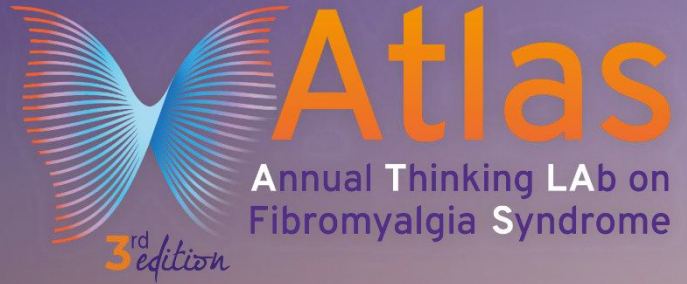




UNIVERSITÀ DEGLI STUDI DI MILANO



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2024

La strategia terapeutica non farmacologica: Il fitness è rilevante?

PRO

Prof. Daniela Lucini

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Diagnosis of fibromyalgia

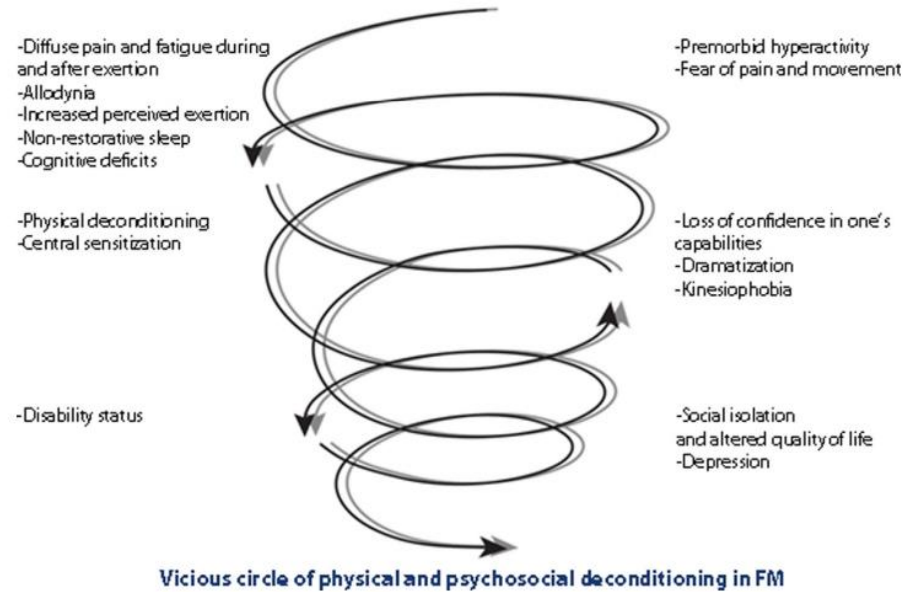
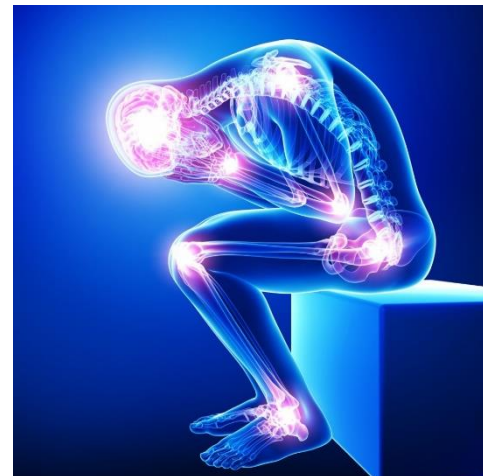


Fig. 1. Diagnosis of fibromyalgia. Inspired from Préfaut C and Ninot G. La réhabilitation du malade respiratoire chronique [Rehabilitation of chronic respiratory disease patients] Paris: Masson, 2009:528p.

FIBROMIALGIA & ESERCIZIO



- Comorbidità
- Individualità

11. Conclusions

An exercise program that is individualized and supervised over a set period allowing the patient to learn aerobic, strength and flexibility exercises must be considered as the treatment of choice for FM in close association with patient education. However, various research questions remain to be answered about the intensity, frequency, progression of the exercises, how to integrate these exercise programs into daily and professional activities, and also how to ensure adherence to these exercise programs.



BENEFICI!

GESTIONE
FIBROMIALGIA
E SUE
CONSEGUENZE

**ESERCIZIO
&
STILE DI VITA**

BENESSERE
ATTUALE

GESTIONE
ALTRE
PATOLOGIE
ASSOCIATE

BENEFICI!

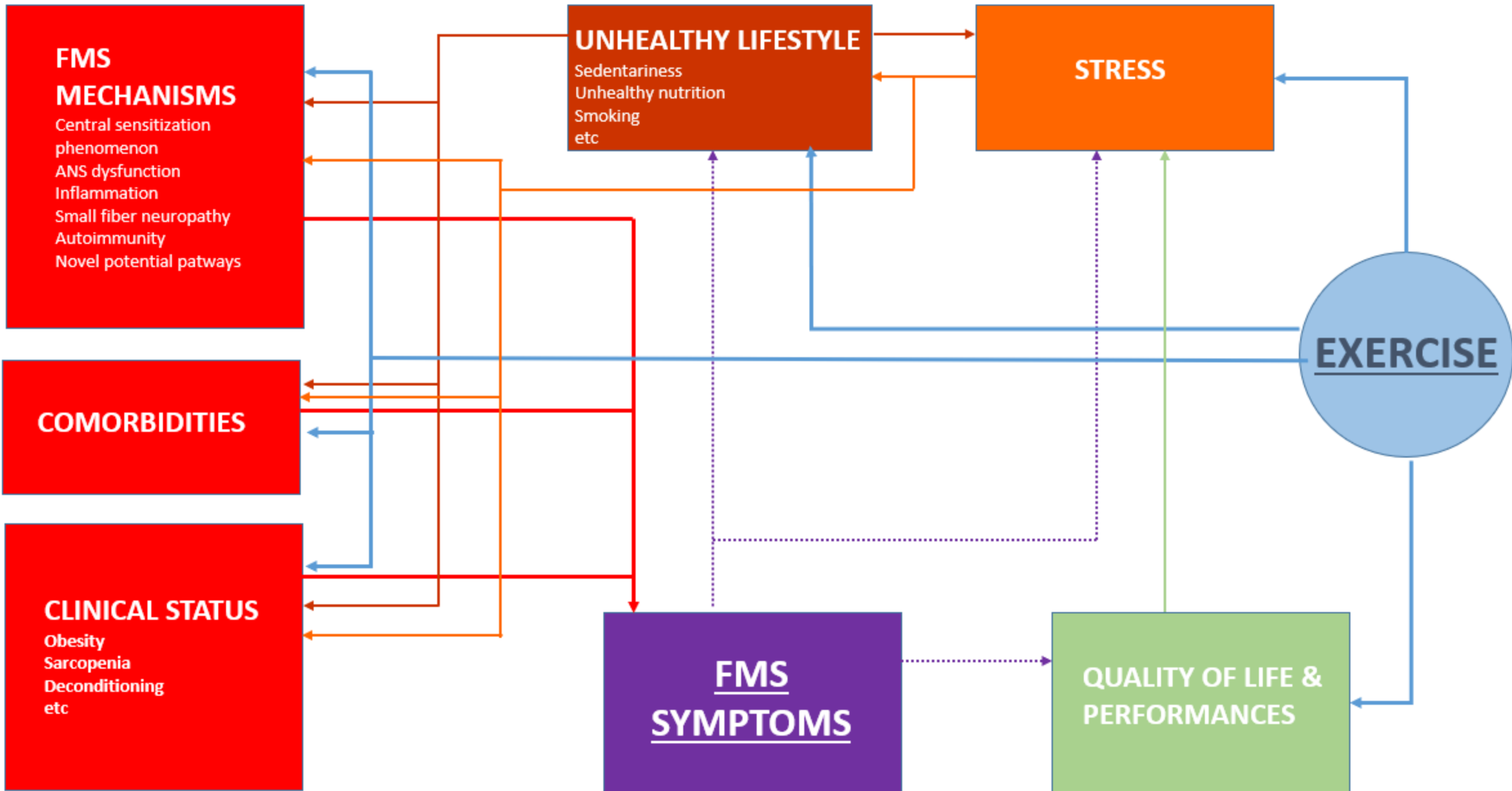
ESERCIZIO

**Meccanismi
responsabili della
patologia**

**Meccanismi
responsabili di
eventuali patologie
concomitanti**

Sintomi

Uno strumento terapeutico è efficace quando è in grado di agire, migliorando, i meccanismi eziopatogenetici responsabili della patologia/sintomo



EULAR revised recommendations for the management of fibromyalgia

Table 3 Recommendations

Recommendation	Level of evidence	Grade	Strength of recommendation	Agreement (%)*
<i>Overarching principles</i>				
Optimal management requires prompt diagnosis. Full understanding of fibromyalgia requires comprehensive assessment of pain, function and psychosocial context. It should be recognised as a complex and heterogeneous condition where there is abnormal pain processing and other secondary features. In general, the management of FM should take the form of a graduated approach.	IV	D		100
Management of fibromyalgia should aim at improving health-related quality of life balancing benefit and risk of treatment that often requires a multidisciplinary approach with a combination of non-pharmacological and pharmacological treatment modalities tailored according to pain intensity, function, associated features (such as depression), fatigue, sleep disturbance and patient preferences and comorbidities; by shared decision-making with the patient. Initial management should focus on non-pharmacological therapies.	IV	D		100
<i>Specific recommendations</i>				
Non-pharmacological management				
Aerobic and strengthening exercise	1a	A	Strong for	100
Cognitive behavioural therapies	1a	A	Weak for	100
Multicomponent therapies	1a	A	Weak for	93
Defined physical therapies: acupuncture or hydrotherapy	1a	A	Weak for	93
Meditative movement therapies (qigong, yoga, tai chi) and mindfulness-based stress reduction	1a	A	Weak for	71–73
Pharmacological management				
Amitriptyline (at low dose)	1a	A	Weak for	100
Duloxetine or milnacipran	1a	A	Weak for	100
Tramadol	1b	A	Weak for	100
Pregabalin	1a	A	Weak for	94
Cyclobenzaprine	1a	A	Weak for	75

*Percentage of working group scoring at least 7 on 0–10 numerical rating scale assessing agreement.



MODALITA': quale esercizio ?
INTENSITA': quanta fatica?
FREQUENZA: quante volte/settimana?
DURATA: per quanto tempo ogni volta?
PROGRESSIONE: come migliorare?

La parola farmaco deriva dal greco antico φαρμακον, pharmakon, "rimedio, medicina" ma anche «veleno».

Deve essere mirato ad uno specifico obiettivo clinico e prescritto in modo corretto
Considerando possibili "controindicazioni" ed "effetti collaterali"



... take one daily



EDITORIALS

Exercise: not a miracle cure, just good medicine

Physical activity remains the best buy for public health

Domhnall MacAuley *visiting professor*¹, Adrian Bauman *professor of public health*², Pierre Frémont *associate professor*³

¹Faculty of Life and Health Sciences, University of Ulster, Northern Ireland; ²School of Public Health, and Director Prevention Research, University of Sydney, Australia; ³Department of Rehabilitation, Faculty of Medicine, Université Laval, Québec, Canada

There is nothing miraculous about exercise. What is extraordinary is how long it is taking mainstream medicine to accept the importance of physical activity. A recent report from the Academy of Medical Royal Colleges, *Exercise: the Miracle Cure and the Role of the Doctor in Promoting It*, reminds us of the benefits of physical activity,¹ but we already know that it is effective in primary prevention, secondary prevention, and in the treatment of many common diseases. The report builds on decades of epidemiological evidence, years of identifying the “potential” health gain if physicians successfully prescribed physical activity, and even support efforts to medicalise inactivity by labelling it “sedentary death syndrome.”²

The role of doctors in promoting exercise has slowly developed through recent global dissemination of concepts such as “Exercise is Medicine,” started by the American College of Sports Medicine and adopted particularly in Canada, Australia, and South America,³ and “Health Enhancing Physical Activity,” initiated by WHO Europe.⁴ Promoting physical activity is, however, a major challenge in the modern environment with our lifestyle designed to reduce or eliminate physical activity at every opportunity.

Exercise is one of the top modifiable risk factors for chronic disease.⁵ Indeed, exercise produces roughly similar benefits to drugs in the secondary prevention of coronary heart disease, rehabilitation after stroke, treatment of heart failure, and prevention of diabetes.⁶ In addition, exercise has recently been shown to reduce the risk of dementia and improve mental health.⁷ The required dose is modest and achievable, with evidence suggesting that moderate intensity physical activity at even a minimum of 150 minutes a week is effective (about 30 minutes of physical activity most days comprising, for example, three 10 minute walks). And, with so much current attention on obesity, there is interesting evidence that, although both fitness and lack of fitness are associated with cardiovascular risk factors, maintaining or improving fitness may attenuate some of the adverse effects of fat gain with age.⁸

Doctors’ contribution

The role of doctors seems more aspirational than evidence based. Although the benefits of exercise are well documented, there is less evidence that interventions led by doctors are effective at the population level. We have developed comprehensive, evidence based guidance on appropriate prescribing of exercise.⁹ But a systematic review of interventions in primary care to promote exercise showed only modest, short lived benefit.¹⁰ Current guidelines from the National Institute for Health and Care Excellence,¹¹ are underpinned by a broader review (including non-randomised studies) suggesting that brief advice can be effective and cost effective in improving self reported physical activity outcomes over the shorter term, but that the effect wanes over time.^{12 13} In addition, there was no dose-response with increasingly intensive interventions.

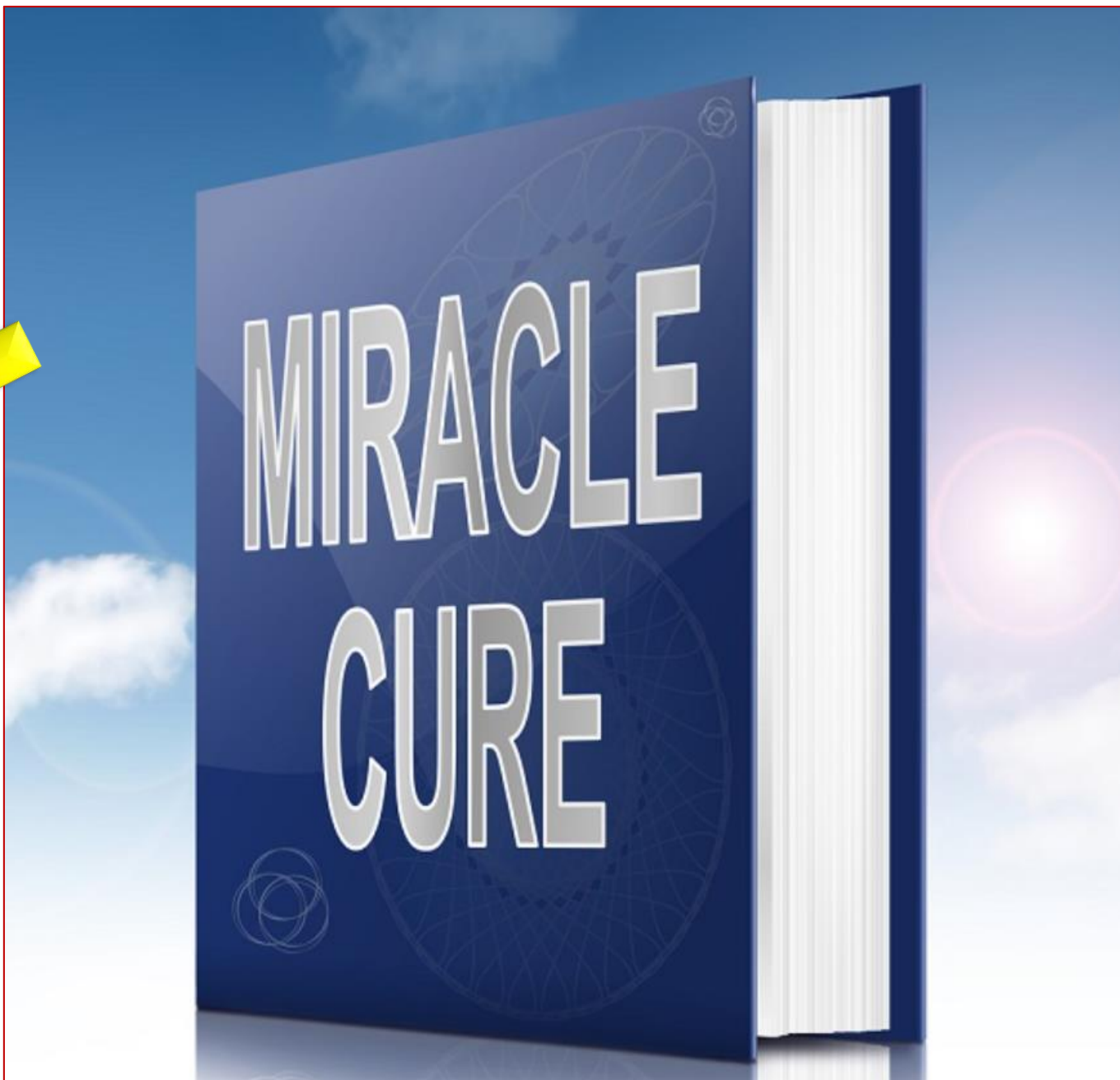
Although prescribing exercise in general practice might be important, another systematic review found that the effect of exercise referral schemes on physical activity and health outcomes was uncertain.¹⁴ The academy’s report encourages doctors to “make every contact count,” which is well intentioned, but the exhortation is not referenced to a comprehensive evidence source but to a report from the NHS Future Forum.¹⁵ The challenge is that the existing evidence comes from research in selected and motivated doctors and patients.

This lack of generalisability is the biggest challenge, with few doctors delivering physical activity advice to their patients, even when confident in their knowledge.¹⁶ A study of representative samples of clinician practices in the United States found that the proportion of physicians recommending exercise to all patients fell from 14% in 1995 to 11% in 2007. Furthermore, exercise was mentioned to only a sixth of patients with diabetes or hypertension, despite these being conditions for which exercise is recommended.¹⁷ Similarly, in a study of cardiometabolic risk assessment and management in Canada only 17% of people with type 2 diabetes, and 11% without, were advised to increase their physical activity.¹⁸ Doctors can be trained to deliver opportunistic advice on behaviour change,

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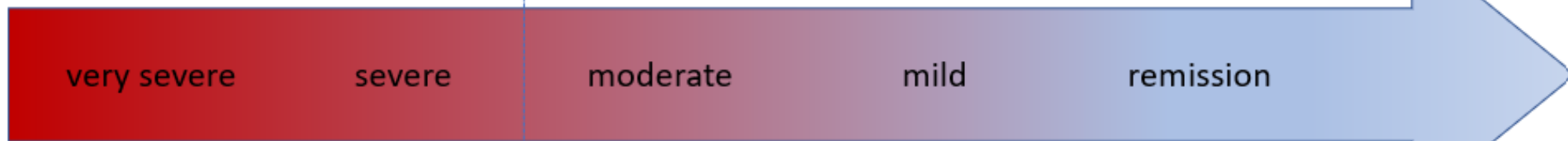
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ASSESSMENT			
Endurance exercise capacity	6MWT (if possible)	6MWT or CPX / MaxET (if possible)	CPX or MaxET
Muscle Strength	Handgrip (if possible)	Handgrip (if possible)	Handgrip
Functionality	Frailty Assessment	Frailty Assessment	---
Body composition	BIA	BIA	BIA
Lifestyle	Ad hoc questionnaires	Ad hoc questionnaires	Ad hoc questionnaires

FM SEVERITY



GOALS

<ul style="list-style-type: none"> - To reduce sedentariness - To improve quality of life - To promote regular long-term adherence to exercise - To manage stress - To start improving physical and psychosocial performances - To avoid exercise modalities or intensities which may per se worsen symptoms 	<p>In addition to the goals outlined for severe / very severe condition,</p> <ul style="list-style-type: none"> - To modulate etiopathogenetic mechanisms of FMS, thus improving pain, fatigue and other symptoms - To manage deconditioning and improve muscular strength - To optimize body composition - To manage comorbidities - To reduce mortality from any cause, foster well-being and healthy ageing, improve physical and psychosocial performances
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EXERCISE PRESCRIPTION

Aerobic endurance:

Strength exercise:

Flexibility exercise:

Multicomponent exercise:

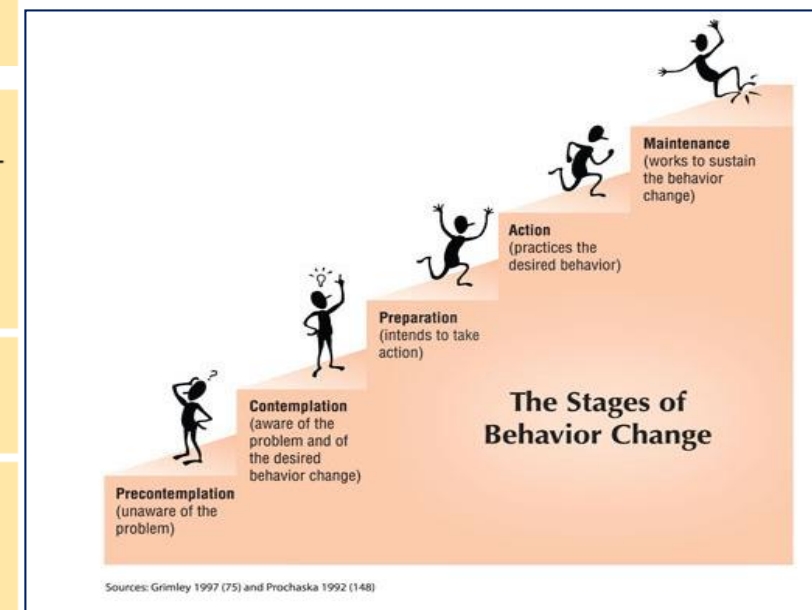
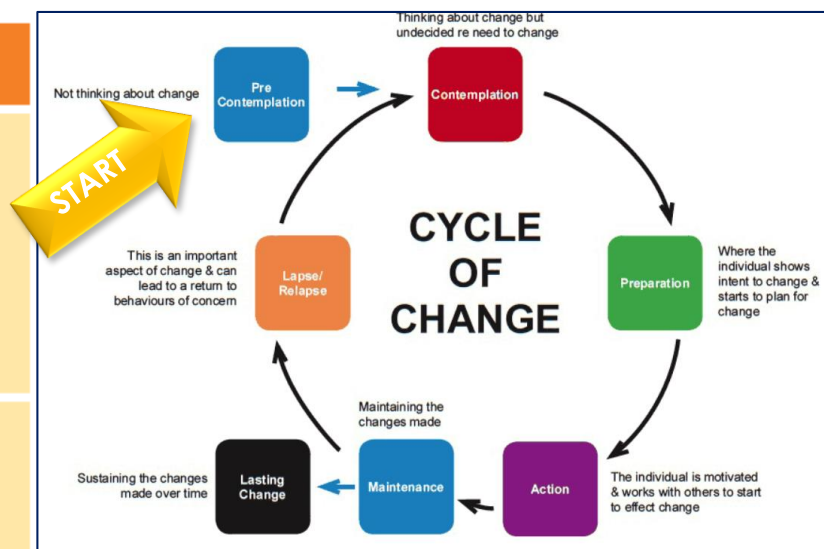
<ul style="list-style-type: none"> - Start with a low-demanding protocol ($\leq 30\%$ HRR), or with self-selected intensities of exercise) and progressively increase intensity only when the patient feels she/he can manage it without adverse effects. 	<ul style="list-style-type: none"> - Progressively increase exercise intensity to the moderate level (40-60% HRR) only when the patient feels she/he can manage it without adverse effects.
<ul style="list-style-type: none"> - Start with a level of intensity where no pain is experienced, and progressively increase it up to 50% 1RM. If the patient cannot complete 3 repetitions easily and without pain, reduce the intensity. 	<ul style="list-style-type: none"> - Start with a level of intensity where no pain is experienced, and progressively increase it up to 50-80% 1RM. If the patient cannot complete 3 repetitions easily and without pain, reduce the intensity.
<ul style="list-style-type: none"> - Active and gentle ROM stretches for all muscle-tendon groups in the pain-free range. The stretch should be held to the point of tightness or slight discomfort. 	<ul style="list-style-type: none"> - Active and gentle ROM stretches for all muscle-tendon groups in the pain-free range. The stretch should be held to the point of tightness or slight discomfort.
<ul style="list-style-type: none"> - Multicomponent activities (such as yoga, tay-chi, etc) at low intensity 	<ul style="list-style-type: none"> - Multicomponent activities (such as yoga, tay-chi, etc) at moderate intensity



STAGES-OF-CHANGE CHARACTERISTICS AND STRATEGIES

STAGE	CHARACTERISTICS	STRATEGIES
Precontemplation	The person is not even considering changing. They may be "in denial" about their health problem, or not consider it serious. They may have tried unsuccessfully to change so many times that they have given up.	Educate on risks versus benefits and positive outcomes related to change
Contemplation	The person is ambivalent about changing. During this stage, the person weighs benefits versus costs or barriers (e.g., time, expense, bother, fear).	Identify barriers and misconceptions Address concerns Identify support systems
Preparation	The person is prepared to experiment with small changes.	Develop realistic goals and timeline for change Provide positive reinforcement
Action	The person takes definitive action to change behavior.	Provide positive reinforcement
Maintenance and Relapse Prevention	The person strives to maintain the new behavior over the long term.	Provide encouragement and support

TRANSTHEORETICAL MODEL



Source: Zimmerman et al., 2000; Tabor and Lopez, 2004

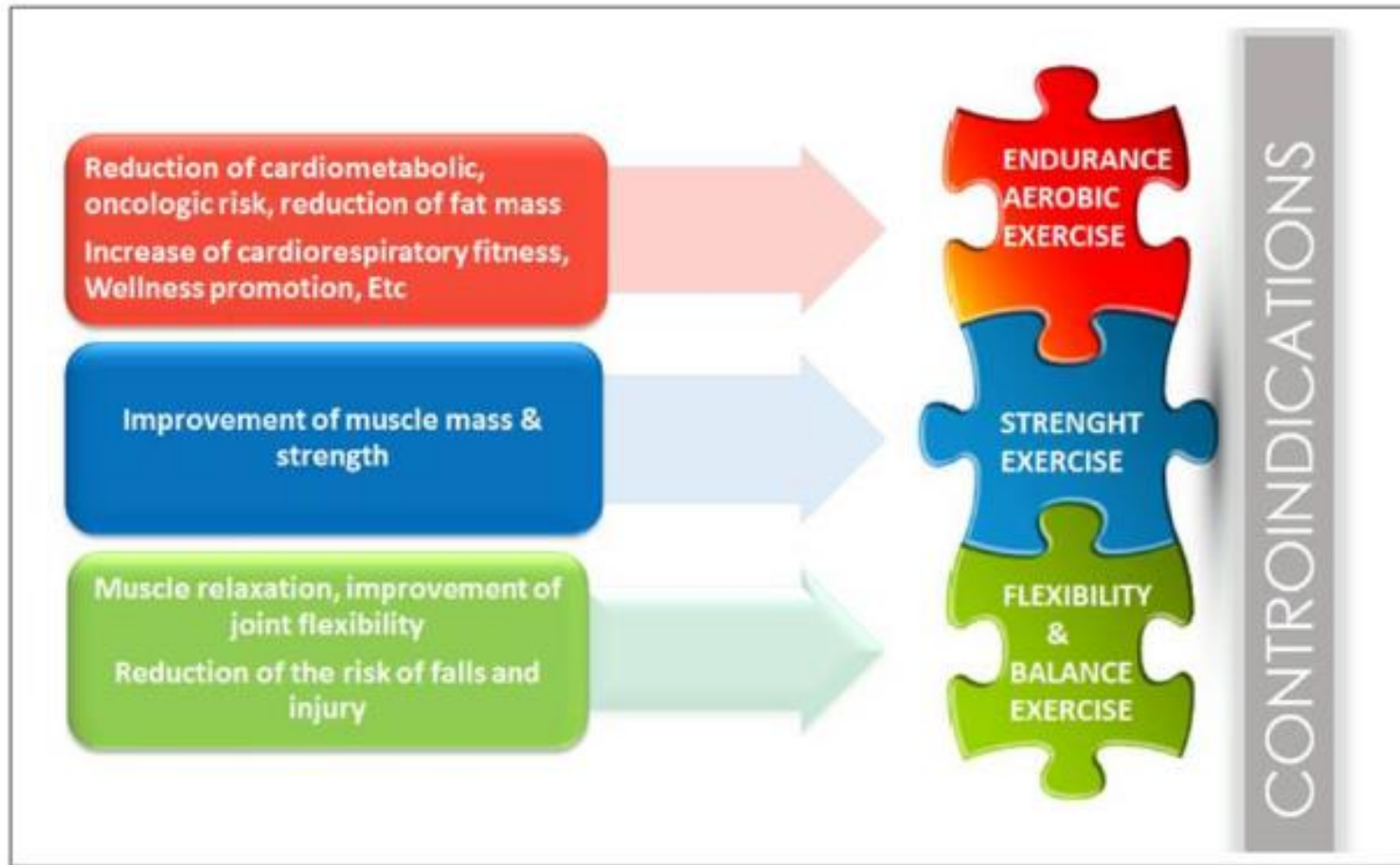


MEDICINA

Personalizzata



GRAZIE PER L'ATTENZIONE



Modalità esercizio



Figure 2. Exercise modalities needed to reach the main clinical goals.

COSA FARE?

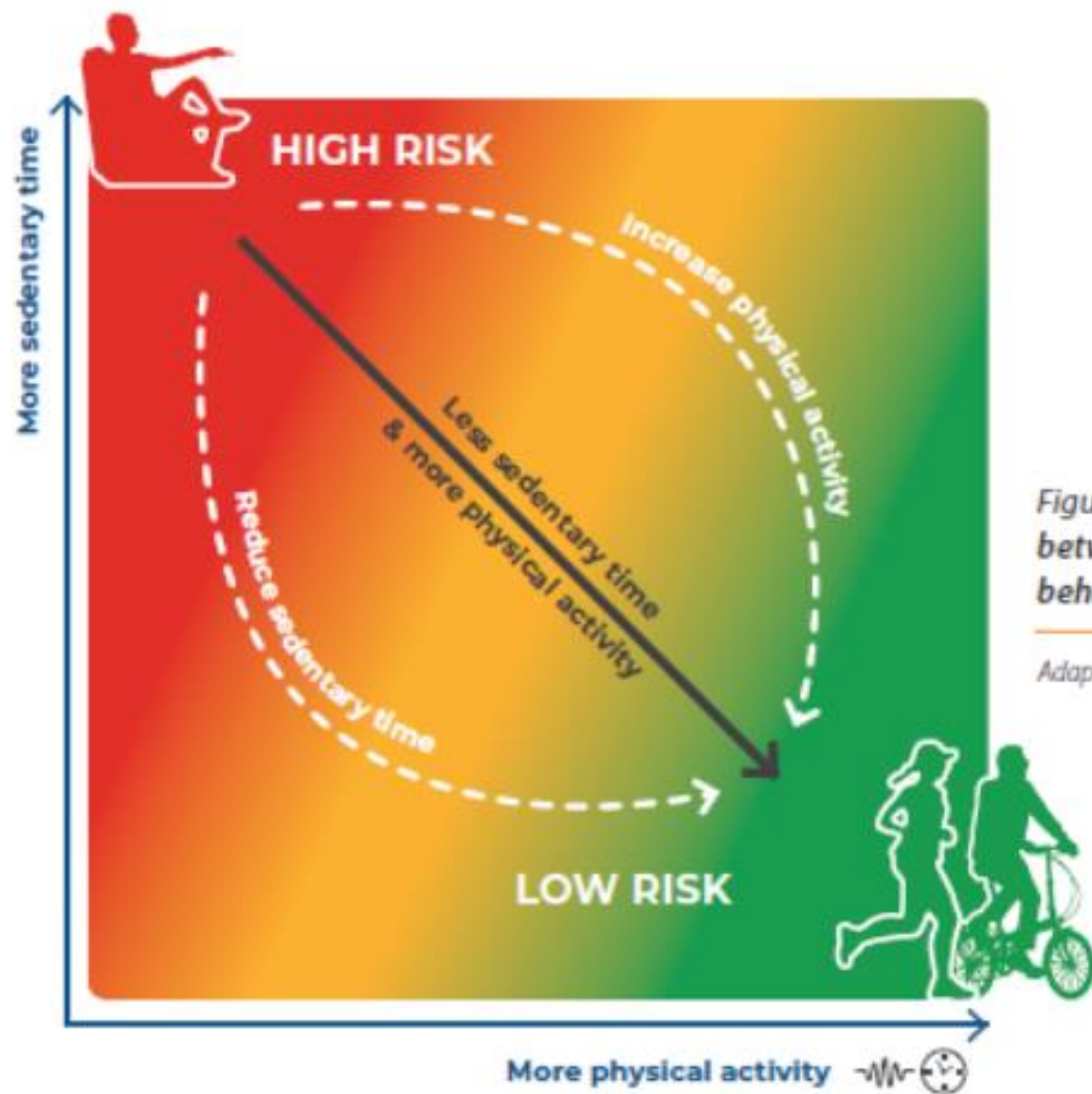
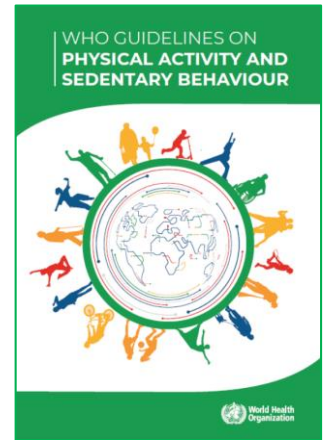


Figure 2: The relationship between levels of sedentary behaviour and physical activity

Adapted from PAGAC

Bull FC, et al. *Br J Sports Med* 2020;**54**:1451–1462. doi:10.1136/bjsports-2020-102955

EXERCISE & LIFESPAN



STRENGTH ENDURANCE

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infants (less than 1 year)	1-2 years	3-4 years	5-17 years	18-65 years	65 years and older
Be physically active several times a day in a variety of ways, particularly through interactive floor-based play; more is better. For those not yet mobile, this includes at least 30 minutes in prone position (tummy time) spread throughout the day while awake.	Spend at least 180 minutes in a variety of types of physical activities at any intensity, including moderate to vigorous-intensity physical activity, spread throughout the day; more is better.	Spend at least 180 minutes in a variety of types of physical activities at any intensity, of which at least 60 minutes is moderate- to vigorous intensity physical activity, spread throughout the day; more is better.	Children and adolescents should do at least an average of 60 minutes per day of moderate to vigorous-intensity, mostly aerobic, physical activity, across the week. Vigorous-intensity aerobic activities should be incorporated at least 3 days a week.	at least 150–300 minutes of moderate-intensity aerobic physical activity; or at least 75–150 minutes of vigorous intensity aerobic physical activity; or an equivalent combination of moderate- and vigorous-intensity activity throughout the week	at least 150–300 minutes of moderate-intensity aerobic physical activity; or at least 75–150 minutes of vigorous intensity aerobic physical activity; or an equivalent combination of moderate- and vigorous-intensity activity throughout the week. Varied multicomponent physical activity that emphasizes functional balance and strength training at moderate or greater intensity, on 3 or more days a week, to enhance functional capacity and to prevent falls.
			Activities that strengthen muscle and bone, should be incorporated at least 3 days a week.	Muscle strengthening activities at moderate or greater intensity that involve all major muscle groups on 2 or more days a week	Muscle strengthening activities at moderate or greater intensity that involve all major muscle groups on 2 or more days a week

World Health Organization 2020 guidelines on physical activity and sedentary behaviour. British journal of sports medicine 2020, 54, 1451-1462. World Health Organization. (2019). Guidelines on physical activity, sedentary behavior and sleep for children under 5 years of age. World Health Organization. <https://apps.who.int/iris/handle/10665/311664>. Circulation. 2016;134:00-00. DOI: 10.1161/CIR.000000000000441; JAMA 2018; 320(19):2020-2028. doi:10.1001/jama.2018.14854

World Health Organization 2020 guidelines on physical activity and sedentary behaviour. British journal of sports medicine 2020, 54, 1451-1462 (ACSM's Guidelines for Exercise Testing and Prescription 10th Ed), 2018

COSA FARE?

- Limitare il più possibile il tempo dedicato ad attività sedentarie
- Almeno 150-300 min alla settimana (o meglio, 30-60 min al giorno) di esercizio fisico di tipo endurance aerobico ad intensità moderata; oppure 75-150 min alla settimana di esercizio fisico di tipo endurance aerobico ad intensità vigorosa
- Esercizi di forza/stretching almeno 2-3 volte alla settimana ad intensità moderata



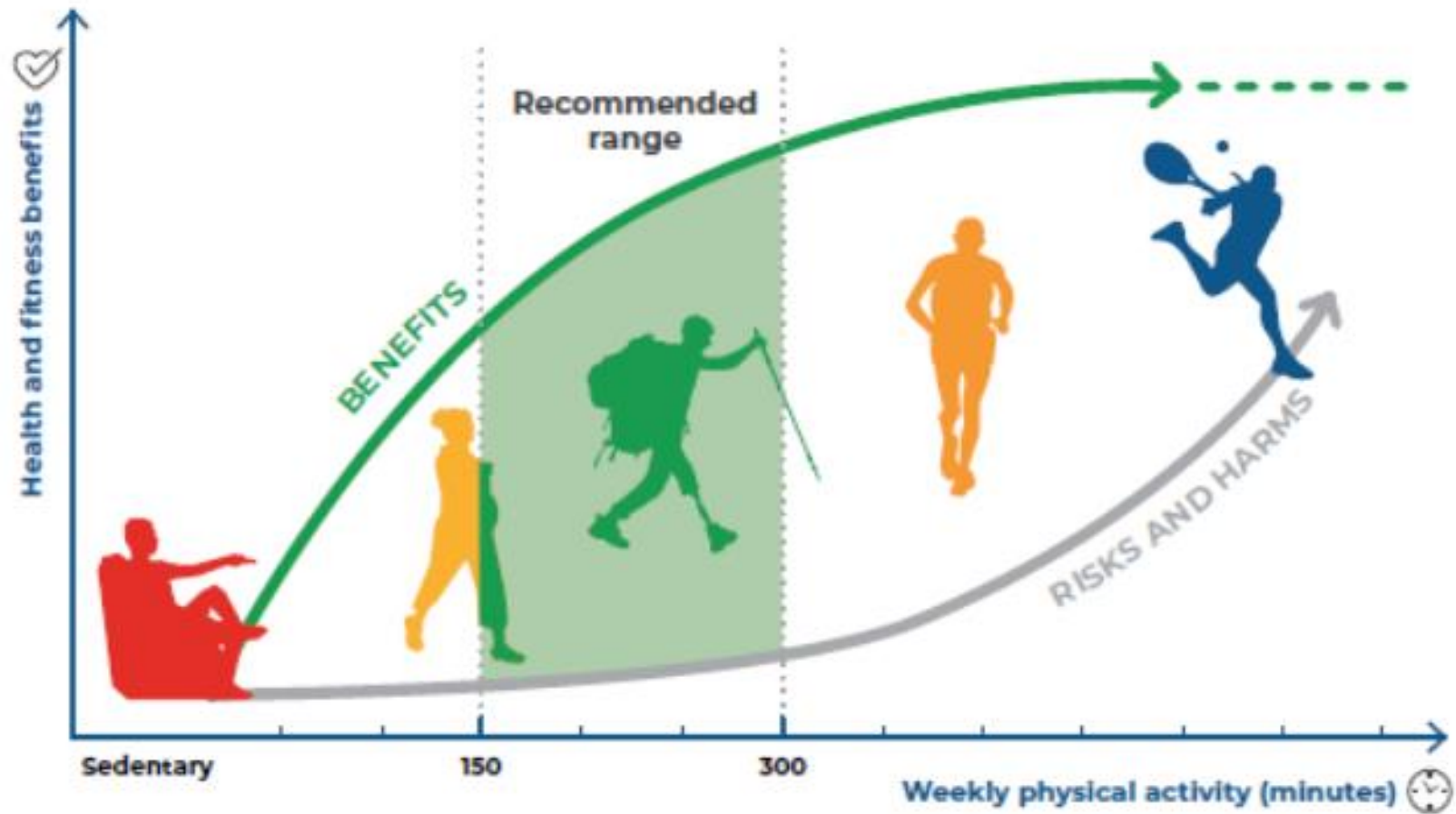


Figure 1: Dose response curve

Prescrizione ESERCIZIO

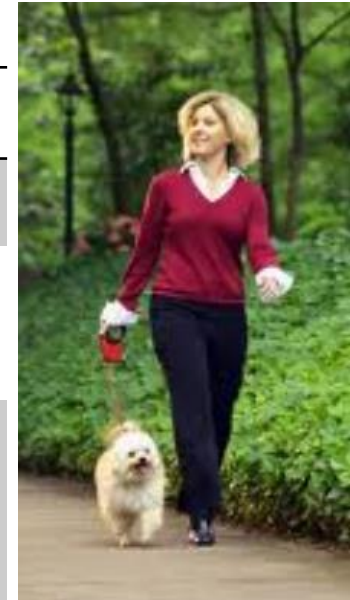
Individuo

Fibromialgia

Salute in
generale

Fibromialgia: esercizio endurance aerobico

AEROBIC EXERCISE	Improve function, symptoms, mood, pain
FREQUENCY	Begin 1-2 d/week and progress to 2-3 d/week
INTENSITY	Begin at $\leq 30\%$ VO_2R or HRR and progress to <60 VO_2R or HRR
TIME	Begin with 10 min increments and accumulate to a total of at least 30 min/day and progress to 60 min/day
TYPE	Low impact/non weight-bearing exercise (water exercise, cycling, walking, swimming) initially to minimize pain that may be caused by exercise
\leq	



Fibromialgia: esercizio tipo forza

RESISTANCE EXERCISE

Improve musculat strenght

FREQUENCY

2-3 non consecutive d/week

INTENSITY

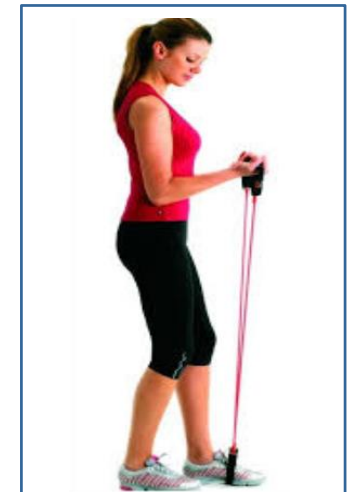
40-80% 1RM gradually increase to 60-80% 1RM for strength. For muscle endurance use $\leq 50\%$ 1RM

TIME

Strength: gradually progress from 4-5 to 8-12 repetitions, increasing to 2-4 sets per muscle group with at least 2-3 min between sets.
Endurance: 15-25 repetitions, increasing to 2 sets with a shorter rest interval

TYPE

Elastic bands, cuff/ankle weights and weight machines or body weight exercises



Fibromialgia: stretching

FLEXIBILITY EXERCISE
stretching

Improve function, symptoms, mood, pain
(less evidence and always in combination with other
exercises)

FREQUENCY

Begin 1-3 times/week and progress to 5 times/week

INTENSITY

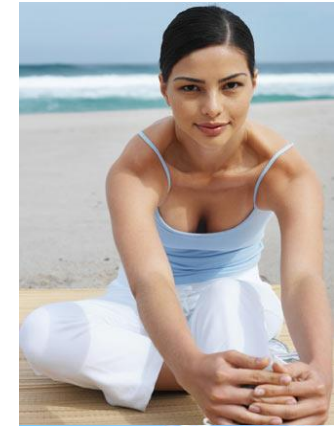
Active and gentle ROM stretches for all muscle tendon groups in the pain-free range. The stretch should be held to the point of tightness or slight discomfort

TIME

Initially hold the stretch for 10-30 sec. Progress to holding each stretch for up to 60 sec

TYPE

Elastic bands and unloaded (non/weight-bearing) stretching



Fibromialgia: esercizio multicomponent



- Tai Chi
- Yoga
- Pilates
- Ecc.



PROGRESSIONE ESERCIZIO



Article

A Simple Home-Based Lifestyle Intervention Program to Improve Cardiac Autonomic Regulation in Patients with Increased Cardiometabolic Risk

Daniela Lucini ^{1,2,*}, Mara Malacarne ^{1,2}, Wolfgang Gatzemeier ³ and Massimo Pagani ¹

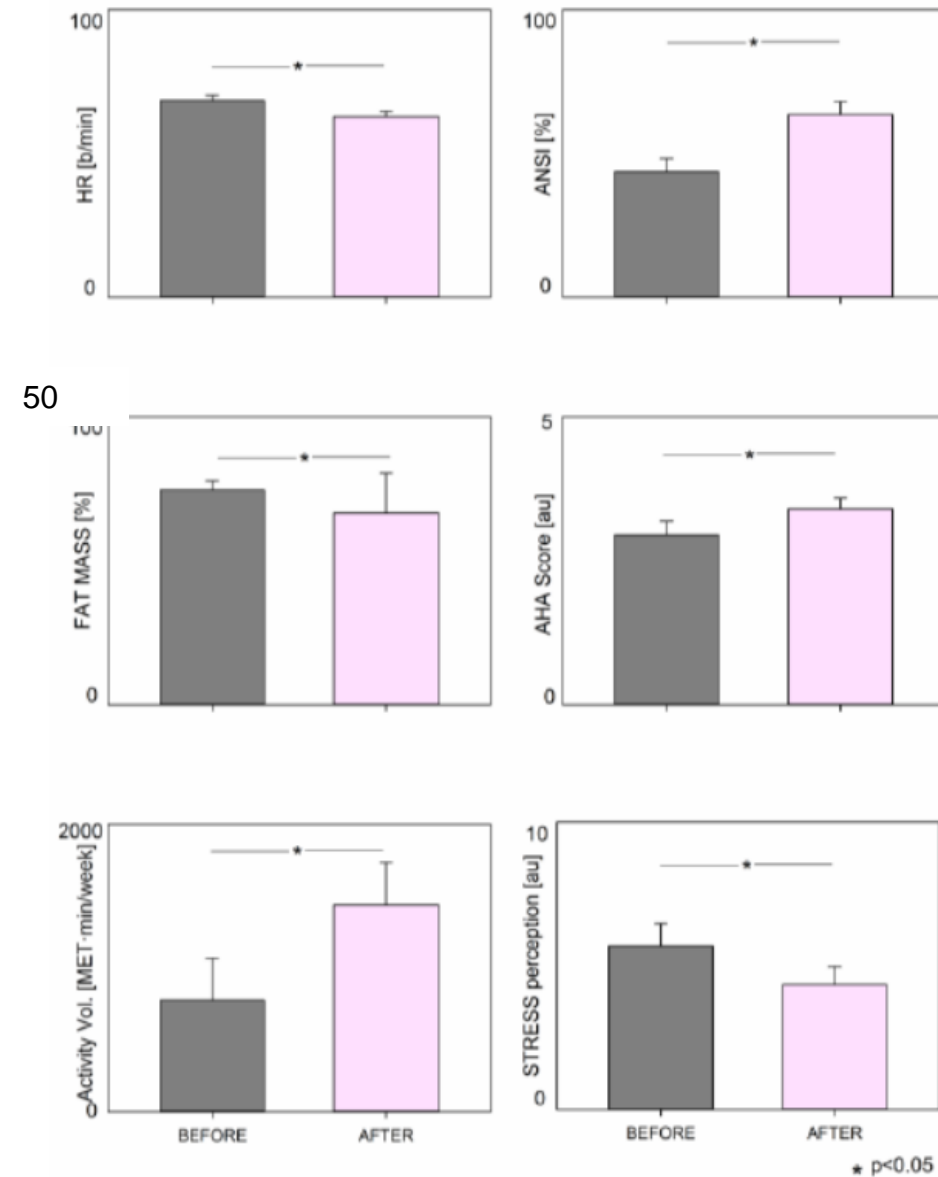


Figure 1. Schematic representation of the differences in selected metabolic, behavioral, hemodynamic and autonomic indices before and after lifestyle modification program in patients with increased cardiometabolic risk.

EXERCISE PRESCRIPTION



NOME: jane doe	Data: xx.xx.xx
OBIETTIVI CLINICI	
• Riduzione peso corporeo	• Mantenimento/miglioramento massa muscolare
• Riduzione rischio cardiometabolico/oncologico	• Gestione algie muscolari
• Gestione discopatie colonna/problemi articolazioni-tendini	• Gestione menopausa
• Gestione dislipidemia	• Gestione stipsi

	PRESCRIZIONE ESERCIZIO FISICO ENDURANCE AEROBICO
	30-60 min di attività* aerobica moderata la maggior parte, preferibilmente tutti, i giorni della settimana; oppure 20 min di attività aerobica vigorosa 3 volte alla settimana (solo quando la paziente sarà adeguatamente allenata). Particolarmente utile la combinazione tra attività moderata e vigorosa quando possibile. Si raccomanda anche la riduzione del tempo trascorso in attività sedentarie continuative (cogliere ogni occasione nella vita quotidiana per camminare, fare scale, alzarsi in piedi, ecc).
MODALITA'	Attività endurance, aerobica: Camminata a passo veloce, cyclette, bici ellittica, nuoto (stile libero, dorso. Evitare rana e delfino), ecc
INTENSITA'	Per ora si consiglia attività aerobica ad intensità lieve moderata . Ad esempio camminata a passo veloce (Camminata a passo veloce = velocità tale per cui si riesce a compiere 100 passi in un minuto) utilizzando apposite calzature onde evitare traumatismi colonna lombare e ginocchia. Interval Training Utile, al fine di riuscire a mantenere una velocità di camminata adeguata (intensità moderata) per tutta la durata, seguire lo schema qui indicato: se completamente disallenati iniziare a camminare per 30 min con velocità corrispondente a camminata normale. Quando tale camminata risulta facile, iniziare a seguire lo schema sotto riportato: -alternare camminata a passo normale per 2-3 min con camminata a passo piu' veloce. Alla fine dell'esercizio, rallentare progressivamente sino a fermarsi. Progressivamente aumentare il tempo di camminata a passo piu' veloce come spiegato oralmente, sino a riuscire a seguire lo schema sotto riportato: Continuos Training: iniziare lentamente, progressivamente aumentare la velocità sino a raggiungere la l'intensità desiderata/prescritta. Mantenere tale intensità per la durata sotto indicata (ad es 30 min). Alla fine della sessione di esercizio, rallentare progressivamente, non smettere bruscamente, sino a fermarsi. Nel caso di nuoto, preferire stile libero e dorso. Lo schema Interval Training può essere svolto ad esempio alternando una vasca a stile libero ed una a dorso senza fermarsi, progressivamente nel tempo aumentare la durata dell'esercizio sino ad arrivare ad almeno 30-45 min a volta. Frequenza cardiaca allenante per attività ad intensità moderata*: 105-115 b/min (50-60% HRR e 75-80% HRmax) ACSM's Exercise is Medicine. A Clinician's guide to exercise prescription, 2014 *L'ottimale frequenza cardiaca allenante viene determinata avendo a disposizione dati individuali derivanti da esecuzione di Test Cardiopolmonare o ECG da sforzo
FREQUENZA	Almeno 5 giorni alla settimana, meglio tutti iniziare con 3 volte alla settimana come sotto specificato
DURATA	A regime, 30- 60 min.
ATTENZIONE A:	Attività di grande impatto sulla colonna come correre, saltare, specie se eseguite senza adeguate calzature.

	PRESCRIZIONE ESERCIZIO FISICO STRETCHING E FORZA
STRETCHING	Esercizi di stretching per tutti i gruppi muscolari con particolare attenzione alla regione lombare. Eseguire esercizi per miglioramento mobilità articolare
ESERCIZI DI FORZA	Esercizi di rinforzo muscolare per tutti i gruppi muscolari con particolare attenzione a muscolatura lombare ed addominale da eseguirsi ad intensità: lieve-moderata frequenza: 2 volte/sett in giorni non consecutivi
ATTENZIONE A:	Evitare esercizi che richiedano uno sforzo molto elevato per essere eseguiti.



GRAZIE PER L'ATTENZIONE



CONTATTI:

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Responsabile: [Prof.ssa Daniela Lucini](#)

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