



THE OSTEOARTHRITIS PREVENTION STUDY

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U.S. Department of Health
and Human Services

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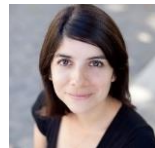
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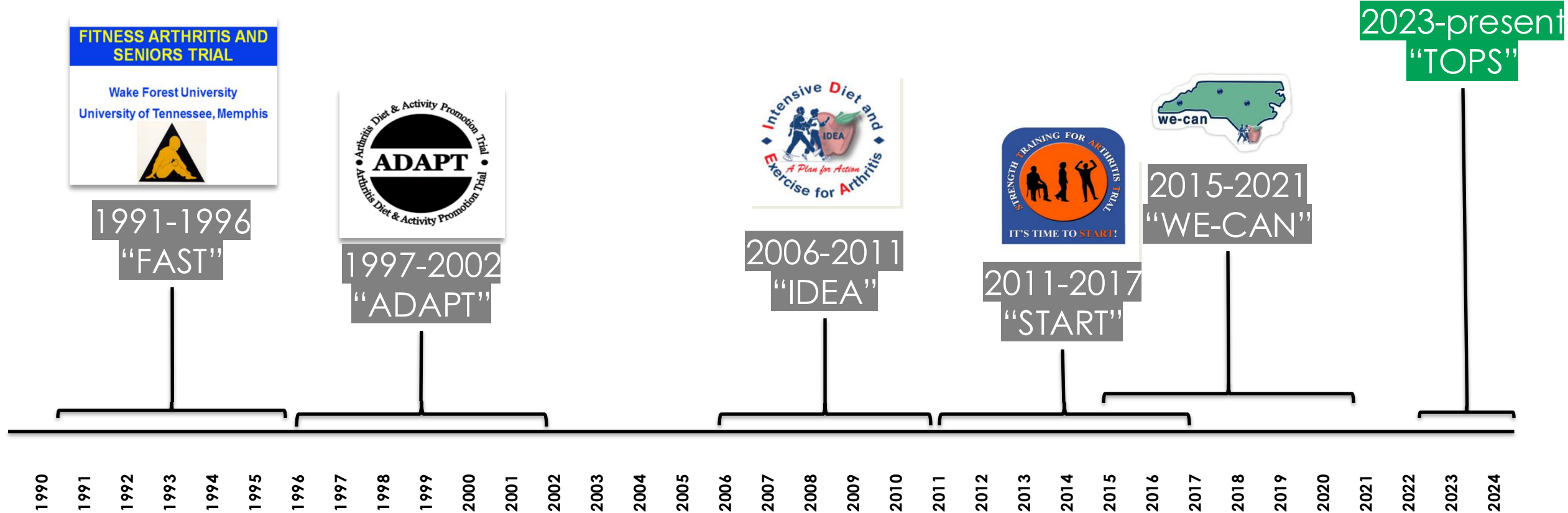


Erasmus MC

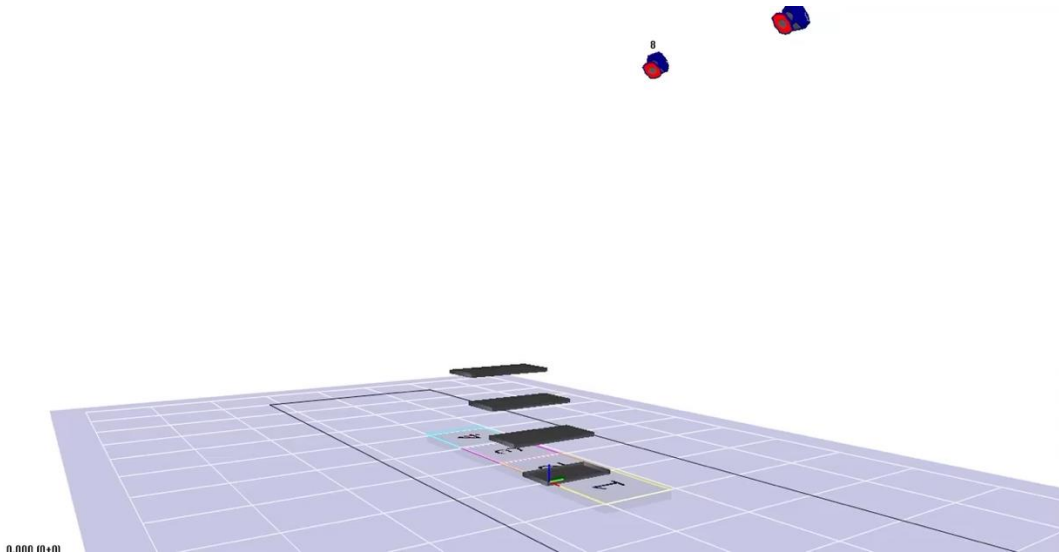


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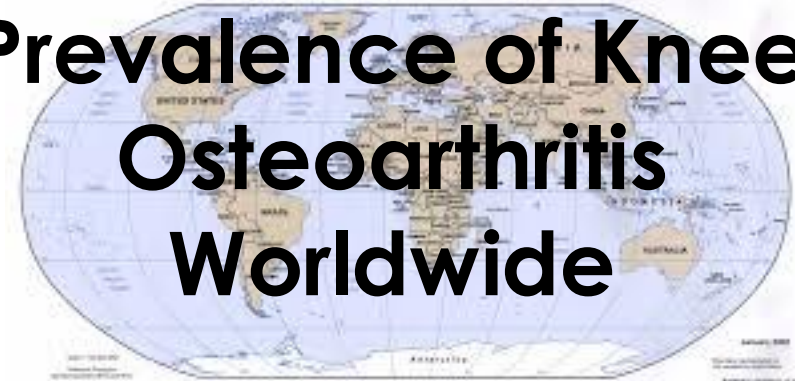
Over 30 years research focused on knee OA



Why Knee Osteoarthritis?



Prevalence of Knee Osteoarthritis Worldwide

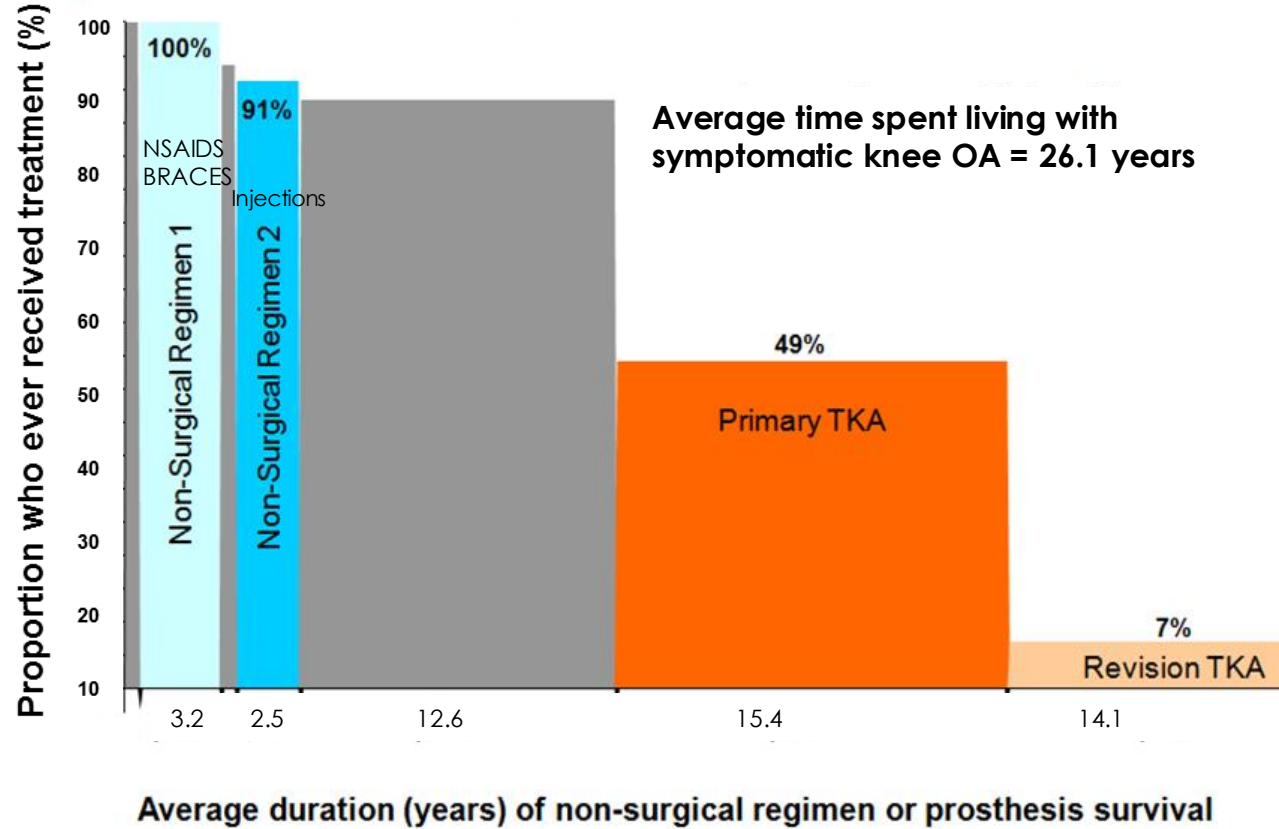


Overall	% world population	Men	% world population	Women	% world population
250 million	3.6%	89 million	2.6%	162 million	4.7%

Vos et al. Lancet, 2012

Leading cause of disability in adults

How Do We Treat Knee OA?

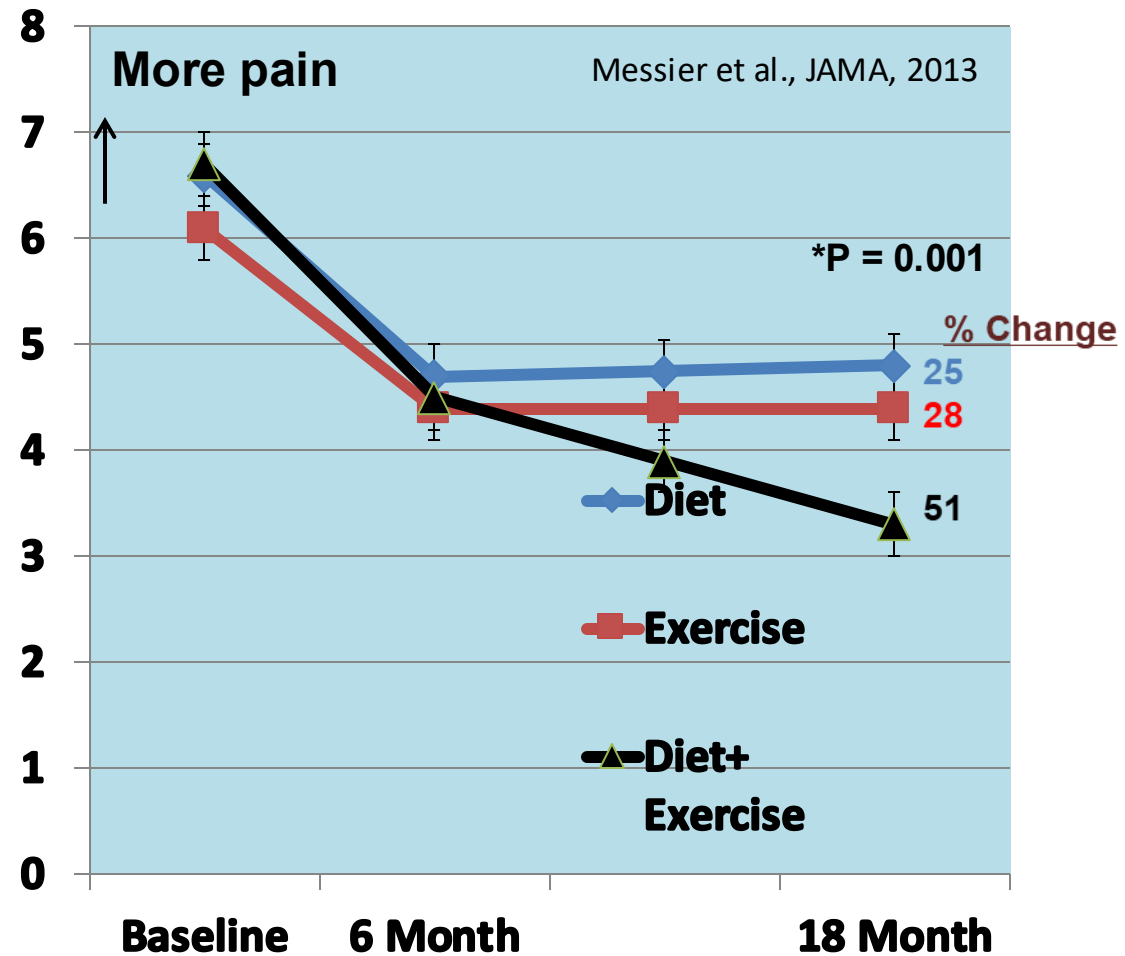


Losina, et al. Arthritis Care and Research, 2015.




Diet Plus Exercise Is Effective

- Dietary weight loss with exercise reduced pain by 51% over 18 months compared to only 25 and 28% with either intervention alone



*Adjusted for gender, BMI, baseline values

A close-up photograph of two elderly hands, one on the left and one on the right, resting on the forearms of a person. The skin is wrinkled and aged. The background is dark. The text "There is no cure" is centered in white.

There is no cure

Prevention vs Treatment

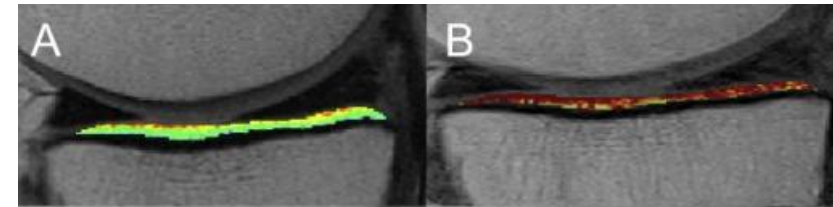
- We now address knee OA disease prevention because prevention of OA is preferable to treatment



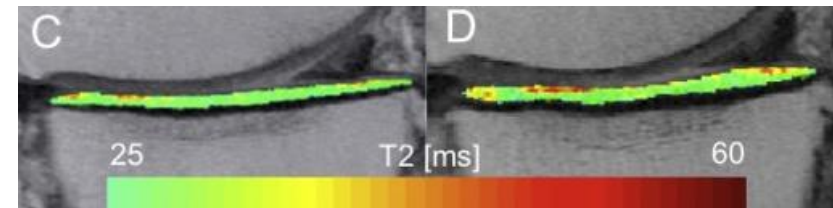
Osteoarthritis Initiative (OAI)

- Reduced degenerative cartilage changes are associated with weight loss, making it a possible preventive therapy for people at risk for knee OA.

Obese but weight stable
Baseline 48 months

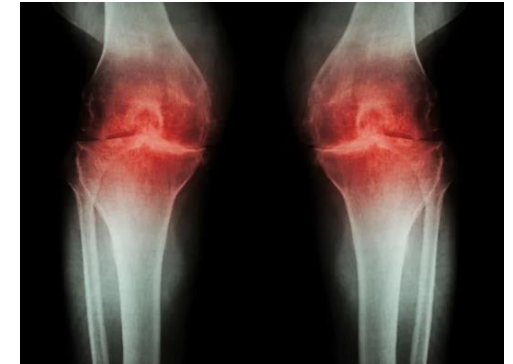
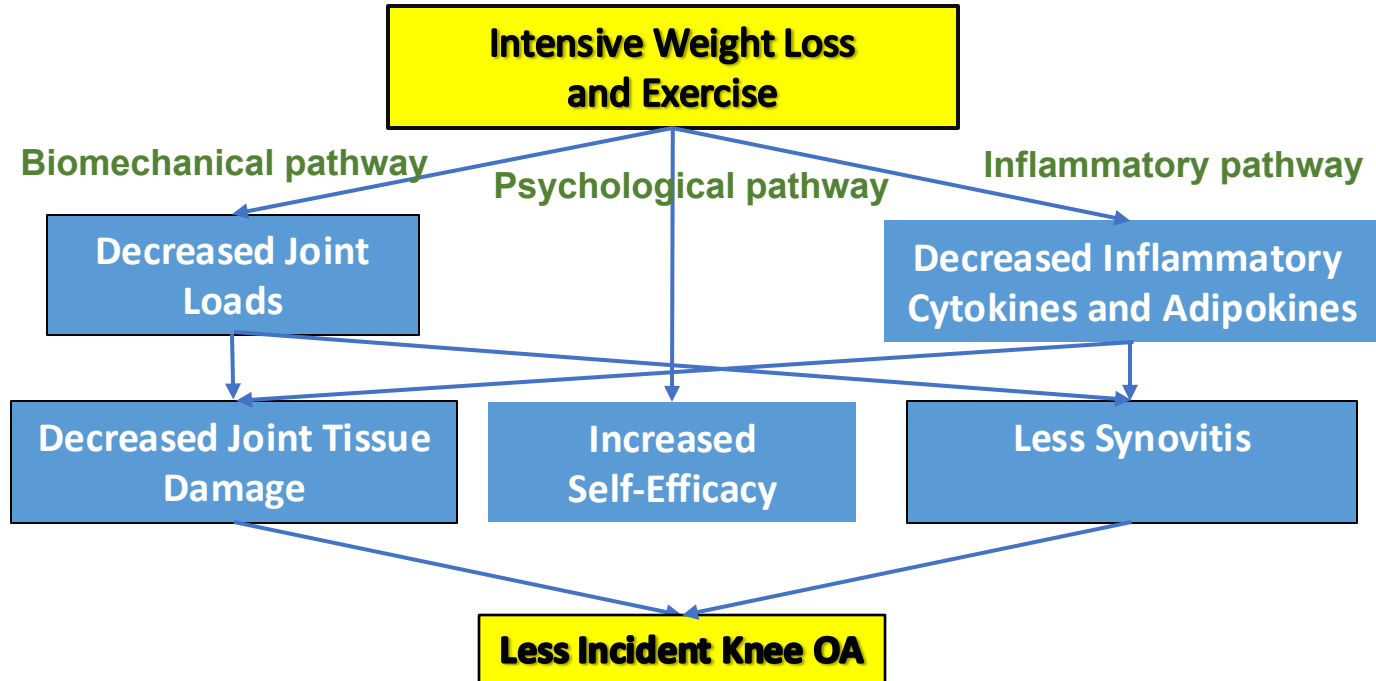


Obese then a >10% weight loss
Baseline 48 months



Gersing et al, 2016

Our mechanistic model shows that intensive weight loss and exercise impact the biomechanical and inflammatory disease pathways.



Self-efficacy acts as a mediator that influences pain and function

IDEA: Mechanistic Changes and Clinical Improvements

Intensive Weight Loss + Exercise

**Reduces Abnormal
Stress**

**Decreased Joint
Loads**

**Reduces Abnormal
Physiology
Lowers
Inflammation**

**Less Pain
Less Disability**



The Osteoarthritis Prevention Study (TOPS) - Specific Aims

Primary Aim

- Compare the effects of a 48-month intervention of dietary weight loss and exercise to an attention control group in preventing the development of structural (MRI) knee OA.

Secondary Outcomes

- Pain, function, 6-minute walk (measure of mobility)
- Health-related quality of life
- Self efficacy (measure of confidence)
- Knee joint compressive loads
- IL-6 (our measure of inflammation)
- Cost effectiveness



clinical sites

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