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Obesità, Nutrizione e Stili di vita
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Ruolo dell'attività fisica su funzione e metabolismo

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Fare attività fisica e sport oggi.....

Scelta o necessità?

Evidenze e Lineeguida.....

Attività sportiva (fisica) in Italia (dati Istat 2004)

[> 30 mets * h / settimana]

- 10 anni 72 %
- 15 anni 68 %
- 20 anni 61 %
- 30 anni 48 %
- 60 anni 35 %
- 75 anni ……%

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Obesità infantile: effetti

- Sviluppo capacità fisiologiche
- Incompetenza motoria e funzionale
- Alterazioni metaboliche a lungo termine

Obesità età adulta: effetti

- Decadimento capacità fisiologiche
- Sindrome metabolica
- Accelerazione processo invecchiamento

Why Exercise prescription?

- Individual ageing process
- Personal life expectations

The optimal prescription for any individual is determined on an appropriate evaluation of:

- GOAL (S) - (Final target to reach)
- Physical Capacity - (Physiological Test Performance Task)
- Psychological profile - (attitude to exercise)
- Social aspects (Environment and Barriers)

Managing Exercise Prescription or Counseling?

Exercise for elderly is a matter of health not simply recreation (according to OMS)

In the past exercise for elderly was generally proposed on the basis of ….
…reduced intensity in order to increased safety …..
without any check on the effects

Counseling is a good method, basically aimed at inducing behavioural changes, however we need to link appropriate prescription to it

The art of exercise prescription is the successful integration of medical and exercise science with behavioral techniques that resulting long-term program compliance and attainment of individual's goal.

ACSM Guidelines for exercise testing and prescription.
6th edition 2004

Milestones of Exercise Prescription

Appropriate mode(s) of exercise

Intensity

Duration

Frequency

Progression

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Aerobic training (Cardiovascular endurance)

1. Improve the ability of the body to utilise oxygen
2. Basis for physical fitness
3. Measured by VO2 max or … other indexes
4. Expected changes in elderly from 5 to 40%
5. Improvement is inversely related to initial level

Aerobic training Mode of exercise

Use of large muscle for prolonged (several minutes) periods and rhythmic movements…….wide numbers of activities…..

Group 1 Activities easily maintaned at constant intensity
Low inter- individual diff. In EnExp or EnCost
Precise control, rehabilitation, elderly (?)

Group 2 Activities where the rate of EE is related to skill
EE is relatively constant for a given person
Early stage of conditioning for skilled people

Group 3 Activities where skill and intensity are variable
Provide group interaction and variety of ex
Caution for high risk and low fit (not diseased ?)

Other considerations: risk of injuries,orthopedic stress, musle strength requirement, ….travel cost, partner involvement

Aerobic training Intensity & Duration

Intensity and duration are integrally related determining EE of exercise activities

The same results (in terms od cardiovascular endurance) can be reached with prolonged exercise and low to moderate intensity (not too low!!!!)

Desirable intensity for elderly is from 50 to 80% of VO2 max but you can(have to) reached for short periods 90-100% V'O2 max

Individual with very low fitness (< 25ml/Kg/min) can start from 40-50% of V'O2 max

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Aerobic training Intensity

How to estabilish intensity:
- evaluation….(you are very expert now!!!!)

Set the parameter:
- HR (% of maximum or HR reserve)
- RPE (rate of perceived exertion) example Borg Scale
- METs

others as:
- ventilatory requirements
- lactate
- pain limitation

HR reserve= HR max-HR rest (intensity range from 50 to 85%)

Classification of intensity 30-60 min of exercise

% HR max	% VO2 max	RPE	Classification of intensity
< 35	< 30	<10	Very light
35-59	30-49	10-11	Light
60-79	50-74	12-13	Moderate
80-89	75-84	14-16	Heavy
>90	>85	>16	Very Heavy

Aerobic training Duration

1. Time limitation of the individual leads the choice!!!
2. From 5-10 min to 30-40 min inversely related to intensity
3. Gold standard 20-60 min at 55-75% VO2 max
4. Frail or low fit elderly could benefit also from repeated session of 5-10 min
5. Set the initial goal reasonably for the individual (auto regulation is the tomb of prescription!!!!)
6. Increase as a function of success and absence of fatigue

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Aerobic training Frequency

1. Inter-relation: Intensity and Duration

2. Set on functional capacity:
   - very low fit subj. (<3 METs) require multiple daily sessions
   - low fit (3-5 METs) 2 or 3 sessions per day
   - normal (> 5 METs) 3-5 sessions/week

Number of exercise sessions per week also depend on caloric goals, subjects preferences and limitations lifestyle,……

Aerobic training Rate of progression

1. It is determined by:
   - Functional capacity
   -Medical and health status
   - Age
   - Individual preference

2. Three stages:
   I - INITIAL CONDITIONING STAGE (4-6 wks)
   ….avoid risk and fatigue…

   II - IMPROVEMENT STAGE (4-5 mo)
   …..feel the increasing power…

   III - MAINTENANCE STAGE (> 6 mo)
   …..enjoy your exercise as part of your life…

Muscoloskeletal flexibility

Mode of exercise: Any that mantain an adequate range of motion (generally called stretching ex.)

Static exercises are to be preferred in elderly with emphasys to low back and thig area

Intensity: to position at middle discomfort

Duration:10 to 30 sec for each stretch 3 –5 reps

Frequency: at least 3 days per week

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Muscolar fitness – Resistence training

(it should be a part of each protocol)

Mode of exercise: resistence training, strength training, daily activities requiring muscle power)

Intensity: from 40% to 80% of 1 RM or Max isom

Duration: at least 1 exercise for any major muscle groups (avg 8-10 ex) 8-12 reps for each

Frequency: at least 2 days per week

1. Adherence to technique of exercise
2. Perform exercise in the correct range of motion
3. Avoid or reduce eccentric exercise or exercise with high level isometric component

Prescrivere e far fare attività fisica. . .

- Chi lo deve fare ? (ref. salute)
- Chi lo sa fare? (medico o esperto in AF)
- Come si può fare? (lavoro in team)
- Cosa serve per farlo bene (formazione!!!)
- ……. ed quale parte ha il territorio??

Corso di perfezionamento in
" Valutazione per la Prescrizione dell'AF e Sport"
per medici e laureati in scienze motorie
Verona settembre-ottobre 2007

Attività fisica

=

effetto positivo

???

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Il rischio inefficacia

- Attività motoria totale (> 45' / die)
- Intensità: moderata – media (> 4-5 mets)

Objectively measured physical activity and fat mass in a large cohort of children.
- DXA e accelerometri in 5500 bambini 12 anni
- no correlazione att. fisica totale e massa grassa
- buona correlazione inversa (r^2=0.83) tra attività fisica media-intensa e sovrappeso

Ness et al. 2006)

Obesità e capacità funzionali – bambini-

Sovrappeso e obesità moderata in bambini pre-puberi non producono alcuna limitazione al metabolismo energetico in cammino, corsa e pedalata su bici

(Maffeis, Schutz, Schena et al J. Pediatrics 1993)

Obesità e capacità funzionali – anziani-

Sovrappeso e lieve obesità in anziani attivi (età media 69,4 anni) si associano con una riduzione delle capacità funzionali e motorie, specialmente per potenza aerobica, rapidità e flessibilità. Nessuna modificazione per forza muscolare e coordinazione motoria.

(Schena, Lanza et al., J.A.P.A. 2004)

Quale attività fisica ideale ideale per il soggetto obeso??

Una proposta .....

NORDIC WALKING

- Cammino con bastoncini
- Riduzione del carico articolare
- Maggiore spesa energetica
- Buon controllo posturale

NW per obesi

- 8 soggetti BMI>30 (clinica Solatrix Rovereto)
- Cammino con e senza bastoni
- Velocità 3-5km/h
- Piano e pendenza 0-10%
- Misura V'O2, forza, appoggio

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Risultati preliminari

- Cammino in piano a 4 km/h
  + 11,4% V'O2 + 5,4% FC

Cammino in salita 10%
  + 2,4% V'O2 – 3,1% FC

Se l'attività fisica fa così bene .....

Attivi e Sportivi per tutta la vita

Chi ci aiuta (o ci ostacola??)

- Genetica

- Ambiente

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Cosa influenza la scelta sportiva?

- **Esempio familiare**
- Ambiente
- Supporto familiare
- Stato socio economico familiare

Parental correlates of Physical Activity in children and early adoloscents.
Gustaffson & Rhodes, Sports Med. 2006

Attività fisica & Sport in tutte le età ….quali obiettivi?

Crescita Fisiologica

Carattere e Personalità

Salute e Benessere

Performance e Agonismo

Cosa conta di più ????

(e in quale modo si decide…….)

Attività fisica & Sport in età giovanile ….quali sono i giusti obiettivi????

Crescita – performance - carattere - salute…..

Dipende da: .ambiente sociale, profilo personale e…….

Ricordo con un sorriso quando schernivo Andrea e Manuela già impegnati in gare di un certo livello, dicendo loro che io non sarei stato così stupido da fare tanta fatica…….

Giorgio di Centa