Gemelli

Fondazione Policlinico Universitario A. Gemelli
Università Cattolica del Sacro Cuore

ReDO Teniamoci per mano

Il coinvolgimento articolare nelle malattie reumatologiche: management e terapia

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POLIARTRITI CRONICHE

APPROCCIO MULTIDISCIPLINARE

Il trattamento delle patologie reumatologiche è INTERDISCIPLINARE e contempla approcci farmacologici, riabilitativi e chirurgici

The treatment approach for RA emphasizes the involvement of a multidisciplinary team, including family physicians, specialists, and rehabilitation professionals (American 2002, Duff 1974, Glazier 1996, Newcomer 1994).

RIABILITAZIONE

Processo di soluzione dei problemi e di educazione nel corso del quale si porta una persona disabile a raggiungere il *miglior livello di vita possibile* sul piano fisico, funzionale, sociale ed emozionale, con la minor restrizione possibile delle sue scelte operative, pur nell'ambito della limitazione della sua menomazione

RIABILITAZIONE

La Riabilitazione cerca di **prevenire/contenere e rallentare**

- le conseguenze della progressione della malattia ad ogni stadio
- la progressione del danno
- di migliorare la qualità di vita dei pazienti

La tipologia dei trattamenti riabilitativi variano in base allo stato funzionale del paziente, dell'età, della durata di malattia, dell' estensione del danno muscolo-scheletrico

AR MANAGEMENT

- **Farmacologico**
  - DMARD
  - sintomatico
- **Monitoraggio**
  - per mal cardiovascolari
  - osteoporosi
  - complicanze infettive
- **Educazione**
  - Self management
  - Interventi psicosociali
  - Counseling dietico- nutrizionali
- **Riabilitazione**
  - Esercizio
  - Terapie fisiche
  - Terapia occupazionale
  - Economia articolare
  - Ortesi ed ausili
  - linfodrenaggio

OBIETTIVI DEL TRATTAMENTO RIABILITATIVO

- Controllo del dolore e dell'infiammazione
- Contenimento del danno articolare
- Riduzione della perdita di ROM
- Prevenzione dell' evoluzione deformante
- Miglioramento della performance muscolare
- Mantenimento dell'autonomia funzionale

SINTOMI

Dolore articolare
Tumefazione articolare
Rigidità articolare
Instabilità articolare

Debolezza muscolare

Limitazione funzionale

sublussazione/Anchilosi

DOLORE

Comportamento di evitamento

< mobilità

paura /ansia di muoversi

Debolezza

> Disabilit

Fatigue stanchezza

Depressione
Isolamento sociale

Ridotta capacita lavorativa

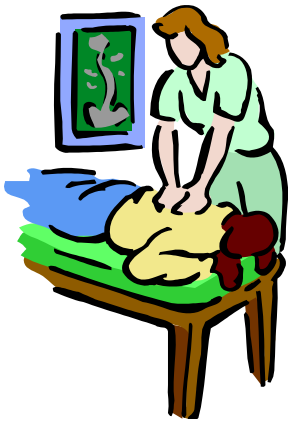
GESTIONE DOLORE

riposo ← **Ipotrofia muscolare, retrazione capsulari, sofferenza cartilaginea**

Terapia farmacologica

Terapia con mezzi fisici

Massoterapia



Giusto equilibrio tra riposo nelle fasi di acuzie e un'attività ponderata negli altri periodi

GESTIONE DOLORE

Even with optimal disease-modifying treatment and good control of disease activity, persistent pain due to structural damage is common in people with inflammatory arthritis and therefore additional treatment for pain might be required……

Pain therapy comprised paracetamol, non-steroidal anti-inflammatory drugs (NSAIDs), opioids, opioid-like drugs (tramadol) and neuromodulators (antidepressants, anticonvulsants and muscle relaxants

Radner H, Ramiro S, Buchbinder R, Landewé RBM, van der Heijde D, Aletaha D. Pain management for inflammatory arthritis (rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis and other spondyloarthritis) and gastrointestinal or liver comorbidity. *Cochrane Database of Systematic Reviews* **2012**

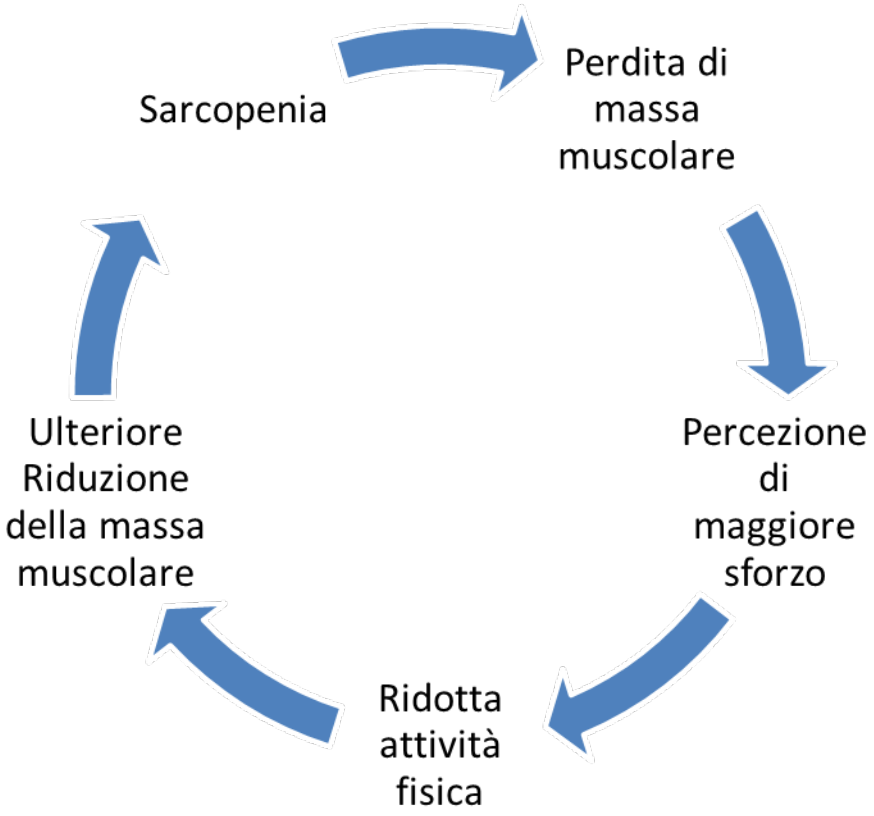
ESERCIZIO e DOLORE CRONICO

The available evidence suggests physical activity and exercise is an intervention with **few adverse events that may improve pain severity and physical function, and consequent quality of life**

Geneen LJ, Moore RA, Clarke C, Martin D, Colvin LA, Smith BH. Physical activity and exercise for chronic pain in adults: an overview of Cochrane Reviews. Cochrane Database of Systematic Reviews **2017**

INATTIVITÀ

Ipotrofia , Accorciamento muscolare e tendineo, retrazione capsula/ legamenti



INATTIVITÀ RIDUCE LA CAPACITÀ AEROBICA

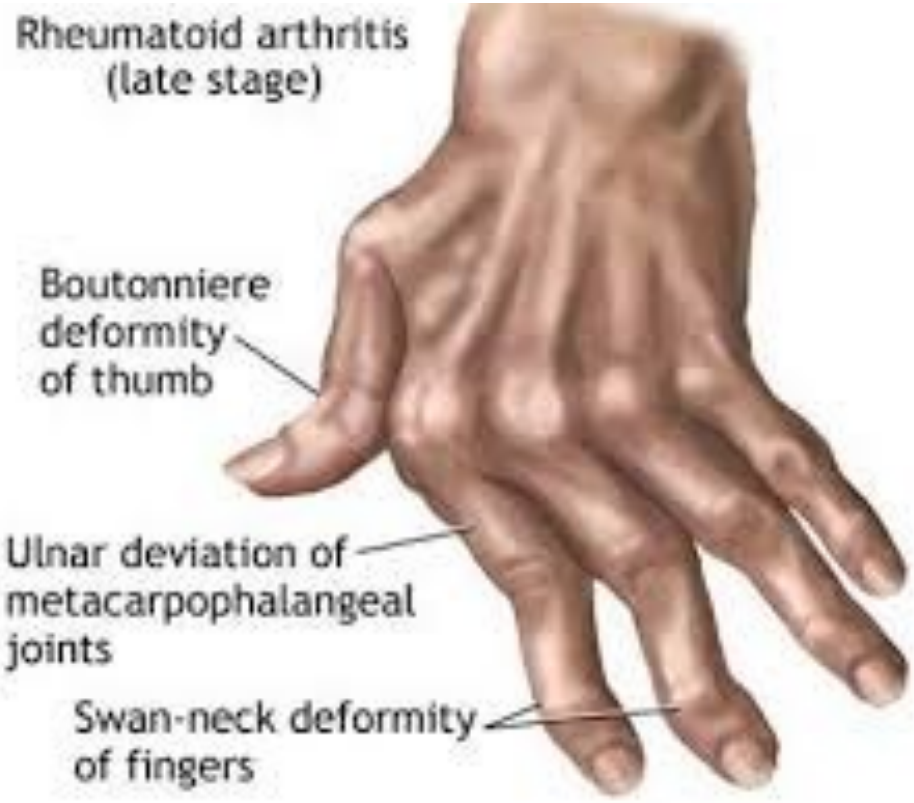
Our study provides novel data suggesting that A-SLE and C-SLE patients with mild/inactive disease have impaired aerobic capacity and HRQOL when compared with controls matched by physical inactivity, age, sex, and BMI. These findings reinforce the recommendation of physical activity in SLE treatment

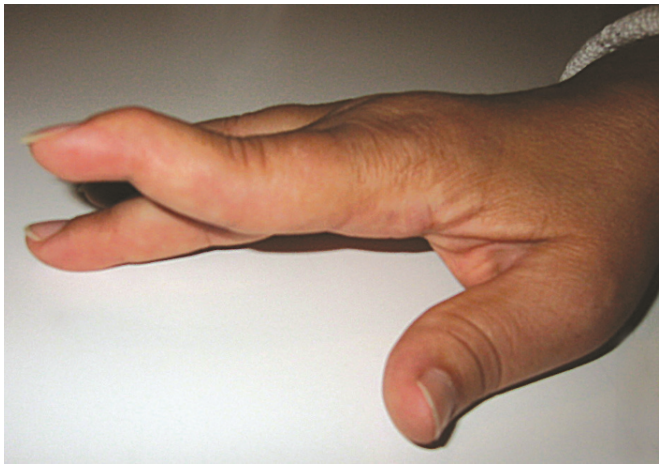
Pinto AJ. Reduced Aerobic Capacity and Quality of Life in Physically Inactive Patients With Systemic Lupus Erythematosus With Mild or Inactive Disease. Arthritis Care Res. **2016**

PERDITA DI FORZA

- Inattività
- Inibizione riflessa della contrazione muscolare da gonfiore articolare
- Miositi
- Miopatie da steroidi
- Effetti diretti della patologia (aumento del catabolismo proteico indotto da alcune citochine, tra cui il TNFa)

MANO AR

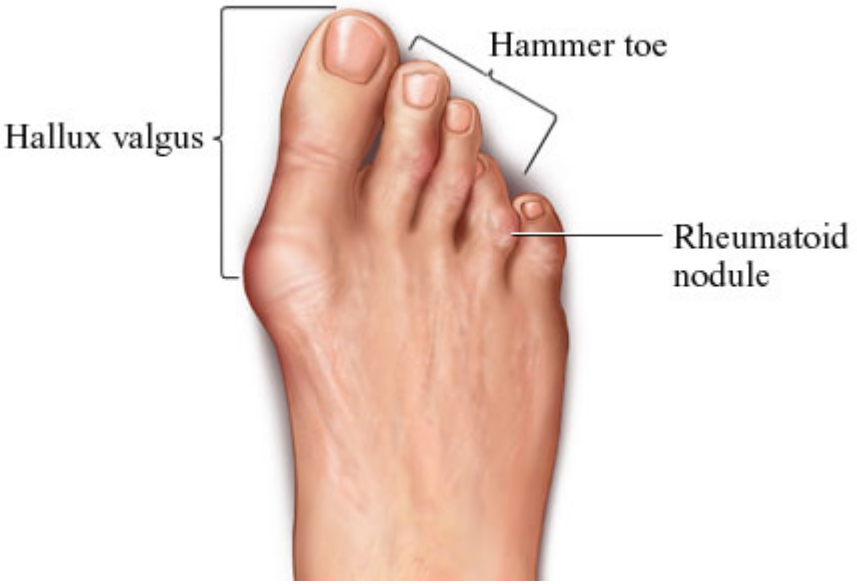

Rheumatoid arthritis
(late stage)
Boutonniere
deformity
of thumb
Ulnar deviation of
metacarpophalangeal
joints
Swan-neck deformity
of fingers



SCLERODERMIA

In scleroderma, the abnormal build-up of fibrous tissue in the skin can cause the skin to tighten so severely that the fingers curl and lose their mobility

PIEDE



Alluce valgo
Dita a martello
Dita a griffe
Avampiede triangolare
Deviazione a colpo di vento

PASSO APROPULSIVO

The gait pattern in RA was characterised by

- decreased walking speed
- decreased cadence
- decreased stride length
- decreased ankle power
- increased double limb support and peak plantar pressures at the forefoot

Alterazione biomeccanica e piede e muscoli

Walking velocity was reduced in psoriatic arthritis and gout with no differences in ankylosing spondylitis.

No studies have been conducted in polymyalgia rheumatica, systemic sclerosis or systemic lupus erythematosus

Carroll M, Parmar P, Dalbeth N, Boocock M, Rome K. Gait characteristics associated with the foot and ankle in inflammatory arthritis: a systematic review and meta-analysis. BMC Musculoskelet Disord. **2015**

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FATIGUE

Persistente sensazione di stanchezza, debolezza, mancanza di energia, esaurimento, senso di sfinimento sia fisico che psichico

Descritta nel 40%-80% dei pazienti con AR

Le persone che provano fatigue non hanno energia e trovano difficoltoso compiere quelle semplici attività quotidiane che di norma svolgono senza problemi

Interventi Psicosociali

Various psychosocial interventions can benefit patients with RA.

A systematic review and meta-analysis of 13 trials, involving 1579 patients, has documented that psychosocial interventions **can modestly reduce symptoms of fatigue**

- Sostegno psicologico
- Modificazioni organizzative sul lavoro e a domicilio

Cramp F, Hewlett S, Almeida C, et al. Non-pharmacological interventions for fatigue in rheumatoid arthritis. Cochrane Database Syst Rev **2013**

LES FATIGUE e ESERCIZIO

Avaux M, Hoellinger P, Nieuwland-Husson S, Fraselle V, Depresseux G, Houssiau FA. Effects of two different exercise programs on chronic fatigue in lupus patients. Acta Clin Belg. **2016**

Mahieu MA, Ahn GE, Chmiel JS, Dunlop DD, Helenowski IB, Semanik P, Song J, Yount S, Chang RW, Ramsey-Goldman R. Fatigue, patient reported outcomes, and objective measurement of physical activity in systemic lupus erythematosus Lupus. **2016**

Of the nine strategies, **aerobic exercise** and belimumab seem to have the strongest evidence of treatment efficacy. N-acetylcysteine and ultraviolet-A1 phototherapy demonstrated low-to-moderate levels of evidence. Psychosocial interventions, dietary manipulation (low calorie or glycemic index diet) aiming for weight loss, vitamin D supplementation, and acupuncture all had weak evidence

Yuen HK, Cunningham MA. Optimal management of fatigue in patients with systemic lupus erythematosus: a systematic review. Ther Clin Risk Manag. **2014**

EDUCAZIONE

A year 2004 systematic review of patient education in RA concluded that there is evidence for these **benefits, at least in the short-term**; however, evidence of long-term effects on outcomes is lacking

Niedermann K, Fransen J, Knols R, Uebelhart D. Gap between short- and long-term effects of patient education in rheumatoid arthritis patients: a systematic review. Arthritis Rheum **200**4

Self-management educational interventions for patients with RA or OA found a **clinically small, but statistically significant, beneficial effect** on both pain and disability

Warsi A, LaValley MP, Wang PS, et al. Arthritis self-management education programs: a meta-analysis of the effect on pain and disability. Arthritis Rheum **2003**;

Patient education as provided in the studies reviewed here **had small short-term effects on disability, joint counts, patient global assessment, psychological status and depression**. There was no evidence of long-term benefits in adults with RA

Riemsma RP, Kirwan JR, Taal E, Rasker HJJ. Patient education for adults with rheumatoid arthritis. *Cochrane Database of Systematic Reviews **200**3*

TERAPIA OCCUPAZIONALE

aim to facilitate task performance and to decrease the consequences of rheumatoid arthritis for ADL, is considered to be a cornerstone in the management of RA

There is evidence that occupational therapy has a positive effect on functional ability in patients with rheumatoid arthritis

38 studies (1700 p)

comprehensive therapy, training of motor function, training of skills, instruction on joint protection and energy conservation, counseling, instruction about assistive devices and provision of splints

strong evidence for the efficacy of "instruction on joint protection" and that limited evidence exists for comprehensive occupational therapy in improving functional ability

Steultjens EEMJ. Occupational therapy for rheumatoid arthritis. Cochrane Database of Systematic Reviews **2008**

Obiettivi della T.O.

SPECIFICI PER L'ARTO SUPERIORE e ADL

- ✓Insegnano esercizi ed attività
- ✓Educano alla protezione articolare e all'autogestione
- ✓Confezionano/individuano ausili ed ortesi
- ✓istruiscono all'uso degli ausili

PROTEZIONE ARTICOLARE O ECONOMIA ARTICOLARE

strategie atte a svolgere un'attività con il minor sforzo possibile, utilizzando correttamente le articolazioni per evitare un sovraccarico o una sollecitazione errata delle strutture osteo-articolari

proteggere le articolazioni non significa risparmiarle attraverso l'inattività, bensì acquisire un **diverso metodo di lavoro** basato su semplici ma indispensabili accorgimenti che oltre a ridurre o evitare il dolore ritardano e evitano deformità

Economia articolare

- Scaricare le articolazioni doloranti
- Calo ponderale
- Bastone antibrachiale scarico del 25%
- Promuovere una buona postura nelle attività
- Usare le articolazioni maggiori
- Conservare energia (fatigue)
- Non eccedere con i tempi di attività intervallandoli con periodi di riposo
- Tutori e ausili

RIPOSO (Funzionale)

1. Completo
2. Frazionato in brevi periodi (20-30min)
3. Parziale di 1 o più articolazioni (tutori)

Riposo a letto fa perdere 5% al giorno di forza muscolare

Kottke 1996

TUTORI

- Alleggerire il carico articolare
- Ridurre il movimento articolare
- Contenere le articolazioni in posizione di massima funzionalità
- Aumentare il movimento articolare splint dinamici

TUTORI

insufficient evidence to make firm conclusions about the effectiveness of **working wrist splints** in decreasing pain or increasing function for people with RA.

Similarly, preliminary evidence suggests that **resting hand and wrist splints** do not seem to affect range of motion (ROM) or pain, although participants preferred wearing a resting splint to not wearing one.

molded insoles decrease pain during weight-bearing activities such as standing, walking, and stairclimbing.
Supported insoles may be effective in preventing progression of hallux abductus angle but do not appear to have any impact on pain.

Egan M. Splints and Orthosis for treating rheumatoid arthritis. Cochrane Database of Systematic Reviews **2010**

Plantari su misura

Reduce rearfoot pain after 3 months, compared with doing nothing, but do not reduce foot pain after 3 years, compared with using fake foot orthoses.

This review shows that for people younger than 60 years of age with painful hallux vagus custom-made foot orthoses:
Reduce foot pain after 6 months compared to no treatment, but may not reduce foot pain after 6 or 12 months compared to surgery

Hawke F, Burns J, Radford JA, du Toit V. Custom-made foot orthoses for the treatment of foot pain. *Cochrane Database of Systematic Reviews 2008*

Chalmers AC, Busby C, Goyert J, et al. Metatarsalgia and rheumatoid arthritis--a randomized, single blind, sequential trial comparing 2 types of foot orthoses and supportive shoes. J Rheumatol 2000.

ESERCIZIO

“un’attività fisica programmata, strutturata e ripetuta, atta a migliorare e mantenere l’efficienza fisica”

Klemz BN, Reis-Neto ET, Jennings F, Siqueira US, Klemz FK, Pinheiro HH, Sato EI, Natour J, Szejnfeld VL, Pinheiro MM. The relevance of performing exercise test before starting supervised physical exercise in asymptomatic cardiovascular patients with rheumatic diseases. Rheumatology. **2016**

BENEFICI DELL'ESERCIZIO TERAPEUTICO

- Mantenimento e miglioramento dell'articolarità
- Potenziamento muscolare
- Aumento della resistenza statica e dinamica
- Miglioramento della capacità locomotoria
- Aumento della BMD
- Riduzione del dolore
- Riduce l'infiammazione
- Migliora la capacità aerobica
- Migliora l'autonomia funzionale
- Aiuta a ridurre il peso corporeo
- Migliore il benessere HoL

ESERCIZIO TERAPEUTICO

- Prescrizione individualizzata
- Salvaguardare le strutture articolari infiammate
- Programma progressivo gestendo il dolore
- Migliorare le funzioni importanti per i paziente

Programma di esercizio di

1. Allenamento aerobico
2. Rinforzo neuromuscolare
3. Resistenza muscolare

Specificare

1. muscoli interessati
2. tipo
3. intensità
4. durata
5. frequenza
6. eventuali precauzioni

Un programma scritto e lo svolgimento in compagnia o in gruppo migliora la compliance

TRATTAMENTO CHINESITERAPICO

- Mobilizzazioni passive
- Contrazioni isometriche
- Contrazioni isotoniche, contro resistenza
- Stretching
- Rieducazione posturale
- FKT respiratoria
- Ginnastica dolce (Tai Chi, Yoga, Feldenkrais, Qi Gong)

Li L, JuddM, Pencharz JN. Comprehensive physiotherapy for rheumatoid arthritis. *Cochrane Database of Systematic Reviews* 2004,.

ESERCIZIO

le recenti linee guida della British Society for Rheumatology e della British Health Professionals in Rheumatology e dell'American College of Rheumatology (ACR)

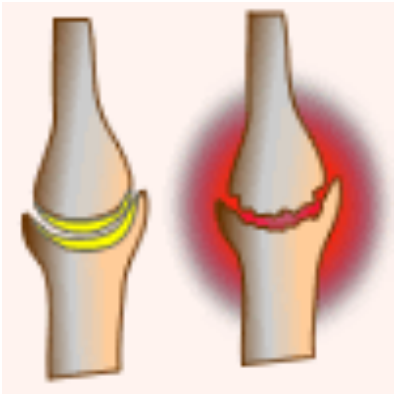
hanno introdotto l'esercizio fisico (insieme ad altre tecniche riabilitative) nel trattamento dell'artrite reumatoide (AR)

1. **Fase acuta** esercizi isometrici e di stretching per mantenere il tono e il trofismo muscolare ed impedire la comparsa di atteggiamenti viziati che preludono alle deformità articolari

2. **Fase subacuta** mobilizzazione passiva (da eseguire senza mai forzare le articolazioni) per evitare la rigidità articolare, mobilizzazione attiva, con l'utilizzo di esercizi senza carico, che non provochino dolore né stanchezza, mentre per mantenere ed incrementare la motilità articolare

3. **Fase di remissione** mobilizzazione attiva, con o senza resistenza, per rinforzare ed equilibrare l'apparato muscolo-tendineo

Esercizi per la menomazione



Dolore

Limitazione del ROM

Deficit muscolare

Il lavoro sarà eseguito in scarico ed in isometria, rispettando la soglia dolorosa
La resistenza , quando occorre, sarà manuale

Attenzione ai segni di esercizi eccessivi o stress
Dolore durante l'attività o 1-2 ore dopo gli esercizi
gonfiore, affaticamento, debolezza

ESERCIZIO TERAPEUTICO

- Esercizi di mantenimento del ROM preserva o migliora la mobilità articolare
- **Esercizi per aumentare la forza muscolare eseguiti una o due volte a settimana migliorano la funzione e NON peggiorano l'attività di malattia**

Hakkinen A, Sokka T, Kotaniemi A, Hannonen P. A randomized two-year study of the effects of dynamic strength training on muscle strength, disease activity, functional capacity, and bone mineral density in early rheumatoid arthritis. Arthritis Rheum **2001**

ESERCIZI PER LA MANO

In a randomized trial involving 490 patients, the addition of a tailored strengthening and stretching hand exercise program (including six face-to-face sessions and support for a daily home exercise program) to usual care (advice regarding joint protection and general exercise, and functional splinting and assistive devices, as indicated) resulted in significantly **greater improvement in overall hand function** at one year of follow-up compared with usual care alone

Lamb SE, Williamson EM, Heine PJ, et al. Exercises to improve function of the rheumatoid hand (SARAH): a RCT . Lancet **2015.**

London DA, Stepan JG, Calfee RP. Determining the Michigan Hand Outcomes Questionnaire minimal clinically important difference by means of three methods. Plast Reconstr Surg **2014.**

Esercizio in Carico

Preliminary evidence suggests aerobic weightbearing exercise may help prevent glucocorticoid-associated osteoporosis in RA a benefit which strength training alone probably does not produce

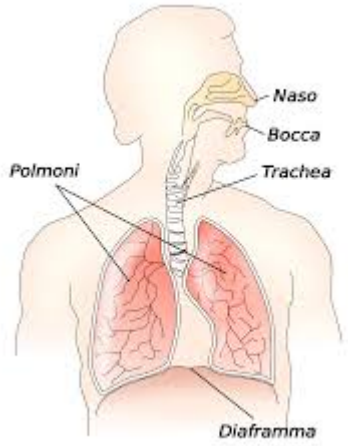
Westby MD, Wade JP, Rangno KK, Berkowitz J. A randomized controlled trial to evaluate the effectiveness of an exercise program in women with rheumatoid arthritis taking low dose prednisone. J Rheumatol 2000; 27:1674.

Exercise programs should be prescribed by a physical therapist and tailored for each patient's disease severity, body build, and previous activity level. High-intensity weightbearing exercises may not be appropriate for patients with preexisting structural damage of lower extremity joints. Less intense or non-weightbearing exercises are alternatives for such patients

Munneke M, de Jong Z, Zwinderman AH, et al. Effect of a high-intensity weight-bearing exercise program on radiologic damage progression of the large joints in subgroups of patients with rheumatoid arthritis. Arthritis Rheum 2005; 53:410.

RIEDUCAZIONE RESPIRATORIA

Alterazioni della meccanica ventilatoria → Problematiche ostruttive o restrittive



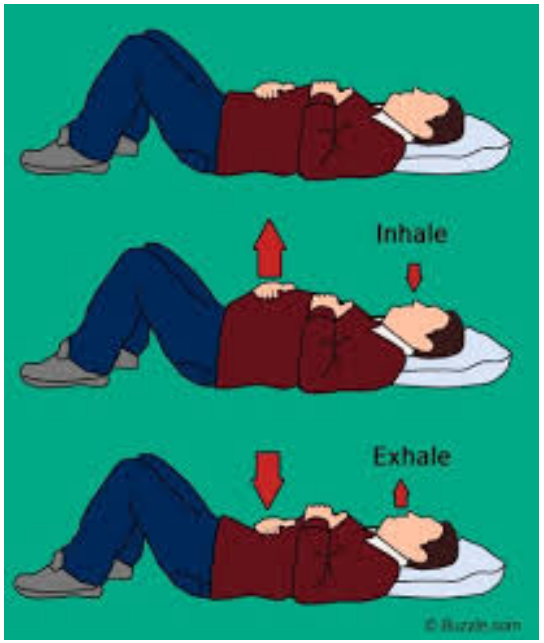
- In fase iniziale di malattia, ha la funzione di mantenere la residua dinamica costale
- In fase più avanzata, ha lo scopo di ottimizzare la respirazione addomino-diaframmatica

RIEDUCAZIONE RESPIRATORIA

Espansione toracica localizzata
Rieducazione diaframmatica

Allenamento dei muscoli inspiratori

Esercizi di modulazione del flusso espiratorio per disostruzione delle vie aeree distali o prossimali



The 8-week breathing exercise intervention reduced pain and improved sleep quality

Garrido M .Effects of a respiratory functional training program on pain and sleep quality in patients with fibromyalgia: A pilot study.
Complement Ther Clin Pract. 2017

ESERCIZI PER EQUILIBRIO

Patients with RA may have an increased risk of falls due to impairments in lower-extremity joints, which may result in either mobility, or postural stability problems. There is evidence in the literature suggesting that **balance, agility and coordination training techniques can induce changes in lower-extremitymuscle activity patterns that result in improvement in dynamic joint stability.**

Silva KNG, Mizusaki Imoto A, Almeida GJM, Atallah ÁN, Peccin MS, Fernandes Moça Trevisani V. Balance training (proprioceptive training) for patients with rheumatoid arthritis. Cochrane Database of Systematic Reviews 2010

IDROCHINESITERAPIA

minor carico gravitazionale

- Migliora il ROM
- Cammino con minore impatto sulle articolazioni
- La pressione idrostatica migliora il ritorno venoso e gli edemi (Becker 1997)

BALNEOTERAPIA

Bagni in acque Minerali o Termali , Fanghi

Overall evidence is insufficient to show that balneotherapy is more effective than no treatment, that one type of bath is more effective than another or that one type of bath is more effective than mudpacks, exercise or relaxation therapy

Verhagen AP, Bierma-Zeinstra SMA, Boers M, Cardoso JR, Lambeck J, de Bie R, de Vet HCW. Balneotherapy (or spa therapy) for rheumatoid arthritis.
Cochrane Database of Systematic Reviews **2015**

ESERCIZIO AEROBICO

Attività dinamiche di adeguata intensità, durata e frequenza tali da stimolare il rinforzo e la resistenza muscolare , la capacità cardiorespiratoria, la perdita di peso

ESERCIZIO AEROBICO

Riduce il rischio di malattie cardiache , ipertensione arteriosa, diabete, tumore al colon

Nell' AR ha dimostrato di miglioramenti sull'autonomia funzionale

(De Jong 2003; Macera 2003; Pate 1995; Van den Ende 1996)

I BENEFICI DELLA CAMMINATA

ABBASSA LA PRESSIONE SANGUINEA

RIDUCE IL COLESTEROLO CATTIVO

RIDUCE ANSIA E DEPRESSIONE

AIUTA A PERDERE PESO

RAFFORZA LE OSSA

RIDUCE IL RISCHIO D'INFARTO

TONIFICA I MUSCOLI

COSTO ZERO

RENDE PIÙ ELASTICI

AIUTA A CONTROLLARE IL DIABETE

NON RICHIEDE TECNICA

ALZA IL COLESTEROLO BUONO

E' UN WORKOUT A BASSO IMPATTO

PUO' FARLO CHIUNQUE

SCARSI RISCHI DI INFORTUNI

NON RICHIEDE ATTREZZATURA

ESERCIZIO AEROBICO AR

Sicuro

non aumenta

- Il dolore
- L ‘attività di malattia
- Il danno articolare

(Hurkmans 2009; Gaudin 2007; Hakkinen 2004;Stenström 2003)

Programmi di esercizio aerobico e di tonificazione

Migliorano la forza muscolare e la propriocezione articolare

Riducono il dolore e migliorano la mobilità

ESERCIZIO AEROBICO

Based on the evidence, aerobic capacity training combined with muscle strength training is recommended as routine practice in patients with RA.

The optimal duration of the intervention, mode of delivery, and extent of supervision need to be further investigated.

Hurkmans E, van der Giesen FJ, Vliet Vlieland TPM, Schoones J, Van den Ende ECHM. Dynamic exercise programs (aerobic capacity and/or muscle strength training) in patients with rheumatoid arthritis. Cochrane Database of Systematic Reviews **2009**

ESERCIZIO AEROBICO

Relazione tra intensità e durata dell'allenamento

Frequenza cardiaca massima (HR Max) = 220 - età

% di HRmax	
60-70%	esercizio aerobico a modesto impegno muscolare Consumo e reintegro energetico resta in equilibrio, permettendo durata senza affaticamento. Dopo 25-30 min la fonte energetica >grassi
70-80% cardiofitness	esercizio aerobico a medio impegno muscolare (comparsa di fiatone) Fonti energetiche miscele tra grassi e zuccheri, migliora l'efficienza ACCR nel sostenere a lungo un lavoro
80-90% agonisti	Oltre soglia aerobica ridotta capacità di sostenere a lungo il lavoro
>90%	Esercizio anaerobico alta tensione muscolare –acido lattico

ESERCIZIO AEROBICO

20 minuti almeno 2 volte a settimana
per almeno 3 mesi continuativi
Sotto supervisione
Intensità tra 55% HRMax 40-55% VO2R
Rinforzo con 30

- Exercise **frequency** of at least 20 minutes twice a week.
- **Duration** of exercise program at least six weeks (duration < three months was considered short-term; duration > three months was considered long-term).
- Exercise program performed under supervision.
- Aerobic exercise **intensity** at least 55% of the maximum heart rate (HR max); or intensity starting at 40% to 50% of the maximum oxygen uptake reserve (VO2R) or HR max reserve (HRR). Furthermore, the intensity is increased up to 85% during the intervention.
- Progressively strengthening exercise loads starting at 30% to 50% and increasing to 80% of maximum (defined as the percentage of either one repetition maximum, one maximum voluntary contraction, maximum speed, or as maximal subjective exertion) (Pollock 1998).

No deleterious effects on disease activity, self-reported pain, or radiological damage were found in any of the training programs.

Hurkmans E, van der Giesen FJ, Vliet Vlieland TPM, Schoones J, Van den Ende ECHM. Dynamic exercise programs (aerobic capacity and/or muscle strength training) in patients with rheumatoid arthritis. Cochrane Database of Systematic Reviews **2009**,

Hurkmans E, van der Giesen FJ, Vliet Vlieland TPM, Schoones J, Van den Ende ECHM. Dynamic exercise programs (aerobic capacity and/or muscle strength training) in patients with rheumatoid arthritis. Cochrane Database of Systematic Reviews **2009**,

per almeno 3 mesi continuativi
Sotto supervisione

esercizio	intensità	quantità	frequenza
flessibilità			Più volte/die
Tonificazione Isometrica	**Bassa-moderata 40-60% MCV**	**1-10 contrazioni submassimali** **contrazione mantenuta 1-6 sec**	quotidiana
isotonica	**Bassa 30% RM** **Moderata 30-50% RM** **Alta > 80% RM**	**10-15 ripetizioni** **8-10 ripetizioni** **6-8 ripetizioni**	2/settimana
Resistenza aerobica	**Bassa- moderata 40 - 50% di $VO^{2\ max}$ /HR_{max}**	20 min/die	2/settimana

MCV massima contrazione volontaria
VO2 max massima capacità aerobica
RM ripetizione massimale
HRmax indice cardiaco età correlato

ATTIVITÀ FISICA e LES

Meta-analyses suggest that exercise does not adversely affect disease activity, positively influences depression, improves cardiorespiratory capacity and reduces fatigue, compared to controls.

O'Dwyer T, Durcan L, Wilson F. Exercise and physical activity in systemic lupus erythematosus: A systematic review with meta-analyses.
Semin Arthritis Rheum. **2017**

12 weeks of an aerobic exercise program that is supervised by health professionals could reduce fatigue and increase vitality for patients with SLE. SLE patients with mild disease should begin with moderate intensity for at least 20 minutes, 3 days a week

Wu ML, Yu KH, Tsai JC. The Effectiveness of Exercise in Adults With Systemic Lupus Erythematosus: A Systematic Review and Meta-Analysis to Guide Evidence-Based Practice.
Worldviews Evid Based Nurs. **2017**

Training cardiovascolare e LES

Exercise intervention proved to be better than not exercising.

CT cardiovascular training was better than RT resistance training in improving HRQoL.

Abrahão MI, Gomiero AB, Peccin MS, Grande AJ, Trevisani VF. Cardiovascular training vs. resistance training for improving quality of life and physical function in patients with systemic lupus erythematosus: a randomized controlled trial. Scand J Rheumatol. **2016**

FIBROMIALGIA

Low to moderate intensity endurance and strength training are strongly recommended.

Winkelmann A Physiotherapy, occupational therapy and physical therapy in fibromyalgia syndrome : Updated guidelines 2017 and overview of systematic review articles. Schmerz. 2017

Strength training is safe and effective in treating people with, and a significant decrease in sleep disturbances occurs after 8 wks of intervention

Andrade A What Is the Effect of Strength Training on Pain and Sleep in Patients With Fibromyalgia? Am J Phys Med Rehabil. 2017

Bjersing JL. Benefits of resistance exercise in lean women with fibromyalgia: involvement of IGF-1 and leptin. BMC Musculoskelet Disord. 2017

FIBROMIALGIA

When compared with control, moderate-quality evidence indicates that **aerobic exercise** probably improves HRQL and all-cause withdrawal, and low-quality evidence suggests that aerobic exercise may slightly decrease pain intensity, may slightly improve physical function, and may lead to little difference in fatigue and stiffness. Three of the reported outcomes reached clinical significance (HRQL, physical function, and pain)

Bidonde J. Aerobic exercise training for adults with fibromyalgia. Cochrane Database Syst Rev. 2017

SLERODERMIA

The current literature on rehabilitation techniques consists of studies evaluating the effectiveness of

- Paraffin wax treatment
- Hand and face stretching exercises
- Connective tissue massage and joint manipulation
- Splints
- Aerobic exercise and resistance training

Only 4 RCT were found and except for those studies, the majority of studies involved small sample sizes and no control groups.

However, except for splints, these studies show **improvement in joint motion, hand function, and cardiopulmonary endurance**.

Poole J L. Musculoskeletal rehabilitation in the person with scleroderma. Current Opinion in Rheumatology. 2010.

ESERCIZIO e DEPRESSIONE

exercise reduces depression in adults with arthritis

and other rheumatic conditions

Kelley Exercise reduces depressive symptoms in adults with arthritis: Evidential value
World J Rheumatol. **2016**

YOGA

- Posture
- Respiro
- Rilassamento
- Meditazione

No adverse events were reported and attrition was comparable or better than typical for exercise interventions. **Evidence was strongest for reduction in disease symptoms (tender/swollen joints, pain) and disability, as well as improved self-efficacy and mental health.**

Haaz S. Yoga for arthritis: a scoping review. Rheum Dis Clin North Am**. 2011**

Tai Chi e AR

Four trials including 206 participants

The results suggest Tai Chi does not exacerbate symptoms of rheumatoid arthritis. In addition, has statistically significant benefits on lower extremity range of motion, in particular ankle range of motion, for people with RA.

Han A. Tai chi for treating rheumatoid arthritis. Cochrane Database of Systematic Reviews **2004**

FIBROMIALGIA

Le ginnastiche dolci, che comportano un coinvolgimento globale corpo-mente, particolarmente adatto alle complesse alterazioni psicologico-funzionali del paziente fibromialgico.

Al momento, ci sono solo alcune evidenze scientifiche, che mostrano, comunque, risultati promettenti di alcune metodiche, come il Qi Gong e il Tai Chi

Haak T, Scott B. The effect of Qi gong on fibromyalgia (FMS): a controlled randomized study. Disabil Rehabil 2008

Taggart HM, Arslanian CL, Bae S, Singh K. Effects of Tai Chi exercise on fibromyalgia symptoms and healthrelated quality of life. Orthop Nurs 2003

Terapie fisiche

Termoterapia

Campi magnetici

Ultrasuonoterapia

Laserterapia

Elettroterapia

Effetti analgesici
Riducono la rigidità

Terapie non invasive pochi effetti collaterali

US

Ultrasound alone can be used on the hand

- To increase grip strength
- To increase wrist dorsal flexion
- Decrease morning stiffness
- Reduce the number of swollen joints
- Reduce the number of painful joints

2 studies (80pz) <u>continuous</u> ultrasound applied in water

Casimiro L. Therapeutic ultrasound for the treatment of rheumatoid arthritis. Cochrane Database of Systematic Reviews 2010

LLLT

The effect is not thermal, but rather related to photochemical reactions in the cells

LLLT could be considered for short-term treatment for relief of pain and morning stiffness for RA patients

LLLT

- **reduced pain** by 1.10 points (95% CI: 1.82, 0.39) on VAS relative to placebo,
- **reduced morning stiffness duration** by 27.5 minutes (95%CI: 2.9 to 52 minutes)
- **increased tip to palm flexibility** by 1.3 cm (95% CI: 0.8 to 1.7)

functional assessment, ROM and local swelling did not differ between groups

how LLLT (wavelengths from 632nm to 1064nm) effectiveness is affected by four important factors: wavelength, treatment duration of LLLT, dosage and site of application (over nerves instead of joints)?

Brosseau L. Low level laser therapy (Classes I, II and III) for treating rheumatoid arthritis. Cochrane Database of Systematic Reviews 2010

TENS

- AL-TENS (low frequency and high intensity) is beneficial for reducing pain intensity and improving muscle power scores over placebo
- C-TENS (high frequency with low intensity) resulted in no clinical benefit on pain intensity compared with placebo. However C-TENS resulted in a clinical benefit on patient assessment of change in disease over AL-TENS.

Three RCTs, involving 78 people

Brosseau L. Transcutaneous electrical nerve stimulation (TENS) for the treatment of rheumatoid arthritis in the hand. Cochrane Database of Systematic Reviews 2010

ELETTROSTIMOLAZIONE

clinically beneficial effect on grip strength and fatigue resistance for RA patients with muscle atrophy of the hand

Pelland L, Brosseau L, Casimiro L, Welch V, Tugwell P, Wells GA. Electrical stimulation for the treatment of rheumatoid arthritis.
Cochrane Database of Systematic Reviews 2002

Oldham JA, Stanley JK. Rehabilitation of Atrophies Muscle in the Rheumatoid Arthritis Hand: A comparison of two Methods of Electrical Stimulation.
Journal of Hand Surgery/ British Volume 1989

TERMOTERAPIA

Superficial moist heat and cryotherapy can be used as palliative therapy

Paraffin wax baths combined with exercises can be recommended for beneficial short-term effects for arthritic hands

Welch V, Brosseau L, Casimiro L, Judd M, Shea B, Tugwell P, Wells GA. Thermotherapy for treating rheumatoid arthritis.
Cochrane Database of Systematic Reviews 2002,

Księżopolska-Orłowska K. Complex rehabilitation and the clinical condition of working rheumatoid arthritis patients: does cryotherapy always overtop traditional rehabilitation?
Disabil Rehabil. 2016

MAGNETOTERAPIA

The magnetic field of low frequency (LF-EMF) is commonly used in the treatment of patients with diseases of the osteoarticular system including RA

magnetic intensity of 2 mT and frequency of 12 Hz are used in arthritis. The recommended treatment time is from 15 to 30 minutes, and the treatments are performed 1–2 times per day for several weeks

Despite the numerous reports showing an impact of magnetic field in subjects with RA, the effectiveness of magnetotherapy has not been explicitly confirmed

Zwolińska J. The use of magnetic fields in treatment of patients with rheumatoid arthritis. Review of the literature. Reumatologia. 2016

Modificare lo stile di vita

Interventi comportamentali
Per migliorare il livello di partecipazione

Attività fisica regolare

Migliora gli aspetti psicologici
(motivazione, autogestione, consapevolezza, depressione)
Le relazione interpersonali

GRAZIE