What Lifestyle Medicine Offers for Spondyloarthritis

Micah Yu MD, MHA, MS
About Me

• Completed my Rheumatology Fellowship at Loma Linda University in California
• Rheumatologist and Chief Medical Officer at the Institute of Plant Based Medicine in Newport Beach, California starting July 1, 2020
• Certified in Lifestyle Medicine
• Currently getting trained in Functional Medicine
Objectives

• What is spondyloarthritis
• Understand the gut microbiome and its role in spondyloarthritis
• Know the pillars of Lifestyle Medicine
  o Nutrition
  o Exercise
  o Sleep
  o Stress reduction
  o Smoking cessation
What is Spondyloarthritis?

“Spondyloarthritis is a type of arthritis that attacks the spine and, in some people, the joints of the arms and legs. It can also involve the skin, intestines and eyes. The main symptom (what you feel) in most patients is low back pain. This occurs most often in axial spondyloarthritis.” – American College of Rheumatology
Spondyloarthritis Family

- Ankylosing Spondylitis
- Psoriatic Arthritis
- Reactive Arthritis
- Inflammatory bowel disease Arthritis
- Anterior Uveitis
What Causes Spondyloarthritis?

Genetics

Environment

Immune Mediated Rheumatic Disease
The Microbiome

The Gut Microbiome in Spondyloarthritis
The Gut Microbiome in Spondyloarthritis
Allopathic Treatment

- **DMARDs**
  - Methotrexate
  - Sulfasalazine
  - Leflunomide

- **TNF inhibitors**
  - Adalimumab
  - Etanercept
  - Certolizumab
  - Golimumab
  - Infliximab

- **IL-17 Inhibitor**
  - Secukinumab
  - Ixekizumab

- **IL-12/23 inhibitor**
  - Ustekinumab

- **Jak inhibitor**
  - Tofacitinib
What other treatments are there?
What is Lifestyle Medicine?

Educating, equipping and empowering individuals with the information and resources they need to protect their health and fight disease.

*Lifestyle Medicine is the answer.*
LIFESTYLE MEDICINE FOCUSES ON 6 AREAS TO IMPROVE HEALTH

- Healthful eating of whole, plant-based food
- Increase physical activity
- Develop strategies to manage stress
- Cessation of tobacco
- Form & maintain relationships
- Improve your sleep

ZZZ
Nutrition
Which diet should we stick to?

Carnivore Diet
Vegan Diet
Keto Diet
Autoimmune Diet
Protocol Diet
Vegetarian Diet
Whole Food Plant Based
Pescatarian
Mediterranean
S.A.D.

Standard American Diet
Fiber

• What % of America meets the minimum requirement for daily dietary fiber intake per day of 25 grams for women and 38 grams for men?

• A – 70%
• B – 50%
• C – 30%
• D – 15%
• E – 5%
Foods With Fiber
The Blue Zones

The Five Original Blue Zones

LOMA LINDA, CALIFORNIA
SARDINIA, ITALY
NIKOREIA, GREECE
OKINAWA, JAPAN
NICOLA, COSTA RICA
The benefits of dietary fiber

Over 200 Studies included
- 15–30% decrease in all-cause and cardiovascular related mortality, and incidence of coronary heart disease, stroke incidence and mortality, type 2 diabetes, and colorectal cancer when comparing the highest dietary fibre consumers with the lowest consumers
- Significantly lower bodyweight, systolic blood pressure, and total cholesterol when comparing higher with lower intakes of dietary fibre

Risk reduction associated with a range of critical outcomes was greatest when daily intake of dietary fibre was between 25 g and 29 g
Anti Inflammatory

- Fiber – minimal recommendation is 25g/day

Table 3
Predicted Marginal Risk Ratios for Cardiometabolic Risk Factors, based on Quintiles of Dietary Fiber Intake and other Individual Covariates – Non-pregnant Adults 20+ Years in NHANES 1999–2010

<table>
<thead>
<tr>
<th>Quintiles of Dietary Fiber</th>
<th>Metabolic Syndrome</th>
<th>Inflammation</th>
<th>Obese</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0–8.1 g</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>8.1–12.0 g</td>
<td>0.91 (0.82–1.00)</td>
<td>0.90 (0.84–0.95)</td>
<td>0.94 (0.88–1.00)</td>
</tr>
<tr>
<td>12.0–16.2 g</td>
<td>0.85 (0.76–0.93)</td>
<td>0.86 (0.80–0.93)</td>
<td>0.89 (0.83–0.95)</td>
</tr>
<tr>
<td>16.2–22.4 g</td>
<td>0.84 (0.75–0.93)</td>
<td>0.76 (0.70–0.82)</td>
<td>0.85 (0.80–0.92)</td>
</tr>
<tr>
<td>22.5–147.6 g</td>
<td>0.78 (0.70–0.88)</td>
<td>0.66 (0.61–0.72)</td>
<td>0.77 (0.71–0.84)</td>
</tr>
</tbody>
</table>

- Patients ages 45-79 followed for 8 years
- “high intake of dietary total or grain fiber, particularly the recommended daily fiber average intake of 25 gm per day, is associated with a lower risk of developing moderate or severe knee pain over time.”
Phytonutrients
Eat the Rainbow
Omega 3 and 6 Fatty Acids

Omega 6

Omega 3
Omega 3 and 6 Fatty Acids Dynamics

Balic et al. Int J of Mol Sciences 2020
Inflammatory Signals vs Anti Inflammatory Signals
Physical Activity
How much exercise should we get?

How much moderate intensity exercise should we be getting a week according to the United States Health and Human Services?

- A – 15 minutes
- B – 30 minutes
- C – 45 minutes
- D – 1.5 hours
- E – 2.5 hours
How much exercise should we get?

• “For substantial health benefits, adults should do at least 150 minutes (2 hours and 30 minutes) to 300 minutes (5 hours) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) to 150 minutes (2 hours and 30 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity. Preferably, aerobic activity should be spread throughout the week.” – US Dept of Health and Human Services
Benefits of Exercise

THE JOURNAL OF ALTERNATIVE AND COMPLEMENTARY MEDICINE
Volume 25, Number 10, 2019, pp. 1054-1061
© Mary Ann Liebert, Inc.
DOI: 10.1089/acm.2018.0405

One Year of Pilates Training for Ankylosing Spondylitis: A Pilot Study

Elena Sonsoles Rodríguez-López, PT, DO, PhD,1 Victoria Eugenia Garnacho-Gamacho, PT, MS,1
Jesus Guodémar-Pérez, PT, PhD,1 Pablo García-Fernández, PT, PhD,2
and Montserrat Ruiz-López, NUR, PhD2

Abstract

Objectives: This prospective long-term study examines the effects of a Pilates training intervention on spinal mobility, disease activity, and functional capacity in patients with ankylosing spondylitis (AS).

Design: The study design was quasi experimental and single blind.

Subjects: 11 subjects were recruited among patients undergoing followup of AS diagnosed according to modified New York criteria at the rheumatology clinic.

Interventions: Over a 12-month period, 11 patients completed a training program consisting of two sessions per week of selected Pilates exercises. There was no control group.

Outcome measures: The primary outcome variable was functional capacity measured using the Bath Ankylosing Spondylitis Functional Index (BASFI) questionnaire. Exploratory outcome measures were Bath Ankylosing Spondylitis Disease Activity Index (BASDAI), Bath Ankylosing Spondylitis Metrology Index (BASMI), and chest expansion and fingertip-to-floor (FTF) test. Baseline and follow-up examinations were performed immediately before the intervention and during the course of treatment at 4, 8, and 12 months.

Results: After the exercise intervention, improvements were observed in BASFI (77.51%), BASDAI (64.39%) and BASMI (58.95%) scores, FTF distance (71.92%), and chest expansion (88.74%).

Conclusions: These findings suggest that Pilates training could be useful in AS patients and provide direction for larger controlled trials designed to determine the therapeutic benefits of Pilates in the management of these patients.
Benefits of Exercise

- 35 studies involved in this review
- Positive effect of exercise on pain and disease activity
- Results support educational sessions as well as home based programs
Lack of exercise can contribute to inflammation.
Stress
What Can We Do To Reduce Stress?
- Observational Study on 92 AS patients
- “We observed significant improvements in disease activity, physical mobility, and quality of life in AS patients who quit smoking.”
Sleep
How much sleep should we get?

- A – 1-2 hours
- B – 3-4 hours
- C – 5-6 hours
- D – 7-9 hours
- E – 10-12 hours
How Sleep Affects Spondyloarthritis

Sleep in ankylosing spondylitis and non-radiographic axial spondyloarthritis: associations with disease activity, gender and mood

Alison Wadeley1 · Emily Clarke2 · Shaaron Leverment1 · Raj Sengupta2

Received: 4 March 2017 / Revised: 28 December 2017 / Accepted: 10 January 2018 / Published online: 19 January 2018 © International League of Associations for Rheumatology (ILAR) 2018

Abstract
The study aims were to assess the prevalence of good or poor sleep in a cohort of axial spondyloarthritis patients and to investigate its correlation with a range of objectively and subjectively measured variables in order to develop a model for distinguishing good from poor sleepers. Five hundred ninety-eight patients with ankylosing spondylitis and 61 with non-radiographic axial spondyloarthritis completed the Jenkins Sleep Evaluation Questionnaire. Measures of disease activity, mobility, function, mood, fatigue, quality of life, work productivity, night-time pain and general health were gathered. Patients with ankylosing spondylitis or non-radiographic axial spondyloarthritis were initially compared. With the exception of waking up tired less often and having lower mobility and functioning, the two groups were similar so were combined for subsequent analysis. Twenty-nine percent of all patients were classified as good sleepers and 19% as poor sleepers. Poor sleepers had higher disease activity and fatigue scores and more night-time back pain than good sleepers. They reported poorer quality of life, general health, mood and work-related measures. A model incorporating mood, gender, fatigue and objective and subjective judgements of disease activity correctly classified 87.3% of good and poor sleepers. Poor sleep was strongly associated with poor mood, female gender, greater fatigue, greater disease activity (specifically, spinal pain and stiffness) and better mobility; however, the direction of causality between poor sleep and markers of active disease was undetermined. This study also highlights the need to standardise the measurement of sleep disturbance in axSpA to facilitate comparisons between patient groups and interventions.

Poor sleepers had higher disease activity and fatigue scores and more night-time back pain than good sleepers.
Thank you

- IG and FB: @myautoimmunemd
- Rheumatologist at the Institute of Plant Based Medicine in Newport Beach, California