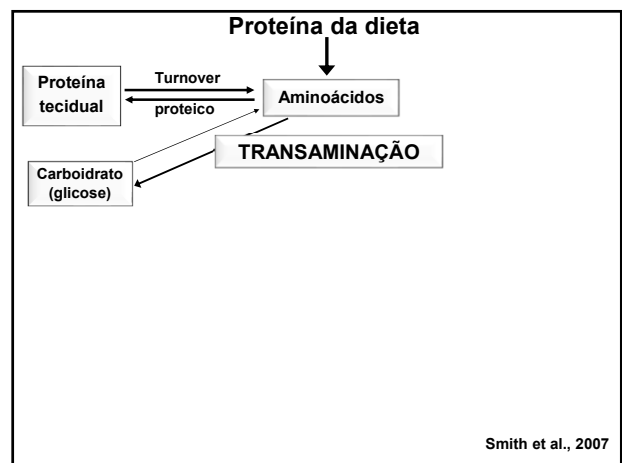
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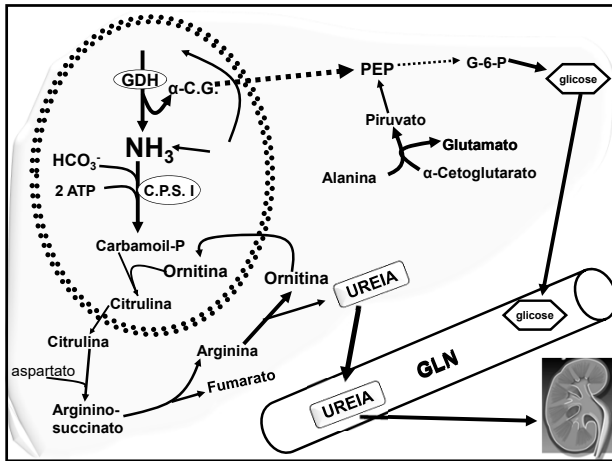
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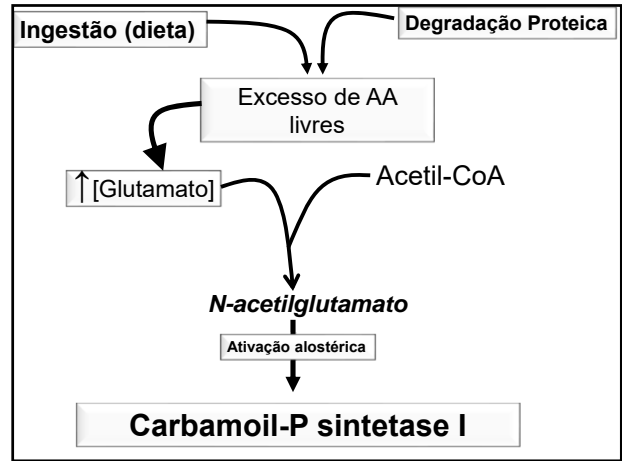
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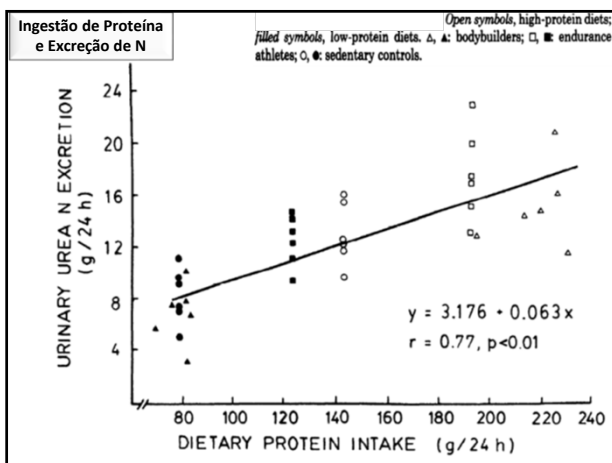
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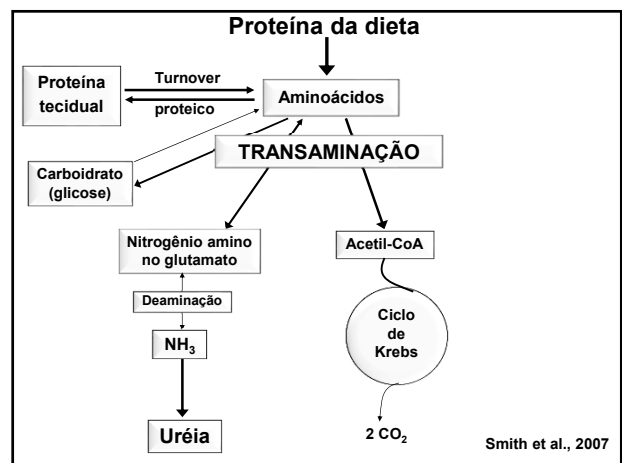
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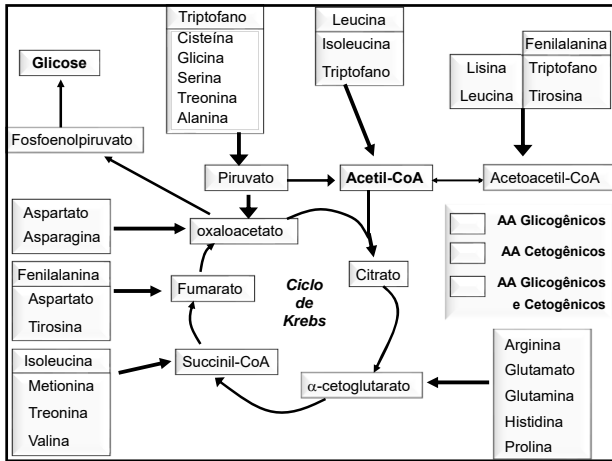
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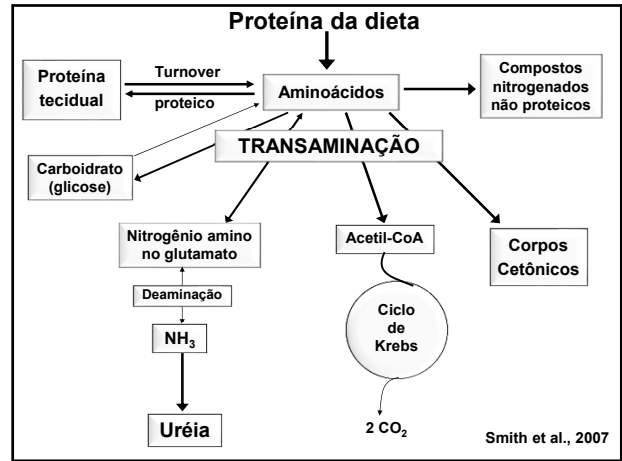
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12



13



14

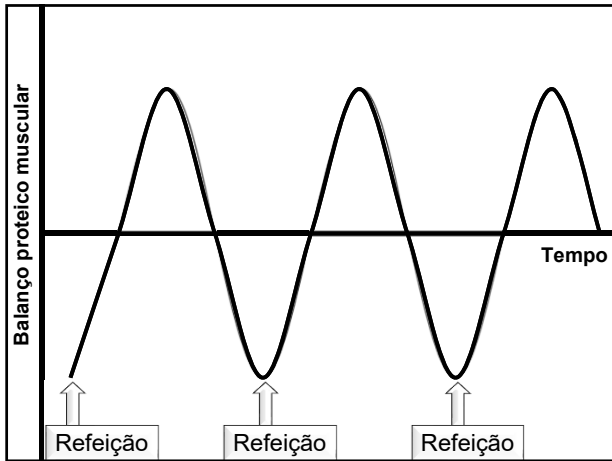
AMINOÁCIDOS PRECURSORES	PRODUTO FINAL
Triptofano	Serotonina
Triptofano	Ácido nicotínico
Tirosina	Catecolaminas
Tirosina	Hormônios da tireóide
Tirosina	Melanina
Lisina	Carnitina
Cisteína	Taurina
Arginina	Óxido nítrico
Glicina, arginina, metionina	Creatina
Glutamato, cisteína, glicina	Glutathione

15

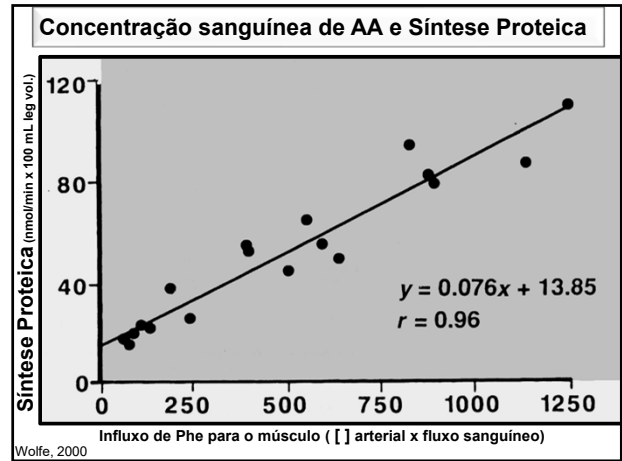
BALANÇO PROTEICO MUSCULAR =

SÍNTESE – DEGRADAÇÃO

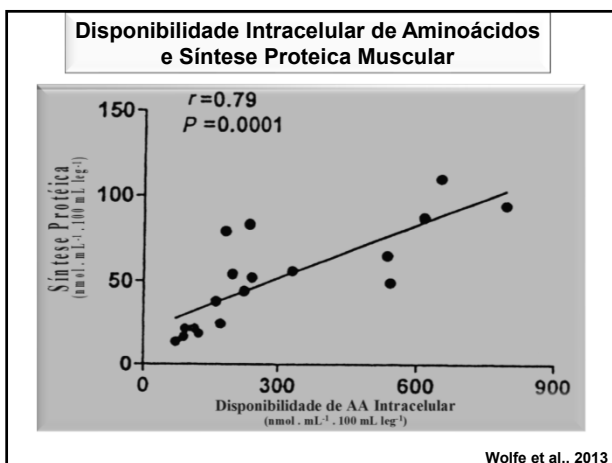
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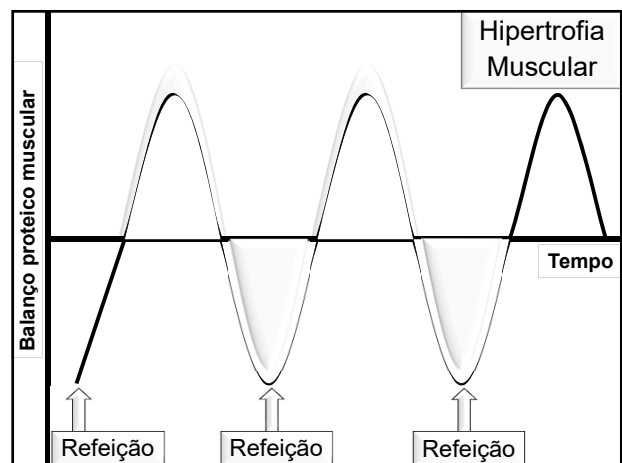
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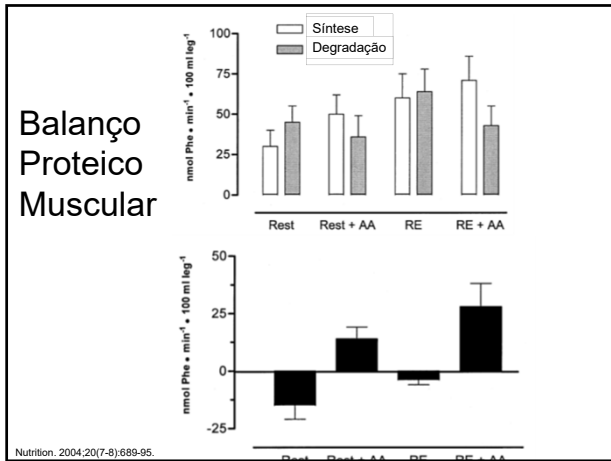
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19



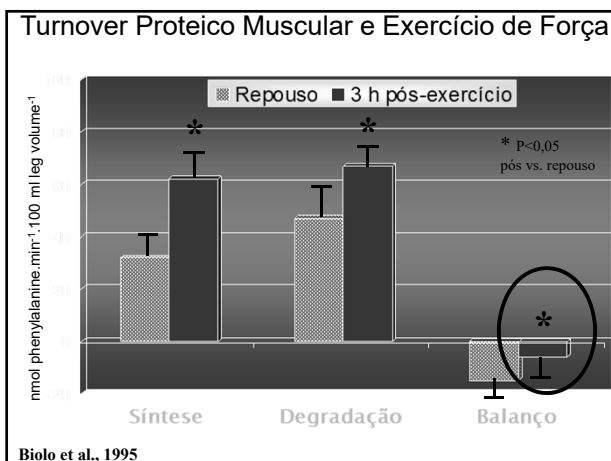
20



21

Efeitos Agudos do Exercício de Força sobre o Balanço Proteico Muscular

22



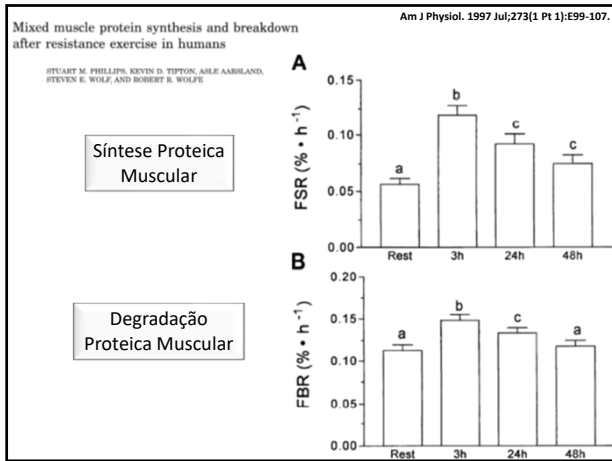
23

Exercício de Força e Síntese Proteica Muscular

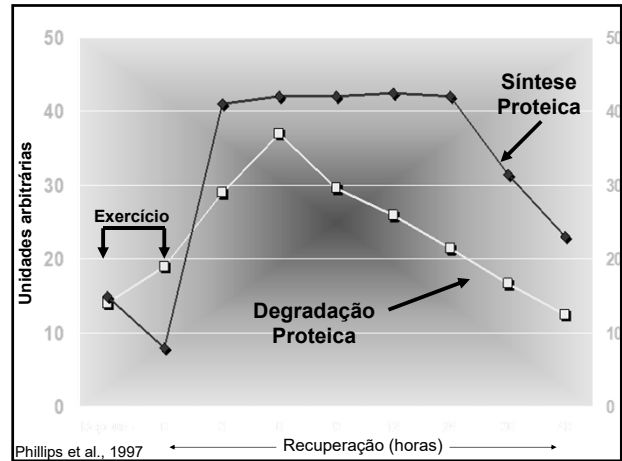
Exercise protocol	FSR (%/h) Post-Ex/Pre-Ex ratio
Mixed muscle proteins	
4 x 6-12 rep. 80% max	+49%*
5 x 10 rep. 100% max	+136%*
8 x 8 rep. 80% max	+140%*
8 rep. 120% max	+122%*
6 x 8 rep. 80% max	+30%*
8 x 10 rep. 75% max	+36%*
10 x 10 rep. 80% max	+50%*
4 x 10 rep. 80% max	+135%*
5 rep. 90% max	+350%*
Myofibrillar proteins	
5 rep. 90% max	+330%*
Sarcoplasmic proteins	
5 rep. 90% max	+170%*

Brazilian Journal of Medical and Biological Research (2012) 45: 876-890

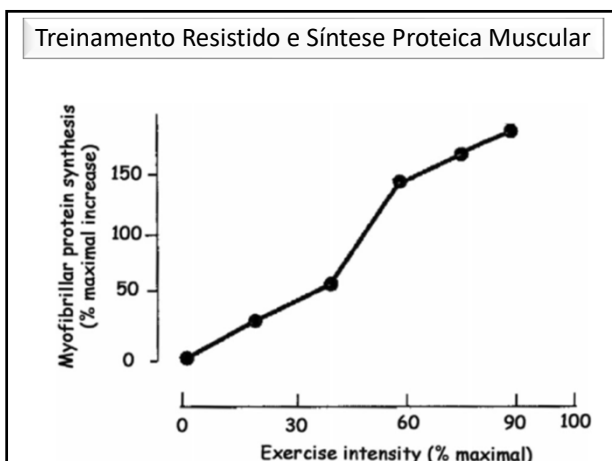
24



25



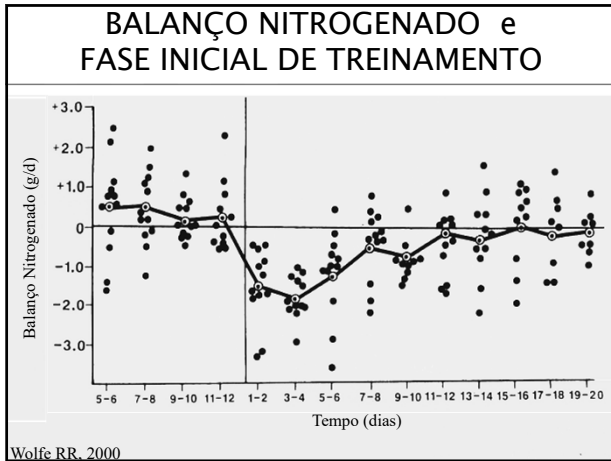
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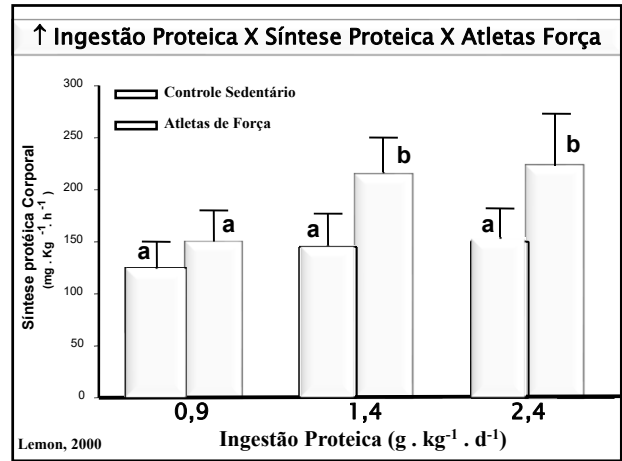
27

**INGESTÃO
 PROTEICA**

28



29



30

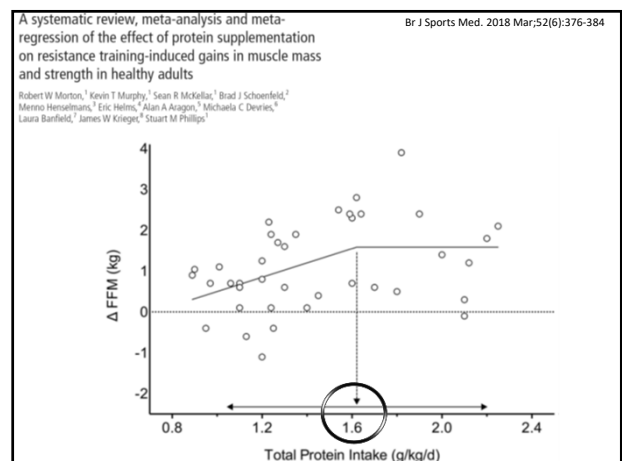
Review

OPEN ACCESS

A systematic review, meta-analysis and meta-regression of the effect of protein supplementation on resistance training-induced gains in muscle mass and strength in healthy adults

Robert W Morton,¹ Kevin T Murphy,¹ Sean R McKellar,¹ Brad J Schoenfeld,² Menno Henselmans,³ Eric Helms,⁴ Alan A Aragon,⁵ Michaela C Devries,⁶ Laura Barfield,⁷ James W Krieger,⁸ Stuart M Phillips¹

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Infographic

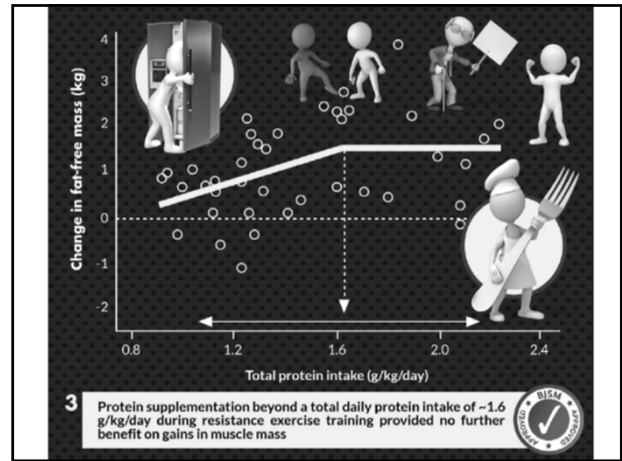
Infographic. The effect of protein supplementation on resistance training-induced gains in muscle mass and strength

Kevin T Murphy,¹ Sean R McKellar,¹ Brad J Schoenfeld,² Menno Henselmans,³ Eric Helms,⁴ Alan A Aragon,⁵ Michaela C Devries,⁶ Laura Banfield,⁷ James W Krieger,⁸ Stuart M Phillips^{9,1}

Data from 49 studies with 1863 participants were analyzed to evaluate the effect dietary protein supplementation on change in muscle mass & strength

Br J Sports Med 2019;0:1. doi:10.1136/bjsports-2019-100990

33



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SPECIAL COMMUNICATIONS

AMERICAN COLLEGE OF SPORTS MEDICINE
MEMBERS OF NUTRITION AND BEHAVIOR MEDICINE OF CANADA

Nutrition and Athletic Performance

1,2 – 2,0 g Prot/kg/dia

Journal of the International Society of Sports Nutrition

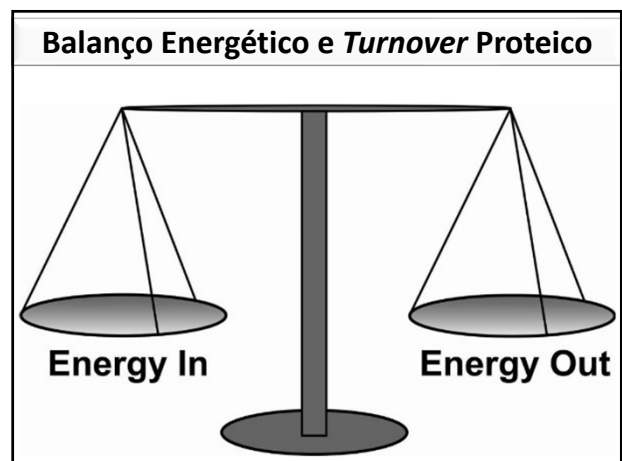
Open Access

1,4 – 2,0 g Prot/kg/dia

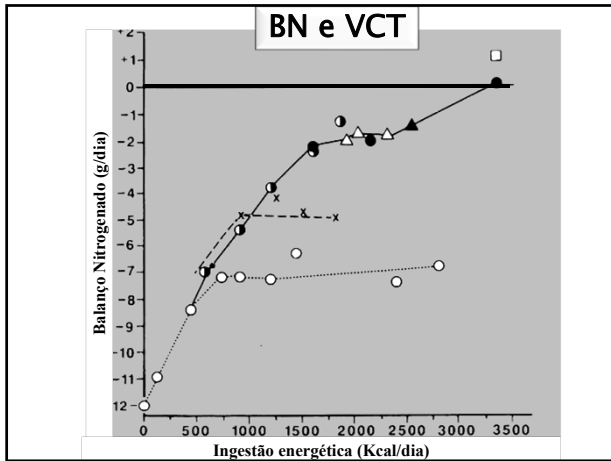
International Society of Sports Nutrition Position Stand: protein and exercise

Ralf Jäger¹, Chad M. Kerckhoff², Bill I. Campbell³, Paul J. Cribb⁴, Shawn D. Wells⁵, Tim M. Szwed⁶, Martin Purpura⁷, Tim N. Ziegenfuss⁸, Amy A. Ferrando⁹, Shawn M. Aron¹⁰, Abbie E. Smith-Ryan¹¹, Jeffrey R. Stout¹², Paul J. Arciero¹³, Michael J. Ormsbee^{14,15}, Leen W. Taylor¹⁶, Colin D. Williams¹⁷, Doug S. Kalman¹⁸, Richard B. Kreider¹⁹, Darryn S. Willoughby²⁰, Jay R. Hoffman²¹, Jamie L. Kozlowski²² and Jose Antonio²³ ©

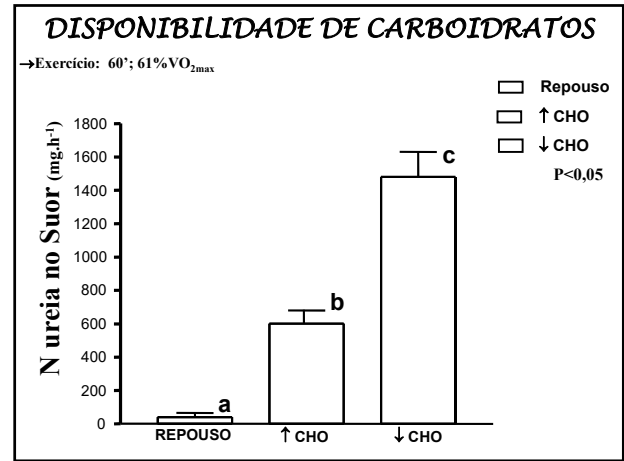
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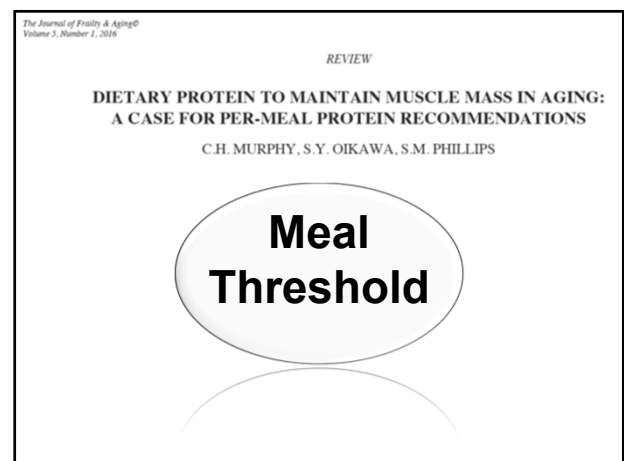
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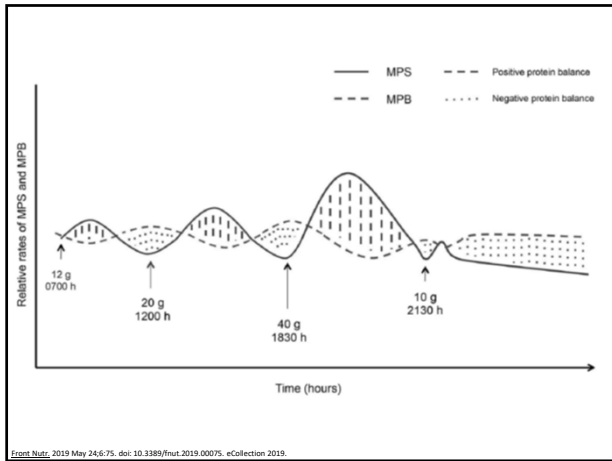
38

Quantidade de ingestão de **Proteína** por refeição?

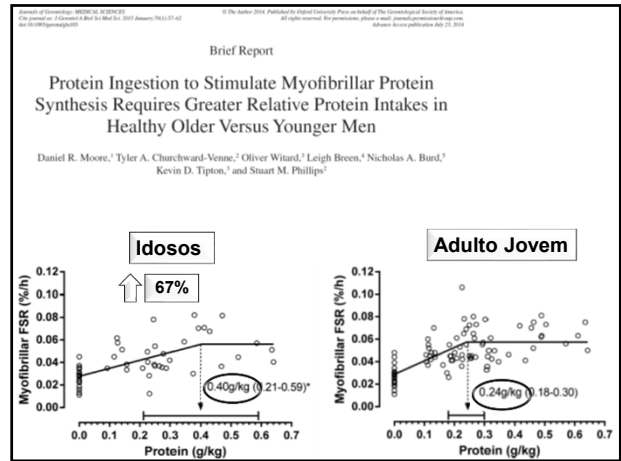
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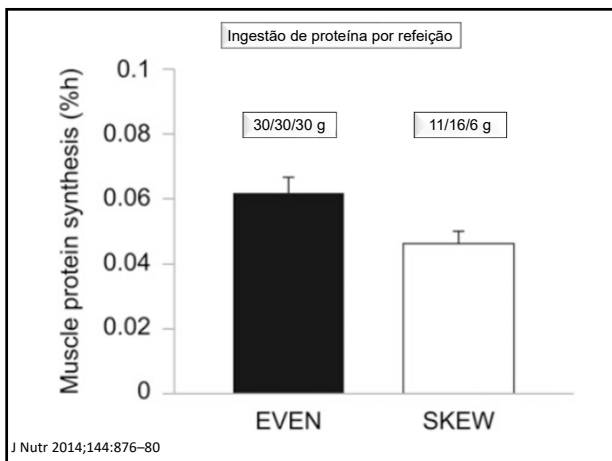
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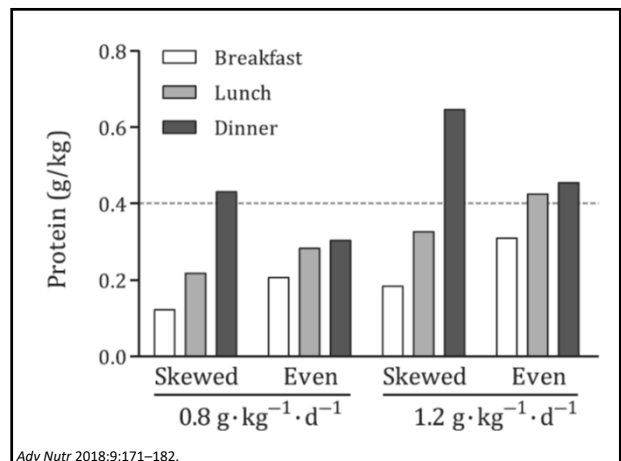
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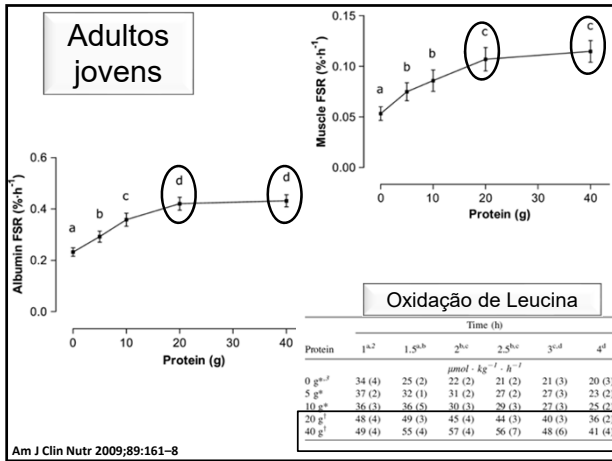
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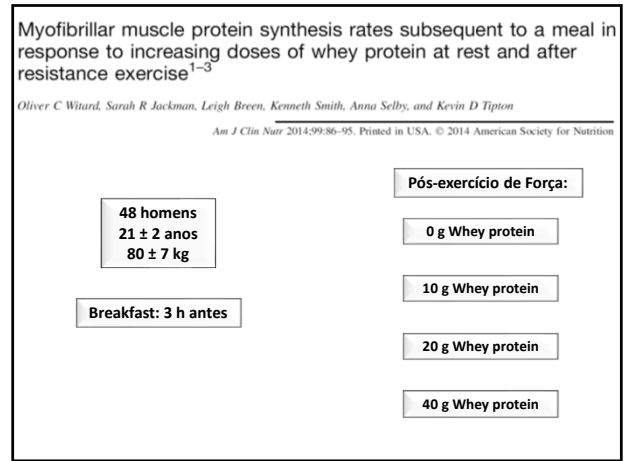
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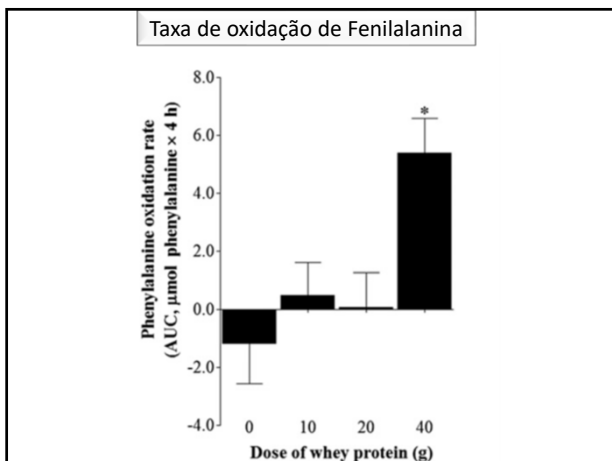
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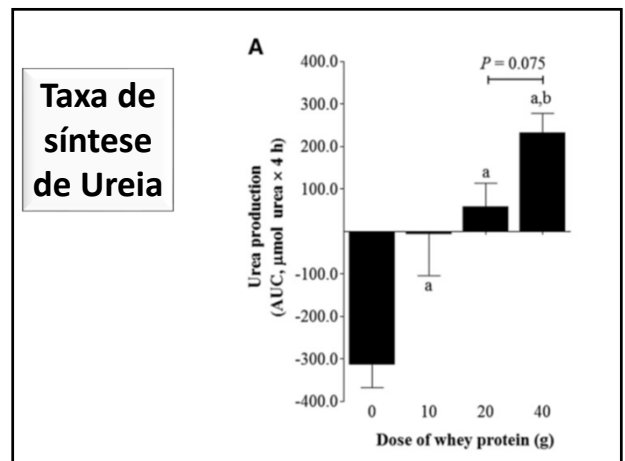
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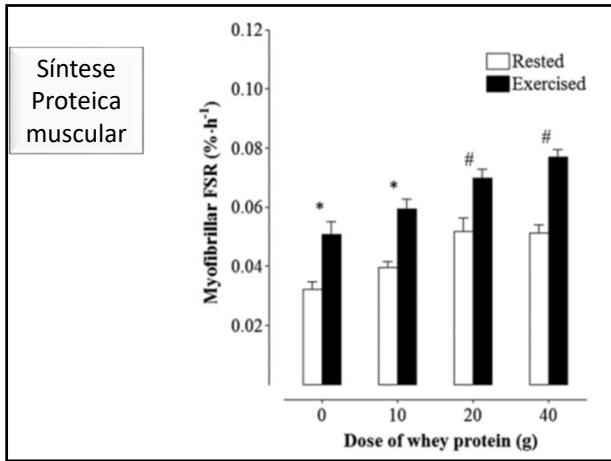
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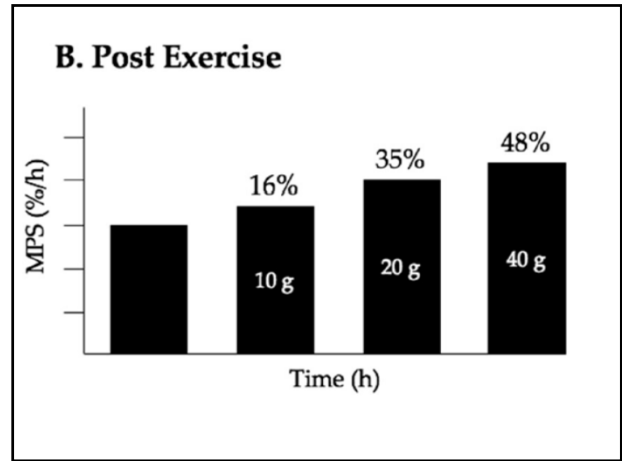
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49



50

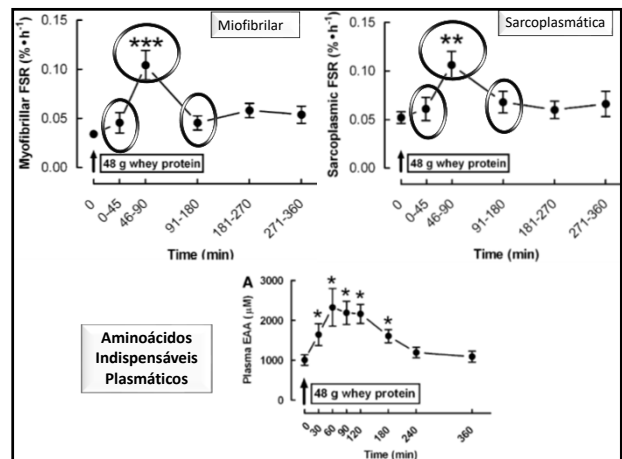
Muscle-full

Muscle full effect after oral protein: time-dependent concordance and discordance between human muscle protein synthesis and mTORC1 signaling¹⁻⁴

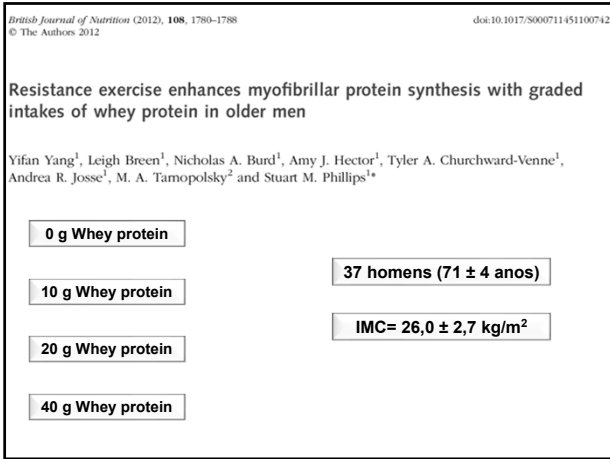
Philip J Atherton, Timothy Etheridge, Peter W Watt, Daniel Wilkinson, Anna Selby, Debbie Rankin, Ken Smith, and Michael J Rennie

Am J Clin Nutr 2010;92:1080-8. Printed in USA. © 2010 American Society for Nutrition

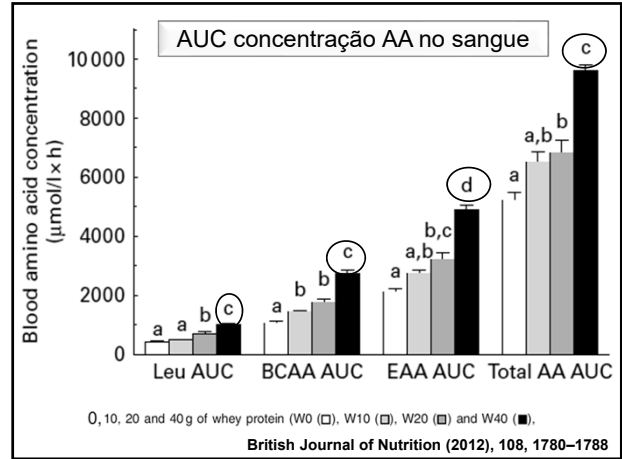
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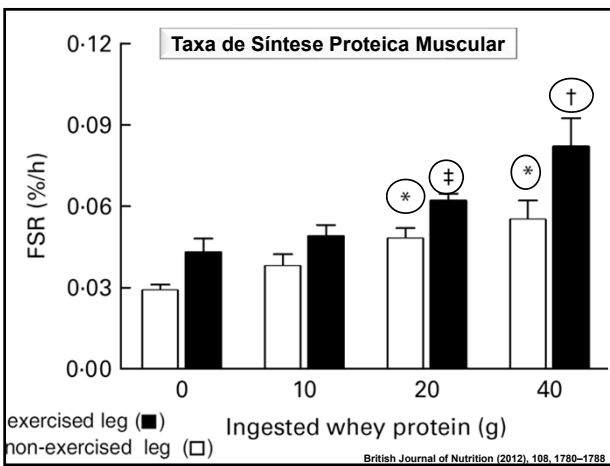
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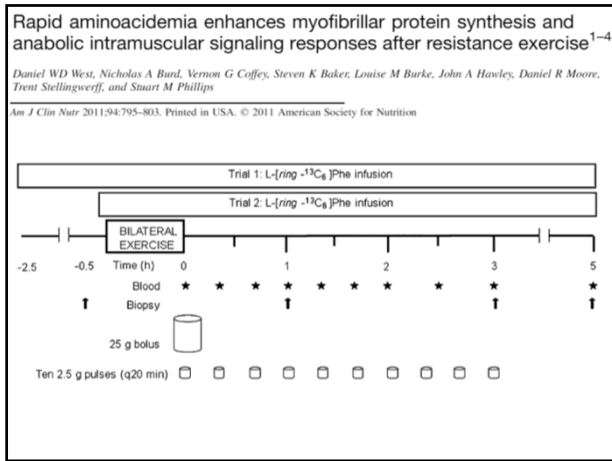
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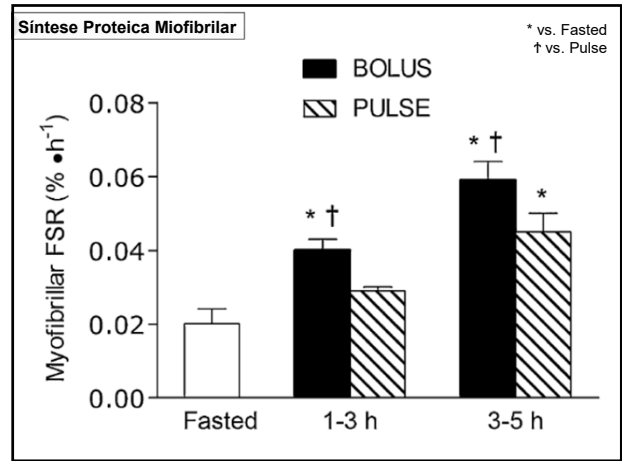
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Distribuição da Ingestão de Proteínas

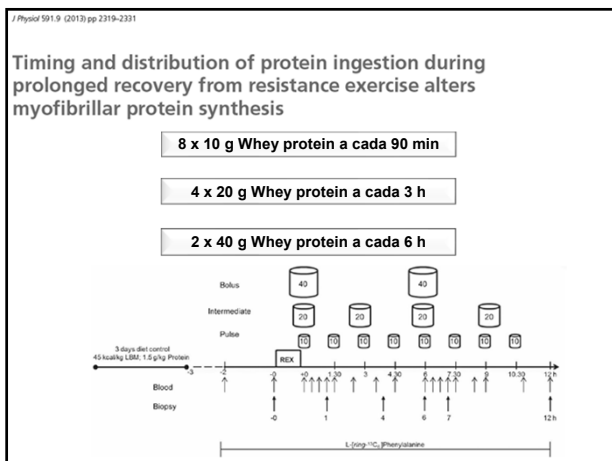
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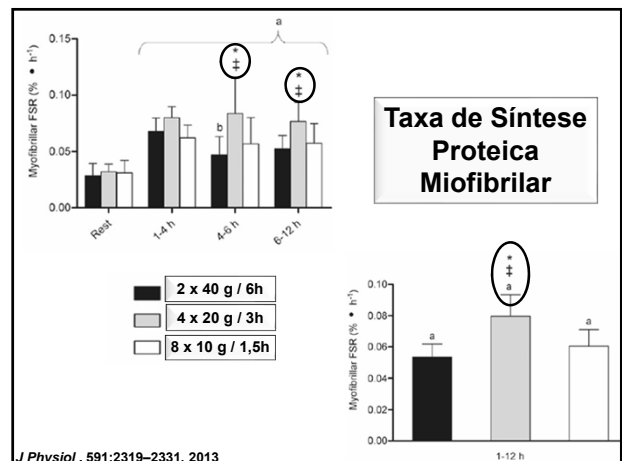
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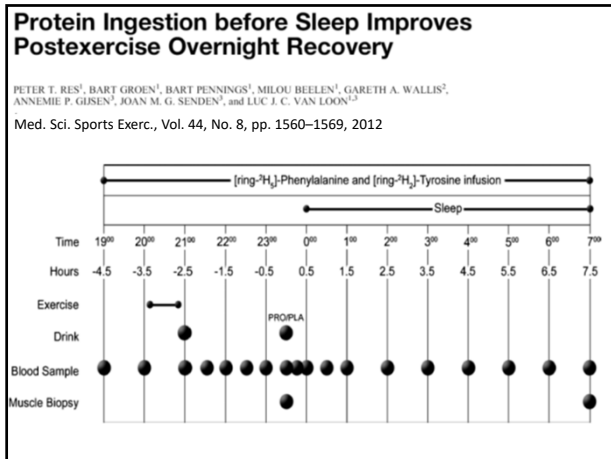
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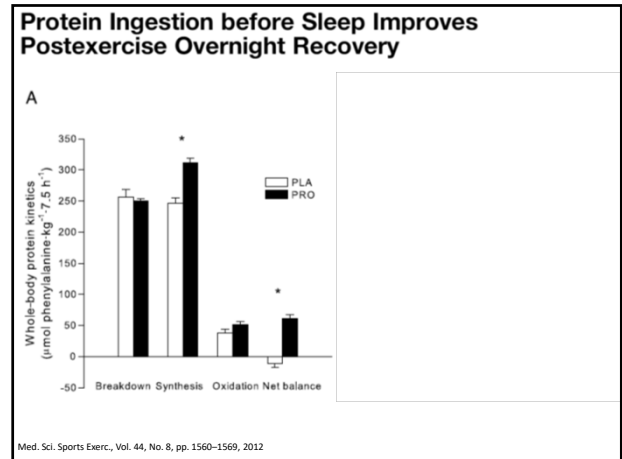
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The Journal of Nutrition
 Nutrient Physiology, Metabolism, and Nutrient-Nutrient Interactions

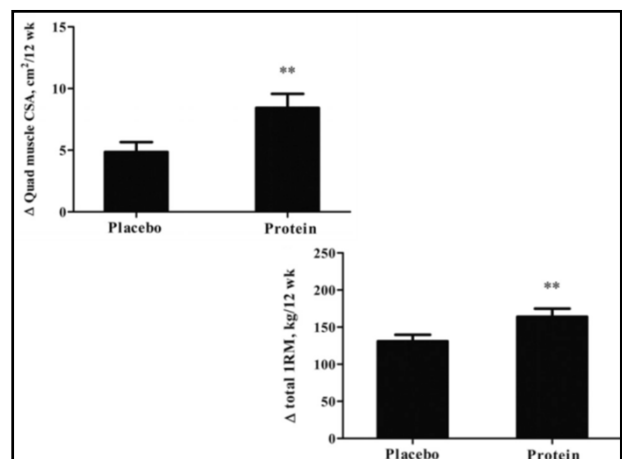
Protein Ingestion before Sleep Increases Muscle Mass and Strength Gains during Prolonged Resistance-Type Exercise Training in Healthy Young Men^{1–3}

Tim Snijders,^{4,7} Peter T Res,⁴ Joey SJ Smeets,⁴ Stephan van Vliet,^{4,8} Janneau van Kranenburg,⁴ Kamiel Maase,⁷ Arie K Kies,⁶ Lex B Verdijk,⁴ and Luc JC van Loon^{4*}

Protein supplement: 27.5 g PRO, 15 g CHO, 0.1 g FAT

12-wk resistance exercise training

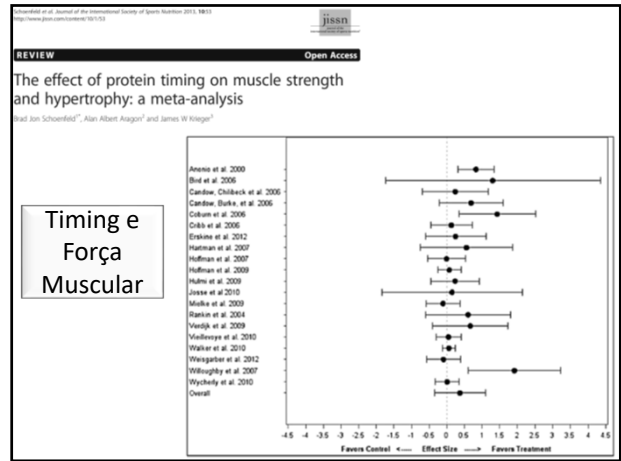
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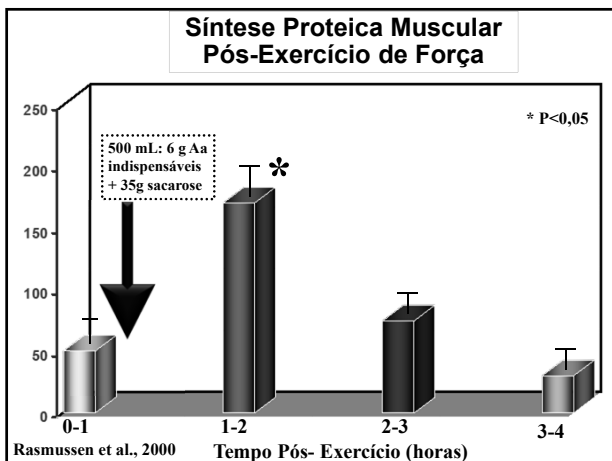
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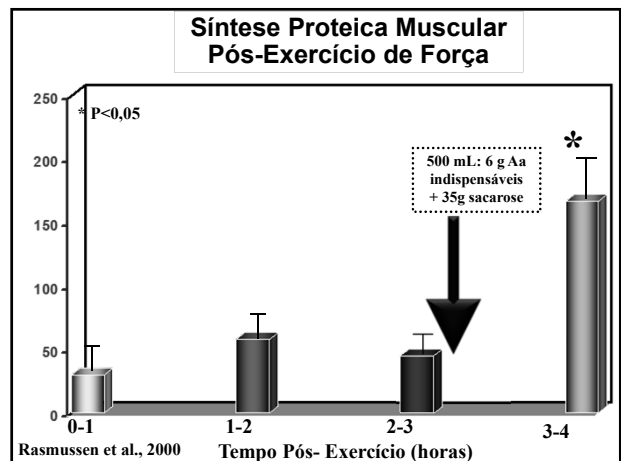
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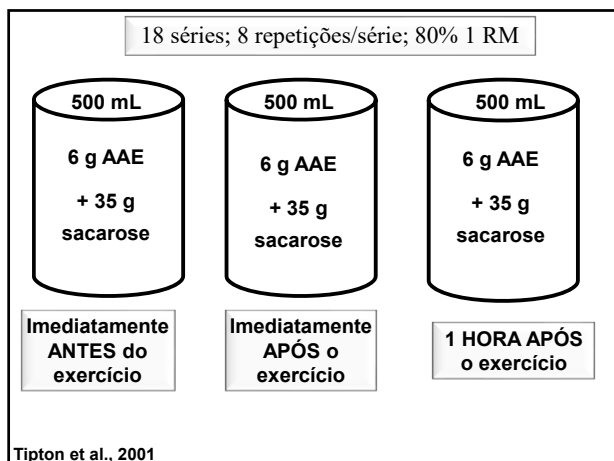
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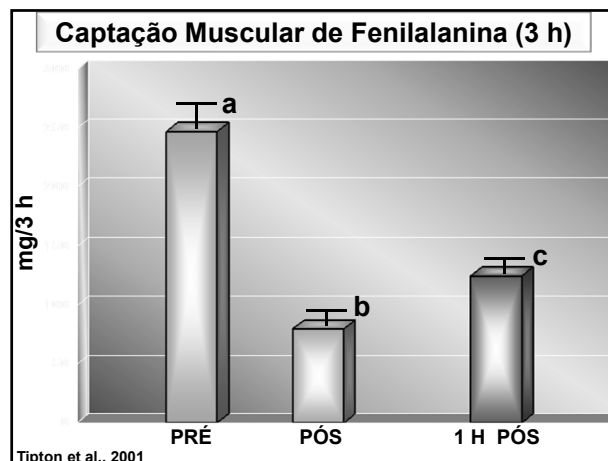
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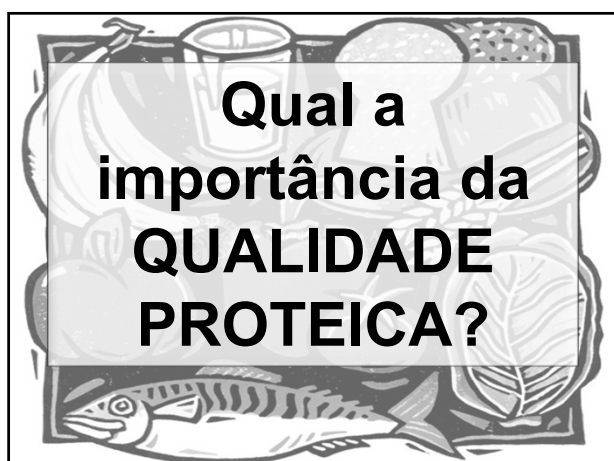
68



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PROTEÍNA	PDCAAS
Proteína do soro do leite	1,00
Caseína	1,00
Proteína isolada de soja	1,00
Proteína concentrada de soja	0,99
Carne vermelha	0,92
Lentilha enlatada	0,52
Farinha de ervilha	0,69
Feijão enlatado	0,68
Trigo integral	0,40

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JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY

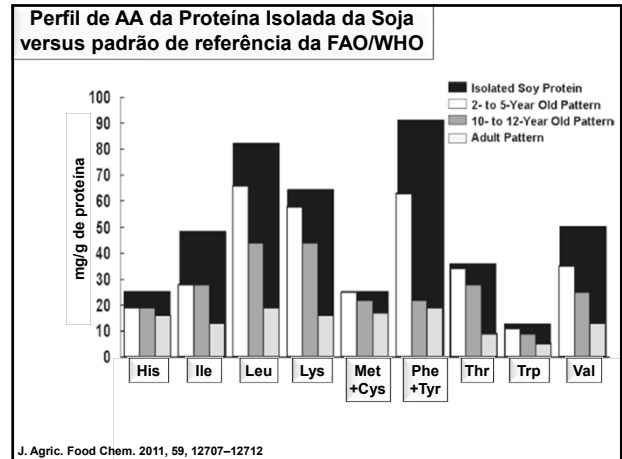
ARTICLE
pubs.acs.org/JAFC

Protein Digestibility-Corrected Amino Acid Scores (PDCAAS) for Soy Protein Isolates and Concentrate: Criteria for Evaluation
Glenna J. Hughes,* David J. Ryan, Ratna Mukherjee, and Charles S. Schasteen
J. Agric. Food Chem. 2011, 59, 12707–12712

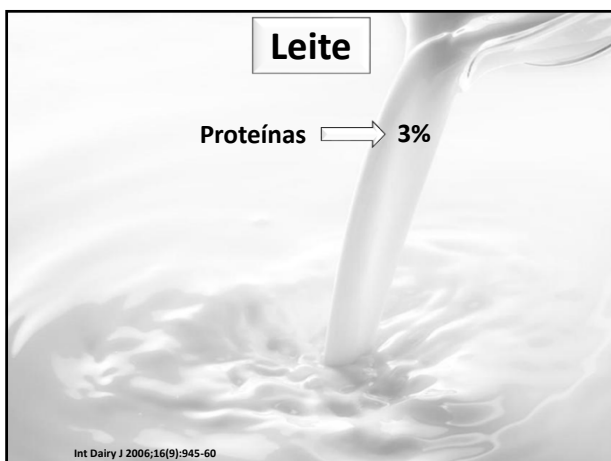
Proteína Concentrada da soja **Proteína Isolada da soja**

PDCAAS = 1,00

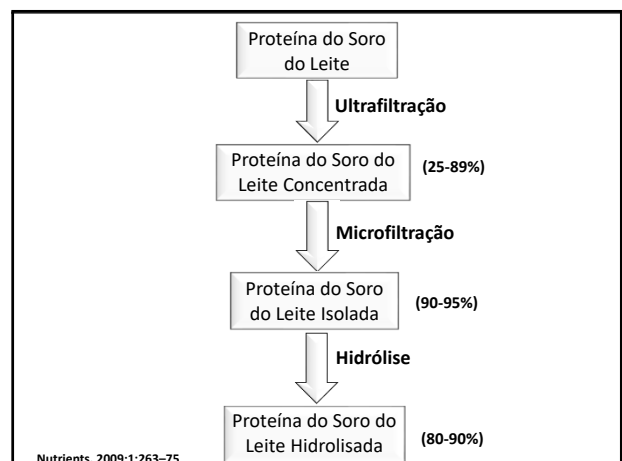
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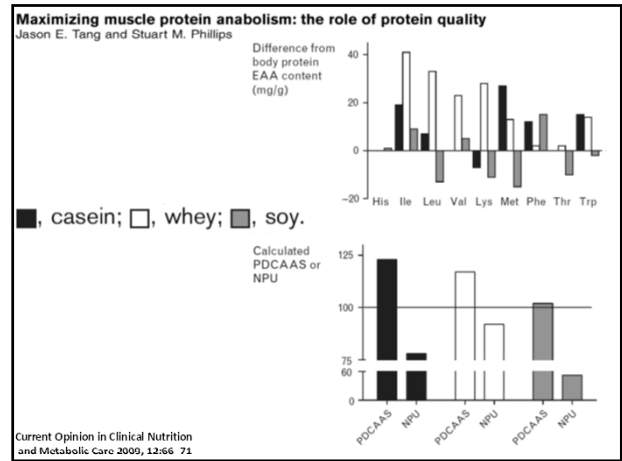


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20 g proteína	Proteína do Soro do Leite	Caseína
Leucina	2,5 g	1,7 g
Isoleucina	1,2 g	1,1 g
Valina	1,2 g	1,1 g
AAI	9,3 g	7,9 g
AAD	10,7 g	12,1 g

Am J Clin Nutr 2011;93:997-1005

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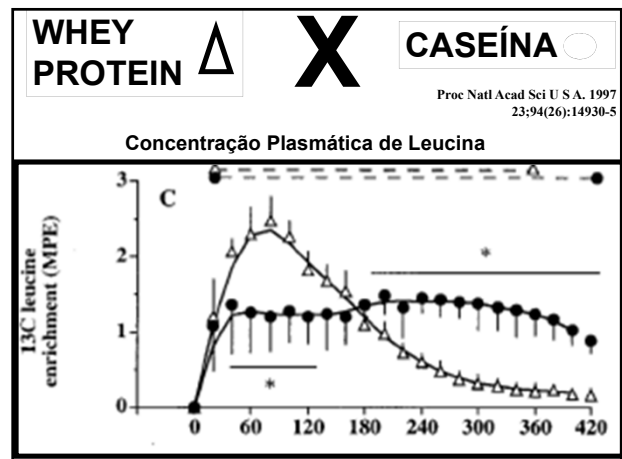
Proc. Natl. Acad. Sci. USA
 Vol. 94, pp. 14930-14935, December 1997
 Physiology

Slow and fast dietary proteins differently modulate postprandial protein accretion
(amino acid turnover/postprandial protein anabolism/milk protein/stable isotopes)

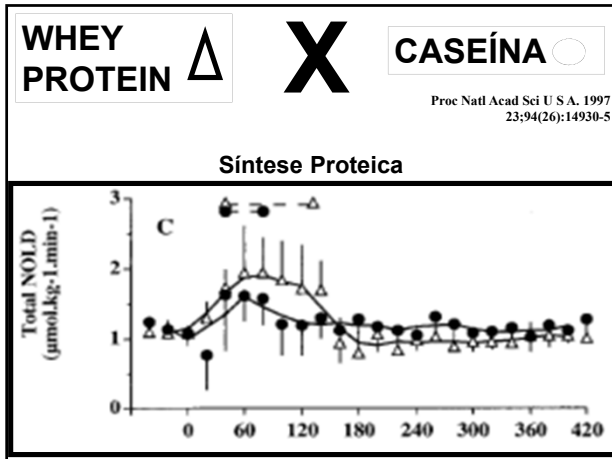
YVES BOIRIE*, MARTIAL DANGIN*¹, PIERRE GACHON*, MARIE-PAULE VASSON², JEAN-LOUIS MAUBOIS³, AND BERNARD BEAUFRERE*⁴

Slow Protein e Fast Protein

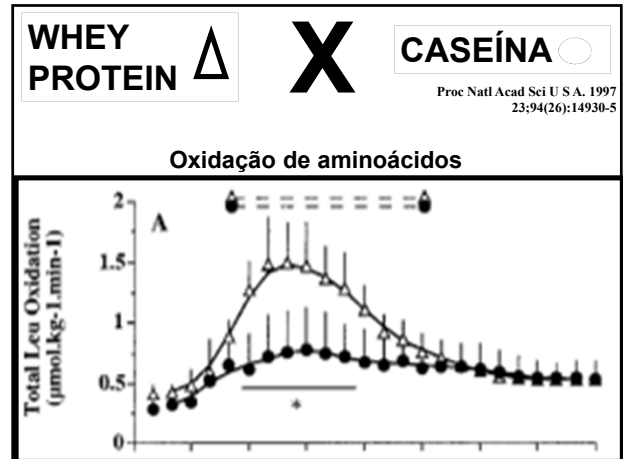
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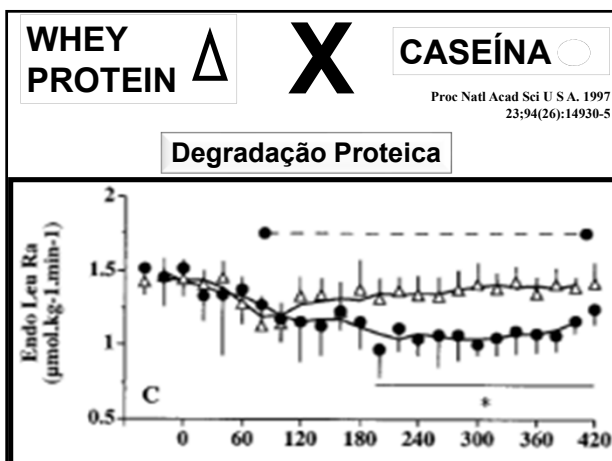
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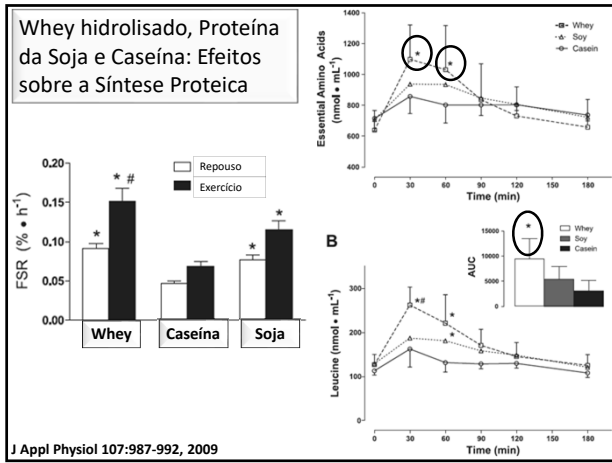
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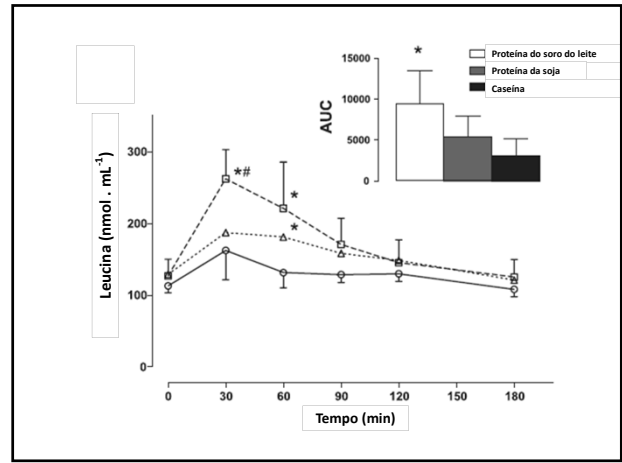
83

Whey hidrolisado
X
Proteína da Soja
X
Caseína

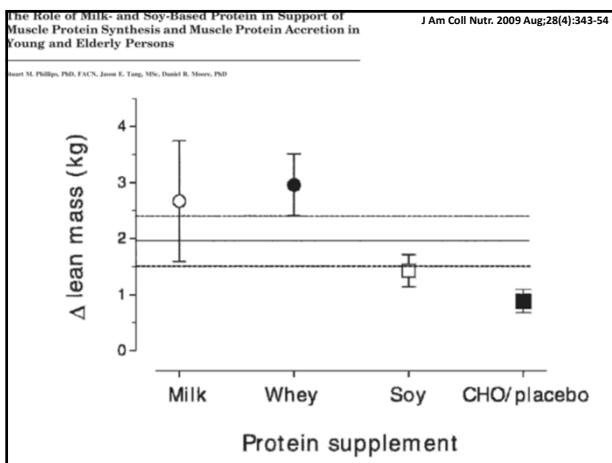
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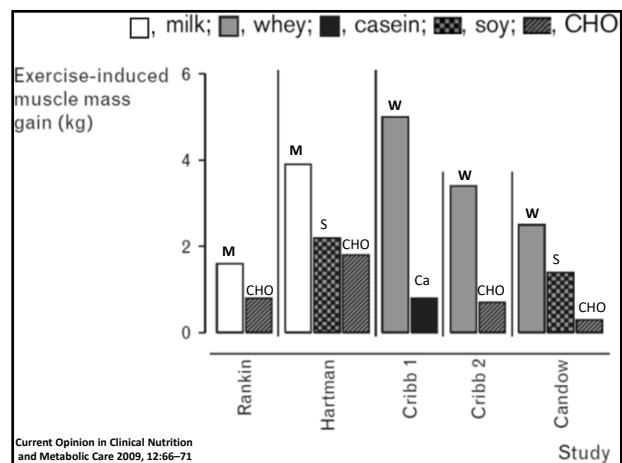
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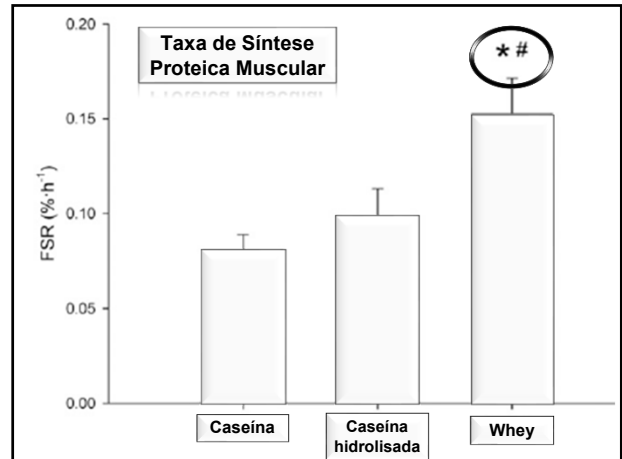
Whey protein stimulates postprandial muscle protein accretion more effectively than do casein and casein hydrolysate in older men¹⁻³

Bart Pennings, Yves Boirie, Joan MG Senden, Annetie P Gijzen, Harm Kuipers, and Luc JC van Loon

Am J Clin Nutr 2011;93:997-1005

Grupos	Whey (n = 16)	Caseína (n = 16)	Caseína hidrolisada (n = 16)
Age (y)	73 ± 1	74 ± 1	74 ± 1
Weight (kg)	75.9 ± 1.5	74.9 ± 2.8	76.4 ± 1.5
BMI (kg/m ²)	25.4 ± 0.4	25.4 ± 0.6	25.0 ± 0.7
Fat (%)	21.9 ± 0.9	20.6 ± 0.9	20.6 ± 0.7
Lean body mass (kg)	59.2 ± 1.2	59.3 ± 1.9	60.7 ± 1.3

89

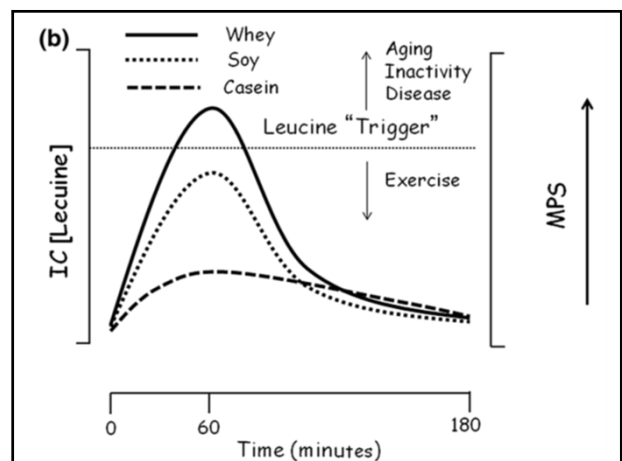


90

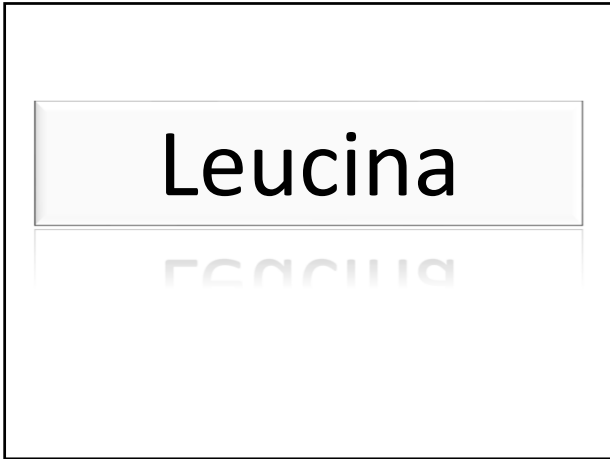
Conceito
"Leucine trigger"

„ΓΕΝΙΝΕ ΤΡΙΓΓΕΡ“

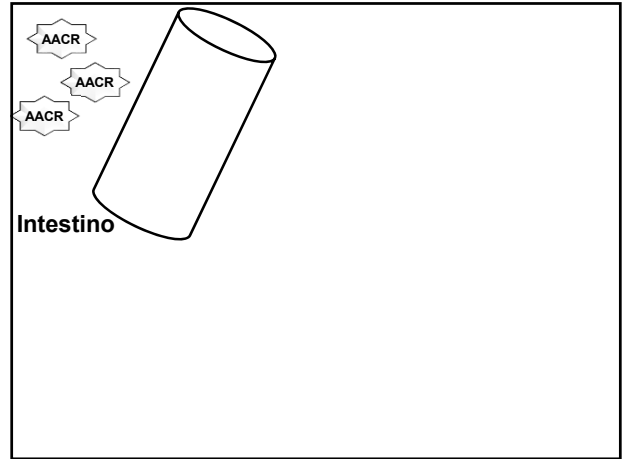
91



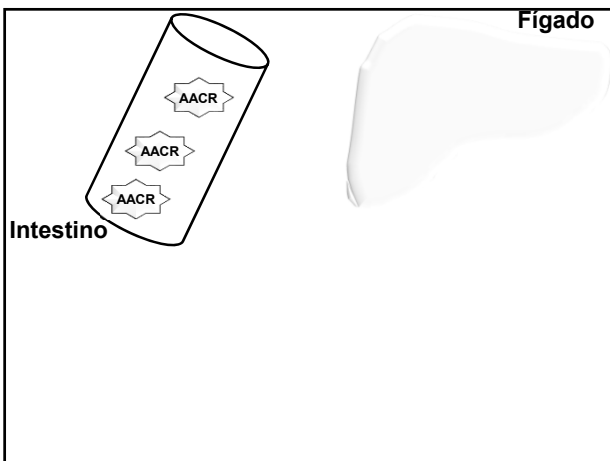
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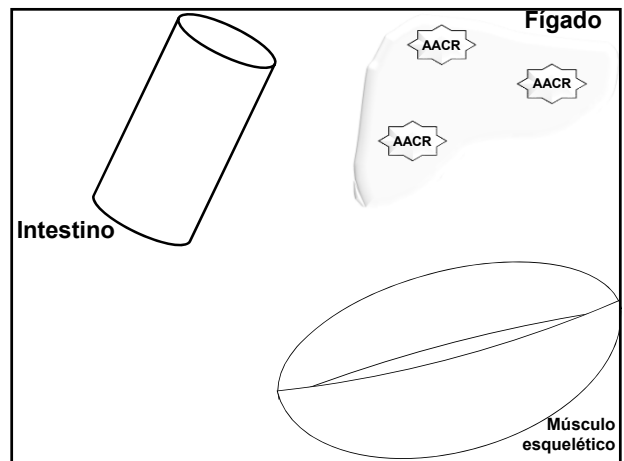
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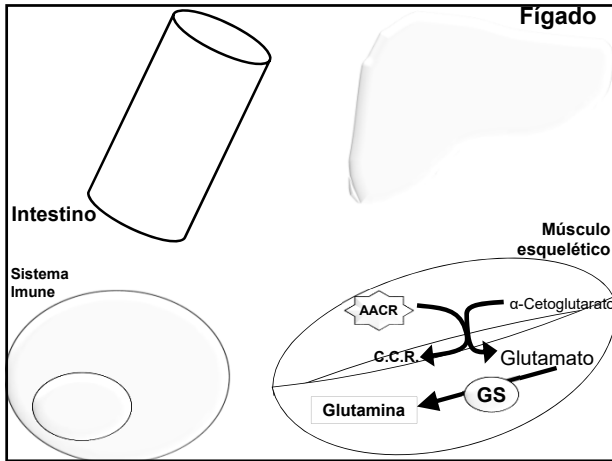
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95



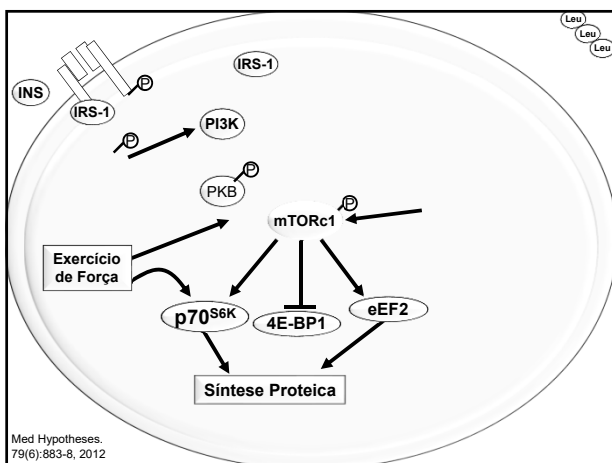
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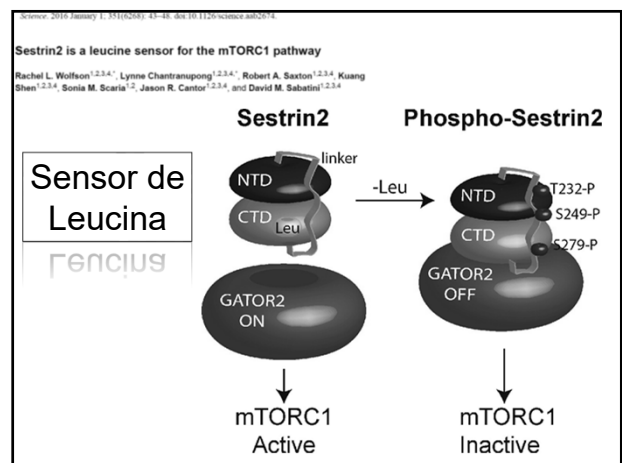
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98



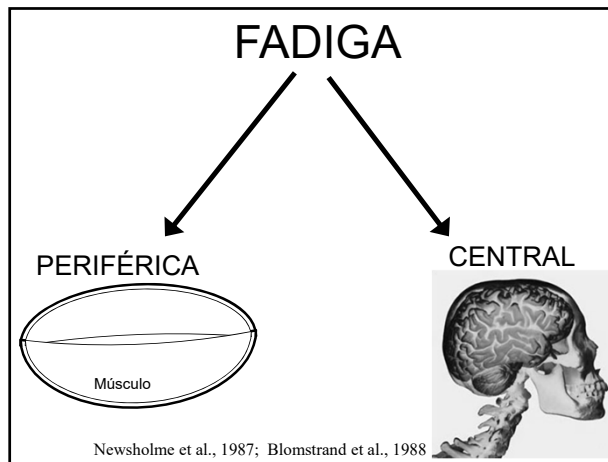
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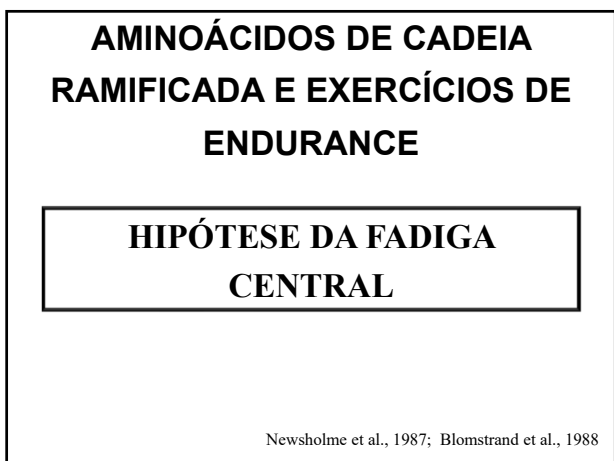
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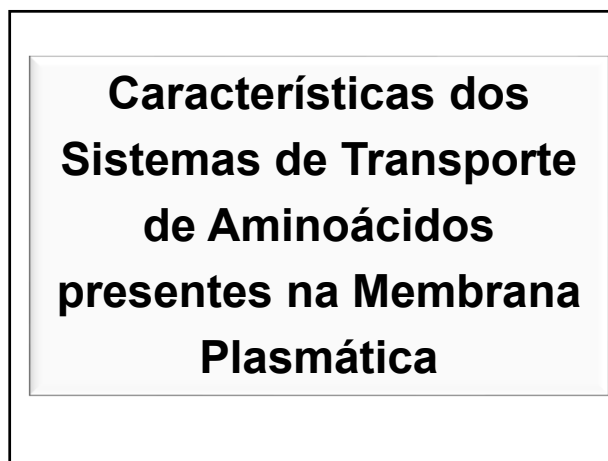
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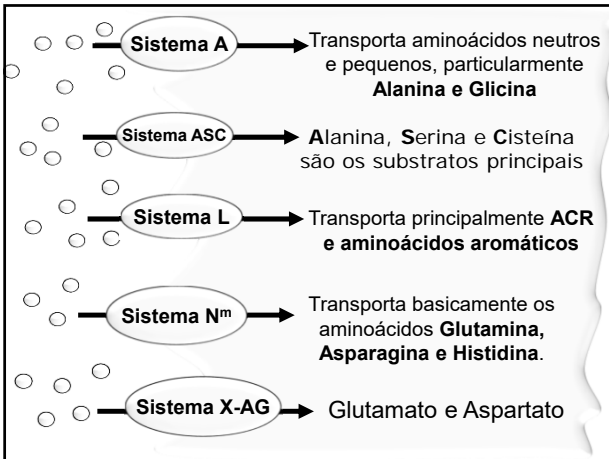
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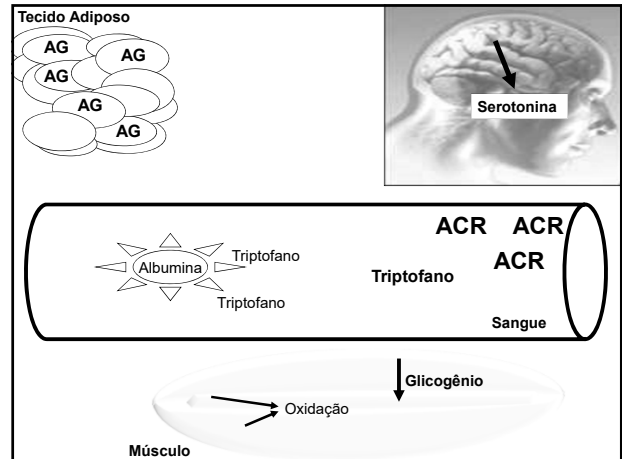
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104



105

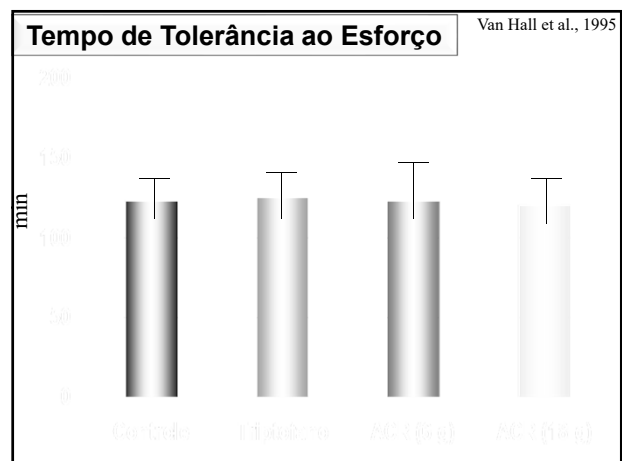


106

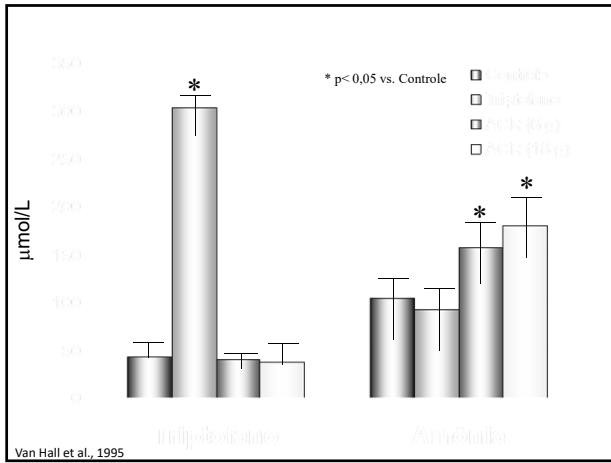
- ✓ 10 atletas; 70-75 % VO_{2max}
- ✓ (A) solução Sacarose 6%
- ✓ (B) Solução de Sacarose 6% + Triptofano (3 g/L)
- ✓ (C) Solução de Sacarose 6% + ACR (6 g/L)
- ✓ (D) Solução de Sacarose 6% + ACR (18 g/L)

Van Hall et al., 1995

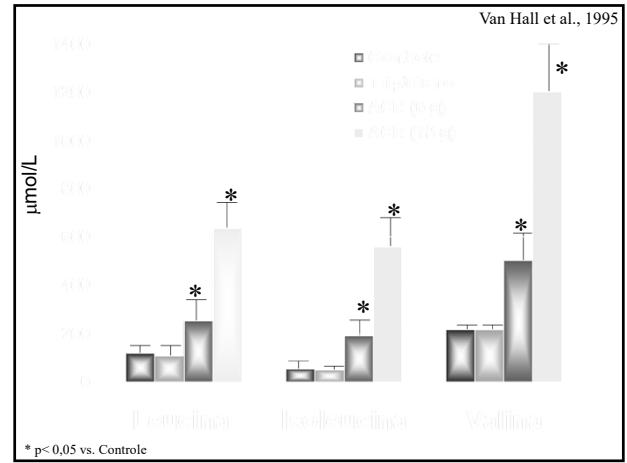
107



108



109



110