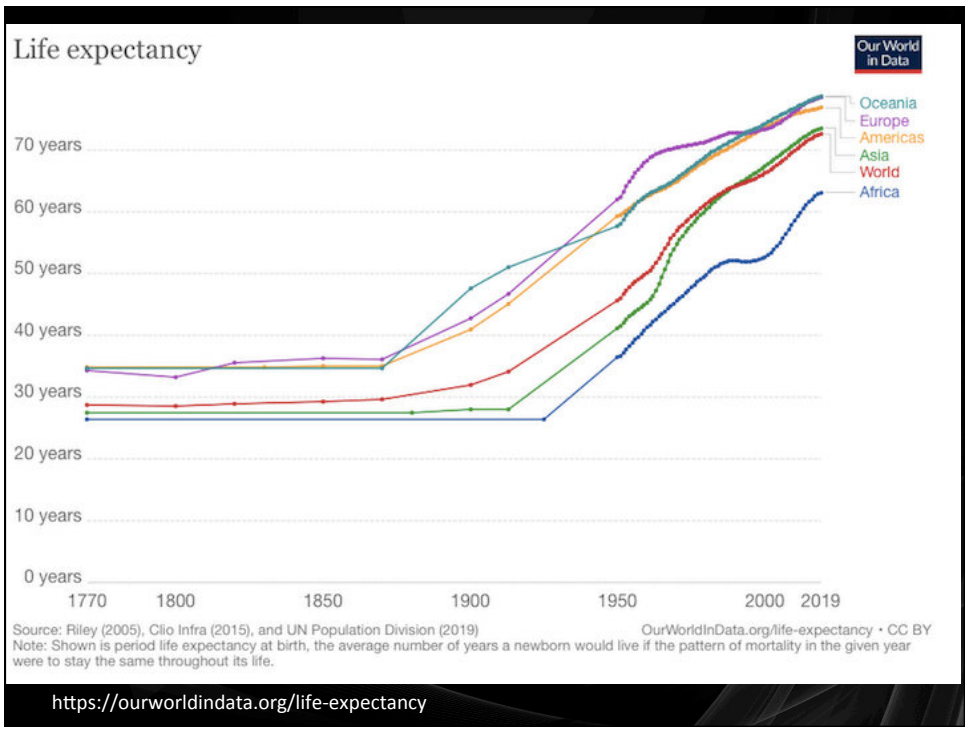
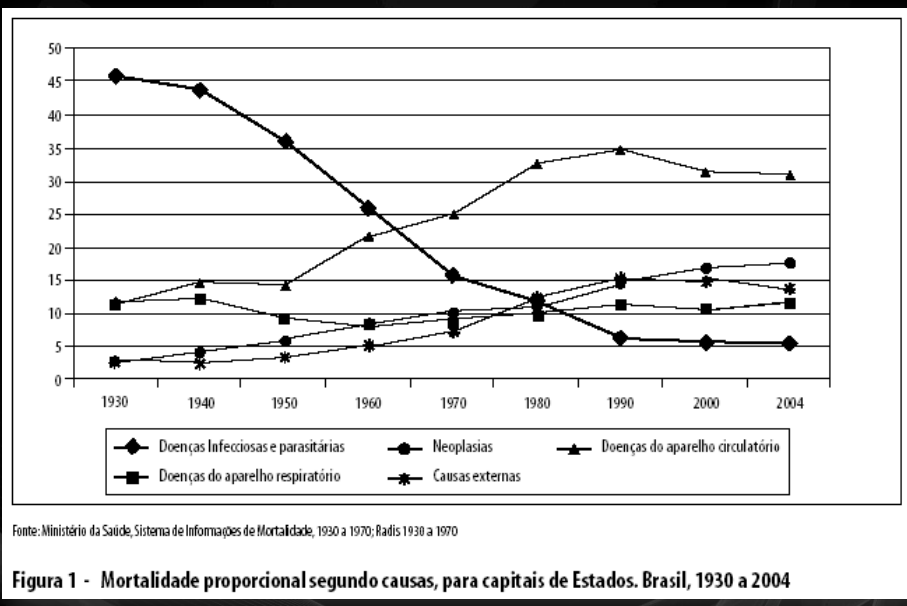


https://ourworldindata.org/life-expectancy

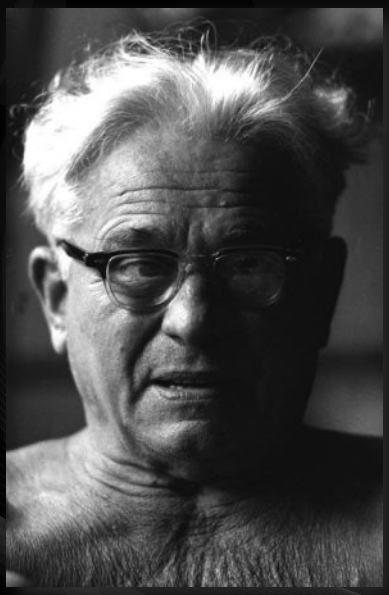


Fonte: Ministério da Saúde, Sistema de Informações de Mortalidade, 1930 a 1970; Radis 1930 a 1970

Figura 1 - Mortalidade proporcional segundo causas, para capitais de Estados. Brasil, 1930 a 2004

MALTA et al. Epidemiol. Serv. Saúde. 15 (3): 47-65. 2006.

Joseph H. Pilates



(1883 - 1967)

Thomas L. DeLorme

(? - 2003)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WORLD WARS 1 & 2
THE ISLE OF MAN'S ROLE


TURNGEMEINDE
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Camp I.

THE JOURNAL OF BONE & JOINT SURGERY
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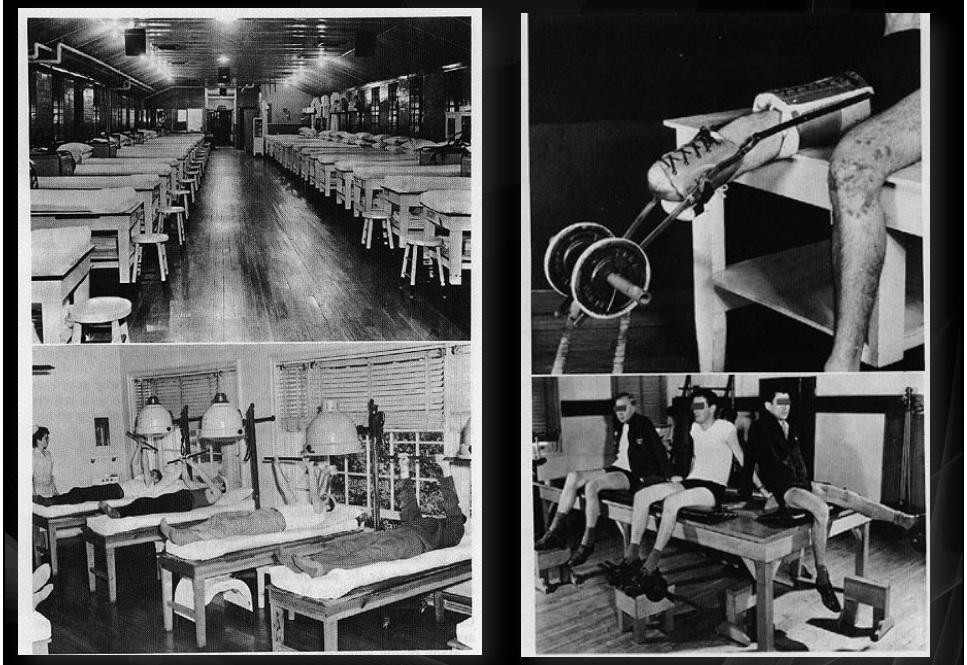
This is an enhanced PDF from The Journal of Bone and Joint Surgery

The PDF of the article you requested follows this cover page.

RESTORATION OF MUSCLE POWER BY HEAVY-RESISTANCE EXERCISES

THOMAS L. DELORME

J Bone Joint Surg Am. 1945;27:645-667.



http://history.amedd.army.mil/corps/medical_spec/chapterviii.html

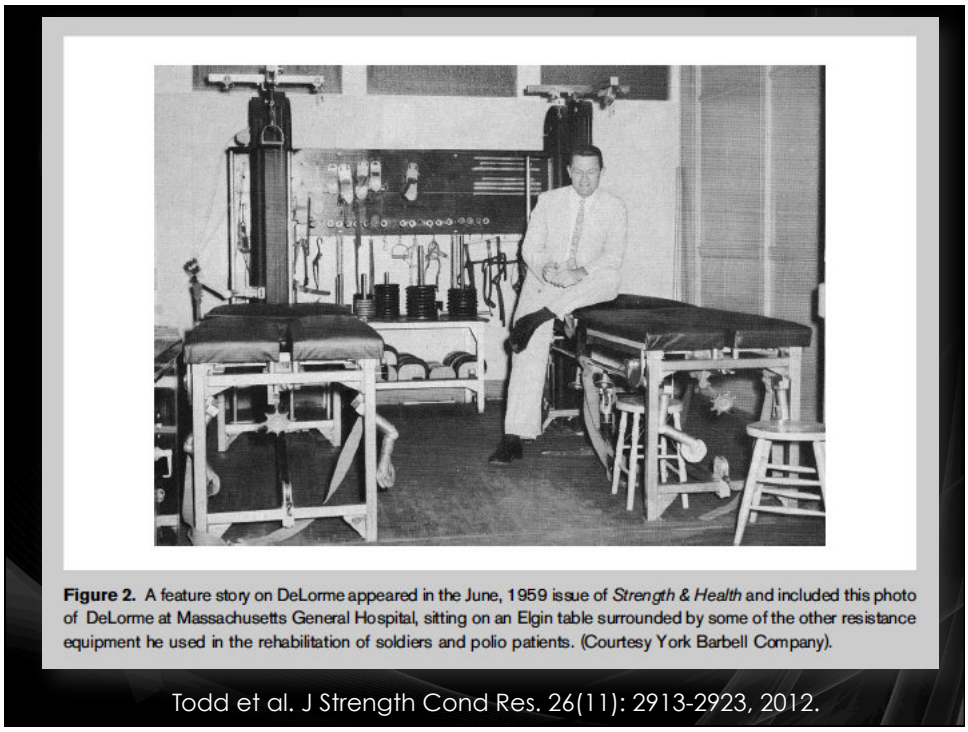
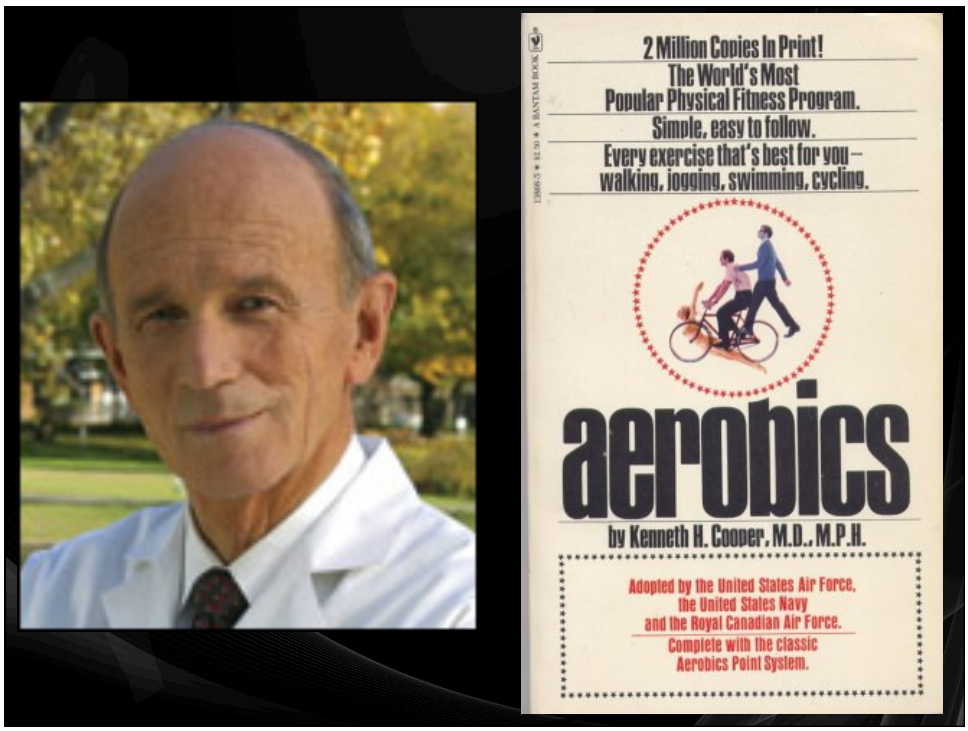


Figure 2. A feature story on DeLorme appeared in the June, 1959 issue of *Strength & Health* and included this photo of DeLorme at Massachusetts General Hospital, sitting on an Elgin table surrounded by some of the other resistance equipment he used in the rehabilitation of soldiers and polio patients. (Courtesy York Barbell Company).

Todd et al. J Strength Cond Res. 26(11): 2913-2923, 2012.

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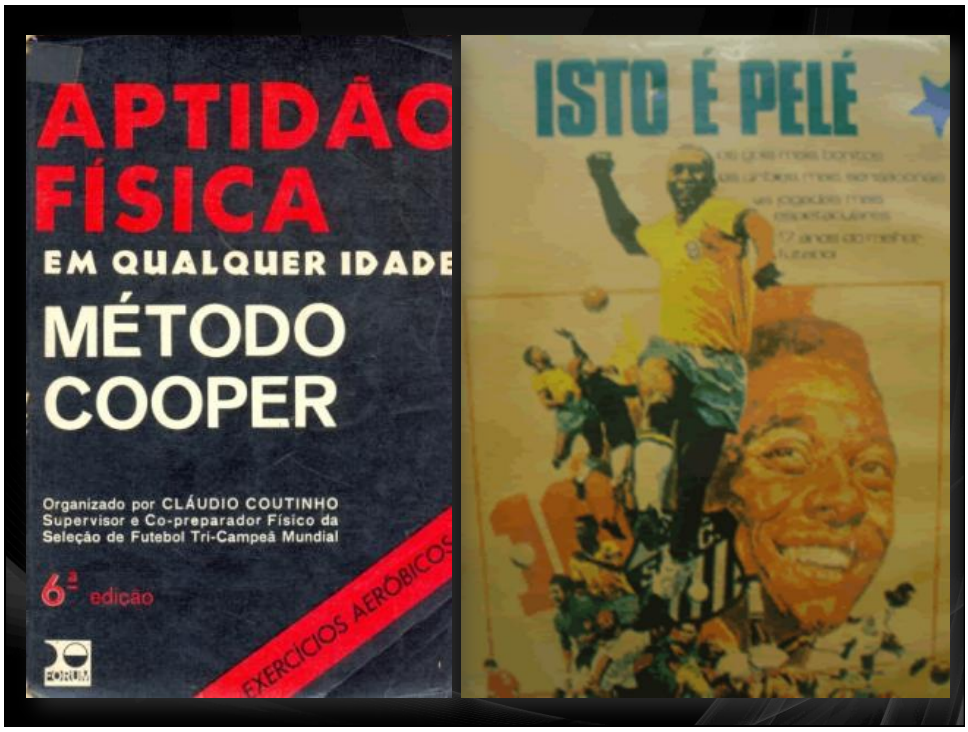
APTIDÃO FÍSICA
EM QUALQUER IDADE
MÉTODO COOPER
Organizado por CLÁUDIO COUTINHO
Supervisor e Co-preparador Físico da Seleção de Futebol Tri-Campeã Mundial
6ª edição
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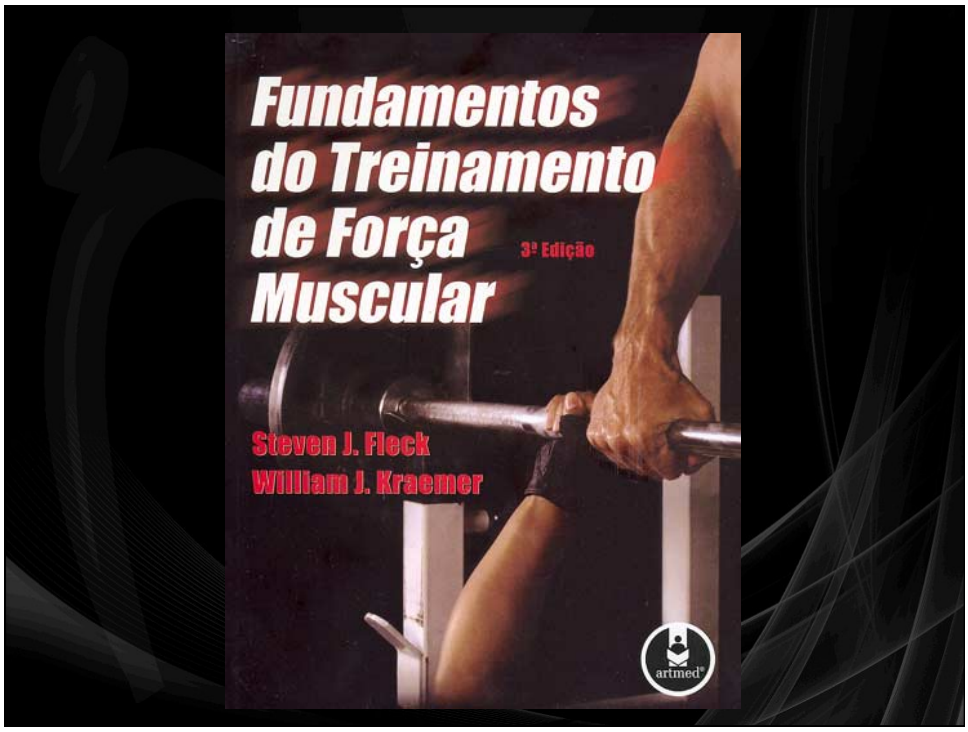
AMERICAN COLLEGE of SPORTS MEDICINE
American Alliance for Health, Physical Education, Recreation and Dance



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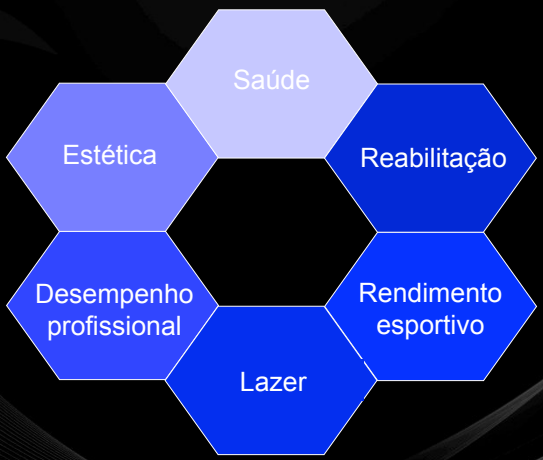
Exercise is Medicine® (EIM), a global health initiative managed by the American College of Sports Medicine (ACSM), encourages primary care physicians and other health care providers to include physical activity when designing treatment plans and to refer patients to evidence-based exercise programs and qualified exercise professionals, especially those with the EIM credential.

EIM is committed to the belief that physical activity promotes optimal health, is integral in the prevention and treatment of many medical conditions, and should be regularly assessed and included as part of health care.

DOSE X RESPOSTA

Programas Personalizados de Exercício Físico

OBJETIVOS



Prescrição do Exercício Físico para Estética

COMPONENTES

- Massa muscular
- Percentual de gordura
- Postura
- Harmonia

Prescrição do Exercício Físico para Rendimento Esportivo

COMPONENTES

- Potência muscular
- Força
- Resistência
- Resistência anaeróbia
- Resistência aeróbia
- Velocidade
- Agilidade
- Reação
- Concentração
- Flexibilidade
- Equilíbrio
- Coordenação

Prescrição do Exercício Físico para Desempenho Laboral

COMPONENTES

- Composição Corporal
- Aptidão Cardiorrespiratória
- Aptidão Muscular
- Flexibilidade
- Coordenação
- Relaxamento

MODELO DE PRESCRIÇÃO DE TCR

Adaptado de FLECK e KRAEMER, 2006.

Planejamento do programa

- Objetivo e necessidades individuais.
- Compreensão das adaptações fisiológicas.
- Idade, maturidade.
- Nível de condicionamento.
- Tolerância psicológica e orgânica.
- Acomodação x Progressão.

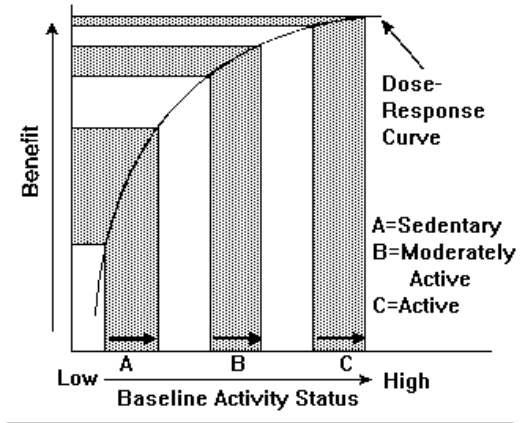
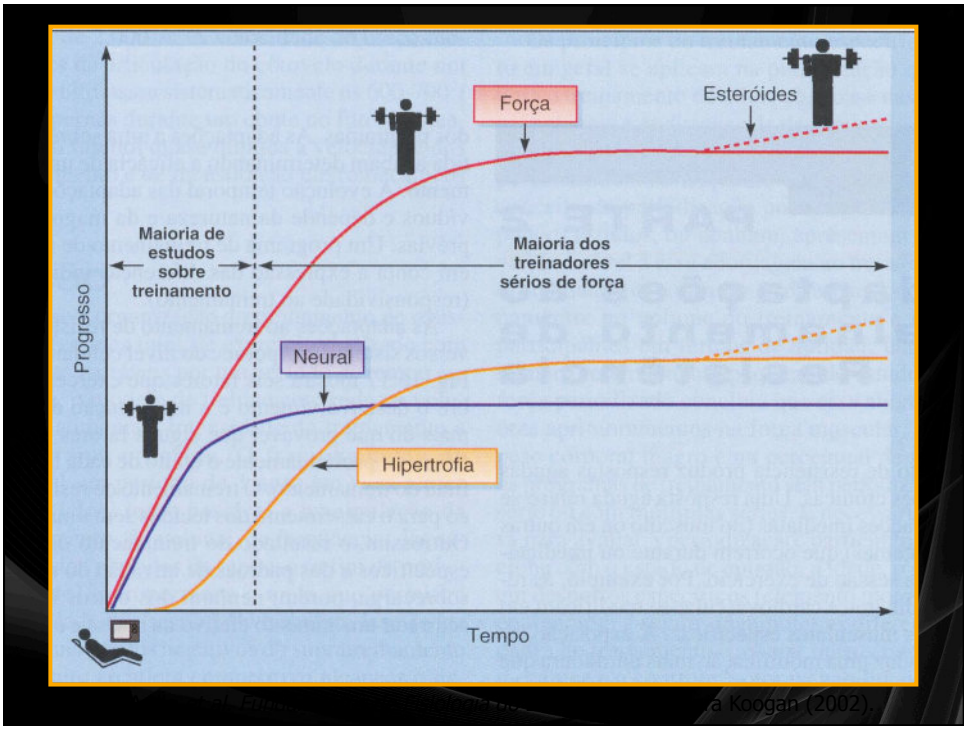


Figure 1.–The dose-response curve represents the best estimate of the relationship between physical activity (dose) and health benefits (response). The lower the baseline physical activity status, the greater will be the health benefit associated with a given increase in physical activity (arrows A, B, and C).

Pate *et al.* JAMA 273(5): 402-407, 1995.



à Koogan (2002).

Análise das necessidades individuais

- Qual a necessidade específica: força, resistência, potência, velocidade, agilidade, flexibilidade, composição corporal, equilíbrio, coordenação?
- Quais grupos musculares?
- Quais os sistemas energéticos?
- Que tipo de ação muscular?
- Quais riscos ou histórico de lesão ou aplicação a atividade específica?

FLECK e KRAEMER, 2006.

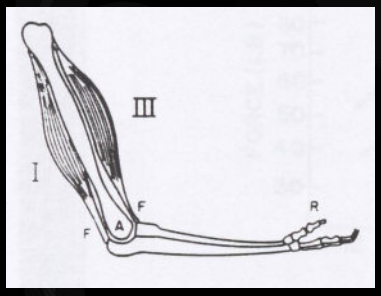
Especificidade do estímulo muscular

- Articulação envolvida.
- Amplitude do movimento articular.
- O padrão de resistência.

- O padrão de velocidade.
- O tipo de ação muscular: concêntrica, excêntrica, isométrica?

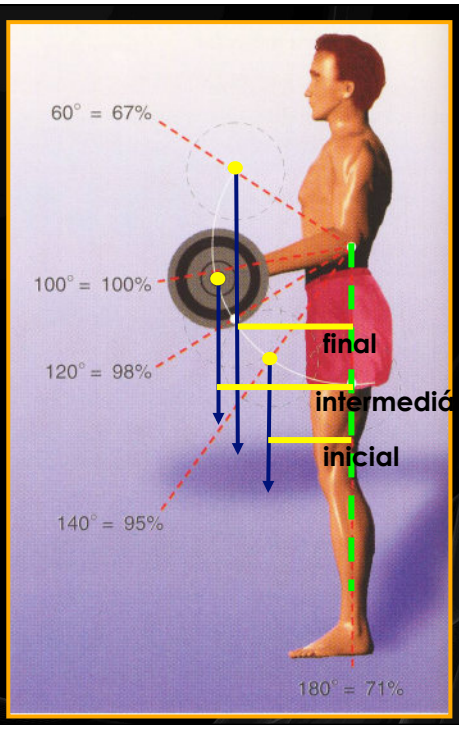
FLECK e KRAEMER, 2006.

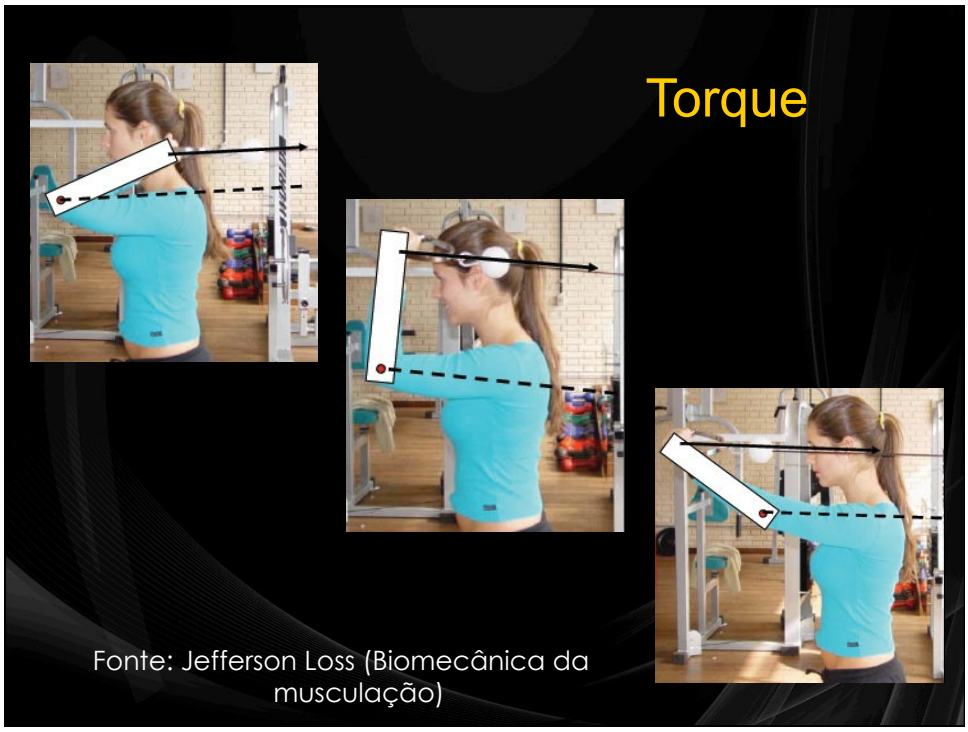
Padrão da Resistência:

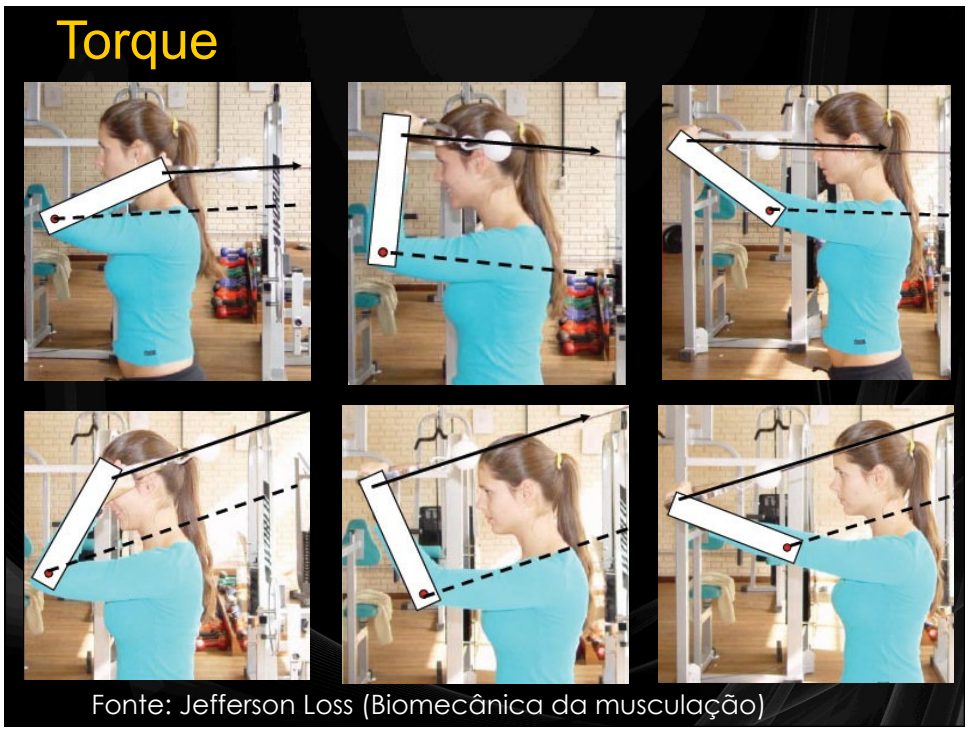


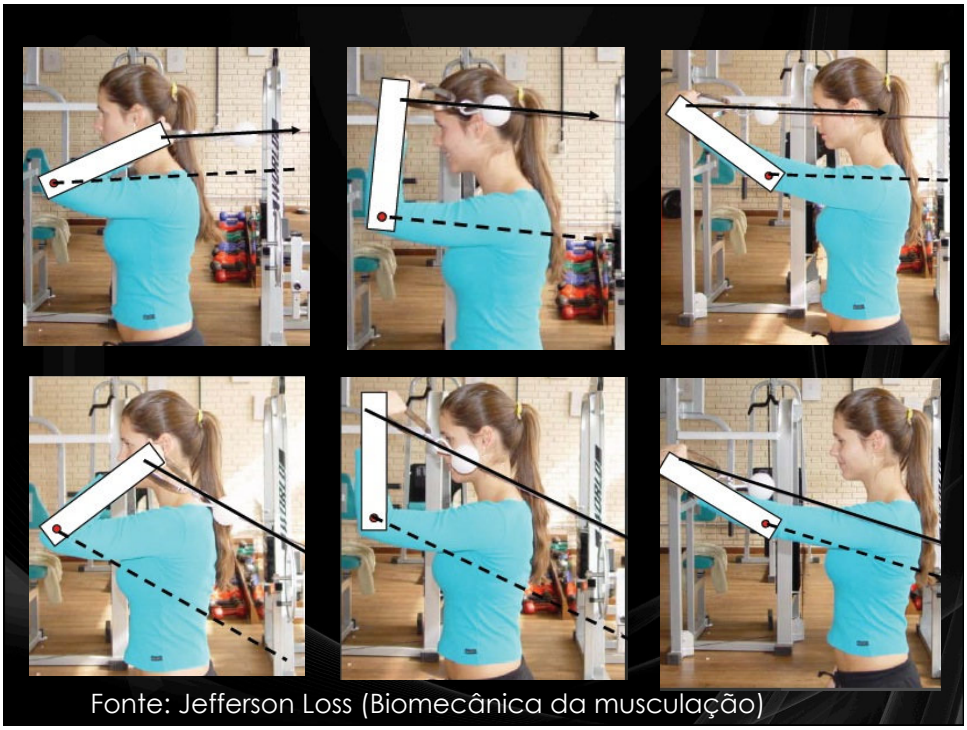
Berger. *Applied Exercise Physiology*. Lea & Febiger (1982).

final
intermediária
inicial




Torque
Fonte: Jefferson Loss (Biomecânica da musculação)


Torque
Fonte: Jefferson Loss (Biomecânica da musculação)



Fonte: Jefferson Loss (Biomecânica da musculação)

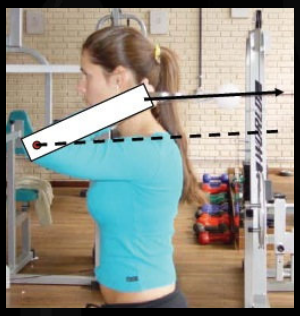
Carga de trabalho no Pilates

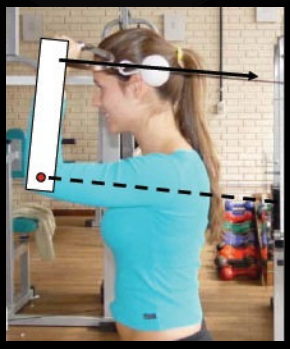
- Grau de resistência das molas/bandas elásticas
- Orientação da resistência

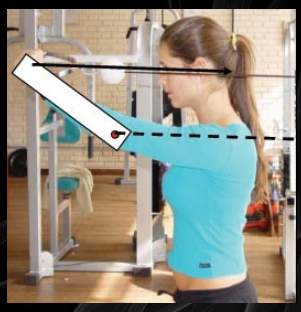
Curva de calibração

1. Fixar em uma das extremidades de maneira que fique perpendicular ao solo.
2. Aplicar diferentes cargas estáticas conhecidas (pesos).
3. Mensurar os comprimentos (deformações) correspondentes.

Torque







Fonte: Jefferson Loss (Biomecânica da musculação)

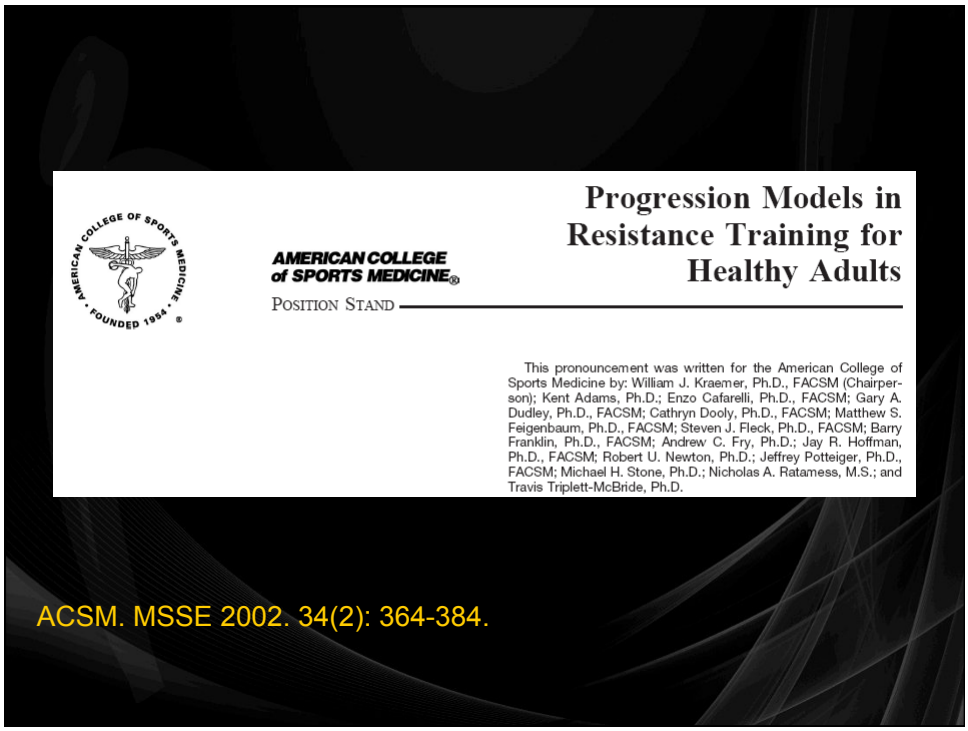
Análise das necessidades individuais

- Qual a necessidade específica: força, resistência, potência, velocidade, agilidade, flexibilidade, composição corporal, equilíbrio, coordenação?
- Quais grupos musculares?
- Quais os sistemas energéticos?
- Que tipo de ação muscular?
- Quais riscos ou histórico de lesão ou aplicação a atividade específica?

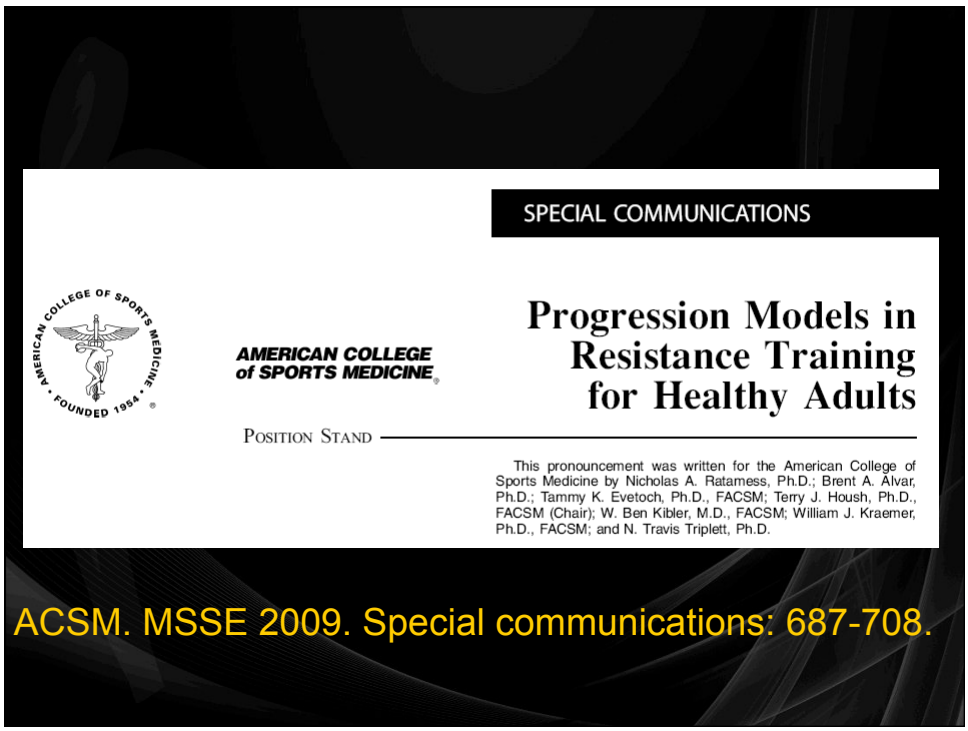
FLECK e KRAEMER, 2006.

Variáveis básicas do Treinamento

- Seleção dos exercícios
- Ordem dos exercícios
- Ação muscular
- Número de séries e repetições
- Carga
- Velocidade da ação muscular
- Intervalo de recuperação
- Frequência semanal



ACSM. MSSE 2002. 34(2): 364-384.



ACSM. MSSE 2009. Special communications: 687-708.

TABLE 1. National Heart, Lung, and Blood Institute (NHLBI; 194) evidence categories.

Category	Source of Evidence	Definition
A	Randomized control trials (RCT; rich body of data)	Evidence is from well-designed RCT that provide a consistent pattern of findings in the population for which the recommendation is made. Requires substantial number of studies involving substantial number of participants.
B	RCT (limited body of data)	Evidence is from intervention studies that include only a limited number of RCT, *post hoc* or subgroup analysis of RCT, or meta-analysis of RCT. Pertains when few randomized trials exist, they are small, and the results are somewhat inconsistent or were from a nonspecific population.
C	Nonrandomized trials, observational studies	Evidence is from outcomes of uncontrolled trials or observations.
D	Panel consensus judgment	Expert judgment is based on panel's synthesis of evidence from experimental research or the consensus of panel members based on clinical experience or knowledge that does not meet the above-listed criteria.

ACSM. MSSE 2009. Special communications: 687-708.

CARACTERÍSTICAS TREINÁVEIS

- Força muscular
- Hipertrofia muscular
- Potência muscular
- Resistência muscular localizada
- Habilidade motora

IDENTIFICAÇÃO DO NÍVEL DO ALUNO

- Iniciante
- Intermediário
- Avançado

Resumo das diretrizes para o TCR

TABLE 1. Summary of resistance training recommendations: an overview of different program variales needed for progression with different fitness levels.

	Muscle Action	Selection	Order	Loading	Volume	Rest Intervals	Velocity	Frequency
Strength			For Nov, Int, Adv:			For Nov, Int, Adv:		
Nov.	ECC & CON	SJ & MJ ex.	Large < small	60–70% of 1RM	1–3 sets, 8–12 reps	2–3 min. for core	S, M	2–3×/week
Int.	ECC & CON	SJ & MJ ex.	MJ < SJ	70–80% of 1RM	Mult. Sets, 6–12 reps	1–2 min. for others	M	2–4×/week
Adv.	ECC & CON	SJ & MJ ex. – emphasis: MJ	HI < LI	1RM – PER	Mult. Sets, 1–12 reps – PER		US-F	4–6×/week
Hypertrophy			For Nov, Int, Adv:					
Nov.	ECC & CON	SJ & MJ ex.	Large < small	60–70% of 1RM	1–3 sets, 8–12 reps	1–2 min.	S, M	2–3×/week
Int.	ECC & CON	SJ & MJ ex.	MJ < SJ	70–80% of 1RM	Mult. Sets, 6–12 reps	1–2 min.	S, M	2–4×/week
Adv.	ECC & CON	SJ & MJ	HI < LI	70–100% of 1RM with emphasis on 70–85% – PER	Mult. Sets, 1–12 reps with emphasis on 6–12 reps – PER	2–3 min. – VH; 1–2 min. – L-MH	S, M, F	4–6×/week
Power		For Nov, Int, Adv:	For Nov, Int, Adv:	For Nov, Int, Adv:		For Nov, Int, Adv:		
Nov.	ECC & CON	Mostly MJ	Large < small	Heavy loads (>80%) – strength; Light (30–60%) – velocity – PER	Train for strength	2–3 min. for core	M	2–3×/week
Int.	ECC & CON		Most complex < least complex		1–3 sets, 3–6 reps	1–2 min. for others	F	2–4×/week
Adv.	ECC & CON		HI < LI		3–6 sets, 1–6 reps – PER		F	4–6×/week
Endurance			For Nov, Int, Adv:			For Nov, Int, Adv:	For Nov, Int, Adv:	
Nov.	ECC & CON	SJ & MJ ex.	Variety in sequencing is recommended	50–70% of 1RM	1–3 sets, 10–15 reps	1–2 min for high rep sets	S – MR	2–3×/week
Int.	ECC & CON	SJ & MJ ex.		50–70% of 1RM	Mult. Sets, 10–15 reps or more	<1 min for 10–15 reps	M – HR	2–4×/week
Adv.	ECC & CON	SJ & MJ		30–80% of 1RM – PER	Mult. Sets, 10–25 reps or more – PER			4–6×/week

ECC, eccentric; CON, concentric; Nov., novice; Int., intermediate; Adv., advanced; SJ, single-joint MJ, multiple-joint; ex., exercises; HI, high intensity; LI, low intensity; 1RM, 1-repetition maximum; PER., periodized; VH, very heavy; L-MH light-to-moderately-heavy; S, slow; M, moderate; US, unintentionally slow; F, fast; MR, moderate reetitions; HR, high repetitions.

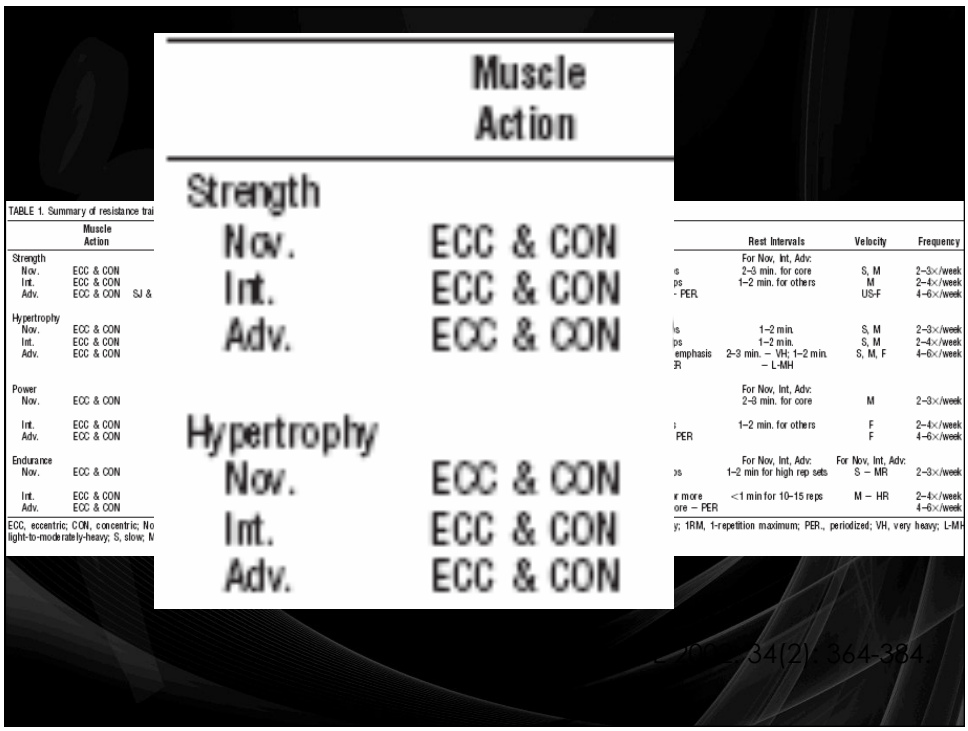
34(2): 364-384.

Resumo das diretrizes para o TCR

TABLE 2. Summary of progressive resistance training recommendations.

Evidence Statement	Grade
Strength training	
CON, ECC, and ISOM actions be included for novice, intermediate, and advanced training.	A
Training with loads ~60–70% of 1 RM for 8–12 repetitions for novice to intermediate individuals and cycling loads of 80–100% of 1 RM for advanced individuals.	A
When training at a specific RM load, it is recommended that a 2–10% increase in load be applied when the individual can perform the current workload for 1–2 repetitions over the desired number on two consecutive training sessions.	B
It is recommended that 1–3 sets per exercise be used by novice individuals.	A
Multiple-set programs (with systematic variation of volume and intensity) are recommended for progression to intermediate and advanced training.	A
Unilateral and bilateral single- and multiple-joint exercises should be included with emphasis on multiple-joint exercises for maximizing strength in novice, intermediate, and advanced individuals.	A
Free-weight and machine exercises should be included for novice to intermediate training.	A
For advanced strength training, it is recommended that emphasis be placed on free-weight exercises with machine exercises used to compliment program needs.	C
Recommendations for sequencing exercises for novice, intermediate, and advanced strength training include large muscle group exercises before small muscle group exercises, multiple-joint exercises before single-joint exercises, higher-intensity exercises before lower-intensity exercises, or rotation of upper and lower body or opposing exercises.	C
It is recommended that rest periods of at least 2–3 min be used for core exercises using heavier loads for novice, intermediate, and advanced training. For assistance exercises, a shorter rest period length of 1–2 min may suffice.	B C
For untrained individuals, it is recommended that slow and moderate CON velocities be used.	A
For intermediate training, it is recommended that moderate CON velocity be used.	A
For advanced training, the inclusion of a continuum of velocities from unintentionally slow to fast CON velocities is recommended and should correspond to the intensity.	C
It is recommended that novice individuals train the entire body 2–3 $d \cdot wk^{-1}$.	A
It is recommended that for progression to intermediate training, a frequency of 3–4 $d \cdot wk^{-1}$ be used (based on how many muscle groups are trained per workout).	B
It is recommended that advanced lifters train 4–6 $d \cdot wk^{-1}$.	C
Muscle hypertrophy	
It is recommended that CON, ECC, and ISOM muscle actions be included.	A
For novice and intermediate training, it is recommended that moderate loading be used (70–85% of 1 RM) for 8–12 repetitions per set for 1–3 sets per exercise.	A
For advanced training, it is recommended that a loading range of 70–100% of 1 RM be used for 1–12 repetitions per set for 3–6 sets per exercise in a periodized manner such that the majority of training is devoted to 6–12 RM and less training devoted to 1–6 RM loading.	A
It is recommended that single- and multiple-joint free-weight and machine exercises be included in novice, intermediate, and advanced individuals.	A
For exercise sequencing, an order similar to strength training is recommended.	C
It is recommended that 1- to 2-min rest periods be used in novice and intermediate training; for advanced training, length of rest period should correspond to the goals of each exercise such that 2- to 3-min rest periods may be used with heavy loading for core exercises and 1–2 min may be used for other exercises of moderate to moderately high intensity.	C
It is recommended that slow to moderate velocities be used by novice- and intermediate-trained individuals; for advanced training, it is recommended that slow, moderate, and fast repetition velocities be used depending on the load, repetition number, and goals of the particular exercise.	C
It is recommended that a frequency of 2–3 $d \cdot wk^{-1}$ be used for novice training.	A
For intermediate training, the recommendation is similar for total-body workouts or 4 $d \cdot wk^{-1}$ when using an upper/lower body split routine.	B
For advanced training, a frequency of 4–6 $d \cdot wk^{-1}$ is recommended.	C

nmunications: 687-708



34(2): 364-384.

AÇÃO MUSCULAR

Evidence statement and recommendation. *Evidence category A.* For progression during RT for novice, intermediate, and advanced individuals, it is recommended that CON, ECC, and ISOM muscle actions be included (56,64,112,131,143).

Evidence statement and recommendation. *Evidence category A.* Similar to strength training (55,112,131), it is recommended that CON, ECC, and ISOM muscle actions be included for novice, intermediate, and advanced RT.

TABLE 1. Summary of resistance

	Muscle Action		Velocity	Frequency
Strength				
Nov.	ECC & CON		S, M	2–3×/week
Int.	ECC & CON		M	2–4×/week
Adv.	ECC & CON		US-F	4–6×/week
Hypertrophy				
Nov.	ECC & CON		S, M	2–3×/week
Int.	ECC & CON		S, M	2–4×/week
Adv.	ECC & CON		S, M, F	4–6×/week
Power				
Nov.	ECC & CON		M	2–3×/week
Int.	ECC & CON		F	2–4×/week
Adv.	ECC & CON		F	4–6×/week
Endurance				
Nov.	ECC & CON	For Nov, Int, Adv:	S – MR	2–3×/week
Int.	ECC & CON		M – HR	2–4×/week
Adv.	ECC & CON			4–6×/week

ECC, eccentric; CON, concentric
light-to-moderately-heavy; S, slo
PER., periodized; VH, very heavy; L-MH

	Selection
Strength	
Nov.	SJ & MJ ex.
Int.	SJ & MJ ex.
Adv.	SJ & MJ ex. – emphasis: MJ
Hypertropl	
Nov.	SJ & MJ ex.
Int.	SJ & MJ ex.
Adv.	SJ & MJ

34(2): 364-384.

SELECÃO DOS EXERCÍCIOS

Evidence statement and recommendation. *Evidence category A.* Unilateral and bilateral single- and multiple-joint exercises should be included in RT with emphasis on multiple-joint exercises for maximizing overall muscle strength in novice, intermediate, and advanced individuals (33,96–107,113,118,120,149–157,169,172,176).

Evidence statement and recommendation. *Evidence category A.* It is recommended that single- and multiple-joint free-weight and machine exercises be included in an RT program in novice, intermediate, and advanced individuals (30,157,169,172,178,248–250,274).

TABLE 1. Summary of resistance trainin

	Muscle Action		Velocity	Frequency
Strength				
Nov.	ECC & CON		S, M	2–3×/week
Int.	ECC & CON		M	2–4×/week
Adv.	ECC & CON	SJ & M	US-F	4–6×/week
Hypertrophy				
Nov.	ECC & CON		S, M	2–3×/week
Int.	ECC & CON		S, M	2–4×/week
Adv.	ECC & CON		S, M, F	4–6×/week
Power		Fo		
Nov.	ECC & CON		M	2–3×/week
Int.	ECC & CON		F	2–4×/week
Adv.	ECC & CON		F	4–6×/week
Endurance			For Nov, Int, Adv:	
Nov.	ECC & CON		S – MR	2–3×/week
Int.	ECC & CON		M – HR	2–4×/week
Adv.	ECC & CON			4–6×/week

ECC, eccentric; CON, concentric; Nov., light-to-moderately-heavy; S, slow; M, n , periodized; VH, very heavy; L-MH

Order	
Strength	For Nov, Int, Adv:
Nov.	Large < small
Int.	MJ < SJ
Adv.	HI < LI
Hypertrophy	For Nov, Int, Adv:
Nov.	Large < small
Int.	MJ < SJ
Adv.	HI < LI

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ORDEM DOS EXERCÍCIOS

Evidence statement and recommendation. *Evidence category C*. Recommendations for sequencing exercises for novice, intermediate, and advanced strength training for total body (all muscle groups trained in the workout), upper/lower body split (upper-body musculature trained 1 d and lower-body musculature trained another day), and muscle group split (individual muscle groups trained during a workout) workouts include large muscle group exercises before small muscle group exercises, multiple-joint exercises before single-joint exercises, higher-intensity exercises before lower-intensity exercises, or rotation of upper and lower body or agonist–antagonist exercises, that is, exercise performed for a muscle group followed by an exercise for the opposing muscle group (244,245).

Evidence category C. For exercise sequencing, an order similar to strength training is recommended (244,245,256).

TABLE 1. Summary of re

	Loading
Strength	
Nov.	60–70% of 1RM
Int.	70–80% of 1RM
Adv.	1RM – PER
Hypertrophy	
Nov.	60–70% of 1RM
Int.	70–80% of 1RM
Adv.	70–100% of 1RM with emphasis on 70–85% – PER

Velocity | Frequency

S, M | 2–3×/week
M | 2–4×/week
US-F | 4–6×/week

S, M | 2–3×/week
S, M | 2–4×/week
S, M, F | 4–6×/week

M | 2–3×/week

F | 2–4×/week
F | 4–6×/week

Nov, Int, Adv:
S – MR | 2–3×/week

M – HR | 2–4×/week
4–6×/week

ECC, eccentric; CON, co
light-to-moderately-heavy

idized; VH, very heavy; L-MH

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CARGA

Evidence statement and recommendation. *Evidence category A.* It is recommended that novice to intermediate individuals train with loads corresponding to 60–70% of 1 RM for 8–12 repetitions and advanced individuals cycle training loads of 80–100% of 1 RM to maximize muscular strength (9,33,96,206,225,227,255,268).

Evidence category B. For progression in those individuals training at a specific RM load, it is recommended that a 2–10% (lower percent for small muscle mass exercises, higher percent increase for large muscle mass exercises) increase in load be applied when the individual can perform the current workload for one to two repetitions over the desired number on two consecutive training sessions (68).

Evidence statement and recommendation. *Evidence category A.* For novice and intermediate individuals, it is recommended that moderate loading be used (70–85% of 1 RM) for 8–12 repetitions per set for one to three sets per exercise (3,49,157,175,228,249).

Evidence category C. For advanced training, it is recommended that a loading range of 70–100% of 1 RM be used for 1–12 repetitions per set for three to six sets per exercise in periodized manner such that the majority of training is devoted to 6–12 RM and less training devoted to 1–6 RM loading (149,155,169).

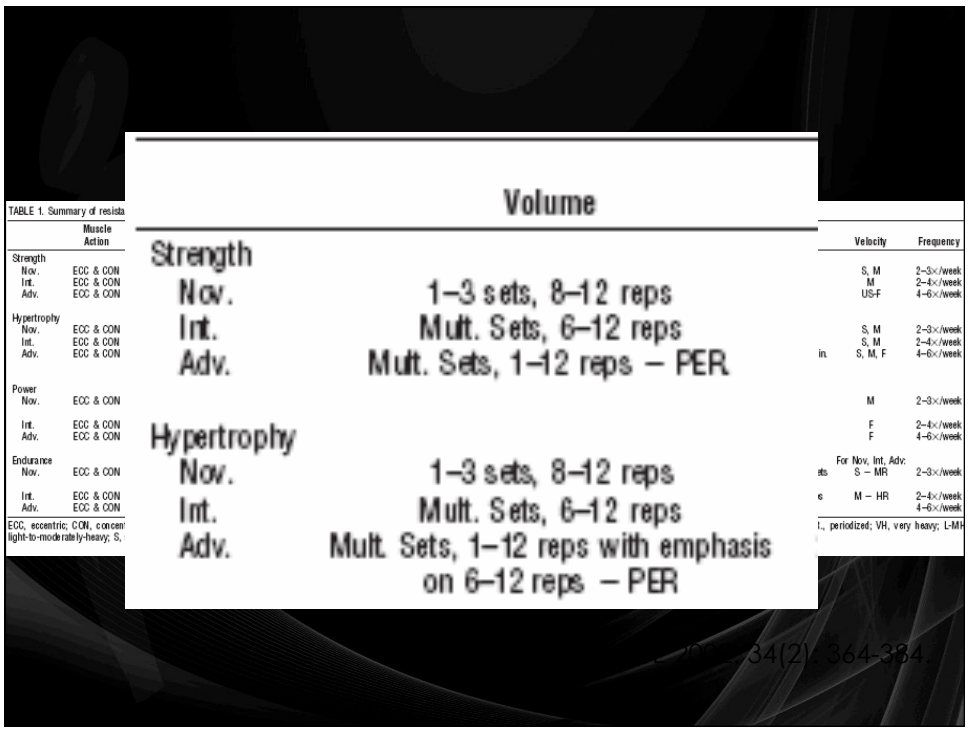

TABLE 1. Summary of resista

	Muscle Action	Velocity	Frequency
Strength			
Nov.	ECC & CON	S, M	2–3×/week
Int.	ECC & CON	M	2–4×/week
Adv.	ECC & CON	US-F	4–6×/week
Hypertrophy			
Nov.	ECC & CON	S, M	2–3×/week
Int.	ECC & CON	S, M	2–4×/week
Adv.	ECC & CON	S, M, F	4–6×/week
Power			
Nov.	ECC & CON	M	2–3×/week
Int.	ECC & CON	F	2–4×/week
Adv.	ECC & CON	F	4–6×/week
Endurance		For Nov, Int, Adv:	
Nov.	ECC & CON	S – MR	2–3×/week
Int.	ECC & CON	M – HR	2–4×/week
Adv.	ECC & CON		4–6×/week

ECC, eccentric; CON, concent … periodized; VH, very heavy; L-MH … light-to-moderately-heavy; S, …

Volume

Strength	
Nov.	1–3 sets, 8–12 reps
Int.	Mult. Sets, 6–12 reps
Adv.	Mult. Sets, 1–12 reps – PER
Hypertrophy	
Nov.	1–3 sets, 8–12 reps
Int.	Mult. Sets, 6–12 reps
Adv.	Mult. Sets, 1–12 reps with emphasis on 6–12 reps – PER

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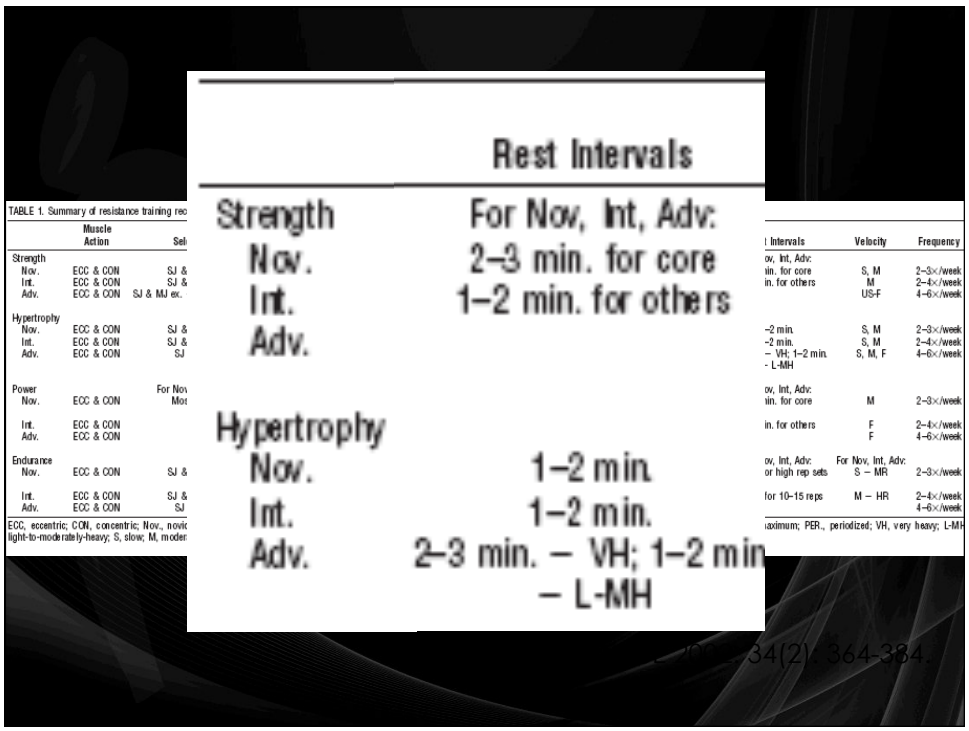
VOLUME

Evidence statement and recommendation. *Evidence category A*. It is recommended that one to three sets per exercise be used by novice individuals initially (23,35,40, 55,132,170,202,206,207).

Evidence category B. For progression into intermediate to advanced status, data from long-term studies indicate that multiple sets be used with systematic variation of volume and intensity over time (142,149,155,160,228,238). To reduce the risk of overtraining, a dramatic increase in volume is not recommended. It is important to point out that not all exercises need to be performed with the same number of sets, and that emphasis of higher or lower volume is related to the program priorities of the individual as well as the muscle(s) trained in an exercise movement.



INTERVALO DE RECUPERAÇÃO

Evidence statement and recommendation. *Evidence category B*. For novice, intermediate, and advanced training, it is recommended that rest periods of at least 2–3 min be used for core exercises using heavier loads (those exercises included specifically to improve maximal strength such as the squat and bench press) (3,149,213,214,221,229,230,269–271).

Evidence category C. For assistance exercises (those exercises complimentary to core exercises), a shorter rest period length of 1–2 min may suffice (149,213,229, 230,269).

Evidence statement and recommendation. *Evidence category C*. It is recommended that 1- to 2-min rest periods be used in novice and intermediate training programs. For advanced training, rest period length should correspond to the goals of each exercise or training phase such that 2- to 3-min rest periods may be used with heavy loading for core exercises and 1–2 min may be used for other exercises of moderate to moderately high intensity (3,151,152).

	Velocity
Strength	
Nov.	S, M
Int.	M
Adv.	US-F
Hypertrophy	
Nov.	S, M
Int.	S, M
Adv.	S, M, F

TABLE 1. Summary of resistance trainin

	Muscle Action		Rest Intervals	Velocity	Frequency
Strength			For Nov, Int, Adv:		
Nov.	ECC & CON		2–5 min. for core	S, M	2–3×/week
Int.	ECC & CON		1–2 min. for others	M	2–4×/week
Adv.	ECC & CON	SJ & M		US-F	4–6×/week
Hypertrophy					
Nov.	ECC & CON		1–2 min.	S, M	2–3×/week
Int.	ECC & CON		1–2 min.	S, M	2–4×/week
Adv.	ECC & CON		2–3 min. – VH; 1–2 min. – L-MH	S, M, F	4–6×/week
Power		Fc			
Nov.	ECC & CON		For Nov, Int, Adv: 2–3 min. for core	M	2–3×/week
Int.	ECC & CON		1–2 min. for others	F	2–4×/week
Adv.	ECC & CON			F	4–6×/week
Endurance			For Nov, Int, Adv:	For Nov, Int, Adv:	
Nov.	ECC & CON		1–2 min for high rep sets	S – MR	2–3×/week
Int.	ECC & CON		<1 min for 10–15 reps	M – HR	2–4×/week
Adv.	ECC & CON				4–6×/week

ECC, eccentric; CON, concentric; Nov., light-to-moderately-heavy; S, slow; M, r

PER

, 1-repetition maximum; PER., periodized; VH, very heavy; L-MH

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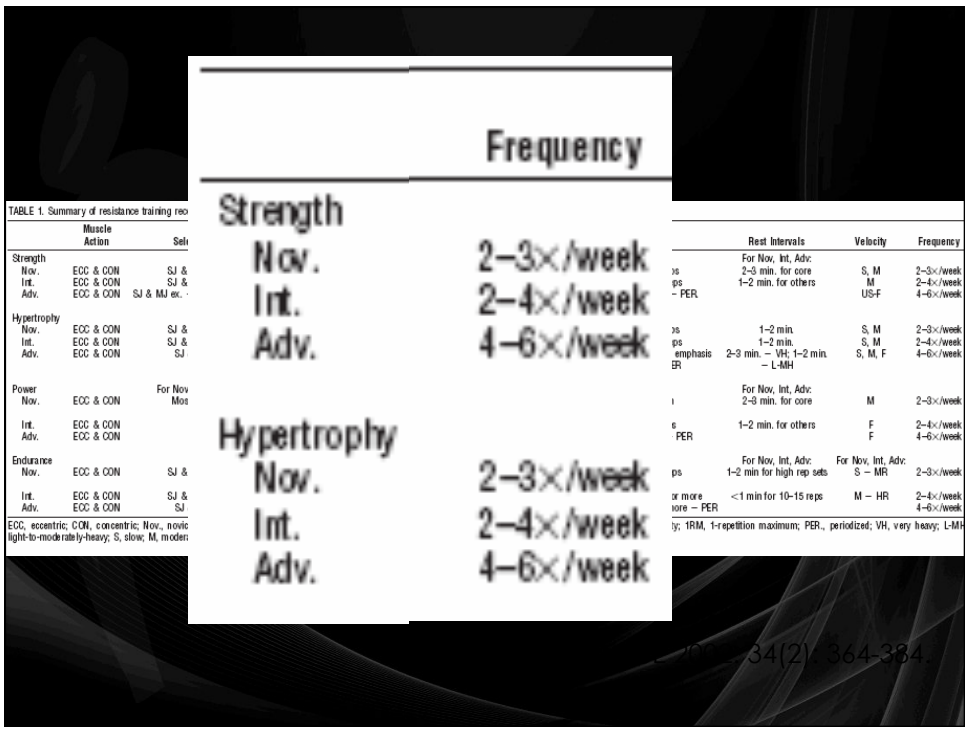
LOCIDADE DA REPETIÇÃO

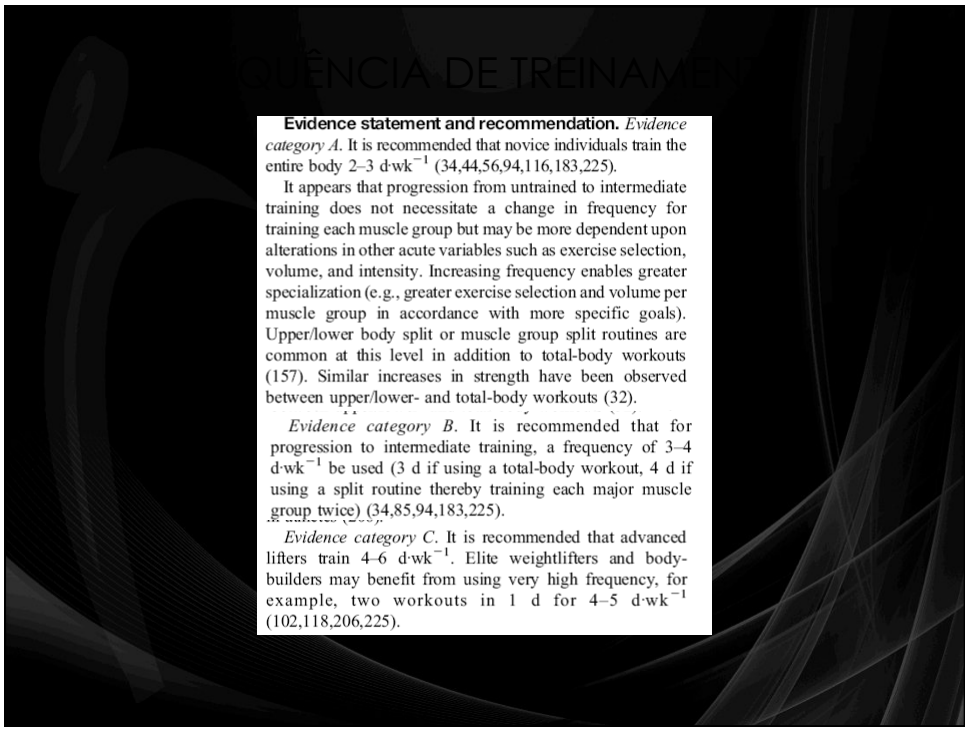
Evidence statement and recommendation. *Evidence category A.* For untrained individuals, it is recommended that slow and moderate velocities be used (113,141,161,189,192,195).

Evidence category B. For intermediate training, it is recommended that moderate velocity be used for RT (113,141,161,189,192,195).

Evidence category C. For advanced training, the inclusion of a continuum of velocities from unintentionally slow to fast velocities is recommended. The velocity selected should correspond to the intensity and the intent should be to maximize the velocity of the CON muscle action (19,133).

Evidence statement and recommendation. *Evidence category C.* It is recommended that slow to moderate velocities be used by novice- and intermediate-trained individuals. For advanced training, it is recommended that slow, moderate, and fast repetition velocities be used depending on the load, the repetition number, and the goals of the particular exercise (64,192).



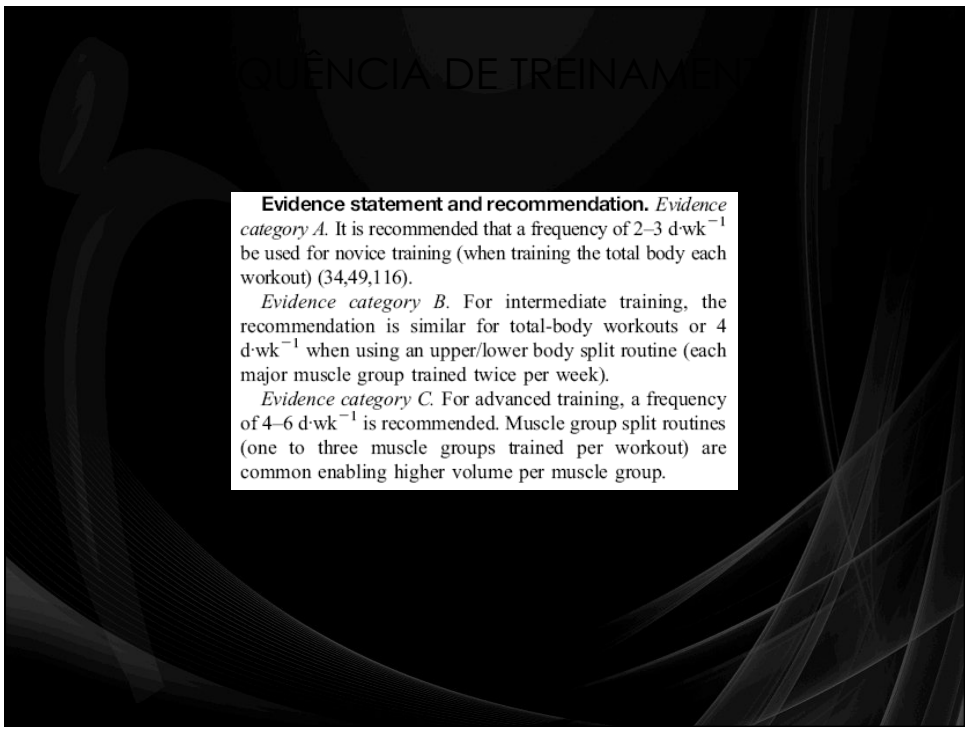


Evidence statement and recommendation. *Evidence category A.* It is recommended that novice individuals train the entire body 2–3 d·wk^{-1} (34,44,56,94,116,183,225).

It appears that progression from untrained to intermediate training does not necessitate a change in frequency for training each muscle group but may be more dependent upon alterations in other acute variables such as exercise selection, volume, and intensity. Increasing frequency enables greater specialization (e.g., greater exercise selection and volume per muscle group in accordance with more specific goals). Upper/lower body split or muscle group split routines are common at this level in addition to total-body workouts (157). Similar increases in strength have been observed between upper/lower- and total-body workouts (32).

Evidence category B. It is recommended that for progression to intermediate training, a frequency of 3–4 d·wk^{-1} be used (3 d if using a total-body workout, 4 d if using a split routine thereby training each major muscle group twice) (34,85,94,183,225).

Evidence category C. It is recommended that advanced lifters train 4–6 d·wk^{-1}. Elite weightlifters and bodybuilders may benefit from using very high frequency, for example, two workouts in 1 d for 4–5 d·wk^{-1} (102,118,206,225).



Evidence statement and recommendation. *Evidence category A.* It is recommended that a frequency of 2–3 d·wk^{-1} be used for novice training (when training the total body each workout) (34,49,116).

Evidence category B. For intermediate training, the recommendation is similar for total-body workouts or 4 d·wk^{-1} when using an upper/lower body split routine (each major muscle group trained twice per week).

Evidence category C. For advanced training, a frequency of 4–6 d·wk^{-1} is recommended. Muscle group split routines (one to three muscle groups trained per workout) are common enabling higher volume per muscle group.

PRINCIPAIS COMPONENTES DO PLANEJAMENTO

- Objetivo e análise das necessidades individuais.
- Planejamento das variáveis agudas.
- Manipulação crônica.
- Questões administrativas

ACSM/AHA Recommendations

Physical Activity and Public Health

Updated Recommendation for Adults From the American College of Sports Medicine and the American Heart Association

William L. Haskell, PhD, FAHA; I-Min Lee, MD, ScD; Russell R. Pate, PhD, FAHA;
Kenneth E. Powell, MD, MPH; Steven N. Blair, PED, FACSM, FAHA;
Barry A. Franklin, PhD, FAHA; Caroline A. Macera, PhD, FACSM;
Gregory W. Heath, DSc, MPH, FAHA; Paul D. Thompson, MD; Adrian Bauman, PhD, MD

Summary—In 1995 the American College of Sports Medicine and the Centers for Disease Control and Prevention published national guidelines on Physical Activity and Public Health. The Committee on Exercise and Cardiac Rehabilitation of the American Heart Association endorsed and supported these recommendations. The purpose of the present report is to update and clarify the 1995 recommendations on the types and amounts of physical activity needed by healthy adults to improve and maintain health. Development of this document was by an expert panel of scientists, including physicians, epidemiologists, exercise scientists, and public health specialists. This panel reviewed advances in pertinent physiologic, epidemiologic, and clinical scientific data, including primary research articles and reviews published since the original recommendation was issued in 1995. Issues considered by the panel included new scientific evidence relating physical activity to health, physical activity recommendations by various organizations in the interim, and communications issues. Key points related to updating the physical activity recommendation were outlined and writing groups were formed. A draft manuscript was prepared and circulated for review to the expert panel as well as to outside experts. Comments were integrated into the final recommendation.

Primary Recommendation—To promote and maintain health, all healthy adults aged 18 to 65 yr need moderate-intensity aerobic (endurance) physical activity for a minimum of 30 min on five days each week or vigorous-intensity aerobic physical activity for a minimum of 20 min on three days each week. [I (A)] Combinations of moderate- and vigorous-intensity activity can be performed to meet this recommendation. [IIa (B)] For example, a person can meet the recommendation by walking briskly for 30 min twice during the week and then jogging for 20 min on two other days. Moderate-intensity aerobic activity, which is generally equivalent to a brisk walk and noticeably accelerates the heart rate, can be accumulated toward the 30-min minimum by performing bouts each lasting 10 or more minutes. [I (B)] Vigorous-intensity activity is exemplified by jogging, and causes rapid breathing and a substantial increase in heart rate. In addition, every adult should perform activities that maintain or increase muscular strength and endurance a minimum of two days each week. [IIa (A)] Because of the dose-response relation between physical activity and health, persons who wish to further improve their personal fitness, reduce their risk for chronic diseases and disabilities or prevent unhealthy weight gain may benefit by exceeding the minimum recommended amounts of physical activity. (*Circulation*. 2007;116:000-000.)

Key Words: benefits ■ risks ■ physical activities dose ■ physical activity intensity

ACSM/AHA Recommendations

Physical Activity and Public Health in Older Adults

Recommendation From the American College of Sports Medicine and the American Heart Association

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Objective—To issue a recommendation on the types and amounts of physical activity needed to improve and maintain health in older adults.

Participants—A panel of scientists with expertise in public health, behavioral science, epidemiology, exercise science, medicine, and gerontology.

Evidence—The expert panel reviewed existing consensus statements and relevant evidence from primary research articles and reviews of the literature. Process: After drafting a recommendation for the older adult population and reviewing drafts of the Updated Recommendation from the American College of Sports Medicine (ACSM) and the American Heart Association (AHA) for Adults, the panel issued a final recommendation on physical activity for older adults.

Summary—The recommendation for older adults is similar to the updated ACSM/AHA recommendation for adults, but has several important differences including: the recommended intensity of aerobic activity takes into account the older adult's aerobic fitness; activities that maintain or increase flexibility are recommended; and balance exercises are recommended for older adults at risk of falls. In addition, older adults should have an activity plan for achieving recommended physical activity that integrates preventive and therapeutic recommendations. The promotion of physical activity in older adults should emphasize moderate-intensity aerobic activity, muscle-strengthening activity, reducing sedentary behavior, and risk management. (***Circulation***. **2007;116:000-000.**)

Key Words: older adults ■ physical activity ■ benefits ■ risks ■ health