EASO

European Association for the Study of Obesity

EASO SUMMER SCHOOL: MASTERCLASS IN THE PREVENTION AND MANAGEMENT OF OBESITY

Les Pensières at Fondation Mérieux. Annecy, France: 11 - 15 July 2022

Case Study Teaching Workshop: Sarcopenic Obesity

Marwan El Ghoch (Lebanon/Italy)

Annecy, France
Tuesday 12th July:17:45 - 18:30

Conflict of Interest Disclosure

X No potential conflict of interest to report

Sarcopenic Obesity: A general overview

Definition

Co-existence

Increased fat mass

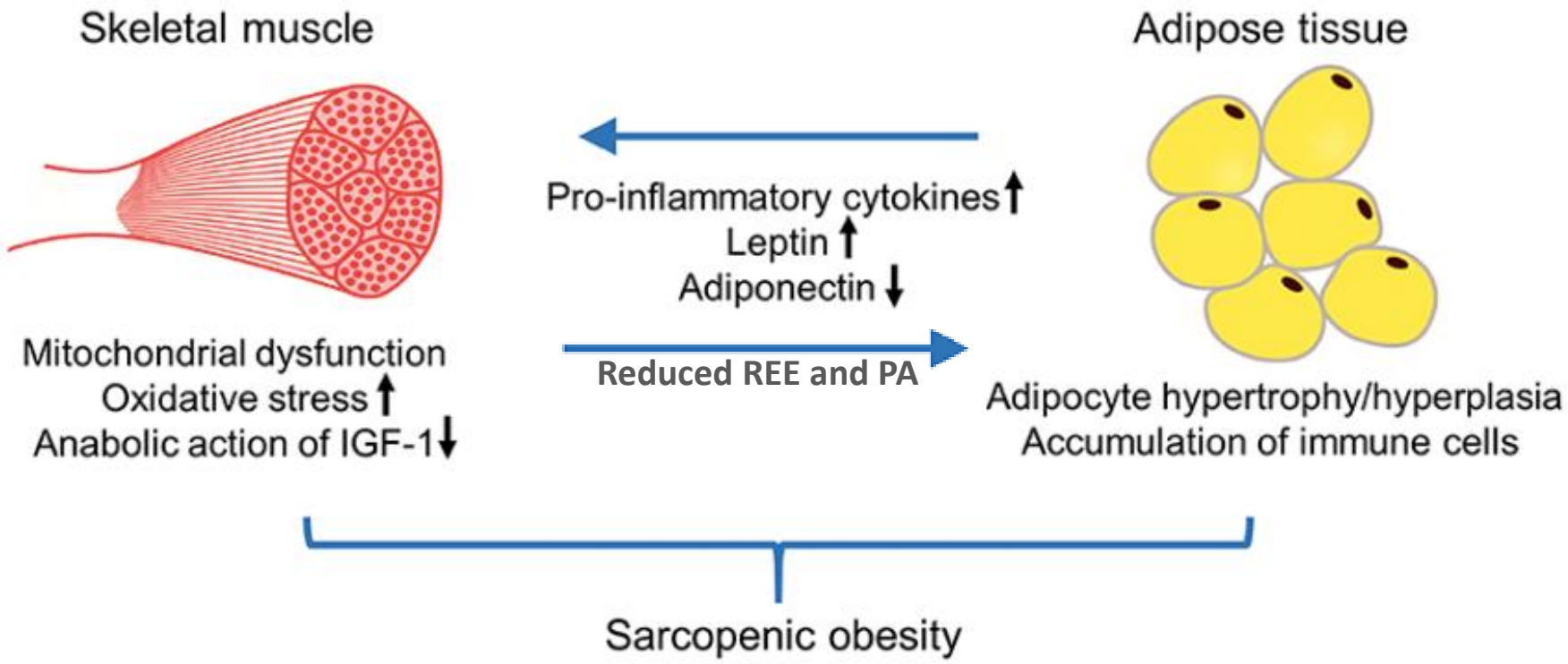
(Obesity)

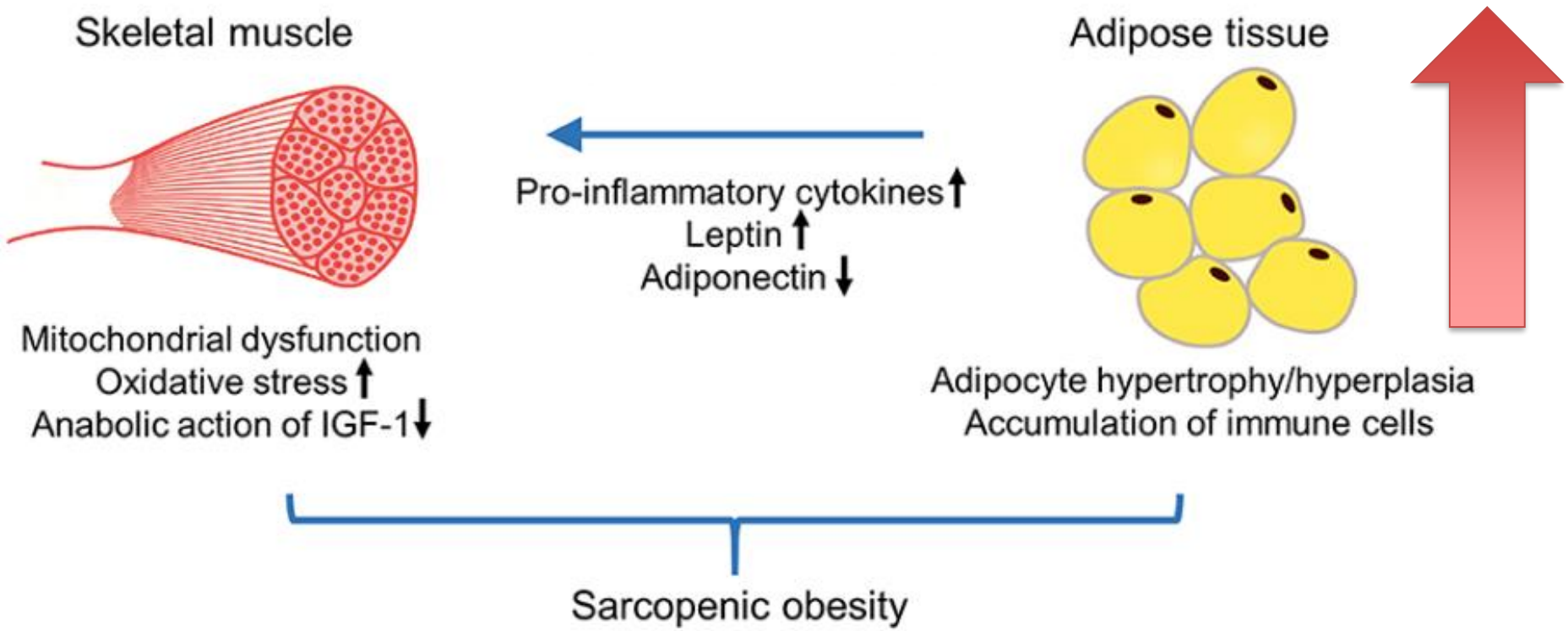
Reduction in muscle mass and strength

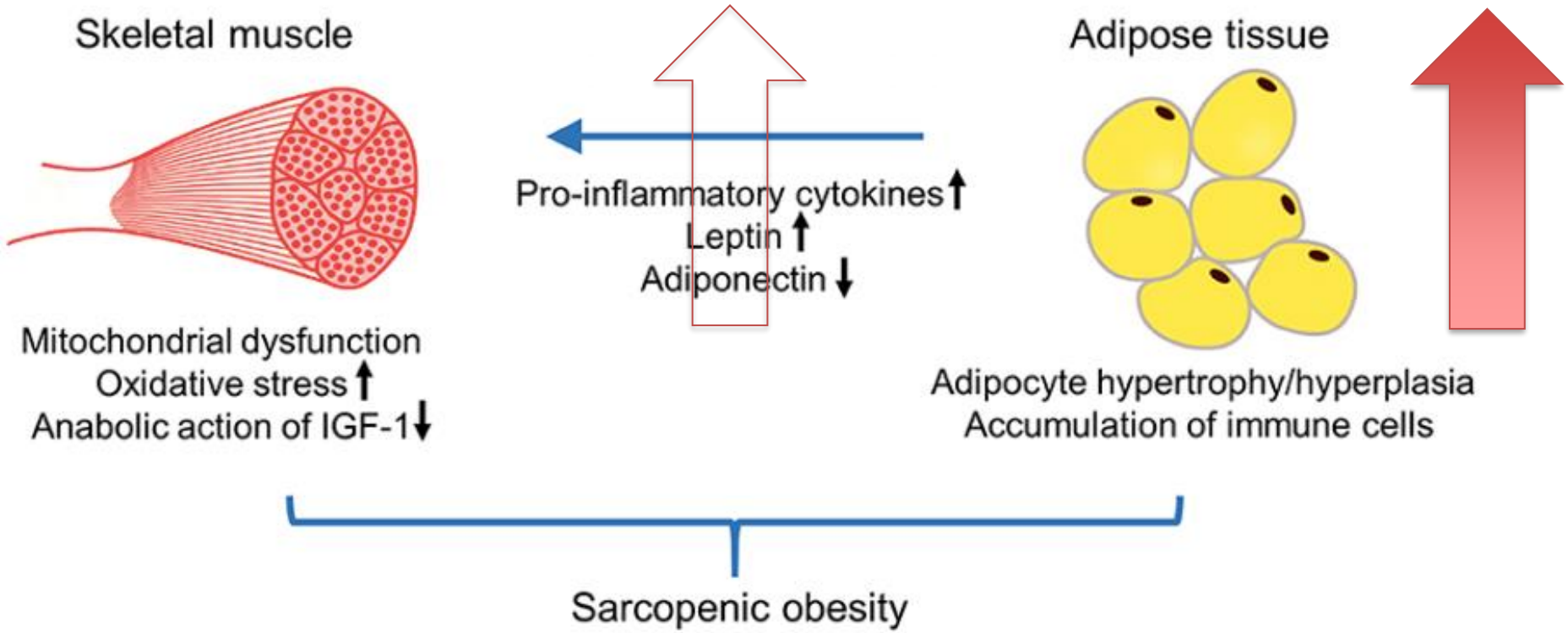
(Sarcopenia)

Sarcopenic Obesity (SO)

Potentially, what happens?




Skeletal muscle
Adipose tissue
Pro-inflammatory cytokines ↑
Leptin ↑
Adiponectin ↓
Mitochondrial dysfunction
Oxidative stress ↑
Anabolic action of IGF-1 ↓
Adipocyte hypertrophy/hyperplasia
Accumulation of immune cells
Sarcopenic obesity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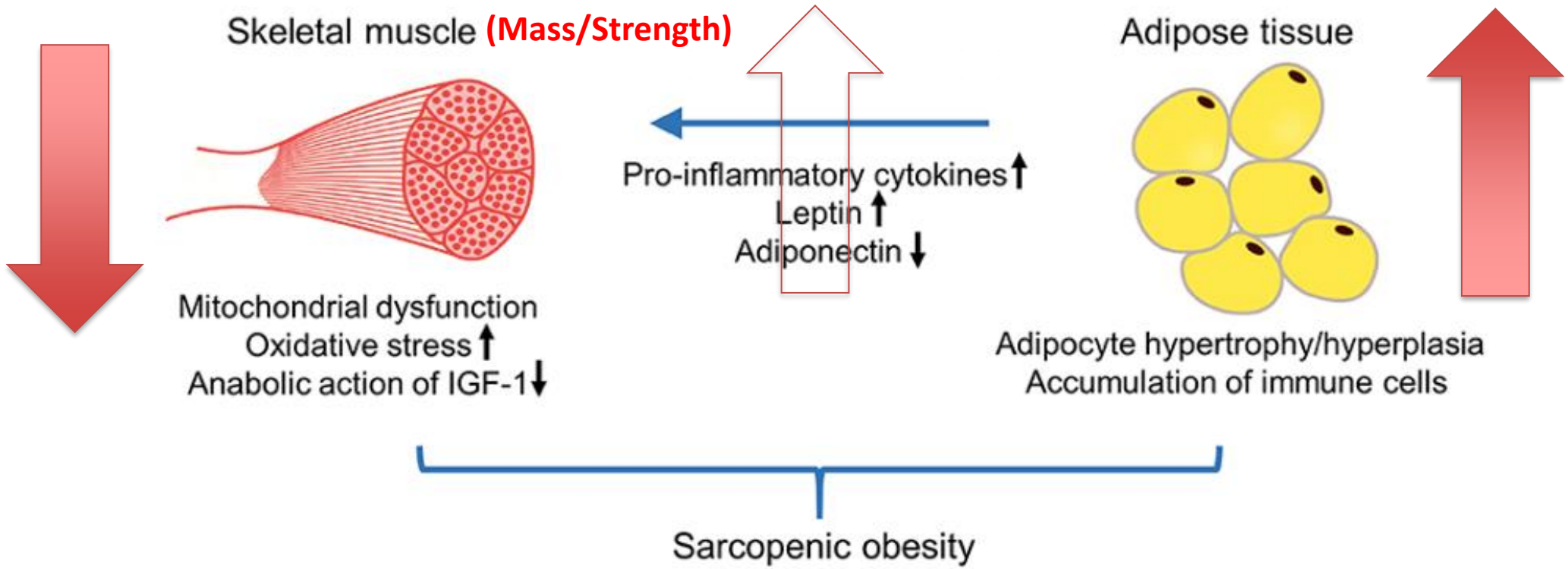
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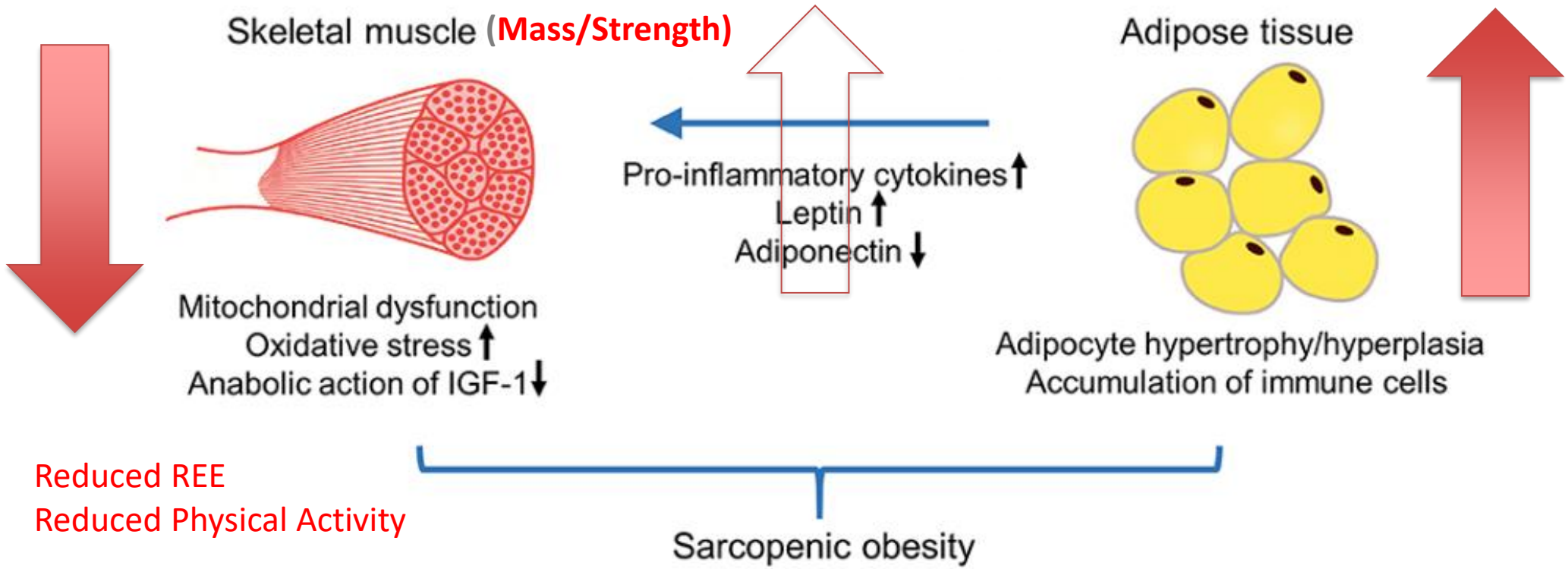
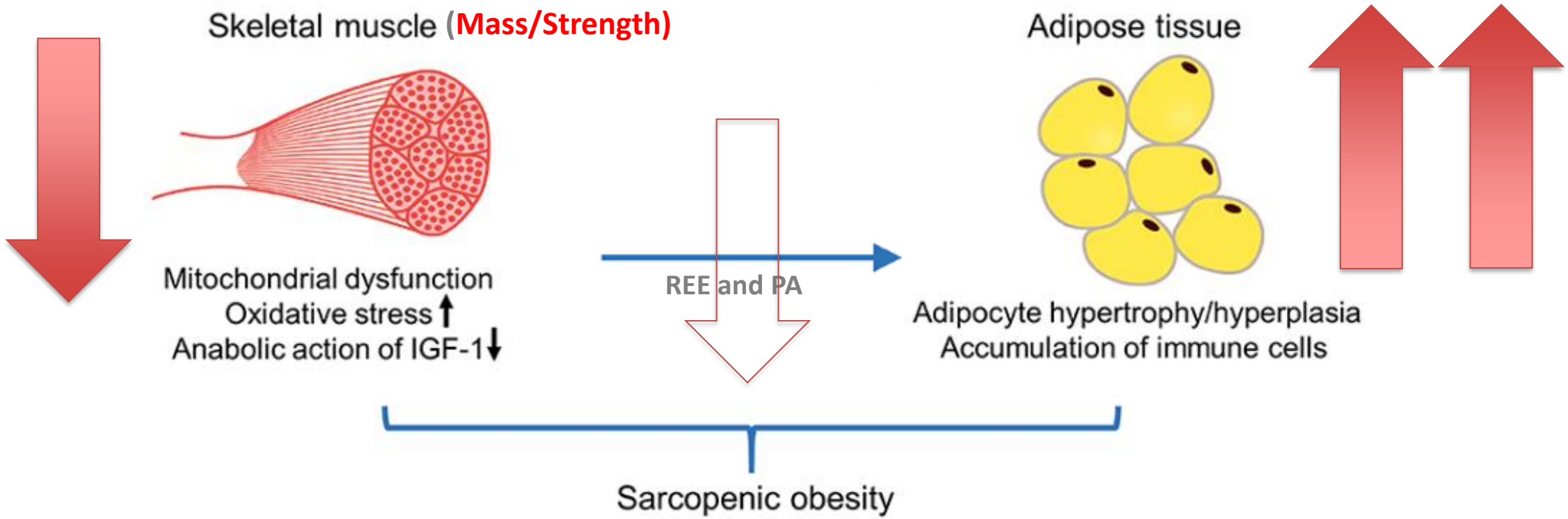


- Reduced REE
- Reduced Physical Activity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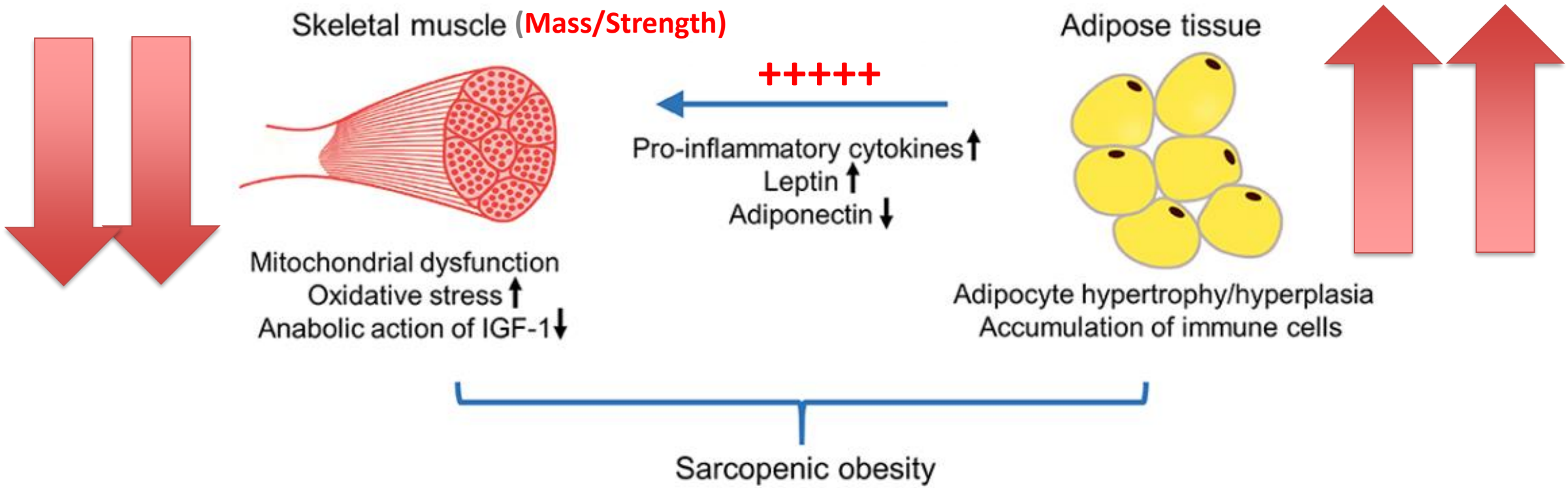
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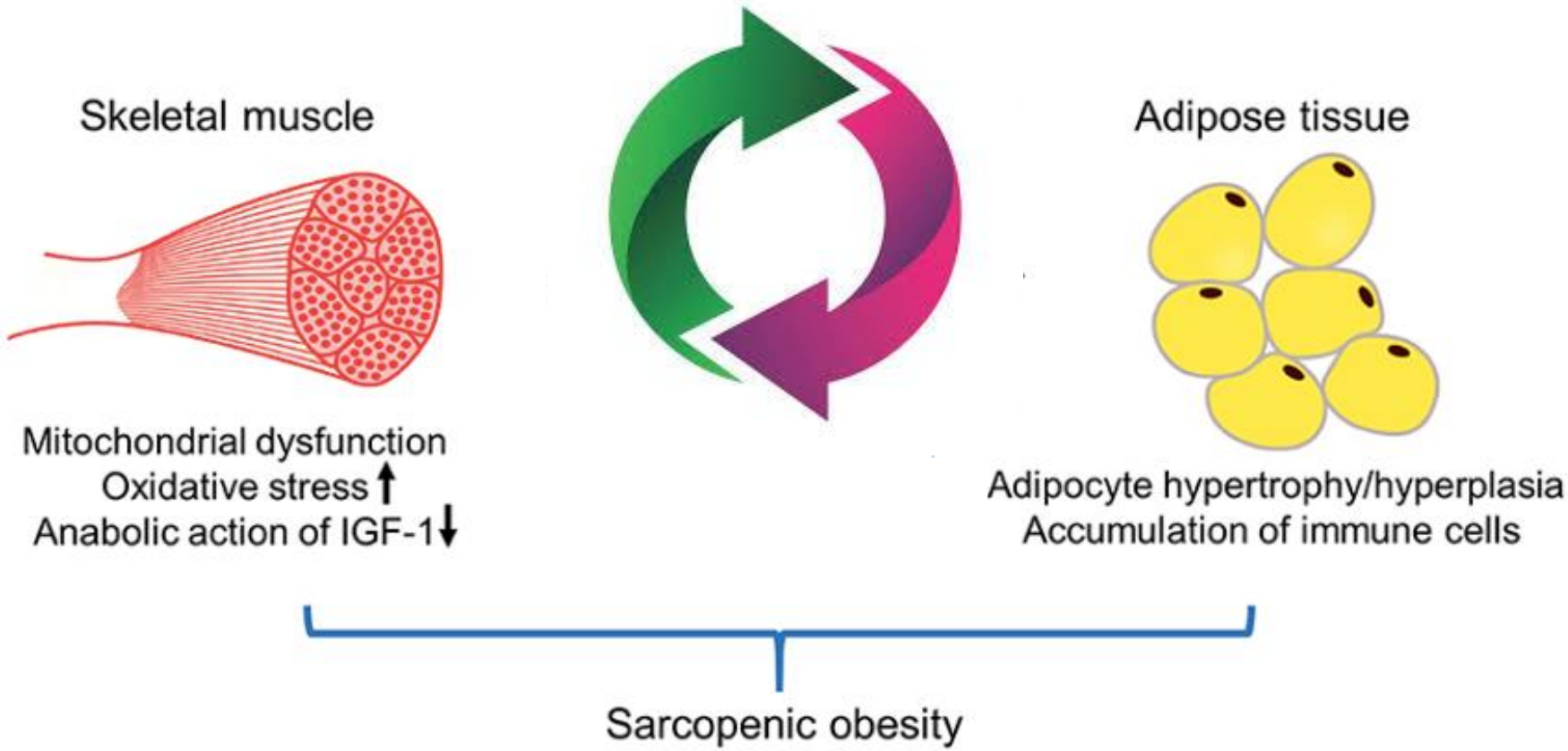
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Did you mean: *sarcopenia obesity* (13384 items)

Filter your results:
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NIH grants (1118)
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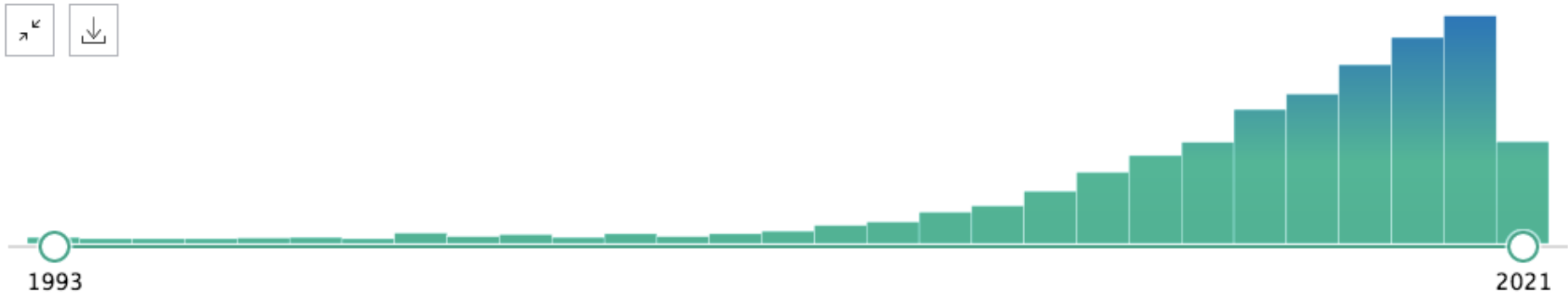
RESULTS BY YEAR 1,715 results



A considerable research in the last 2-3 decades has been devoted to SO however it was mainly focused on older people from the general population

NCBI Resources How To Sign in to NCBI

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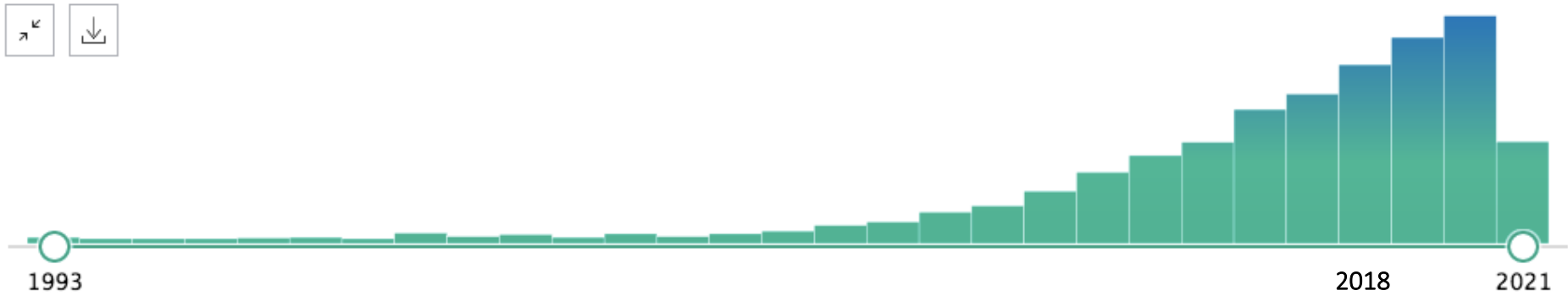


- Till 2018, very few data has been published on young and middle aged population with SO, especially among patient who underwent weight management treatment (clinical sample)

Since then, several international bodies moved, and released statements to take actions

EurekAlert! | AAAS

HOME NEWS RELEASES MULTIMEDIA MEETINGS

NEWS RELEASE 6-NOV-2018

Sarcopenic obesity: The ignored phenotype that need more studies for a better understanding

The article by Dr. Marwan El Ghoch e
12, 2018

Endocrinología, Diabetes y Nutrición (English ed.)
ELSEVIER
Volume 67, Issue 10, December 2020, Pages 672-681

Review article

Sarcopenic obesity: A new challenge in the clinical practice

Obesidad sarcopénica: un nuevo reto en la clínica práctica ☆

ella Palmas [a], María José Barahona [d]

Obesity Facts
The European Journal of Obesity

Obes Facts 2018;11:294–305
DOI: 10.1159/000490361
Received: April 26, 2018
Accepted: May 17, 2018
Published online: July 18, 2018

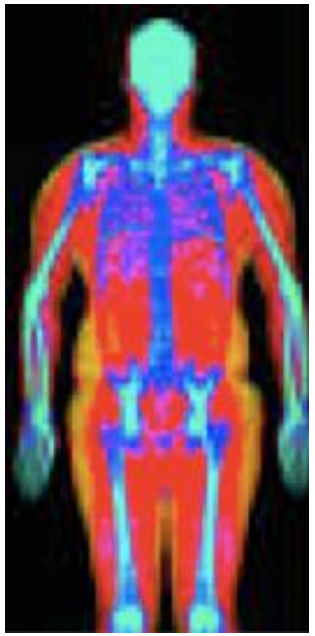
Review Article

Sarcopenic Obesity: Time to Meet the Challenge

Rocco Barazzoni[a, b] Stephan Bischoff[c] Yves Boirie[d, e]
Luca Busetto[f, g] Tommy Cederholm[h] Dror Dicker[i] Hermann Toplak[j]
Andre Van Gossum[k] Volkan Yumuk[l] Roberto Vettor[f, g]

In (our) clinical setting for obesity treatment

Non SO



SO

- Is SO a prevalent condition? (What is its prevalence?)
- Does SO affect only elderly or also young and middle aged adults?

World Journal of Diabetes

Submit a Manuscript: https://www.f6publishing.com

World J Diabetes 2019 May 15; 10(5): 311-323

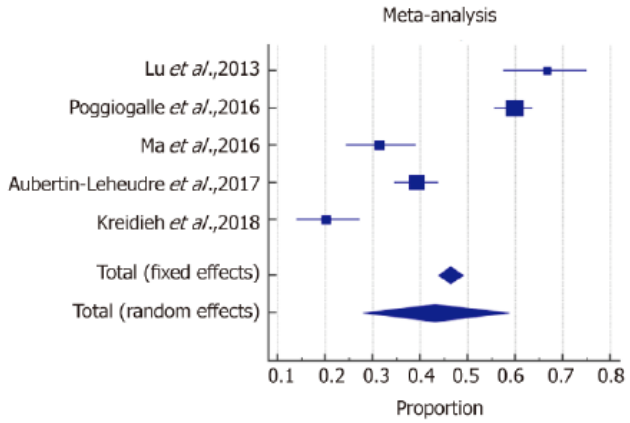
DOI: 10.4239/wjd.v10.i5.311

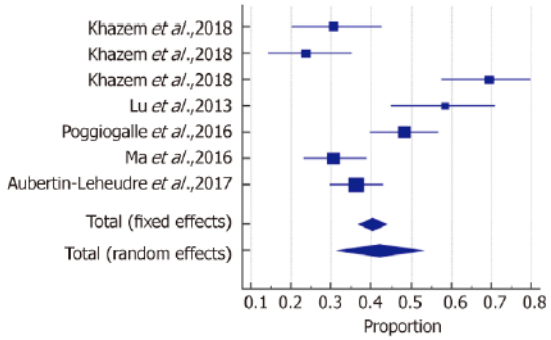
ISSN 1948-9358 (online)

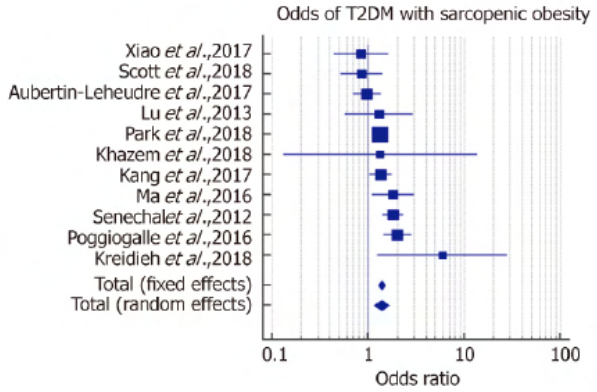
META-ANALYSIS

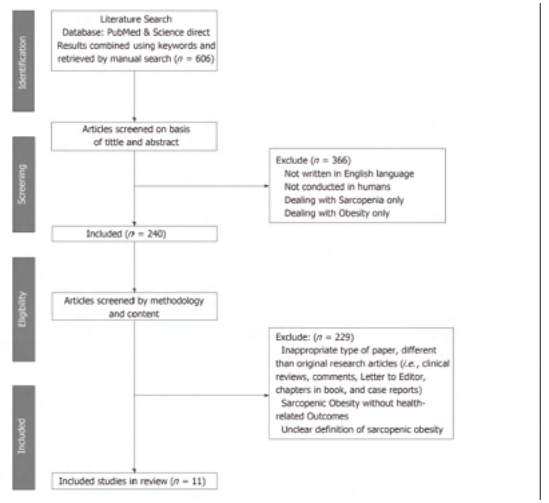
Association between sarcopenic obesity and higher risk of type 2 diabetes in adults: A systematic review and meta-analysis

Dima Khadra, Leila Itani, Hana Tannir, Dima Kreidieh, Dana El Masri, Marwan El Ghoch









We have conducted a large systematic review and meta-analysis on nearly 60,000 middle aged adults with obesity of both genders

Khadra et al. World Journal of Diabetes 2019

World Journal of Diabetes

Submit a Manuscript: https://www.f6publishing.com

World J Diabetes 2019 May 15; 10(5): 311-323

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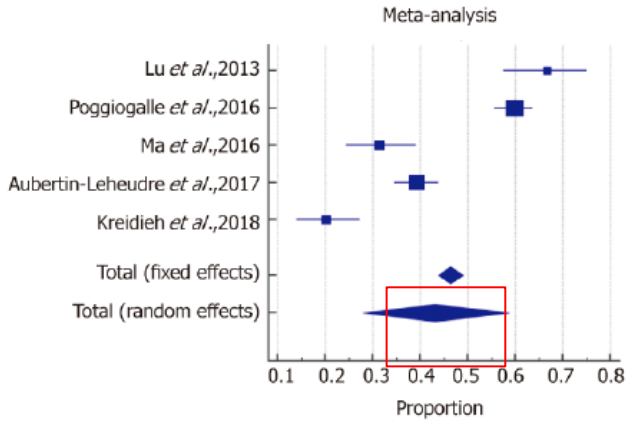
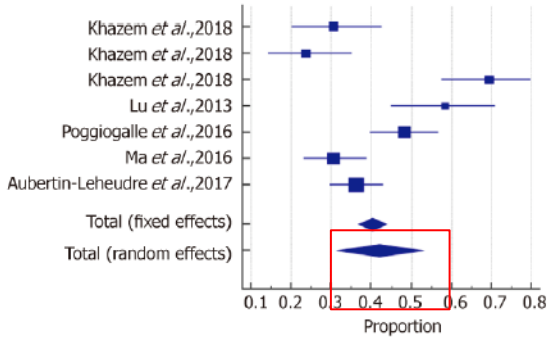
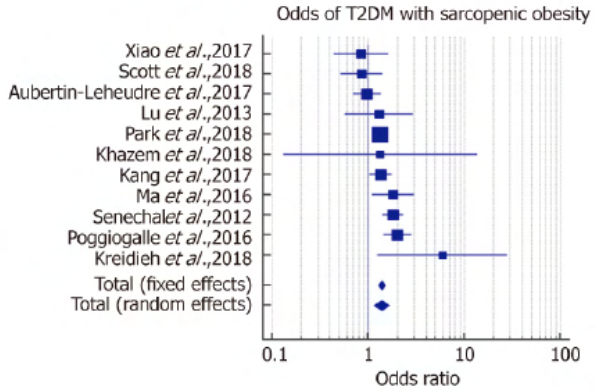
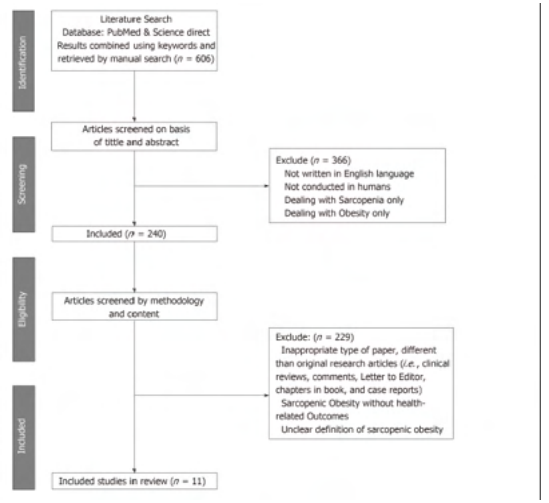




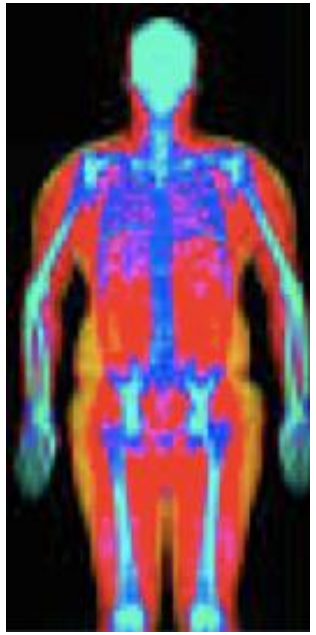




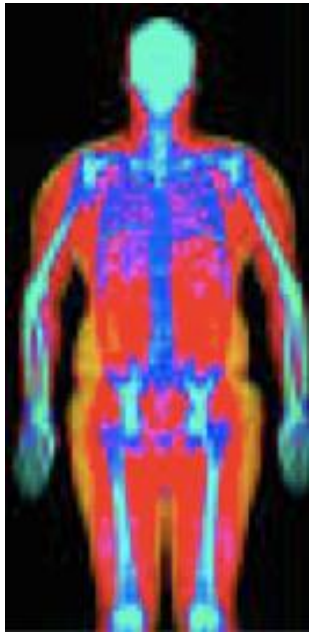
- A high prevalence (40-45%) of sarcopenia in patients with obesity (females and males)

Khadra et al. World Journal of Diabetes 2019

Therefore..



Non SO



SO

In a clinical sample composed of young and middle aged population (35-45 years) with obesity, we have to expect a high prevalence of SO (nearly 40-45%)

Is this a clinical problem??

Two main clinical questions

- Are patients with SO (at the baseline weight management setting) have more comorbidies? And therefore need more (clinical) attention?

- Do patients with SO face more difficulties (worse outcomes) during weight management programmes? (worse outcomes?)

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International Journal of
Environmental Research and Public Health

MDPI

Brief Report

Reduced Lean Body Mass and Cardiometabolic Diseases in Adult Males with Overweight and Obesity: A Pilot Study

Shirine Khazem [1], Leila Itani [1], Dima Kreidieh [1], Dana El Masri [1], Hana Tannir [1], Roberto Citarella [2] and Marwan El Ghoch [1,3,*]

1 Department of Nutrition and Dietetics, Faculty of Health Sciences, Beirut Arab University, P.O. Box 11-5020 Riad El Solh, Beirut 11072809, Lebanon; shirine_sk@live.com (S.K.); l.itani@bau.edu.lb (L.I.); d.kraydeyeh@bau.edu.lb (D.K.); dana.masri@bau.edu.lb (D.E.M.); hana.tannir@bau.edu.lb (H.T.)
2 CTR Centre of Rehabilitation Therapy, Via Fratelli Cervi, 59/e, 42124 Reggio Emilia, Italy; citarella
3 Nutrition and Dietetics Program—CTR Centre of Rehabilitation Therapy, Via Fratelli Cervi, 59/e, 42124 Reggio Emilia, Italy
* Correspondence: m.ghoch@bau.edu.lb or marwan1979@hotmail.com; Tel.: +961-1-300110 (ext. 2332) or +39-0522-385411; Fax: +39-0522-385473

Received: 6 November 2018; Accepted: 4 December 2018; Published: 5 December 2018

During weight management programme in a population composed of young and middle aged adults of both genders

Higher prevalence of cardiometabolic disease among patient with SO vs. non SO

Journal of
Cardiovascular Development and Disease

MDPI

Article

Association between Sarcopenic Obesity, Type 2 Diabetes, and Hypertension in Overweight and Obese Treatment-Seeking Adult Women

Dima Kreidieh [1], Leila Itani [1], Dana El Masri [1], Hana Tannir [1], Roberto Citarella [2] and Marwan El Ghoch [1,3,*]

1 Department of Nutrition and Dietetics, Faculty of Health Sciences, Beirut Arab University, P.O. Box 11-5020 Riad El Solh, Beirut 11072809, Lebanon; d.kraydeyeh@bau.edu.lb (D.K.); l.itani@bau.edu.lb (L.I.); dana.masri@bau.edu.lb (D.E.M.); hana.tannir@bau.edu.lb (H.T.)
2 CTR Centre of Rehabilitation Therapy, 42124 Reggio Emilia, Italy; citarella@ctr-re.it
3 Nutrition and Dietetics Program–CTR Centre, 42124 Reggio Emilia, Italy
* Correspondence: m.elghoch@bau.edu.lb or marwan1979@hotmail.com; Tel.: +39-0522-385411 or +961-1-300110; Fax: +39-0522-385473 or +961-1-818402

Received: 3 October 2018; Accepted: 17 October 2018; Published: 20 October 2018

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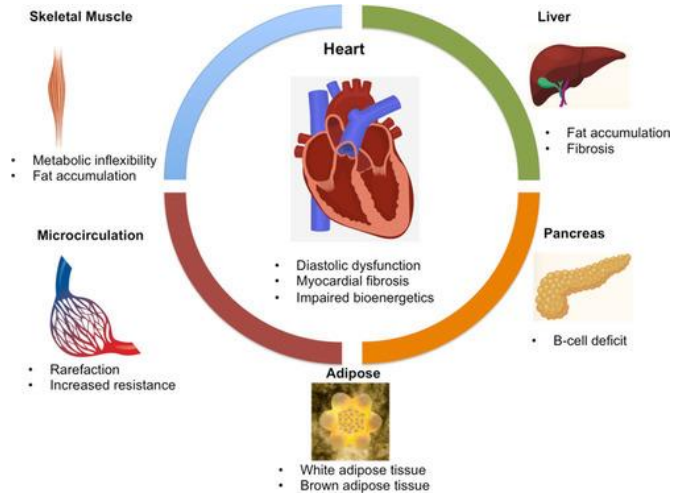
SO



SO is a prevalent condition in weight management settings and it is more associated with presence cardio-metabolic diseases

Two main clinical questions

- Are patients with SO (at the baseline weight management setting) have more comorbidies? And therefore need more (clinical) attention?

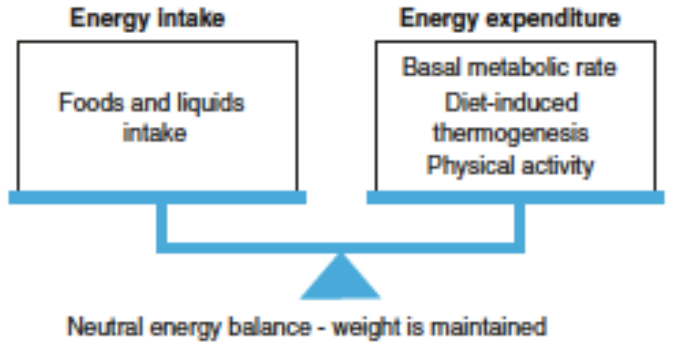
- Do patients with SO face more difficulties (worse outcomes) during weight management programmes? (worse outcomes?)

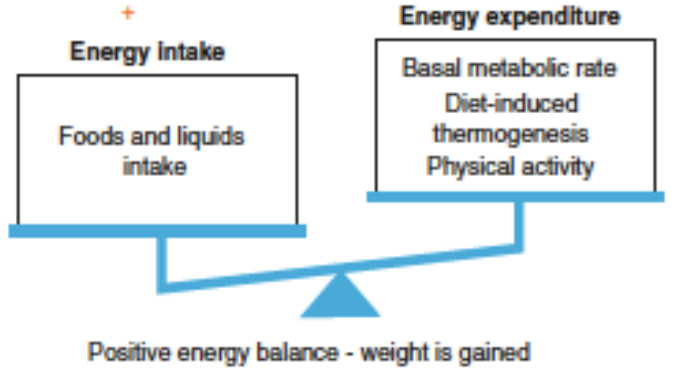
SO and baseline factors of our patients

- Resting resting expenditure (REE)
- Physical fitness
- Levels of physical activity (PA)

Ideally, for a successful weight management programme, it is great to start with a patient:

- Suitable Resting Energy Expenditure
- Good physical fitness
- Active lifestyle

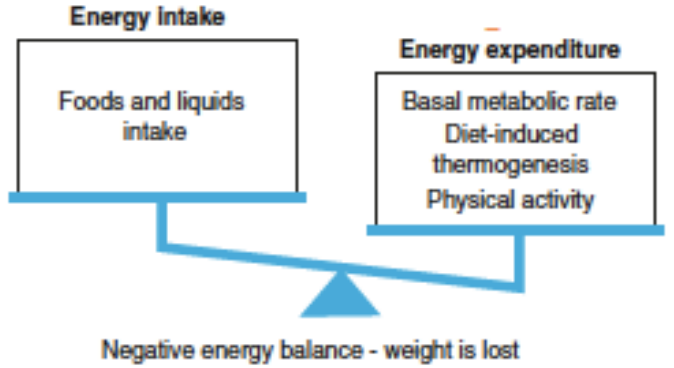




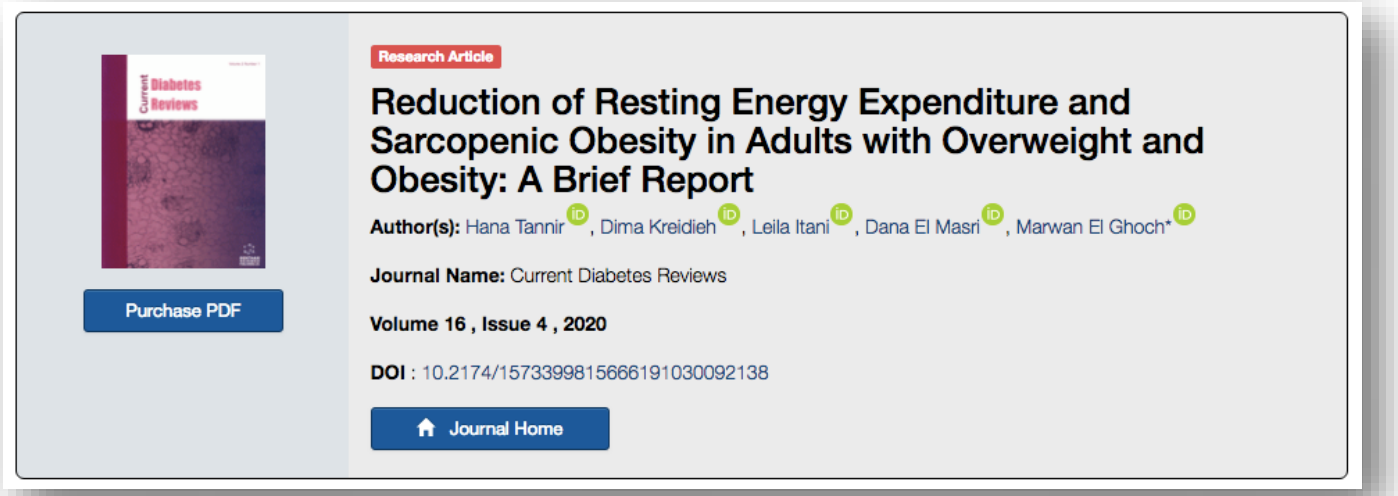
Research Question

Do patients with SO (when compared to non SO) at baseline have:

- Lower resting energy expenditure?
- Impaired physical fitness?
- More sedentary behaviours?



Patients with SO have 150 Kcal/day less of REE when compared to Non SO



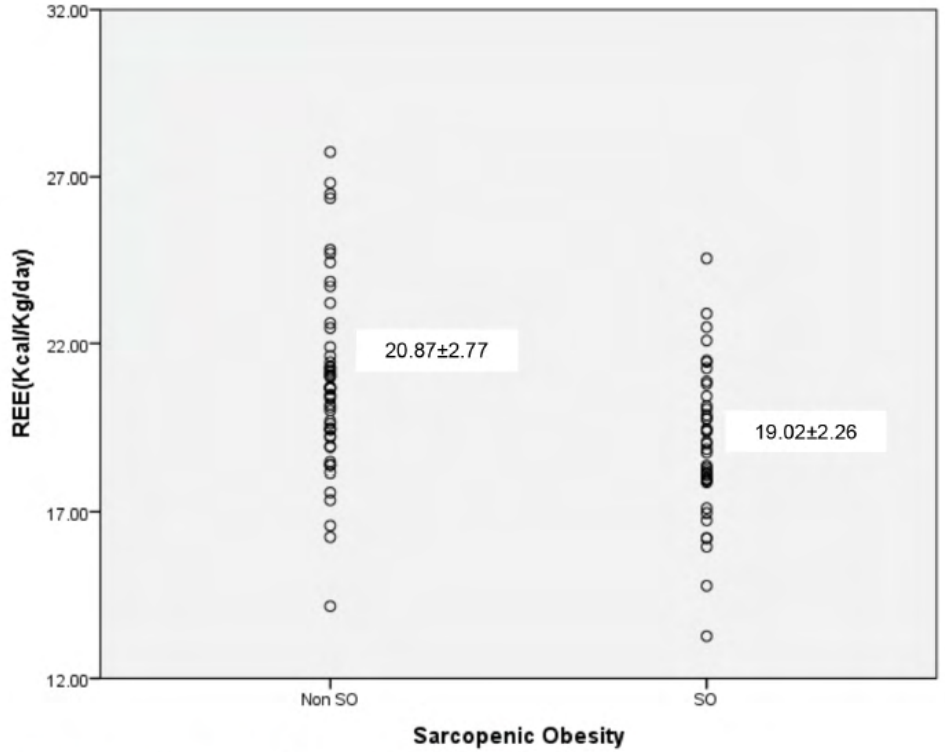


Fig. (1). Mean daily REE-per-body-weight among patients with or without SO (N=89).

- N=89 of both genders (39 SO/50 Non SO)
- Age=40.62±15.96 years
- BMI=34.93±4.68 Kg/m^2

Current Diabetes Reviews 2020

Patients with SO have an impaired physical fitness when compared to Non SO

Available online at www.sciencedirect.com

Nutrition, Metabolism & Cardiovascular Diseases

journal homepage: www.elsevier.com/locate/nmcd

Physical performance measures in screening for reduced lean body mass in adult females with obesity

M. El Ghoch [a,*], A.P. Rossi [b], S. Calugi [a], S. Rubele [b], F. Soave [a], M. Zamboni [b], E. Chignola [a], G. Mazzali [b], P.V. Bazzani [c], R. Dalle Grave [a]

[a] Department of Eating and Weight Disorders, Villa Garda Hospital, Via Montebaldo, 89, 37016 Garda, Verona, Italy
[b] Department of Medicine, Geriatrics Division, University of Verona, Italy
[c] Department of Radiology, Villa Garda Hospital, Via Montebaldo 89, Garda, 37016, Italy

- N=147 females (93 SO/53 Non SO)
- Age=52.7±12.5 years
- BMI= 38.3±12.5 Kg/m^2

Physical fitness tests	Non SO	SO	P
6-minutes walking test	508±72.2	452±81.8	0.007
4-m gait speed test	3.3±0.5	3.8±1.0	0.017
Handgrip-strength test	25.8±5.8	23.3±5.4	0.011

Journal of Nutrition, Metabolism & Cardiovascular Diseases 2018

Patients with SO are more sedentary and perform nearly 1500 step/day less than Non SO

frontiers in Endocrinology

ORIGINAL RESEARCH
published: 30 January 2020
doi: 10.3389/fendo.2020.00022

Association Between Reduced Daily Steps and Sarcopenic Obesity in Treatment-Seeking Adults With Obesity

*Dima Kreidieh, Leila Itani, Dana El Masri, Hana Tannir and Marwan El Ghoch**

Department of Nutrition and Dietetics, Faculty of Health Sciences, Beirut Arab University, Beirut, Lebanon

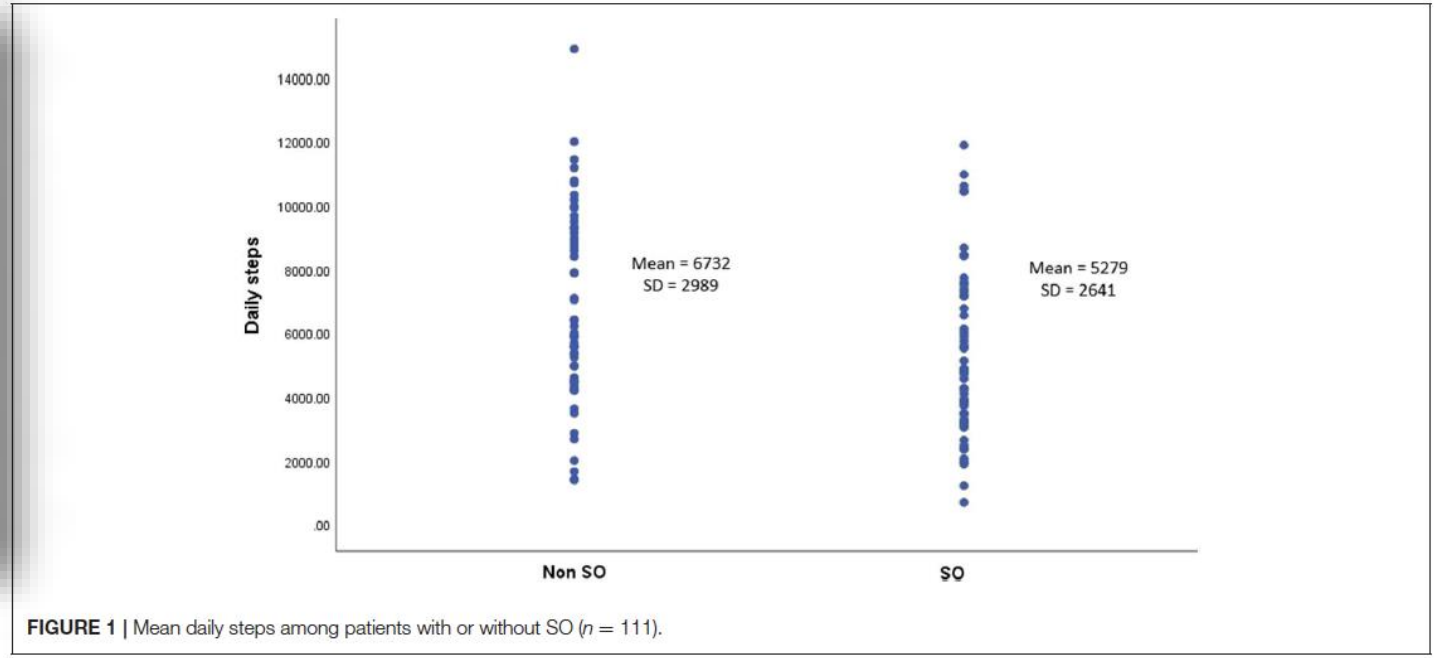


FIGURE 1 | Mean daily steps among patients with or without SO ($n = 111$).

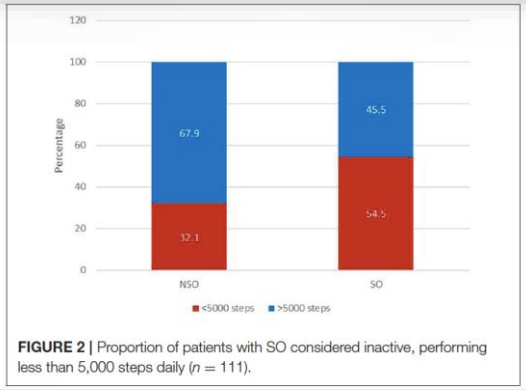
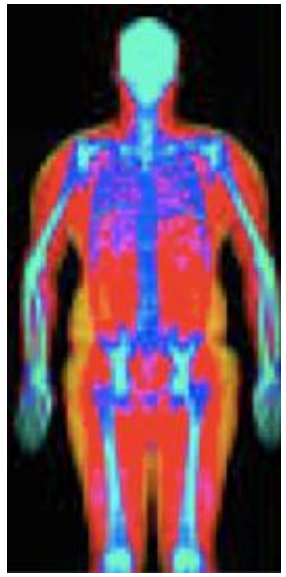


FIGURE 2 | Proportion of patients with SO considered inactive, performing less than 5,000 steps daily ($n = 111$).

- N=111 of both genders (55 SO/56 Non SO)
- Age=37.12±15.58 years
- BMI=36.27±5.13 Kg/m^2

Frontiers in Endocrinology 2020



Non SO

SO

With same body weight, and BMI at baseline

Example: 100 Kg; BMI 35 Kg/m^2

The one with SO starts a weight management program with a "disadvantaged" baseline condition: poor physical fitness, prone to be more sedentary and metabolically penalized (REE)

SO and weight-loss outcomes

Main weight-loss outcomes

The main outcomes in any obesity treatment :

Attrition (especially the early dropout)

- One of the major causes of the failure of weight management programs for obesity, with rates that can reach the 80%

Weight loss (< 6 months)

- No great difficulties, the major part of patients usually lose weight

Weight-loss maintenance (> 12 months)

- 70% of patients usually return to their baseline body weight nearly after 3 years (regardless the nature of the weight-loss treatment)

Research Questions

- Do patients with SO (vs. without SO) are on higher risk to interrupt earlier the obesity treatment?

- Do patients with SO (vs. non SO) face more difficulty to lose (in the short) or to maintain the weight lost in longer term?

Journal of Cardiovascular Development and Disease (MDPI) 2020; Clinics and Practice (MDPI) 2021

Patient with SO are more dropper when compared to Non SO

Journal of *Cardiovascular Development and Disease*

MDPI

Brief Report

Sarcopenic Obesity Predicts Early Attrition in Treatment-Seeking Patients with Obesity: A Longitudinal Pilot Study

Dima Kreidieh, Leila Itani, Hana Tannir, Dana El Masri and Marwan El Ghoch *

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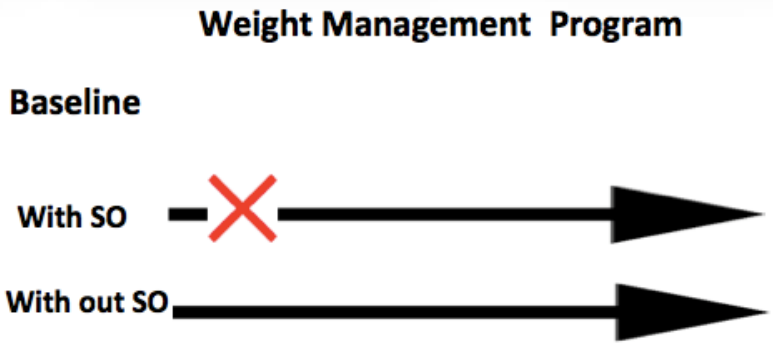
Received: 9 January 2020; Accepted: 26 January 2020; Published: 27 January 2020

check for updates

- N=103 of both genders (45 SO/58 Non SO)
- Age=35.07±26.44 years
- BMI=34.91±6.81 Kg/m^2

- A higher prevalence of SO among the droppers vs. completers group (51.4% vs. 25.8%; p=0.01)



- Regression analysis showed that SO increased the RR of dropout by nearly 150%
  RR = 1.45; 95% CI = 1.10–1.89; p = 0.007

Journal of Cardiovascular Development and Disease (MDPI) 2020

Patient with SO are more in difficulty to mantain the WL in the longer term when compared to Non SO

clinics and practice

MDPI

Article

The Relationship between Sarcopenic Obesity, Weight-Loss and Maintenance Outcomes during Obesity Management: Are Additional Strategies Required?

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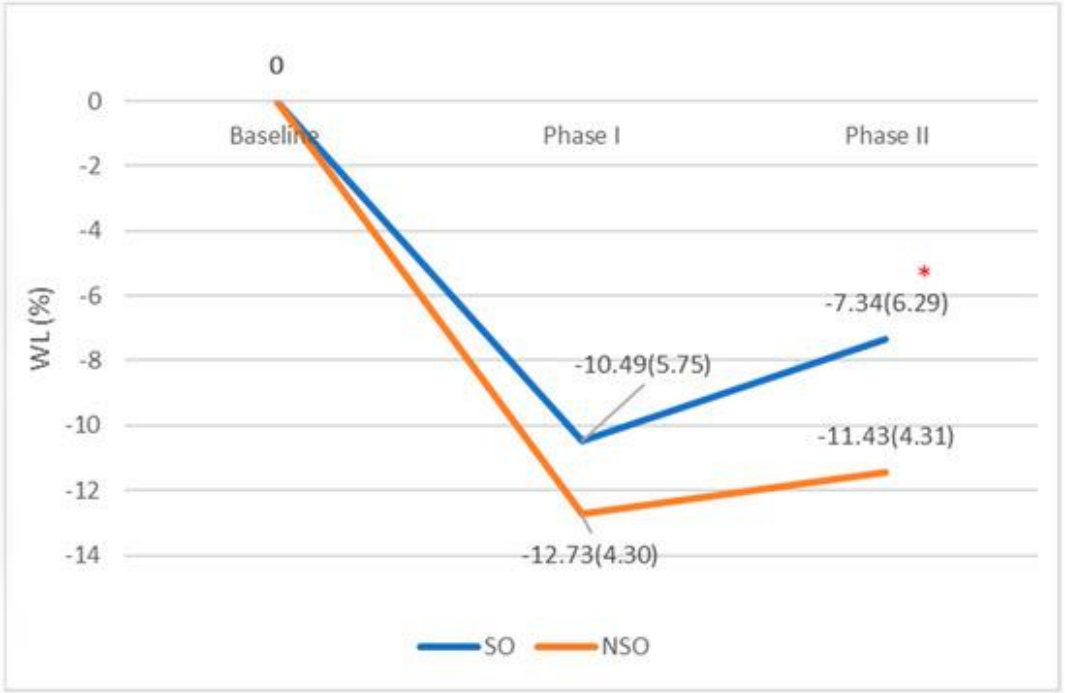
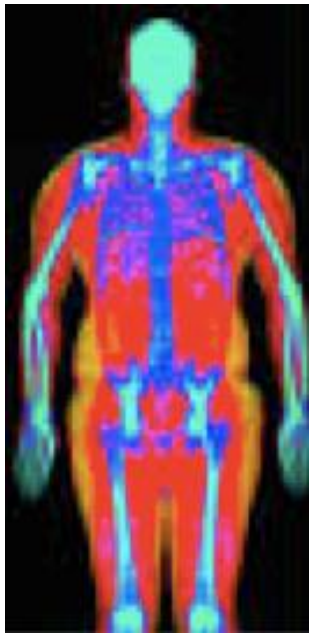


	6 months of treatment			> 12 months of follow up		
	SO	Non SO	P	SO	Non SO	p
WL%	10.49	12.73	NS	7.34	11.43	0.02

- N=46 of both genders (21 SO/26 Non SO)
- Age=44.25±15.85 years
- BMI=35.71±4.84 Kg/m^2

Clinics and Practice (MDPI) 2021

Non SO



SO

With same body weight, and BMI

Example: 100 Kg

The patient with SO, will interrupt the weight management program earlier, and if not, she/he will face more difficulties in maintaining the weight lost in the long term

SO tackles weight loss programmes

- Reduced resting resting expenditure (SO vs. non SO)
- Impaired physical fitness and more sedentary lifestyle (SO vs. non SO)
- Higher rates of early drop out (SO vs. non SO)
- More difficulties in weight-loss maintenance in the long term (>12 month follow up) (SO vs. non SO)

Why should sarcopenic obesity be included in a routine assessment during weight-management programmes?

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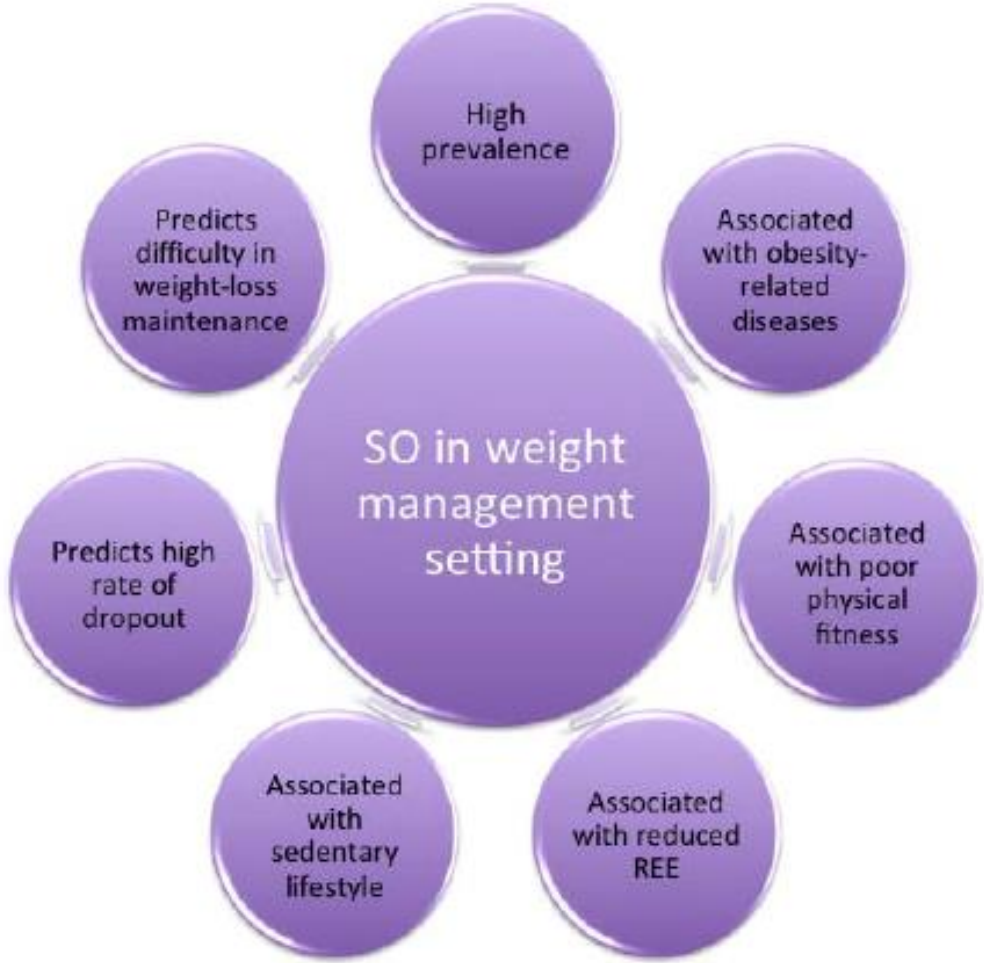

FIGURE 1
Rational behind the inclusion of SO in routine assessment in weight-management settings.

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Because..

- SO is a prevalent conditions in weight management settings
- Individuals with SO are on higher risk to have more cardio metabolic comorbidities
- Individuals with SO starts weight management programs in a disadvantaged condition
- In fact they seem to have poorer weight management outcomes (early dropout and more difficulties to maintain the weight lost in the long-term)

The Take Home Message (1)

- Screening/Diagnosis of SO at the baseline of any weight management programme should be considered vital, and including it in routine assessment during the evaluation of patients with obesity who are seeking weight-loss interventions is crucial.

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The Take Home Message (1)

Obesity Facts

Consensus Statement

Obes Facts 2022;15:321–335
DOI: 10.1159/000521241

Received: November 21, 2021
Accepted: November 26, 2021
Published online: February 23, 2022

Definition and Diagnostic Criteria for Sarcopenic Obesity: ESPEN and EASO Consensus Statement

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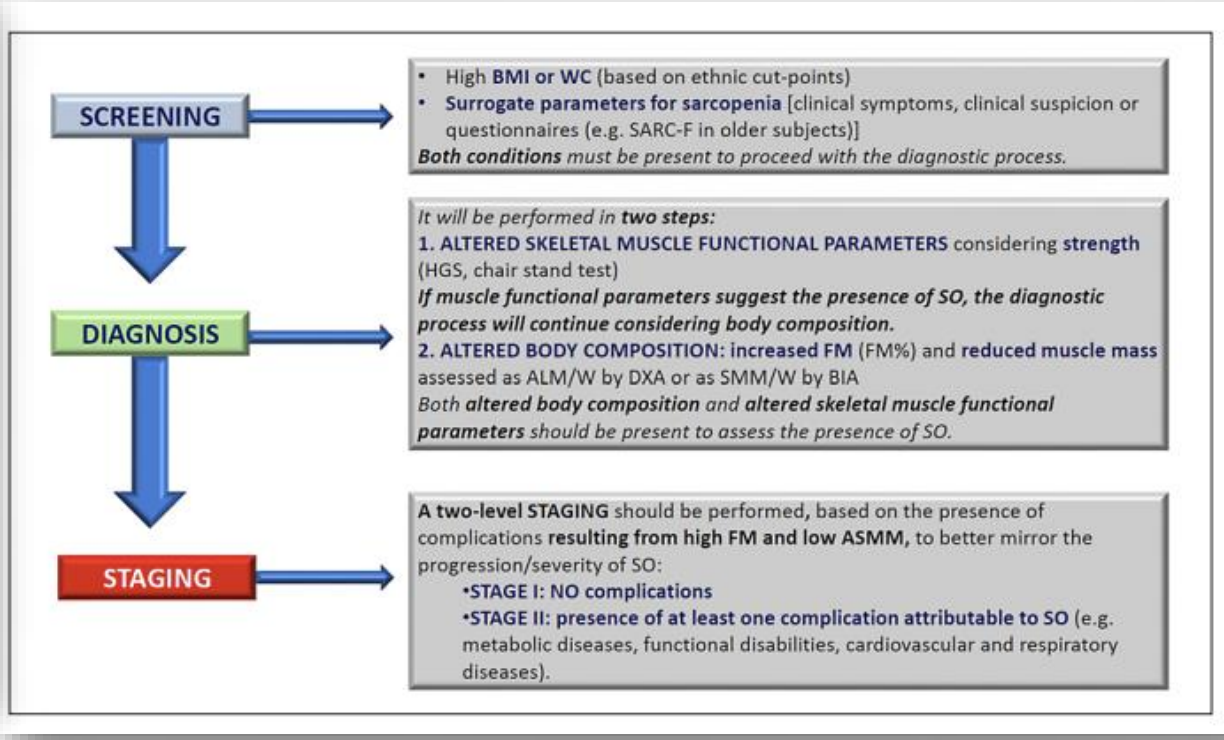

Donini et al. Obesity Facts 2022

The Take Home Message (2)

- Awareness of the high prevalence of SO, and its strong association with obesity-related comorbidities should be raised across heathcare professionals dealing with obesity (i.e., clinicians, psychologists, dieticians, nutritionists, etc.), as well as patients with this condition.

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The Take Home Message (3)

- Patients with SO should be placed on personalized weight-loss programmes with specific strategies to prevent dropout especially in the treatment early stages, as well as in later phases to enhance weight-loss maintenance in the long term.

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