

# Home exercise program developed for PM and DM

Alexanderson H et al. Rheumatology (Oxford)1999;38:608-11

Alexanderson H et al. Scand J Rheumatol 2000;29:295-301

Alexanderson H et al. J Rheumatol 2014;41:1124-32

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## A home exercise program if you:

- ...recently was diagnosed with PM or DM
- ...go into a flare in PM or DM
- ...if you haven't exercised for a long time or never before

## Home exercise program – recent diagnosis, flare



1. Warm-up



2. Shoulder mobility



3. Grip strength



4. Strength knee extensors



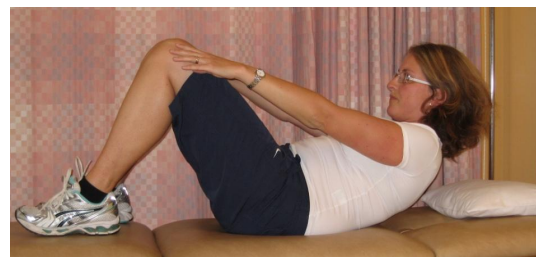
5. Strength shoulders



6. Strength hip extensors



8. Strength hip flexors



7. Strength neck flexors and trunk

- Improved muscle function and health (Physical, Pain, Fatigue) without increased muscle Inflammation
- Signs of reduced inflammation in patients with low disease activity

## How to use the home exercise program?

- Get started with a physical therapist if possible.
- Start with about 10 repetitions of each exercise. Your perceived exertion should initially not exceed 3-4 (Borg CR-10 scale), 0-10. If needed, add extra weights using weight cuffs or rubber bands. With improved muscle function and lower disease activity you should exercise on an intensity corresponding to 5-7.
- Short exercise sessions of 15-20 minutes with additional 20-minute walks five days a week during first 12 weeks
- Be sure to change between exercising upper- and lower limbs (For example: don't do all upper limb tasks in a row, but rather perform according to the sequence on the previous slide.



## Borg CR-10 scale – to rate perceived exertion

0	No exertion
0.5	Extremely weak (light)
1	Very light
2	Light
3	Moderate
4	Somewhat strong
5	Strong (heavy)
6	
7	Very strong
8	
9	
10	Extremely strong (almost maximal)
•	Maximal

To rate your perceived exertion after an exercise session, just register the number that you feel best represents your experience

Lower number correspond to lower exertion, while higher number describes a higher level of exertion

The anchor words are there to help, and you can always use numbers without an anchor word.

For example: a 6 corresponds to an experience of exertion that is stronger than a 5, but not exerting enough to be described as a 7.

## When to start?

- Recent diagnosis: After about 4 weeks following introduction of corticosteroid treatment. You and your rheumatologist should note some clinical signs of improvement before starting.
  
- Be sure to assess muscle function and aerobic capacity before starting and then follow-up after about three months. With improvement, progress intensity or try other types of exercise, such as
  - Aquatic training
  - Gym exercises
  - Nordic walking or biking
  - Any exercise that you enjoy

## Frequent walking

- To improve aerobic capacity you should walk or do other aerobic physical activity at least 20-30 minutes at least 2-3 days a week on an intensity of 50-70% of your maximal heart rate.
- You can calculate your estimated maximal heart rate:  $220 - \text{age}$  and then you can calculate on which range of heart rate you need to be to improve aerobic capacity.
- Example: I am 45 years old:  $220 - 45 = 175$  (my estimated maximal heart rate). Then I need to calculate my range of heart rate for exercise session:  $175 \times 0.5 = 87.5$  and  $175 \times 0.7 = 122.5$  (my heart rate range during exercise should be: 87.5 – 122.5).
- Check your heart rate manually or by using heart rate monitor

## Intensive resistance training when:

- You have low disease activity, lower corticosteroid doses. Stable phase of disease
- This program is contraindicated if:
  - You have severe osteoporosis and have experienced fractures
  - If you have corticosteroid dose exceeding about 20 mg/day
  - If you have severe arthritis



## Intensive resistance training in low-active adult PM and DM



Deltoids



Quadriceps



Lat dorsi/biceps

3 sets of 10 repetitions  
on 10 voluntary repetition  
maximum  
(the weight you can lift  
10 times but not 11, 70% of  
Maximal strength)



Gastrocnemius



Trunk/neck

- Improves muscle strength and endurance
- Reduces disease activity and inflammation

(Alexanderson et al. *Arthritis Rheum* 2007;57:768-77)

## How to get started and apply resistance?

- Get started under supervision of PT if possible
- Start on lower loads allowing 20 VRM (=20 repetitions, about 50% of maximal strength)
- Always warm-up before exercising and don't forget to stretch!
- To achieve effect on muscle function you have to exercise at least 2 days a week (not 2 days in a row) and eventually reach the goal intensity of 10 voluntary repetitions maximum (70% of max)
- It is normal to experience muscle soreness a couple of days after exercise (especially in the beginning or after increasing loads)
- During exercise you should not exceed perceived exertion of 7 on the Borg CR-10 scale and you should always be able to be active during the rest of the day
- Joint pain during exercise does not mean that the loads are too high, however, use lower loads if joints tend to swollen and be painful after exercise.
- As long as you feel that you get stronger and healthier, continue. If you don't experience improvements or get weaker, contact your PT or rheumatologist.

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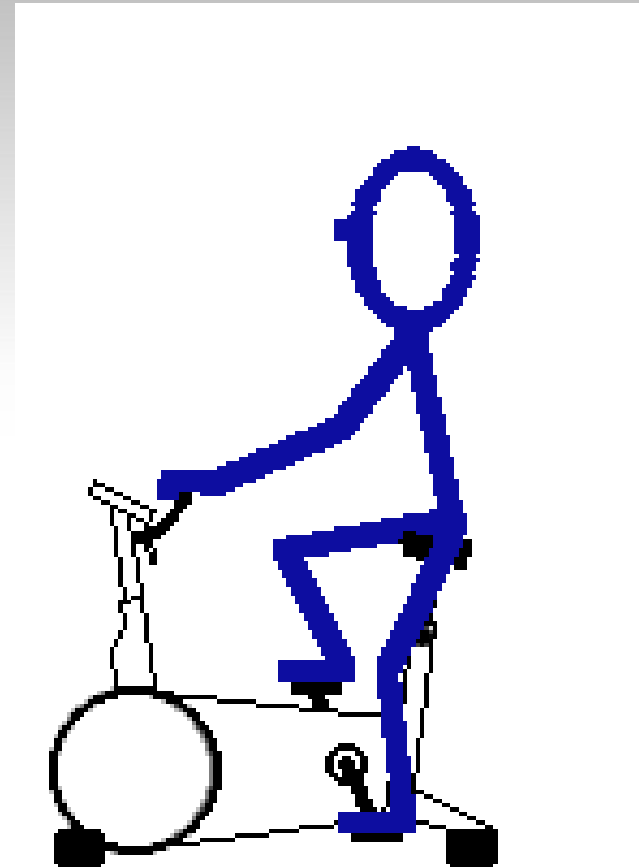
## Aerobic exercise if you have low disease activity

- Has shown even better results on muscle function and disease activity than the previously presenter resistance training program

# Aerobic and endurance exercise

evaluated in randomized controlled trial comparing this exercise program to a non-exercising control group on a stable level of physical activity

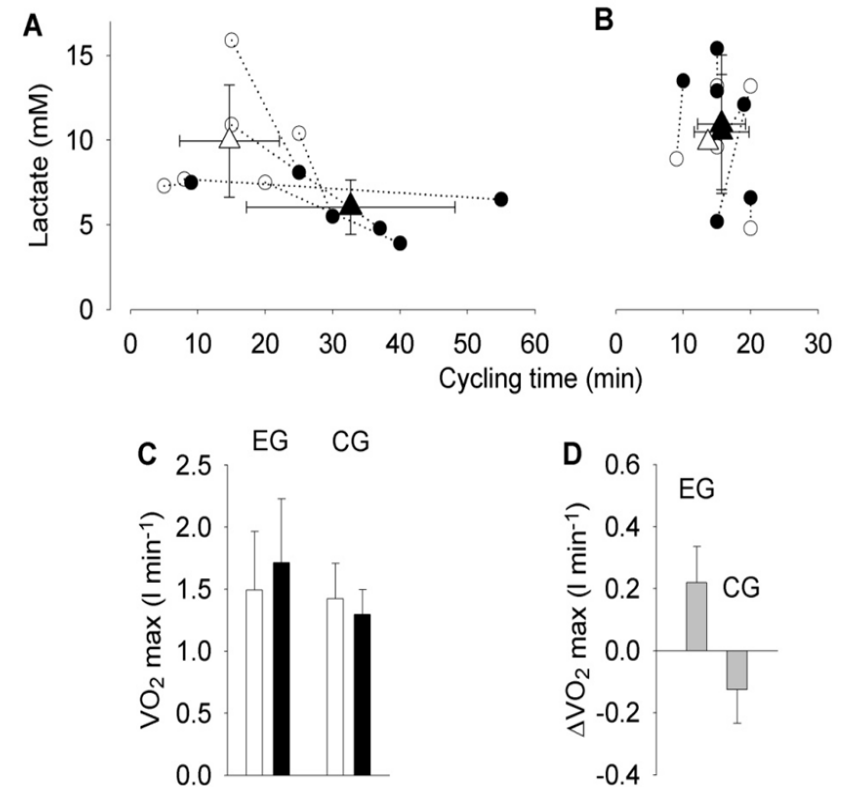
- **Exercise program**
- 3 times/ w, 12 weeks
- 30 min cycling (load of 70 % of  $VO_2$  max)
- 20 min muscle endurance (30-40 % of 1VRM)



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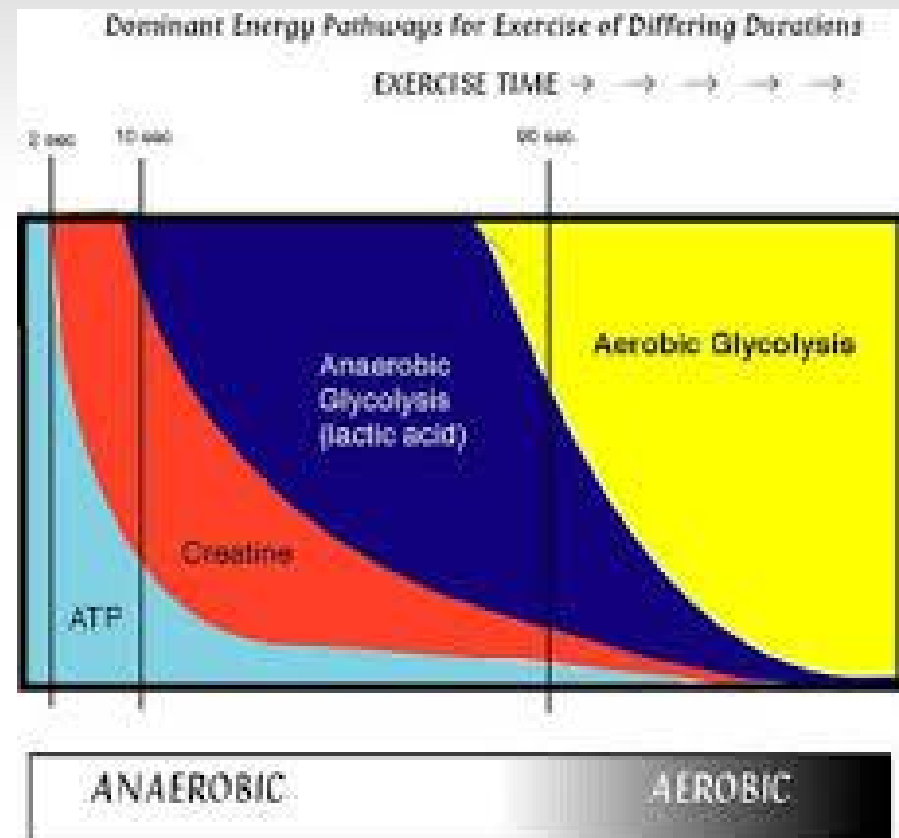
## This program can:

- Improve whole-body aerobic capacity
- Reduce lactate levels in muscle and improve mitochondria function and increase numbers of capillaries in muscle
- Improve muscle strength and endurance
- Improve ability to perform daily activities
- Improve quality of life (physical function, general health and vitality (fatigue))
- Reduce disease activity and inflammation



## Creatine supplementation AND exercise in myositis

- Phosphocreatine (Pcr) is an important part of the muscle glycolytic (anaerob) metabolism
- Individuals with DM are reported to have low levels of Pcr
- Pcr is most important in the muscle energy system during the first seconds of exercise, but is still used to continue muscle contractions up to 2 minutes
- Five months creatine supplements combined with regular exercise (like home exercise) is more effective than exercise alone in established PM/DM.
- Talk to your rheumatologist before starting



## Creatine dose

- Introduce creatine in addition to 2-3 days a week exercise
  - Could be any kind of resistance training alone or combined resistance and aerobic exercise
- Loading dose of 8 grams / day for 3 days
- Continue with a maintenance dose of 3 grams / day for 3 months
- Take a 4-week break from creatine and continue to exercise
- Start again with the maintenance dose for another 3 months and continue this cycle
- Creatine supplements can **ONLY** have positive effects on muscle function in combination with exercise
- If you don't exercise regularly – **DON'T** take creatine supplementations!



## Health benefits from regular physical activity

- Strong association between aerobic capacity and health! Both in healthy and in myositis
- Regular physical activity and exercise can:
  - Improve quality of life
  - Reduce risk of type II diabetes, osteoporosis and cardiovascular disease
  - Reduce high blood pressure
- Important as individuals with inflammatory rheumatic diseases are at higher risk of developing cardio-vascular disease



## Take home message

- Exercise should be designed individually and adapted to disease activity and disability with regular follow-up during active disease
- Active progressive exercise should be recommended to patients in all stages of disease – better to do something rather than nothing
- Exercise should be able to be incorporated in your daily life
- Regular physical activity

Thank you for listening!



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