

## Physical Activity in Sjögren's Disease: Why It Matters

Sjögren Europe WEBINAR

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### **Three important pillars of health**













## **Physical activity (PA): why it matters**

- General population: benefits of physical activity
- WHO recommendations on physical activity
- Rheumatic diseases
- Sjögren's disease
- mSQUASH questionnaire
- RESULT cohort: types of physical activity
- Pain and fatigue











### **World Health Organization**

- Physical activity is fundamental to health
- Physical inactivity is a major global health risk



- Benefits of PA
  - ✓ Reduced risk of all-cause mortality
  - ✓ Reduced risk of cardiovascular disease mortality, incident hypertension, incident site-specific cancers, incident type-2 diabetes and falls
  - ✓ Improved mental health, cognitive health, sleep and measures of body fat









# Association between physical activity and mortality risk consistent across adult lifespan



### **Physiology of sedentary behaviour**



Pinto et al. Physiol Rev 2023;103: 2561-2622

### WHO guidelines on physical activity and sedentary behaviour



WHO guidelines on physical activity and sedentary behaviour (2020). For more information, visit: www.who.int/health-topics/physical-activity



## **Aerobic physical activity**

- WHO definition: activity in which body's large muscles move in rhythmic manner for sustained period of time
- Aerobic activity improves cardiorespiratory fitness
- Examples include walking, running, swimming, bicycling











### **Muscle strengthening activities**

- WHO definition: physical activity and exercise that increase skeletal muscle strength, power, endurance and mass
- Activities with repetitive movements that involve exerting force against resistance to induce muscular contraction, leading to increased muscle hypertrophy or muscular strength and endurance
- Examples: weightlifting, using resistance bands, bodyweight exercises (push-ups or lunges/squats)







### **Functional balance activities**

- WHO definition: static and dynamic exercises that are designed to improve individual's ability to withstand challenges from postural sway or destabilizing stimuli caused by self-motion, environment or other objects
- Movements designed to improve stability and coordination, helping individuals maintain balance in daily activities and prevent falls
- Examples: one-leg stands, toe raises, stepping over obstacles, yoga







### Meeting PA guidelines: reduced risk of chronic pain

- U.S. National Health
   Interview Survey 2020
- 31.568 individuals



Ray et al. Med Sci Sports Exerc. 2023;55(3):497-506.









## **EULAR recommendations in rheumatic diseases**

Exercise	Exercise can improve pain, function			
1. Exercise is beneficial for many health outcomes, including but not limited to RMD symptoms and progression	and quality of life			
2. People with RMDs should exercise because of the benefits on pain, function and quality of life				
3. People with RMDs should avoid physical inactivity; they should engage in regular exercise according to their abilities	Avoid physical inactivity			
4. People with RMDs should perform both aerobic and strengthening exercises aiming for at least				
moderate intensity	Aerobic and strengthening exercises			
5. People with RMDs should be advised that exercise is safe and that it is never too late to start	Actobic and strengthening excretises			
exercising				
6. Exercise can be performed in different settings, alone or in groups. There is a slight benefit favouring group exercises over exercises performed alone	Exercise is safe			
7 People with osteoarthritis and axial spondyloarthritis should be especially encouraged to exercise as it				
is particularly beneficial for disease related outcomes	Never too late to start exercising			

Gwinnutt et al. 2021 EULAR recommendations regarding lifestyle behaviours and work participation to prevent progression of rheumatic and musculoskeletal diseases. Ann Rheum Dis. 2023 Jan;82(1):48-56.









## Sjögren's disease

- Systemic autoimmune disease
- Sicca symptoms: dry eyes and dry mouth
- Chronic fatigue, muscle pain and joint pain
- Systemic disease manifestations













### Physical fatigue & pain: important symptoms

- Open-label trial: rituximab
- Baseline visit (n=28)

10-

6

4

2.

physical fatigue

Importance for improvement

• Symptom most eligible for improvement

+

pain

+

dryness



Arends et al. Clin Exp Rheumatol 2017;35:255-61





Ŧ

mental fatigue





## **Physical activity in SjD**

• Physical activity is reduced in people with SjD without concomitant increase in sedentary activity

	PSS cohort	Healthy control	р
Sample size	273	273	£
Female/male, n	254/19	254/19	
Age	57 (47-65)	58 (47-65)	0.310
Body mass index $(kg/m^2)$	25 (23–28)	25 (23–27)	0.285
Sitting time (min)	300 (135-375)	343 (223–433)	0.454
Vigorous PA (MET × min/wk)	0 (0-480)	480 (0-1920)	<0.001
Moderate PA (MET × min/wk)	0 (0-480)	1560 (570–3930)	< 0.001
Walking (MET × min/wk)	792 (396–2079)	990 (462-3020)	0.012
Total PA score (MET × min/wk)	1572 (594–3158)	3708 (1732–8255)	< 0.001

umcg

- Survey study UK
- 273 patients with SjD
- Matched community controls
- Physical activity is associated with symptoms of depression and daytime sleepiness

Ng et al. Rheumatol Int 2017; 37:623–631







university of

roningen

### Importance of physical activity in SjD: evidence from trials

Rheumatology 2007;46:868-871 Advance Access publication 17 February 2007

primary Sjögren's syndrome

Clinical Rheumatology (2022) 41:1145--1152 https://doi.org/10.1007/s10067-021-05977-0

Concise Report

**ORIGINAL ARTICLE** 

The effects of resistance training in patients with primary Sjogren's syndrome

B. E. Strömbeck, E. Theander and L. T. H. Jacobsson Ana Carolina Pereir

Rheumatology International (2019) 39:227–238 https://doi.org/10.1007/s00296-018-4213-z

CLINICAL TRIALS

Luciana Paula Dardin<sup>1</sup> · Ana Beatriz Andreo Garcia<sup>1</sup> · Paulo Alexandre Minali<sup>1</sup> · Ana Carolina Pereira Nunes Pinto<sup>1,2</sup> · Virginia Fertnandes Moça Trevisani<sup>1,3</sup>

Received: 8 August 2021 / Revised: 18 October 2021 / Accepted: 27 October 2021 / Published online: 8 November 2021 © International League of Associations for Rheumatology (ILAR) 2021

Scand J Rheumatol 2020;49:47-56

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## Supervised walking improves cardiorespiratory fitne tolerance, and fatigue in women with primary Sjögre a randomized-controlled trial

Effects of exercise on aerobic capacity and

Samira Tatiyama Miyamoto<sup>1,2</sup><sup>®</sup> · Valéria Valim<sup>3,4</sup><sup>®</sup> · Luciana Carletti<sup>5</sup><sup>®</sup> · Wan-Fi Dennis William Lendrem<sup>6</sup><sup>®</sup> · Michael Trennel<sup>7</sup><sup>®</sup> · Raquel Altoé Giovelli<sup>3</sup><sup>®</sup> · Laiz Érica Vieira Serrano<sup>3</sup><sup>®</sup> · Alice Mendonça Subtil<sup>5</sup><sup>®</sup> · Vanessa Cândido Abreu<sup>5</sup><sup>®</sup>





### Effectiveness of resistance exercise in functional fitness in women with primary Sjögren's syndrome: randomized clinical trial

PA Minali<sup>1</sup>, CFMG Pimentel<sup>1</sup>, MT de Mello<sup>2</sup>, GHO Lima<sup>3</sup>, LP Dardin<sup>1</sup>, ABA Garcia<sup>1</sup>, TCS Goñi<sup>4</sup>, VFM Trevisani<sup>1,5</sup>

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ReCONNET



### Systematic review and meta-analysis in SjD

- Exercise interventions significantly improved pain, fatigue, quality of life and aerobic capacity compared to controls
- Resistance exercise was particularly effective

	Exp	eriment	al	С	ontrol			Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
1.1.1 Aerobic exercise	е								
Miyamoto 2019	6.4	2.5	23	6	3.5	22	16.5%	0.13 [-0.46, 0.71]	
Subtotal (95% CI)			23			22	16.5%	0.13 [-0.46, 0.71]	<b>•</b>
Heterogeneity: Not app	licable								
Test for overall effect:	Z = 0.43	(P = 0.6	66)						
1.1.2 Resistance exer	cise								i
Dardin 2022	-69.17	22.34	30	-44.92	16.71	26	16.7%	-1.20 [-1.77, -0.63]	
Dardin 2022	2.8	2.82	30	5.27	2.99	26	16.9%	-0.84 [-1.39, -0.29]	
Minali 2020	-74.8	16.5	29	-44.2	17.7	30	16.3%	-1.76 [-2.37, -1.16]	
Subtotal (95% CI)			89			82	49.9%	-1.25 [-1.78, -0.73]	◆
Heterogeneity: Tau <sup>2</sup> =	0.13; Ch	i <sup>2</sup> = 4.91	, df = 2	P = 0.0	09); l <sup>2</sup> =	59%			
Test for overall effect:	Z = 4.72	(P < 0.0	00001)						
1.1.3 Other exercise									
Kurt 2023	0.63	1.46	26	1.43	2.53	23	16.8%	-0.39 [-0.95, 0.18]	
Kurt 2023	1.34	4.32	26	2.78	6	23	16.8%	-0.27 [-0.84, 0.29]	
Subtotal (95% CI)			52			46	33.5%	-0.33 [-0.73, 0.07]	•
Heterogeneity: Tau <sup>2</sup> =	0.00; Ch	i <sup>2</sup> = 0.08	8, df = 1	(P = 0.7)	78); l <sup>2</sup> =	0%			
Test for overall effect:	Z = 1.62	(P = 0.1	1)						
Total (95% CI)			164			150	100.0%	-0.72 [-1.25, -0.18]	•
Heterogeneity: Tau <sup>2</sup> =	0.36; Ch	i <sup>2</sup> = 26.0	)3. df =	5 (P < 0	.0001);	1 <sup>2</sup> = 81 <sup>0</sup>	%	-	
Test for overall effect:	Z = 2.64	(P = 0.0)	(80						
Test for subaroup diffe	rences: (	Chi <sup>2</sup> = 13	3.19. d	f = 2 (P =	= 0.001)	, 1 <sup>2</sup> = 84	1.8%		Favours [experimental] Favours [control]
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					10	4			ReCONN

 5 RCTs including 269 female patients with SjD

Nacar et al. Disabil Rehabil. 2025;10:1-9.



## **Measurement of physical activity**

### **Content of interest**

- Intensity, duration and frequency
- Cover physical activity in all settings: household, work, transport, recreation and sport

### Accelerometer or apps

• Measures "how much, but not what"

### Questionnaire

- PROM
- Good feasibility: easily available, cheap, uniform

mSQUASH: modified Short Questionnaire to ASsess Health-enhancing physical activity













## mSQUASH: development, field testing and validation

- Interviews with professionals and patients
- Criterion validity in axSpA: accelerometer  $\rho$ =0.57<sup>1</sup>
- Clinical validation in axSpA: good measurement properties<sup>1,2</sup>













### mSQUASH

Questionnaire - Physical Activity

Date: Name/study number: Country:

#### INSTRUCTION - Please read the instructions carefully before you start

Consider a normal week in the past month. Please indicate the following:

- the number of days per week you performed the activities as described below
- the average time it took to do each activity
- how physical demanding each activity was

#### EXAMPLE

Commute to/from work or school	Not applicable	Number of days per week	Average time per day	Physical demand
1. Walking as part of commute to/from work or school	0	<b>S</b> days	<b>O</b> _hours <b>30</b> minutes	Slow/light O Moderate Fast/high

#### Classification of the level of physical demand

Slow/light	Normal heart rate and normal breathing pattern
Moderate:	Increased heart rate and increased breathing patter
Fast/high:	Increased heart rate, rapid breathing and sweating

#### START OF QUESTIONNAIRE

Commute to/from work or school (unpaid/paid work or school/study)	Not applicable	Number of days per week	Average time per day	Physical demand
<ol> <li>Walking as part of commute to/from work or school</li> </ol>	0	days	hoursminutes	<ul> <li>Slow/light</li> <li>Moderate</li> <li>Fast/high</li> </ul>
2. Cycling to/from work or school	0	days	hours minutes	<ul> <li>Slow/light</li> <li>Moderate</li> <li>Fast/high</li> </ul>
Commute to/from other destinations (e.g. visiting someone, sports club or	Not applicable	Number of days per week	Average time per day	Physical demand
running errands) 3. Walking to/from other destinations	0	days	hours minutes	<ul> <li>Slow/light</li> <li>Moderate</li> <li>Fast/high</li> </ul>
4. Cycling to/from other destinations	0	days	hours minutes	<ul> <li>Slow/light</li> <li>Moderate</li> <li>Fast/high</li> </ul>
Work (paid/unpaid) or school/study			Not applicable	Number of hours per week
5. How many hours per week do you work	and/or go to scho	ol?	0	hours
<ol> <li>How many of those hours involve physic (e.g. regularly carrying heavy objects)</li> </ol>	cal intensive work?	2	0	hours

#### INSTRUCTION

Consider a normal week in the past month.

#### Classification of the level of physical demand

Slow/light	Normal heart rate and normal breathing pattern
Moderate:	Increased heart rate and increased breathing patterr
Fast/high:	Increased heart rate, rapid breathing and sweating

#### Household activities Not applicable Number of days per week per day Physical demand \_ hours\_\_ minutes O Slow/light 7. Light to moderate household tasks 0 \_\_\_ days O Moderate O Fast/high (e.g. cooking, dishwashing, tidying up) 8. Highly intensive household tasks \_\_\_ days \_ hours\_\_ minutes O Slow/light 0 ○ Moderate (e.g. making beds, lifting children, O Fast/high bathroom cleaning, carrying heavy aroceries Not applicable Number of days per week per day Leisure activities Physical demand \_\_hours\_\_\_minutes | O Slow/light 9. Taking a stroll 0 \_\_\_ days O Moderate O Fast/high \_hours\_\_minutes O Slow/light 10. Cycling 0 \_\_\_ days O Moderate O Fast/high 11. Gardening 0 \_\_\_ days \_hours\_\_minutes O Slow/light O Moderate O Fast/high \_hours\_\_minutes O Slow/light 12. Home maintenance 0 \_\_\_ days O Moderate O Fast/high \_ hours\_\_ minutes O Slow/light 13. Shopping \_\_\_ days 0 ○ Moderate O Fast/high Not applicable Sports and exercise Number of days Average time per week per day Physical demand e a going to the avm physical therapy exercises, running, tennis, soccer, swimming, dancing) O Slow/light \_\_\_ days 14 0 \_\_hours \_\_\_minutes O Moderate O Fast/high 15 \_\_\_ days \_hours\_\_\_minutes O Slow/light O Moderate O Fast/high 16 \_\_\_ days \_ hours\_\_\_ minutes 🔘 Slow/light ○ Moderate O Fast/high 17. \_\_\_ days \_\_hours\_\_\_minutes 🔘 Slow/light ○ Moderate

### End of the questionnaire. Please make sure you have completed all questions.

Thank you very much for your participation!

202010NL2.2

O Fast/high

### mSQUASH questionnaire: 4 domains



- Minutes per week
- Perceived physical demand (reported by patient)
- MET value: oxygen consumption per kg body weight per minute









### **Physical Function ≠ Activity**

### **Physical function**

 Ability to perform both basic and instrumental activities of daily living<sup>1</sup>

### **Physical activity**

• Movement produced by skeletal muscles that contributes to energy expenditure<sup>2</sup>





Garber et al *BMC Geriatr* 10, (2010) 6
 Caspersen et al Public Health Rep. 1985;100(2):126-31.









### Interlude











### **UMC Groningen: RESULT cohort**

- REgistry of Sjögren's disease LongiTudinal (RESULT)
- Ongoing prospective longitudinal observational cohort study with standardized follow-up



### **Types of physical activity**

RESULT cohort





### Minutes per week of performed physical activity

- RESULT cohort
- 245 patients with SjD



## **55% performed ≥1 type of sports/exercise**

Sports and exercise categories	n
Supervised exercise therapies	
Physiotherapy	21
Physiosport	15
Aqua therapy	3
Physio rehabilitation	1
Health club	
Fitness	36
Group lessons	17
Body and mind exercise	
Yoga	16
Pilatus	4
Tai Chi	1
Body flow	1
Home exercise	
Home exercise	5
Stationary machine exercises	5
Water sports	
Swimming	17
Aquarobics	1

(Competitive) sports	
Horseback riding	6
Tennis	6
Volleyball	4
Kickboxing	3
Golf	1
Hockey	1
Taekwondo	1
Other activities	
Running	11
Lunging the horse	2
Ice skating	1
Mountain bike	1
Slender	1
Trampoline	1

Data presented as number of patients.









### WHO recommendations: physical activity



/HO guidelines on physical activity and sedentary behaviour (2020).
or more information, visit: www.who.int/health-topics/physical-activity



World Health Organization

## **Aerobic physical activity**

- WHO recommendation:
  - ✓ ≥150 minutes of moderate-intensity PA
     ≥75 minutes of vigorous-intensity aerobic PA or combination of both
    - One MET is energy equivalent expended by individual while seated at rest
    - Moderate-intensity PA corresponds to activities with MET value ≥3
      - You can talk but not sing during activity
    - Vigorous-intensity PA corresponds to activities with MET value ≥6
      - Rapid breathing pattern, sweating













### **Muscle strengthening activities**

- WHO recommendation:
  - ✓ Adults should perform muscle strengthening activities at moderate or greater intensity that involve all major muscle groups on ≥2 days a week
  - ✓ Major muscle groups: legs, back, abdomen, chest, shoulders and arms











### **Functional balance activities**

- WHO recommendation:
  - ✓ Adults ≥65 years should do varied multicomponent physical activity that emphasizes functional balance and strength training at moderate or greater intensity, on ≥3 days a week, to enhance functional capacity and to prevent falls











### **Adherence to WHO recommendations**

	Total group	<65 years	≥65 years
WHO PA recommendations	(N=245)	 (n=170)	(n=75)
Aerobic PA component	226 (92%)	163 (96%)	63 (84%)
Muscle strengthening component	75 (31%)	52 (31%)	23 (31%)
One day a week	37 (15%)	25 (15%)	12 (16%)
Functional balance component	16 (7%)	11 (7%)	5 (7%)
One day a week	37 (15%)	27 (16%)	10 (13%)
Two days a week	26 (11%)	17 (10%)	9 (12%)









## Health-related quality of life in patients with SjD











## Association of physical activity with HR-QoL

SF-36 domains	mSQUASH univariable model				mSQUASH n	nultivariable n	nodel*
	R <sup>2</sup>	B (95%CI)	p-value		R <sup>2</sup>	B (95%CI)	p-value
Physical functioning	0.186	24 (16-32)	<0.001		0.248	20 (10-31)	<0.001
Role physical	0.171	21 (13-29)	<0.001		0.292	22 (13-31)	<0.001
Social functioning	0.036	11 (2-20)	0.002		0.208	10 (-1-20)	0.068
Role emotional	0.053	10 (3-18)	0.006		0.196	7 (-1-15)	0.075
Bodily pain	0.077	16 (7-25)	<0.001		0.208	13 (2-23)	0.024
Vitality	0.063	16 (6-26)	0.002		0.232	16 (5-28)	0.006
Mental health	0.190	14 (2-27)	0.022		0.205	7 (-2-25)	0.084
General health	0.043	13 (3-24)	0.012		0.205	10 (-1-21)	0.085

\* Corrected for potential confounders: age, sex, BMI, ESSDAI, ESSPRI and current immunosuppressive medication use









### Do I fulfill WHO recommendations?

### Aerobic activity ≥150 min/week moderate-vigorous intensity

Muscle strengthening ≥2x/week

Balance ≥3x/week

### mSQUASH **Questionnaire - Physical Activity**

Date: Name/study number Country:

#### INSTRUCTION - Please read the instructions carefully before you start

Consider a normal week in the past month. Please indicate the following:

- the number of days per week you performed the activities as described below
- the average time it took to do each activity
- how physical demanding each activity was

### EXAMPLE

Moderate:

Fast/high:

Commute to/from work or school	Not applicable	Number of days per week	Average time per day	Physical deman
1. Walking as part of commute to/from work or school	0	<b>.5</b> days	O_hours <b>30</b> minutes	X Slow/light O Moderate O Fast/high

#### Classification of the level of physical demand Slow/light:

Normal heart rate and normal breathing pattern Increased heart rate and increased breathing pattern Increased heart rate, rapid breathing and sweating

### START OF QUESTIONNAIRE

Not applicable	Number of days per week	Average time per day	Physical demand
0	days	hoursminutes	<ul> <li>Slow/light</li> <li>Moderate</li> <li>Fast/high</li> </ul>
0	days	hours minutes	<ul> <li>Slow/light</li> <li>Moderate</li> <li>Fast/high</li> </ul>
Not applicable	Number of days per week	Average time per day	Physical demand
0	days	hours minutes	<ul> <li>Slow/light</li> <li>Moderate</li> <li>Fast/high</li> </ul>
0	days	hours minutes	<ul> <li>Slow/light</li> <li>Moderate</li> <li>Fast/high</li> </ul>
Work (paid/unpaid) or school/study			Number of hours per week
5. How many hours per weak de you work and/or go to cohool?-			hours
6. How many of those hours involve physical intensive work? (e.g. regularly carrying heavy objects)			hours
	Not applicable	Not applicable     Number of days per week       Image: Ima	Not applicable     Number of days per week     Average time per day

### INSTRUCTION

Consider a normal week in the past month

#### Classification of the level of physical demand

Slow/light Normal heart rate and normal breathing pattern Moderate: Increased heart rate and increased breathing pattern Fast/high: Increased heart rate, rapid breathing and sweating

Household activities	Not applicable	Number of days per week	Average time per day	Physical demand
7. <u>– Light to moderate household tack</u> s	0	days	hours minutes	<ul> <li>○ Slow/light</li> <li>○ Moderate</li> <li>○ Fast/high</li> </ul>
(e.g. cooking, dishwashing, tidying up) 8. Highly intensive household tasks (e.g. making beds, lifting children, bathroom cleaning, carrying heavy groceries)	0	— days	hours minutes	<ul> <li>Slow/light</li> <li>Moderate</li> <li>Fast/high</li> </ul>
Leisure activities	Not applicable	Number of days per week	Average time per day	Physical demand
9. Taking a stroll	0	days	hours minutes	<ul> <li>Slow/light</li> <li>Moderate</li> <li>Fast/high</li> </ul>
10. Cycling	0	days	hoursminutes	<ul> <li>○ Slow/light</li> <li>○ Moderate</li> <li>○ Fast/high</li> </ul>
11. Gardening	0	days	hoursminutes	<ul> <li>Slow/light</li> <li>Moderate</li> <li>Fast/high</li> </ul>
12. Home maintenance	0	days	hours minutes	<ul> <li>Slow/light</li> <li>Moderate</li> <li>Fast/high</li> </ul>
1 <del>8. Shopping</del>	0	days	hoursminutes	<ul> <li>Slow/light</li> <li>Moderate</li> <li>Fast/high</li> </ul>
Sports and exercise (e.g. going to the gym, physical therapy exercises, running, tennis, soccer, swimming,	Not applicable	Number of days per week	Average time per day	Physical demand
dancing) 14	0	days	hoursminutes	<ul> <li>Slow/light</li> <li>Moderate</li> <li>Fast/high</li> </ul>

End of the questionnaire. Please make sure you have completed all questions. Thank you very much for your participation!

\_\_\_ days

\_\_\_ days

\_\_\_ days

hours\_\_\_minutes

\_ hours\_\_\_ minutes

\_\_\_hours\_\_\_\_minutes

O Slow/light ○ Moderate O Fast/high

O Slow/light

O Moderate O Fast/high

O Slow/light ○ Moderate O Fast/high

## Which sport/exercise is suitable?

- Sportive walking
- Swimming, training in water
- Cycling
- Exercise to music
- Fitness, group lessons
- Yoga, pilates
- Sports: adjustments may be necessary in case of active disease or vulnerability
  - Not recommended: contact sports or sports with an increased risk of falls





### What do I like?

### Which activity suits me?







## **Barriers and facilitators for physical activity**

- Barriers
  - ✓ Fatigue (61%)
  - ✓ Pain (54%)
  - ✓ Painful/swollen joints (51%)
- Facilitators
  - ✓ Having less fatigue (67%)
  - ✓ Having less pain (64%)
  - ✓ Being able to do easier my daily activities (56%)
- Barriers that stop people living with RMDs to do more PA are the ones that can be significantly improved through PA engagement







- Survey PARE network from EULAR
- 533 patients with rheumatic diseases

Metsios et al. Clinical Rheumatology 2023;42:1897-1902



## **Barriers for physical activity: pain**

- Be physically active, but sometimes in adapted way
- When to 'listen' to pain?
  - ✓ Type (sharp vs. dull)
  - ✓ Progress (increase vs. decrease with exercise)
  - ✓ Degree (score  $\geq$ 7/10 vs.  $\leq$ 4/10)
  - ✓ Persistent (no decrease within half day after exercise)



- Exercises: weight, range of motion, quantity, speed, execution
- Sports activities: duration, intensity, breaks, build-up









### **Physical activity and fatigue**

• Negative/positive cycle





- Sufficient rest/relaxation
- Adaptation in physical activity: step by step
- Exercise routines









### **Physical activity: why it matters**

- Beneficial effects: symptoms (pain/fatigue), functional status, general health
- Adaptation in case of pain and fatigue
- Multicomponent activities: condition, strength, balance
- What do I like / suits me?
  - ✓ Focus on possibilities
  - ✓ Planning, routines
  - ✓ Together with someone
  - ✓ Setting goals







### Sjögren Team and mSQUASH Team Groningen















😍 GLA🔇











## **Questions?**

