

# EXERCISE AS MEDICINE IN RHEUMATOID ARTHRITIS: EFFECTS ON DISEASE-RELATED OUTCOMES AND SYSTEMIC MANIFESTATIONS

Professor George Metsios

Email: [G.Metsios@wlv.ac.uk](mailto:G.Metsios@wlv.ac.uk) /  @GeorgeMetsios 

# DISCLOSURES

- ❖ Received honorarium from NOVARTIS for the SHINE Congress for a talk on “**Exercise and RA**”



# DISEASE-RELATED OUTCOMES: PAIN, FUNCTIONAL DISABILITY AND FATIGUE

- ↓ PAIN **AND** ↓ FUNCTIONAL DISABILITY
- 2009 Cochrane collaboration meta-analysis demonstrates some positive effects
  - People who took part in exercise improve by 6% at 12 weeks
- ↓ FATIGUE
- 2015 Other Meta-Analyses shows reductions in fatigue after aerobic exercise (low risk of bias studies) of 12 weeks (but not 24)
- **SAFE: no adverse effects**



# SYSTEMIC MANIFESTATIONS: RHEUMATOID CACHEXIA

Rheumatology (Oxford). 2007 Dec;46(12):1824-7.

## **Blockade of tumour necrosis factor-alpha in rheumatoid arthritis: effects on components of rheumatoid cachexia.**

Metsios GS<sup>1</sup>, Stavropoulos-Kalinoglou A, Douglas KM, Koutedakis Y, Nevill AM, Panoulas VF, Kita M, Kitas GD.

### **Author information**

1 School of Sport, Performing Arts and Leisure, University of Wolverhampton, Walsall, West Midlands, UK. gm@wlv.ac.uk

Am J Clin Nutr. 2006 Dec;84(6):1463-72.

## **Randomized phase 2 trial of anti-tumor necrosis factor therapy for cachexia in patients with early rheumatoid arthritis.**

Marcora SM<sup>1</sup>, Chester KR, Mittal G, Lemmey AB, Maddison PJ.

### **Author information**

1 School of Sport, Health, and Exercise Sciences, University of Wales, Bangor, United Kingdom. s.m.marcora@bangor.ac.uk



Further disability

# SYSTEMIC MANIFESTATIONS: RHEUMATOID CACHEXIA

Arthritis Rheum. 2009 Dec 15;61(12):1726-34. doi: 10.1002/art.24891.

**Effects of high-intensity resistance training in patients with rheumatoid arthritis: a randomized controlled trial.**

Lemmey AB<sup>1</sup>, Marcora SM, Chester K, Wilson S, Casanova F, Maddison PJ.

## Author information

1 Bangor University, Bangor, UK. a.b.lemmey@bangor.ac.uk



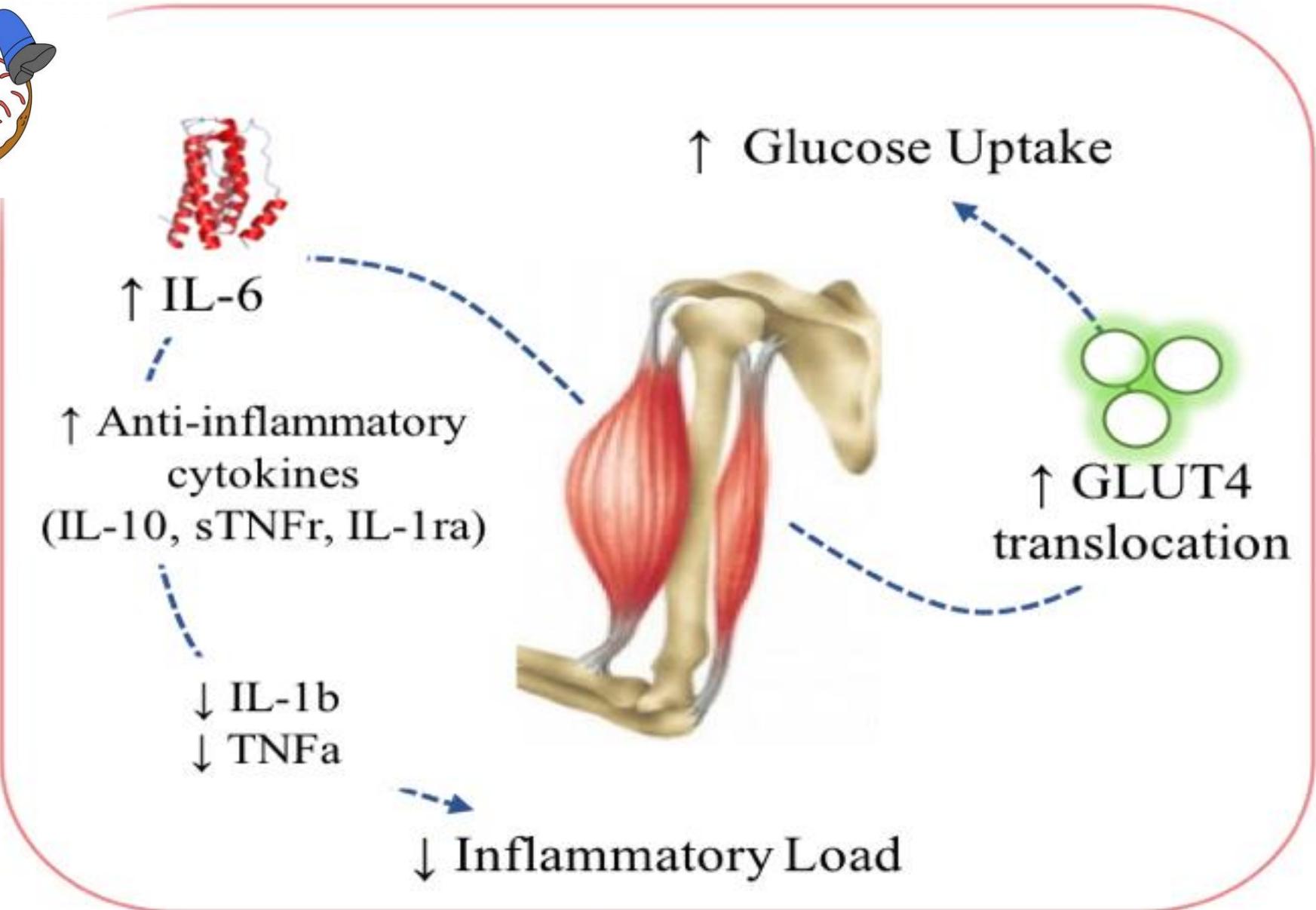
- 28 patients: exercise vs. controls
- Design:
  - high intensity resistance training vs. range of motion
  - 2 times x week, 60-80% of 1-RM
  - 24 weeks

- Results
  - ↑ Muscle mass
  - ↑ 119% strength
  - ↓ Trunk fat mass
  - No changes in function and body composition in controls



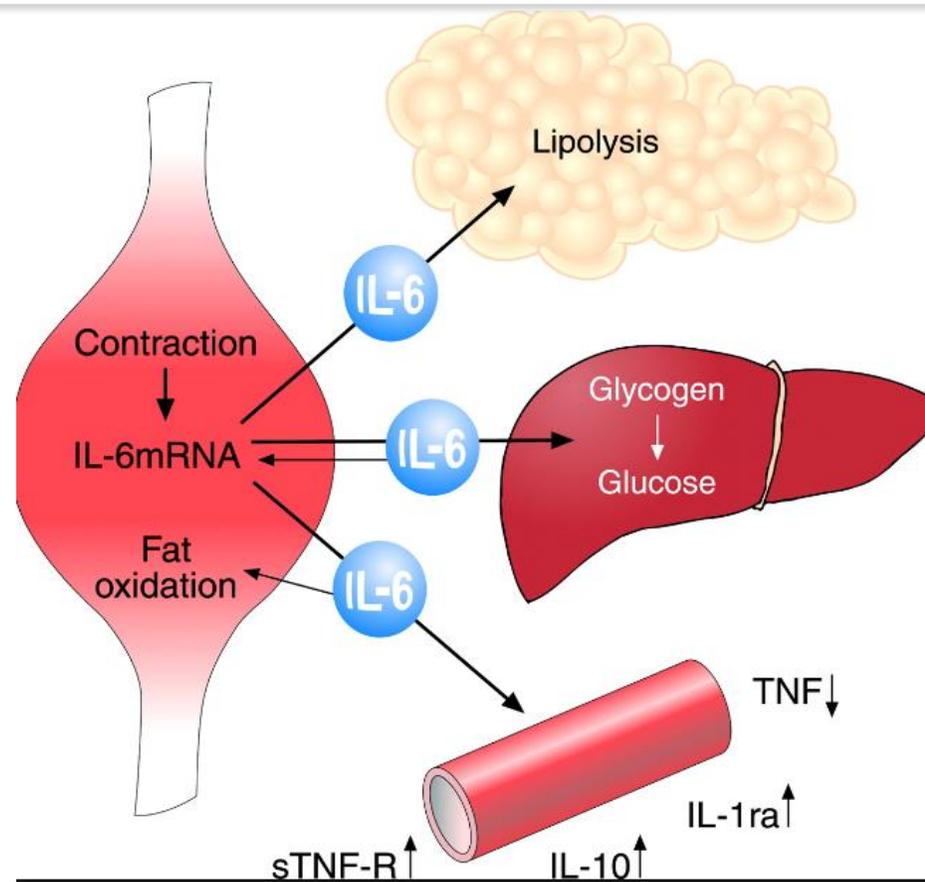
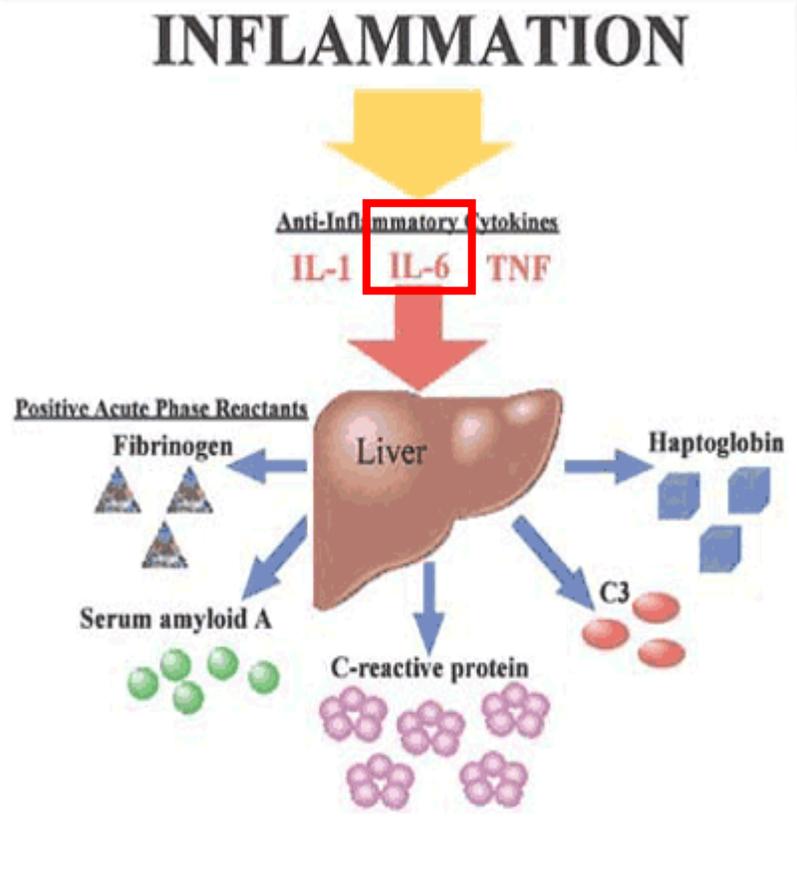


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# DISEASE-RELATED OUTCOME: INFLAMMATION

## INFLAMMATION      EXERCISE

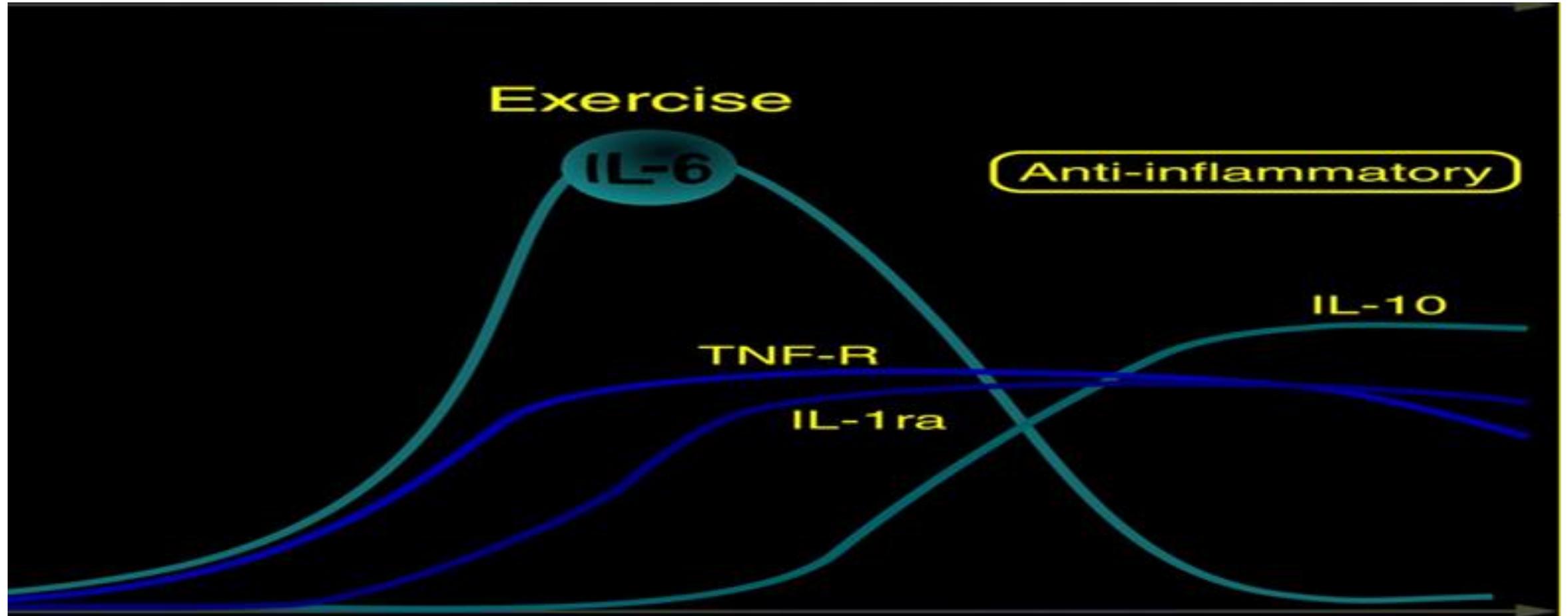


Petersen and Pedersen 2005 JAP



# DISEASE-RELATED OUTCOME: INFLAMMATION

## SHORT TERM EFFECTS



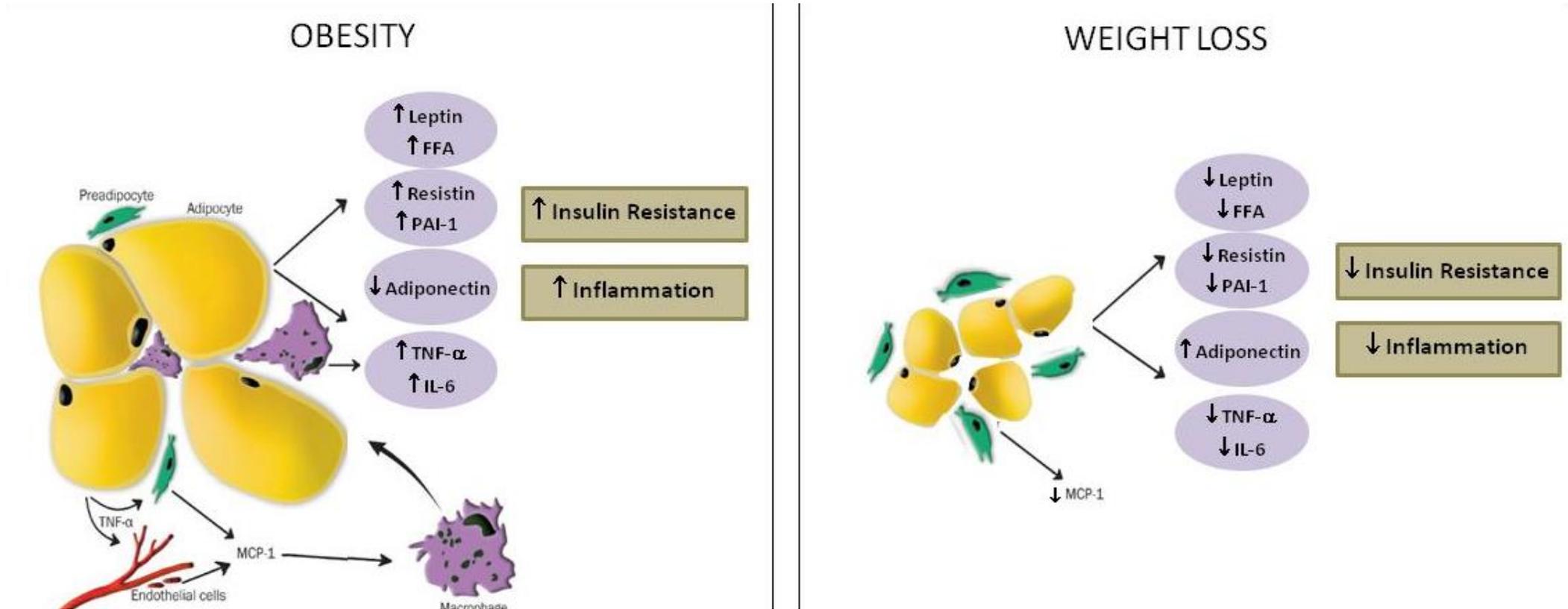
TNF $\alpha$  and Interleukin remain suppressed which is different to sepsis and inflammation



# DISEASE-RELATED OUTCOME: INFLAMMATION

## SHORT TERM EFFECTS

**Obesity:** Higher CRP, IL-6, TNF $\alpha$



Rheumatol Int. 2019 May;39(5):793-804. doi: 10.1007/s00296-019-04284-x. Epub 2019 Mar 21.

**The impact of physical activity on serum levels of inflammatory markers in rheumatoid arthritis: a systematic literature review.**

Burghardt RD<sup>1,2</sup>, Kazim MA<sup>3</sup>, R  ther W<sup>3</sup>, Niemeier A<sup>3</sup>, Strahl A<sup>3</sup>.



# EXERCISE EFFECTS OVER TIME

## Aerobic training

Intensity: 60-85% HRmax

Frequency: 3-5 days / week

Time: 20-45 min

## Strength Training

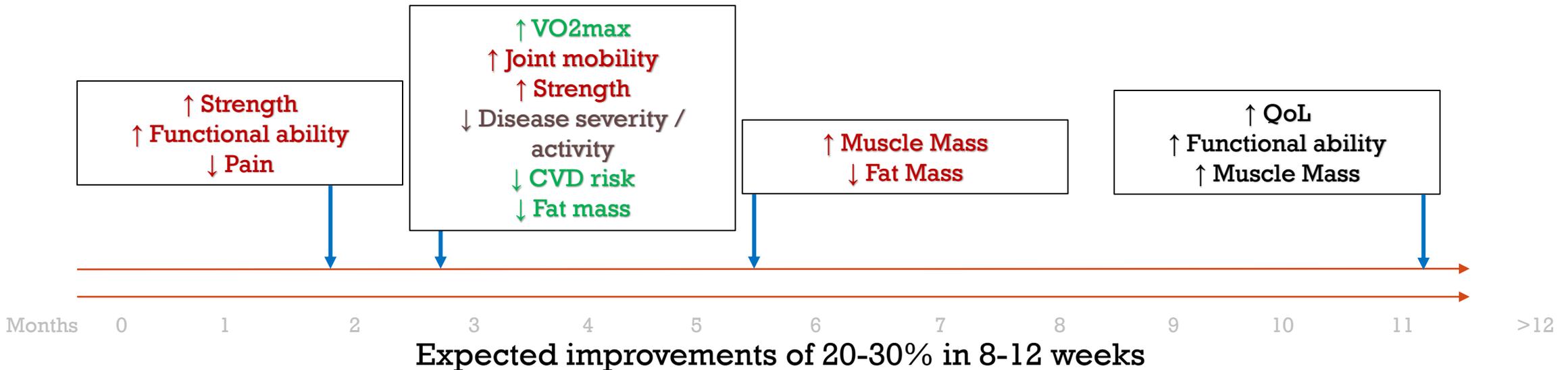
Intensity: 50-80% of 1RM / 8-12 repetitions / 1-3 sets

Frequency: 1-3 days / week

Time: 20-30 min

## Combined Training

Aerobic + Strength training



Progressive loading to avoid injury / adverse effects



# SUMMARY

- Physical activity is **safe** in RA: no adverse effects
- **Multiple and simultaneous different benefits** on patient- and clinically important outcomes
- Patient-reported barriers (fatigue, pain, functional disability) and healthcare professional reported barriers (lack of education) act as barriers
- **Capacity building and patient empowerment** are required to implement physical activity in clinical practice



Thank you for your attention.

Every time I hear  
the dirty word  
**EXERCISE**  
I wash my mouth  
out with chocolate.

