



# Expanding Access to Integrative Care for Diverse Communities of Patients with Auto-Immune Disease Utilizing Virtual Care and Technology

Myles Spar, MD, MPH, FABIM  
Sherry Brewer, MD



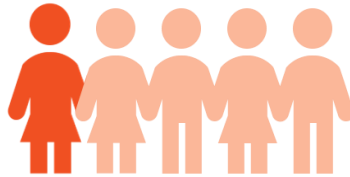
# Expanding Access to Integrative Care for Auto-immune Disease among Diverse Communities Utilizing Virtual Care and Technology

February 2024



# Immune Mediated Inflammatory Diseases (IMIDs)

Roughly **50 million** Americans suffer from one or more Autoimmune Conditions<sup>1</sup>



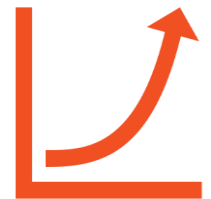
Of those with Rheumatoid Arthritis (RA) alone, **50% become unable to work** within 10 years of disease onset and drop out of the workforce<sup>2</sup>



Autoimmune Disease is the **third most costly disease category** by non-discounted spending behind only antidiabetics and oncologics<sup>3</sup>

1. <https://my.clevelandclinic.org/health/diseases/21624-autoimmune-diseases>
2. [http://www.diabetesed.net/page/\\_files/autoimmune-diseases.pdf](http://www.diabetesed.net/page/_files/autoimmune-diseases.pdf)
3. <https://www.mymee.com/resources/autoimmune-disease-employee-productivity>

There was a **63% increase in patients** treated for Autoimmune Conditions and **an added \$3.9 billion** in cost between 2013 and 2018<sup>3</sup>





*Empowering rheumatology professionals to excel in their specialty*

2200 Lake Boulevard NE, Atlanta, GA 30319  
Phone: (404) 633-3777 • Fax (404) 633-1870 • [www.rheumatology.org](http://www.rheumatology.org)

**2022 American College of Rheumatology (ACR) Guideline for Exercise, Rehabilitation,  
Diet, and Additional Integrative Interventions for Rheumatoid Arthritis**

**Guideline Summary**

Revised January 13, 2023



# Lifestyle Approaches for IMIDs

**Table 1. Recommendations on integrative interventions for the management of rheumatoid arthritis (RA)**

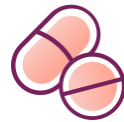
Exercise	Rehabilitation	Diet	Additional
Consistent engagement in exercise (++)	Comprehensive occupational therapy (+)	Mediterranean-style diet (+)	Standardized self-management program (+)
Aerobic exercise (+)	Comprehensive physical therapy (+)	Against formally defined diet other than Mediterranean-style (-)	Cognitive behavioral therapy and/or mind-body approaches (+)
Aquatic exercise (+)	Hand therapy exercises (+)	Against dietary supplements (-)	Acupuncture (+)
Resistance exercise (+)	Splinting, orthoses, compression, bracing, and/or taping (+)		Massage therapy (+)
Mind-body exercise (+)	Joint protection techniques (+)		Thermal modalities (+)
	Activity pacing, activity modification, energy conservation, and/or fatigue management (+)		Against electrotherapy (-)
	Assistive devices, adaptive equipment, and/or environmental adaptations (+)		Against chiropractic therapy (-)
	Vocational rehabilitation, work site evaluations and/or modifications (+)		



# Bundled Programs for IMIDs (Rheumatoid Arthritis, Psoriasis, Psoriatic Arthritis & Ankylosing Spondylitis)



Physician-directed care  
(we are the patient's specialist)



Medication management and  
adherence support



Address root cause to create  
disease reversal



Continuous improvement and  
outcomes tracking

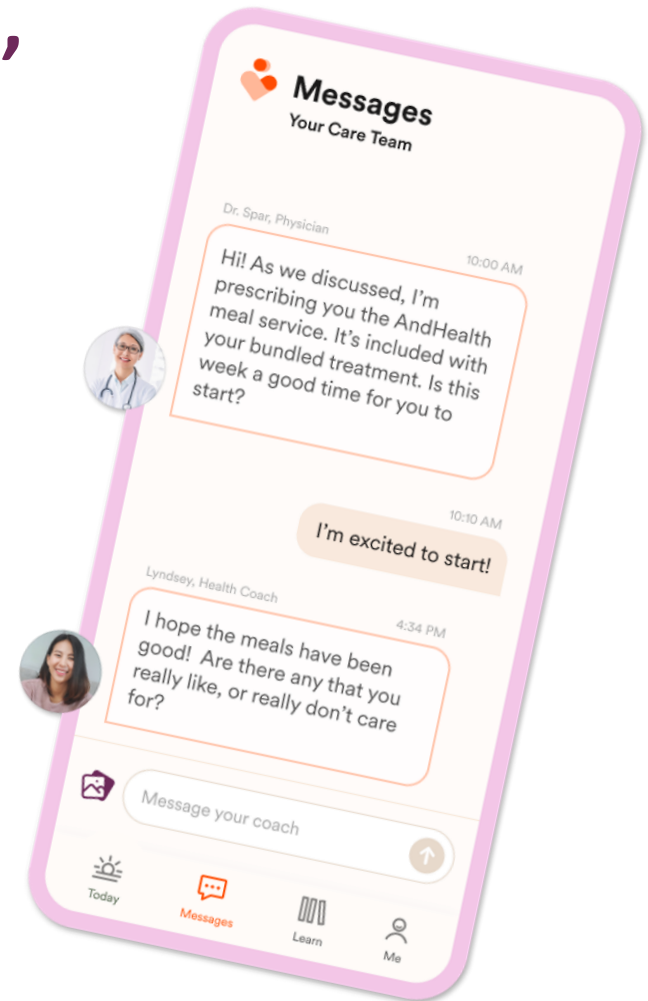


Continuous support from care team  
through app



Value-based financial model

- Patients pay ordinary co-pays & deductibles



# Building Programs

## Foundational Protocols Informed

By:



The Most Up-to-Date  
Guidelines for Therapies



Advanced  
Understanding of  
IMID Pathophysiology



Root Cause Approach  
to Chronic Disease

Interpreted through  
Each Patient's  
Unique Story



PsArth

RA

Psor

UC

Crohn's

- Achieve Clinical Remission Based on Guideline Definitions
- Begin Rebuilding Phys. Resilience and Metabolic Reserves

- Sustain and "Deepen" Remission
- Tissue Healing & Reduction of the Burden of Co-Morbidities

- Achieve Guideline Criteria for De-escalation
- Sustain Remission with Lifestyle alone if safely possible

## Personalized Care Delivered Through:



Optimizing  
Medications based  
on Guidelines and  
Patient Rx History

Delivered By Informed  
and Inspired Virtual  
Care Team



Health Coach Led  
Implementation of  
Prioritized Lifestyle  
Modification



Adjunct Therapies to  
Address Specific Root  
Causes, Mediators of  
Disease or Co-morbid  
pathophysiology.





**WHITE PAPER**

# Implementing Personalized Dietary Interventions for Immune-Mediated Inflammatory Diseases.

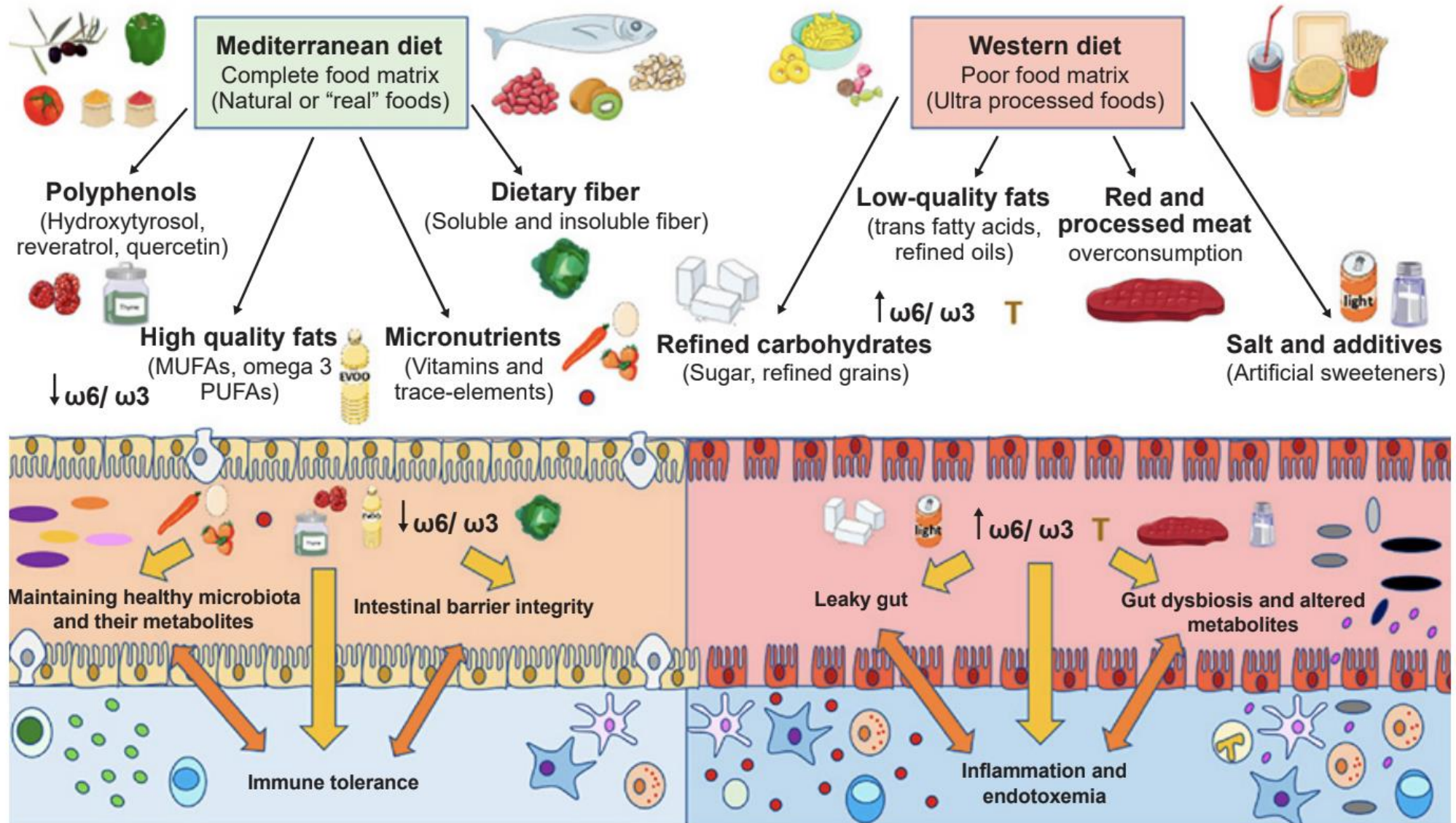
Thomas G. Williams Ph.D. & Jill Weintraub M.D.

# The Journey to Remission



**Goal:** To help each patient realize long-lasting remission of their autoimmune condition and attain their highest possible health status with the minimum possible reliance on pharmaceutical support.







# Autoimmune Disease + HPA Axis Dysfunction

[Review](#) > [Autoimmun Rev.](#) 2018 Oct;17(10):967-983. doi: 10.1016/j.autrev.2018.04.005.

Epub 2018 Aug 14.

## The role of stress in the mosaic of autoimmunity: An overlooked association

Kassem Sharif <sup>1</sup>, Abdulla Watad <sup>1</sup>, Louis Coplan <sup>2</sup>, Benjamin Lichtbroun <sup>2</sup>, Alec Krosser <sup>2</sup>,  
Michael Lichtbroun <sup>2</sup>, Nicola Luigi Bragazzi <sup>3</sup>, Howard Amital <sup>1</sup>, Arnon Afek <sup>4</sup>,  
Yehuda Shoenfeld <sup>5</sup>

Affiliations + expand

PMID: 30118900 DOI: [10.1016/j.autrev.2018.04.005](https://doi.org/10.1016/j.autrev.2018.04.005)





# Autoimmune Disease + Movement

## Exercise as a therapeutic tool to counteract inflammation and clinical symptoms in autoimmune rheumatic diseases

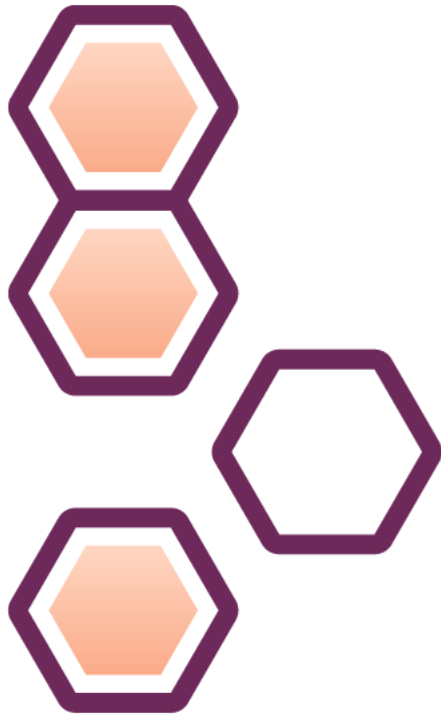
Luiz Augusto Perandini <sup>1</sup>, Ana Lúcia de Sá-Pinto, Hamilton Roschel, Fabiana Braga Benatti, Fernanda Rodrigues Lima, Eloisa Bonfá, Bruno Gualano

Affiliations + expand

PMID: 22776785 DOI: [10.1016/j.autrev.2012.06.007](https://doi.org/10.1016/j.autrev.2012.06.007)

Perandini LA, de Sá-Pinto AL, Roschel H, et al. Exercise as a therapeutic tool to counteract inflammation and clinical symptoms in autoimmune rheumatic diseases. *Autoimmun Rev.* 2012;12(2):218-224. doi:10.1016/j.autrev.2012.06.007

# Autoimmune Disease + Sleep



- Acute & chronic sleep loss can accelerate autoimmune disease progression through several pro-inflammatory pathways.<sup>1</sup>
- Patients with non-apnea related sleep disorders are at increased risk for developing autoimmune disease.<sup>2</sup>
- Sleep disturbances in patients with rheumatoid arthritis are associated with increased pain, fatigue and depression.<sup>3</sup>

<sup>1</sup>Hurtado-Alvarado G, Pavón L, Castillo-García SA, et al. Sleep loss as a factor to induce cellular and molecular inflammatory variations. *Clin Dev Immunol*. 2013;2013:801341. doi:10.1155/2013/801341

<sup>2</sup>Hsiao YH, Chen YT, Tseng CM, et al. Sleep disorders and increased risk of autoimmune diseases in individuals without sleep apnea. *Sleep*. 2015;38(4):581-586. Published 2015 Apr 1. doi:10.5665/sleep.4574

<sup>3</sup>Luyster FS, Chasens ER, Wasko MC, Dunbar-Jacob J. Sleep quality and functional disability in patients with rheumatoid arthritis. *J Clin Sleep Med*. 2011;7(1):49-55.

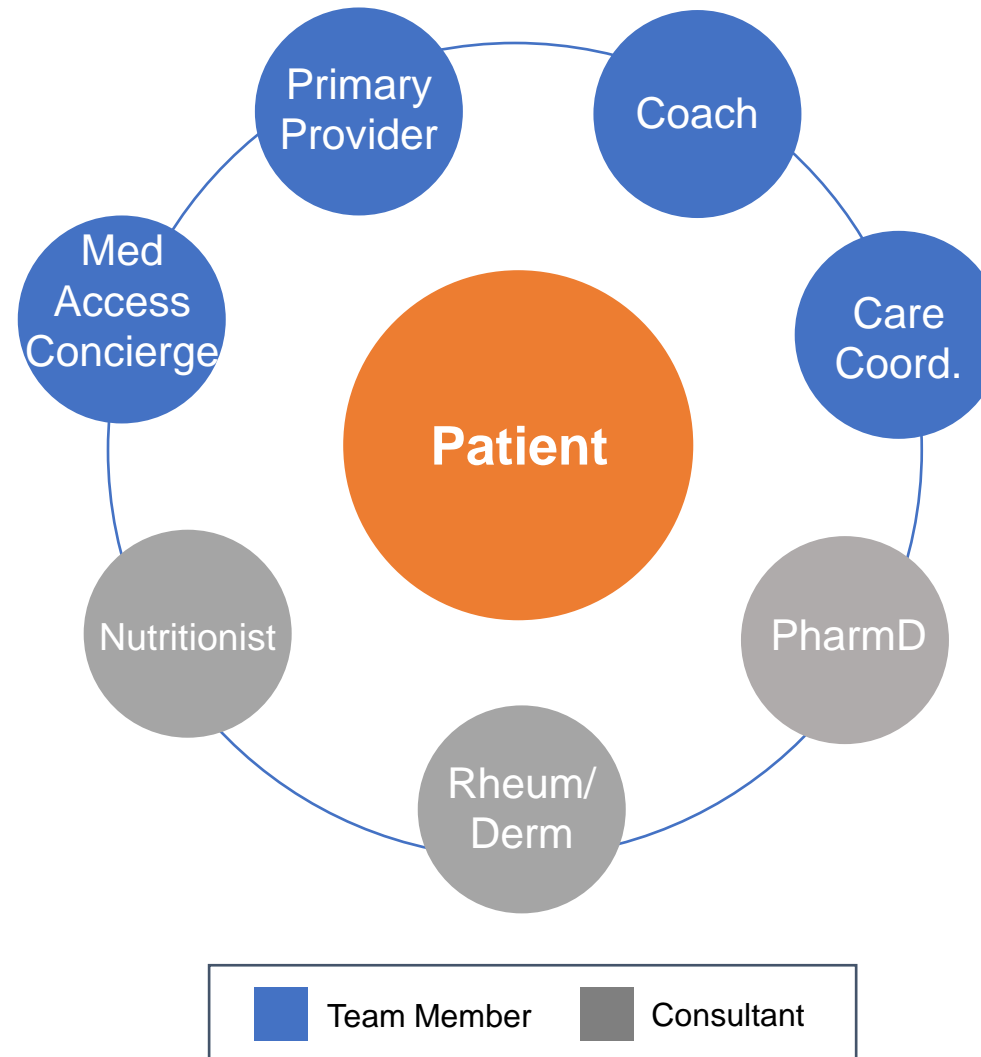


# Program Features



# Care Team

Grand Rounds/Huddle  
Collaboration





# Model of a Solution

**Health coaches** work with patients to develop behavior changes for the specific health areas that pertain to the treatment plan.

Areas include:

- Stress reduction
- Movement
- Sleep
- Nutrition

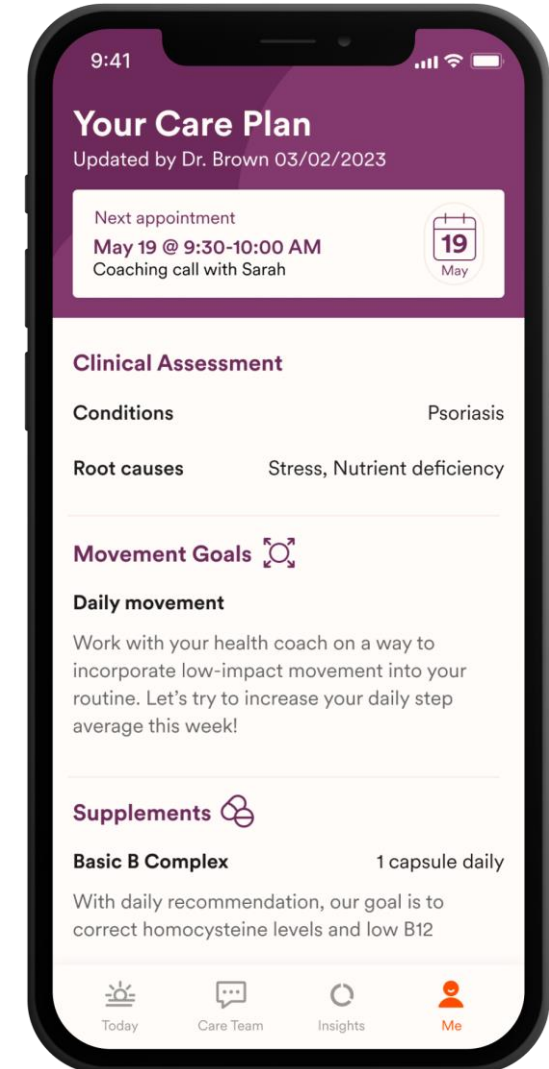


**Specialized physicians** design a patient-specific treatment plan.

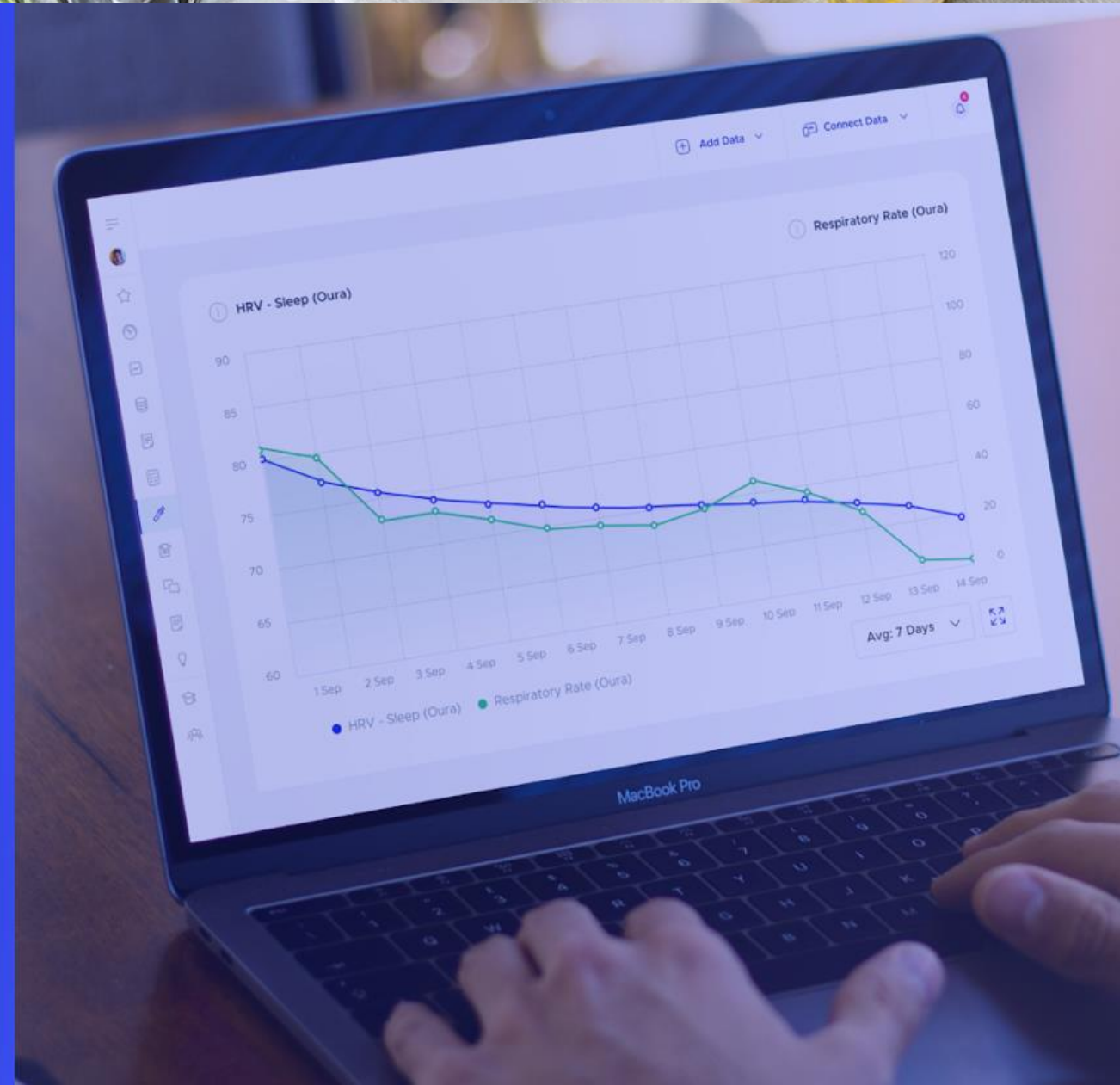
Experts include:

- Rheumatologists
- Dermatologists
- Pharmacists
- Nutritionists

## Reversal



**Tackle autoimmune  
conditions with  
digital therapeutics  
powered by Oura and  
Heads Up.**







#### Oura Ring:

- Tracks sleep
  - Deep
  - REM
  - Light
  - Oxygen levels
- Tracks activity
- Tracks HRV (heart rate variability): a reliable biomarker of stress

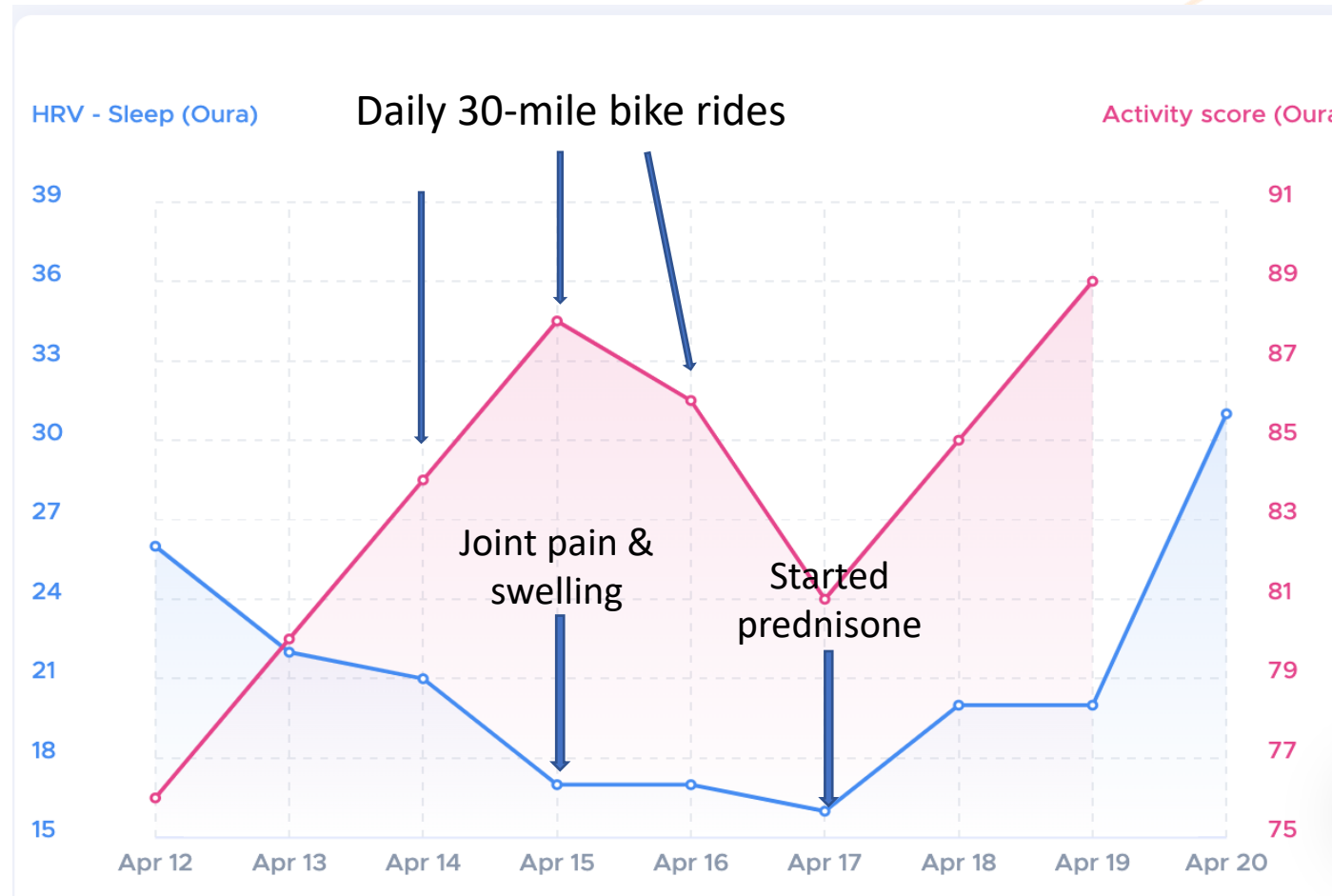
#### Professor

## Patient Case Study

- EA is a 55-year-old male with rheumatoid arthritis
- **Social:** Lots of stress. Professor trying to make tenure. 5 adopted children, 3 are in trouble with the law. No tobacco or alcohol.
- **Nutrition:** likes vegetables; cooks at home; makes his own bread
- **Movement:** Bikes 16 miles every other day and does high intensity sprints; lifts weights 3 times a week for 1 hour. Avoids yoga which is painful. Walks a lot.
- **Sleep:** poor; has periodic limb movement disorder; trouble falling & staying asleep
- He was seen for follow-up and was having a flare of his arthritis. He started prednisone two days ago and his symptoms were improving.



## Decrease in heart rate variability due to overtraining correlating with physical symptoms of rheumatoid arthritis.





## Heart Rate Variability Predicts Levels of Inflammatory Markers: Evidence for the Vagal Anti-Inflammatory Pathway

[Timothy M. Cooper](#),<sup>1</sup> [Paula S. McKinley](#),<sup>2,3</sup> [Teresa E. Seeman](#),<sup>4</sup> [Tse-Hwei Choo](#),<sup>3</sup> [Seonjoo Lee](#),<sup>2,3</sup> and  
[Richard P. Sloan](#)<sup>2,3</sup>

Because heart rate variability (HRV) is a well-established and reliable index of cardiac vagal regulation, it should be inversely related to levels of inflammatory markers. Many studies show this predicted inverse relationship. For example, decreased low frequency HRV (LF-HRV) was found to be associated with increased levels of C-reactive protein (CRP) in a study of 1,601 healthy young people ([Haarala 2011](#)). A



SYSTEMATIC REVIEW article

Front. Physiol., 09 January 2020

Sec. Exercise Physiology

Volume 10 - 2019 | <https://doi.org/10.3389/fphys.2019.01550>

# Inflammatory Effects of High and Moderate Intensity Exercise—A Systematic Review



Érica Cerqueira<sup>1</sup>,



Daniel A. Marinho<sup>2,3\*</sup>,



Henrique P. Neiva<sup>2,3</sup> and

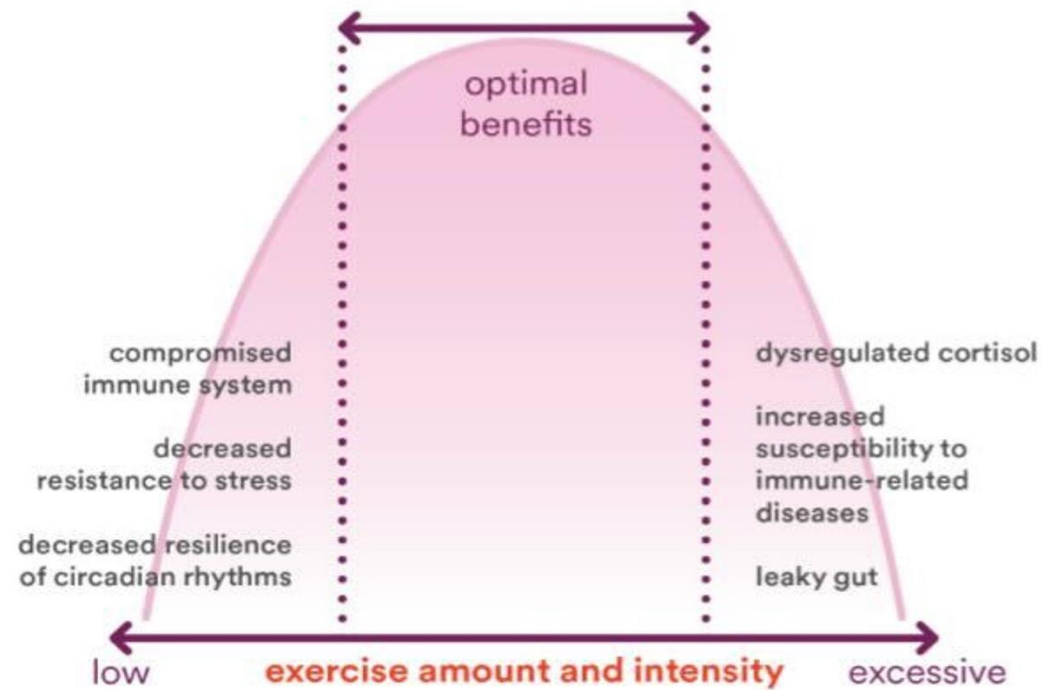


Olga Lourenço<sup>1,4</sup>

**Conclusion:** In summary, intense long exercise can lead, in general, to higher levels of inflammatory mediators, and thus might increase the risk of injury and chronic inflammation. In contrast, moderate exercise or vigorous exercise with appropriate resting periods can achieve maximum benefit.



# The Exercise Bell Curve



From *The Paleo Approach* by Dr. Sarah Ballantyne





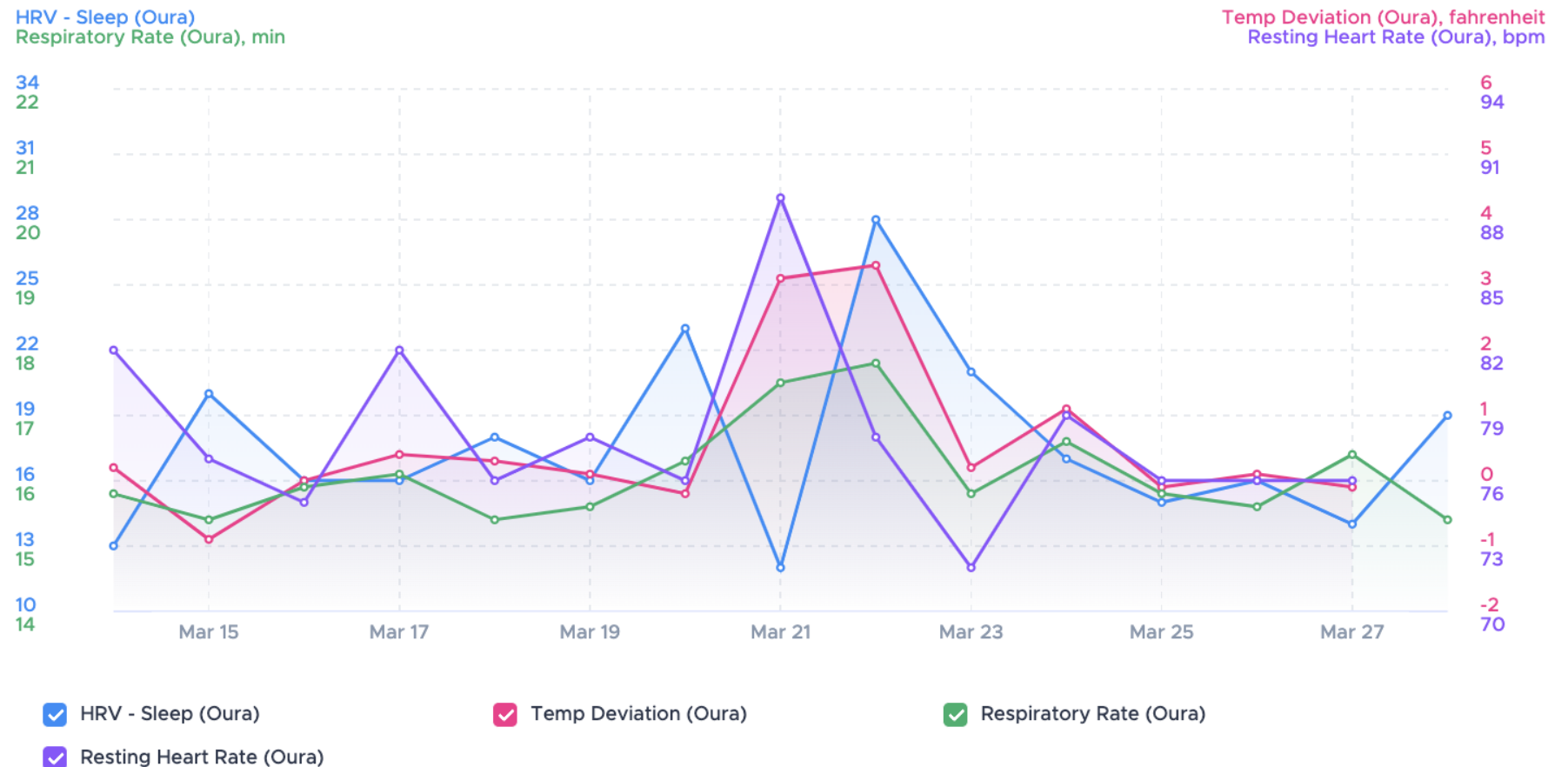
# Patient Recommendations

- Added anti-inflammatory supplements
- Monitor HRV and use it to guide exercise activities for the day
- If HRV drops, take 1-2 rest days until HRV improves
- Avoid multiple days of high intensity exercise and intersperse with restorative training
- Work on other stress reducing techniques like meditation and breathing to improve HRV

## Autoimmune Patient

- Patient started new supplements & had GI distress
- Started feeling chilled & achy
- Oura Data reviewed & showed:
  - ↑ Temp 3 degrees
  - ↑ Heart Rate
  - ↑ Respiratory Rate
  - ↓ HRV
- Patient referred for Covid testing & tested positive

## Patient A - Heart rate variability, resting heart rate, temperature deviation and respiratory rate for patient experiencing GI distress due to COVID infection.



# Nutrition

# Personalized Supplements

---

Nutrient Repletion

---

Decrease Inflammation

---

Improve Digestion

---

Support Protective Barrier & Immune Interface







---

**Prolon:** 5 Day Fasting Mimicking Diet

---

---

Backed by clinical studies

---

---

Benefits of water fasting but uses  
plant-based foods

---

---

Promotes intracellular clean-up and  
renewal

---

---

Easy and convenient

---

---

Gives patient a quick win

---



Engineer

## Patient Case Study

- 34-year-old male with symptoms of psoriasis since age 12
- Topicals didn't work
- Declined biologic therapy due to side effects
- Celiac - didn't believe diagnosed; reduced but didn't eliminate gluten
- Providers never told him diet could impact psoriasis
- After 5 days of Prolon, dramatic improvement in rash & lost 13 lbs.



Day 1



Day 5

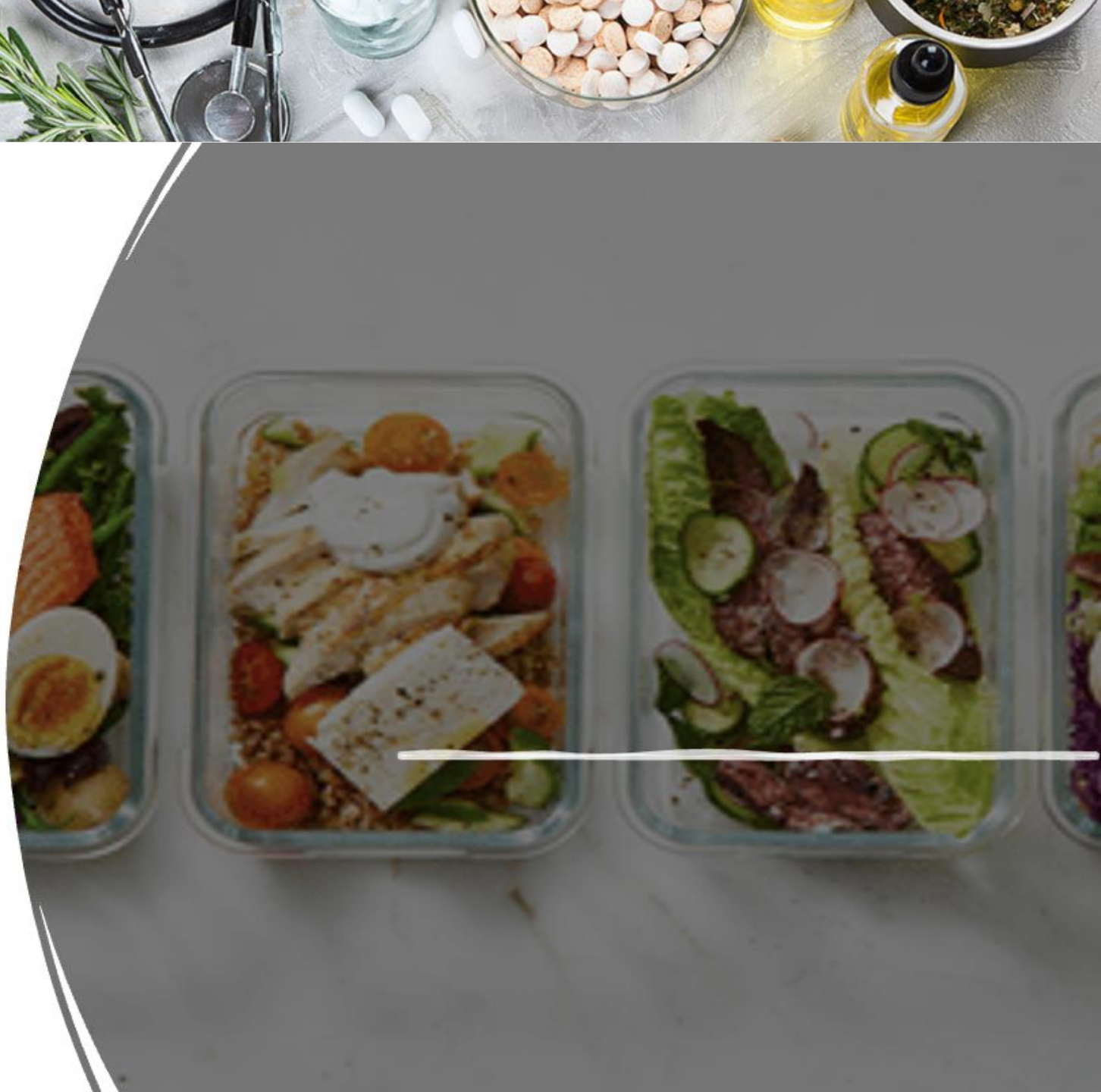


2 Months



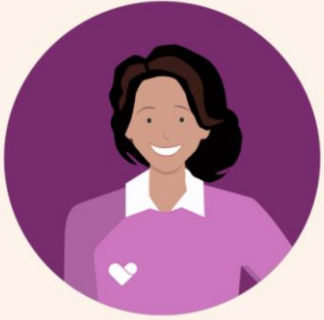
# Medically Tailored Meals

---



# Patient Case Studies





### Patient Why:

Chronic disease runs in family. Wants to lead a healthier life.

### Patient Goals:

- Minimize skin symptoms
- Prevent development of psoriatic arthritis

# Patient Case Study

AI Patient

**Diagnosis:** Psoriasis

**When:** ~ 2011

**Symptoms:** scalp plaques, palm and shin rashes, hair loss, brittle nails

Previously attempted therapeutic approaches:

- Hypoallergenic shampoo and soaps
- Reduced alcohol intake
- Healthier nutritional choices
- Cooking more meals at home
- Tiny Habits



# AndHealth Treatment Plan

---

## Nutrition

- ❖ Gluten & dairy free
- ❖ Prolon
- ❖ Increase protein and omega-3 intake

## Stress management

- ❖ Mindfulness
- ❖ Breathwork

## Supplements

- ❖ Replenish nutrient levels
- ❖ Decrease inflammation
- ❖ Balance hormones

## Movement/Activity

- ❖ Continue aerobic activity
- ❖ Increase resistance training



Before



After



## Week 5 Results

- ❖ Plaques and rashes resolved
- ❖ Reduced swelling in hands
- ❖ Hair and nails are growing back after years of being brittle and falling off/out
- ❖ Morning joint pain is more mild and resolves quickly
- ❖ Hot flashes are naturally subsiding (without medication or supplements)
- ❖ Losing inflammatory weight

*"8 days in gluten and dairy free and my palms are significantly better! They have not been totally clear for over 12 years!"*





## AI Patient

# Patient Case Study

- DG is a 57-year-old female with psoriasis in remission on Tremfya wanting to get off of it but when was late for doses would start to get itching of skin with new plaques starting to develop
- **Nutrition:** No specific diet with moderately high blood sugar; craves sweets
- **Movement:** Regular exercise
- **Stress:** No regular stress management practice; HRV averaging 20

Just before due for next dose, fasting mimicking diet followed by meal delivery to train on auto-immune elimination diet esp minimizing sugar; added multi-pronged supplement protocol for gut healing and inflammation; implemented breathwork practice  
Successfully delaying subsequent dose by 2 weeks and then by 4 weeks w/o flare



# Real World Challenges



Establishing trust as a  
virtual provider



Care team coordination



Knowledge management  
(capturing and  
disseminating insight from  
case reviews and  
emerging science)



Time efficiency



Mastery of our own data  
from so many sources



Standardization of care  
delivery for personalized  
programs



Sustaining engagement  
over time



Supplement adherence

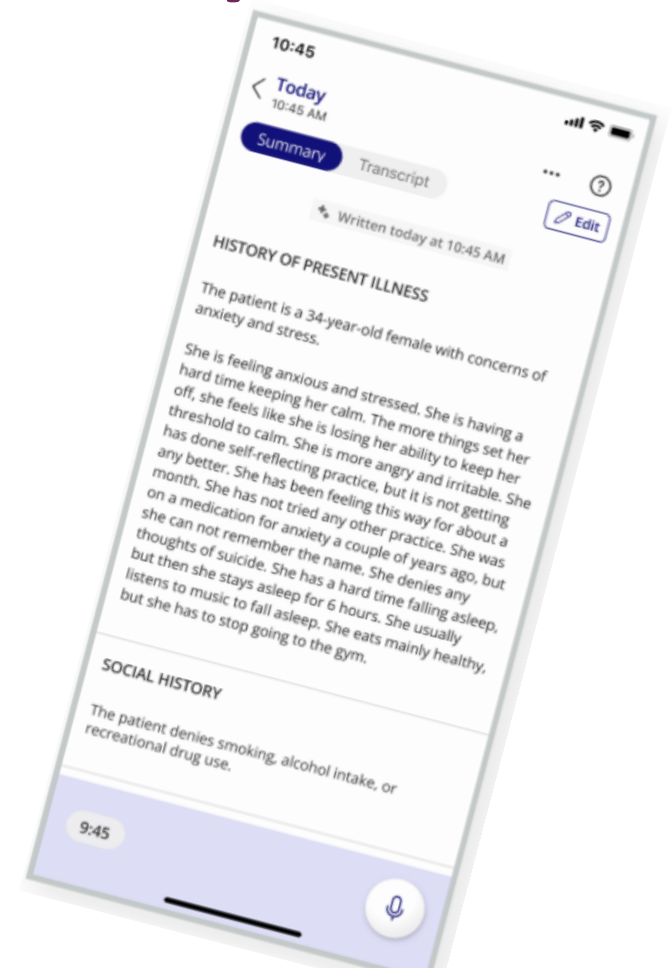
# Implementation: Opportunities for AI



# Documentation Dragon<sup>®</sup> Ambient eXperience (DAX<sup>™</sup>)

## What is it?:

- Mobile app captures a multi-party conversations
- Uses AI to create clinical documentation automatically.
- Works seamlessly with electronic health records.
- Customizable templates.







## Documentation

# Dragon<sup>®</sup> Ambient eXperience (DAX<sup>™</sup>)

The positive impact on care delivery

7 min

saved per encounter,  
reducing documentation  
time by 50%

70%

reduction in feelings of  
burnout and fatigue

3 of 4

physicians state  
DAX improves  
documentation quality

85%

of patients say their  
physician is more  
personable and  
conversational



# Knowledge Management

## unriddle



- Custom AI using any document as a data set
- Quickly access information
- Simplifies complex documents and provides quick insights
- Optimizes work processes





# ChatGPT

- Food Planning
- Shopping Lists
- Recipes





**Myles Spar, MD, MPH, ABOIM**  
**[Mspar@andhealth.com](mailto:Mspar@andhealth.com)**

**Sherry Brewer, MD, ABOIM**  
**[Sbrewer@andhealth.com](mailto:Sbrewer@andhealth.com)**





**Saturday 12:30pm – 1:30pm**

**Expanding Access to Integrative Care for  
Diverse Communities of Patients with  
Auto-Immune Disease Utilizing Virtual  
Care and Technology**

Please scan this QR code on you mobile  
or tablet device to access the session feedback survey



Expanding access to integrative care for d  
iverse communities of patients with auto-i  
mmune disease utilizing virtual care and t  
echnology