Attaining Your Optimal Health… *with Integrative Medicine*

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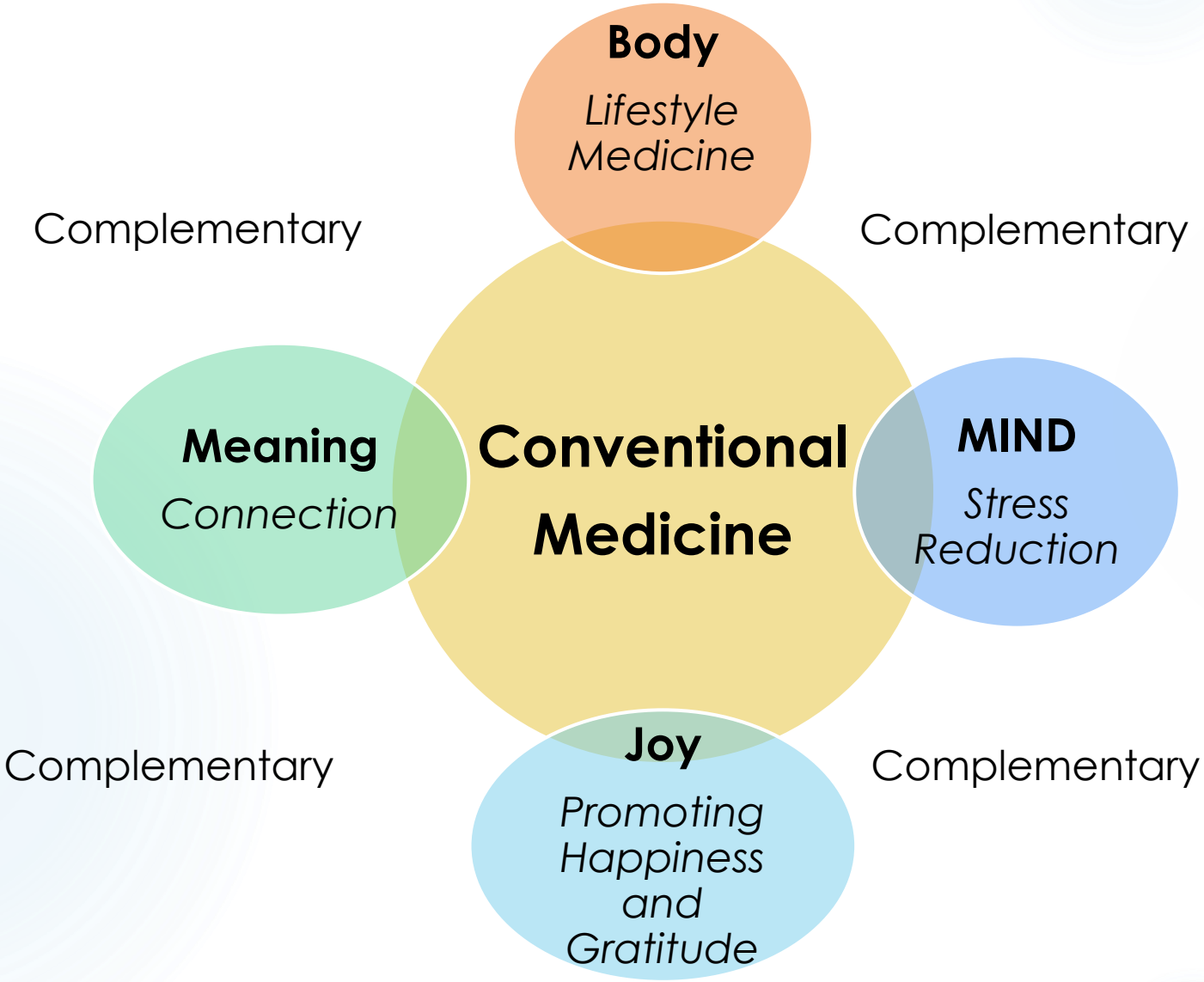
Optimal Health

LIFESTYLE

The Backbone of Integrative Health

The Four Pillars of Wellness



You Have the Power to Promote Your Own Wellness

Objectives

- Discuss "What is Integrative Oncology"
- Discover why integrative care is important in MPNs
- Review lifestyle medicine interventions
- Emphasize the care of Mind, Meaning, and Joy
- Consider Complementary Care Modalities

Integrative Oncology: The New Definition

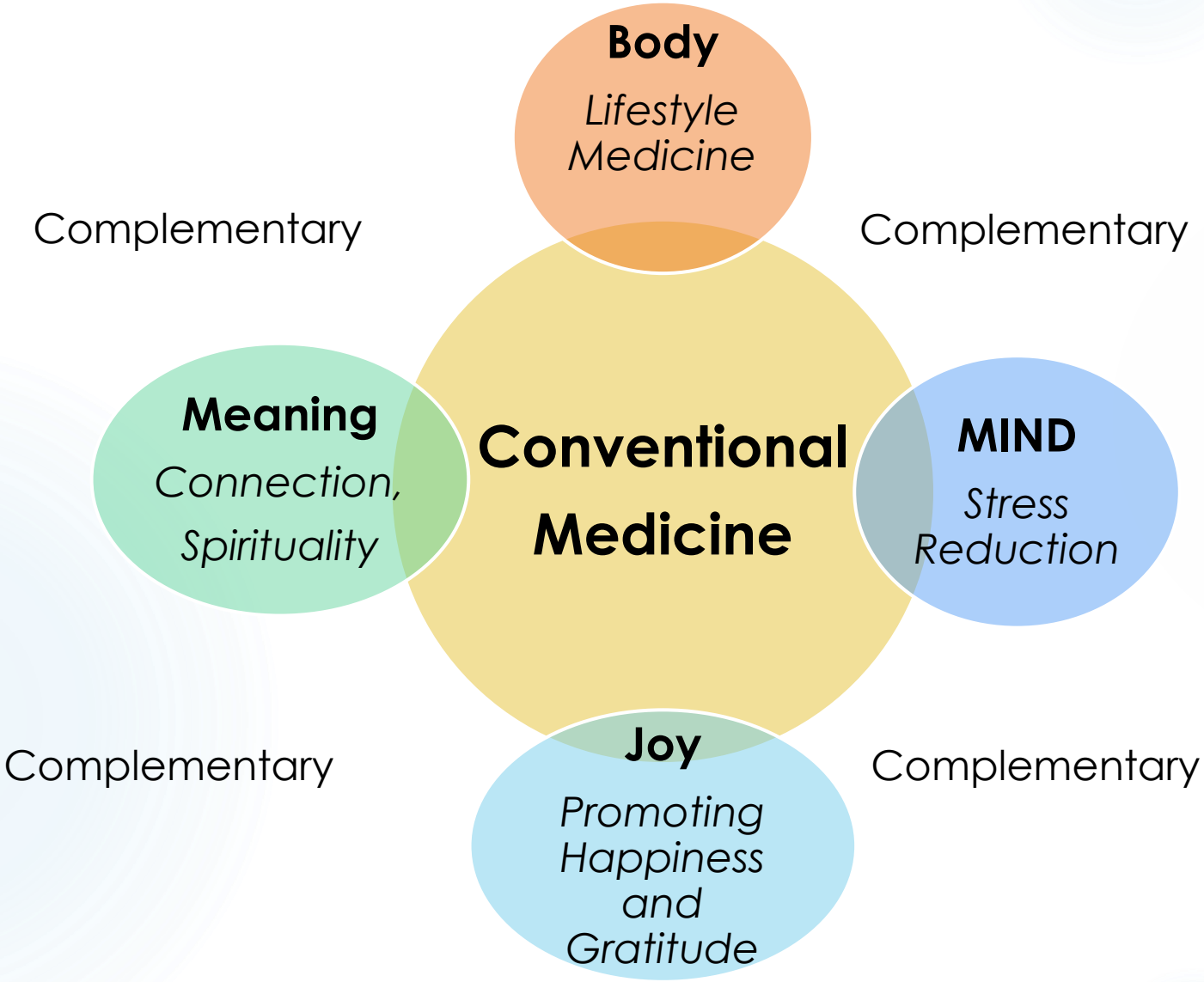
- **"Integrative oncology is a patient-centered, evidence-informed field of cancer care that utilizes mind and body practices, natural products, and/or lifestyle modifications from different traditions alongside conventional cancer treatments. Integrative oncology aims to optimize health, quality of life, and clinical outcomes across the cancer care continuum and to empower people to prevent cancer and become active participants before, during, and beyond cancer treatment."**

Claudia M. Witt, et al.
JNCI Monographs, Volume 2017, Issue 52, 1 November 2017

Why Is Integrative Oncology Important?

- Unmet symptom needs
- Desire for and use of complementary approaches
- Potential to impact outcomes and treatment toxicity
- Potential to decrease cost of care

The Four Pillars of Wellness

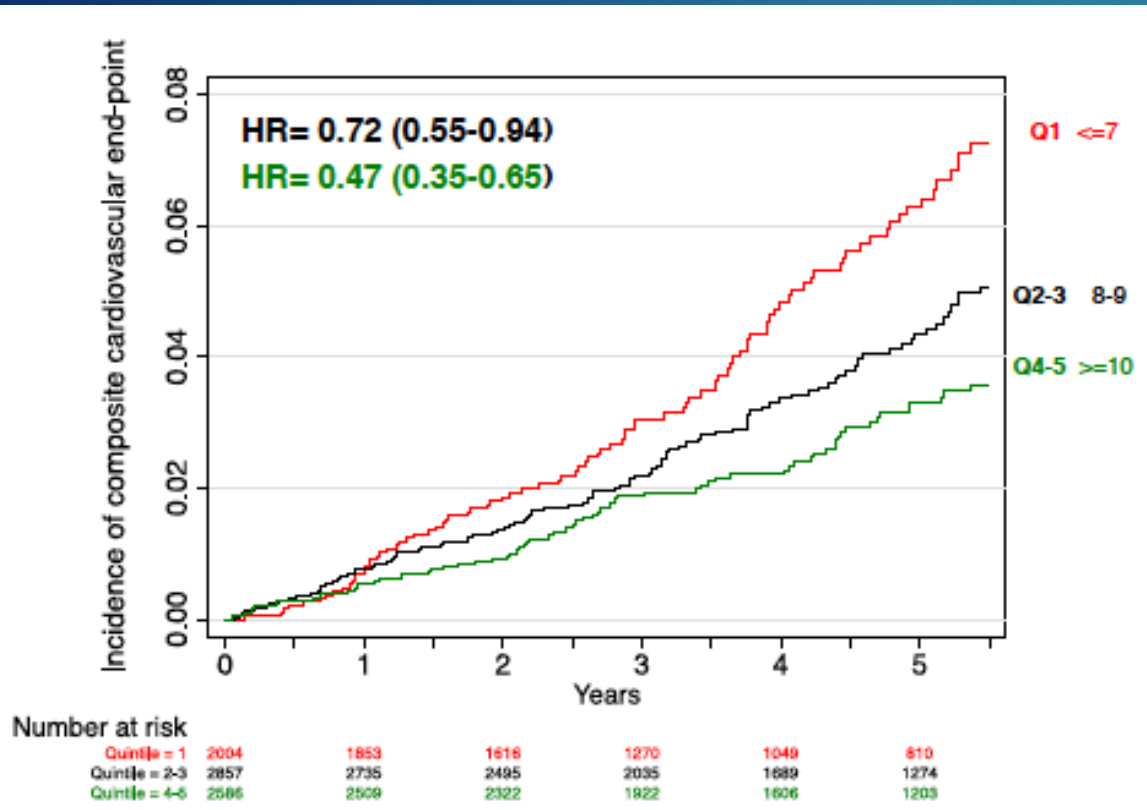


You Have the Power to Promote Your Own Wellness

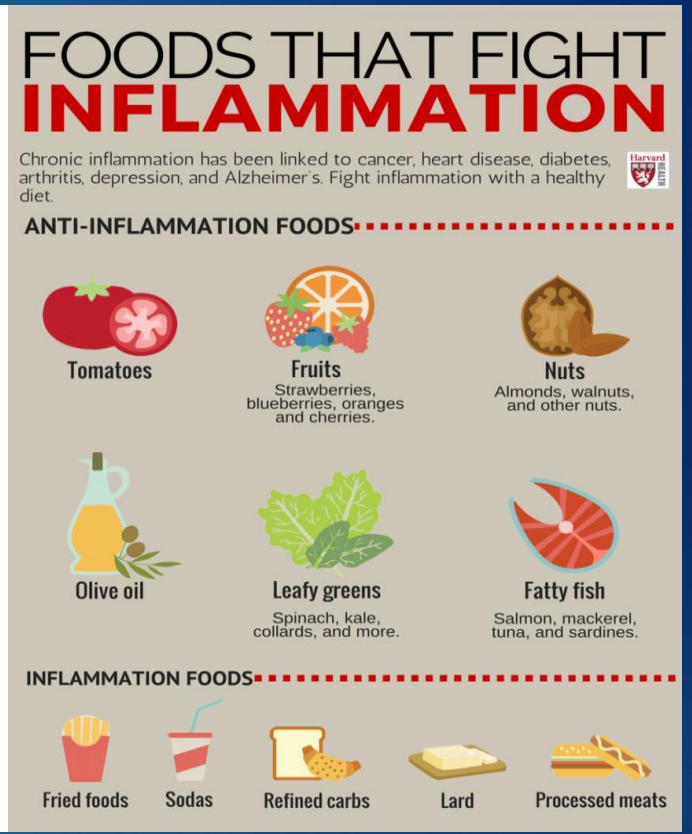
“LET FOOD BE THY MEDICINE AND MEDICINE BE THY FOOD”

-HIPPOCRATES

Benefits of Mediterranean Diet



1. Use of olive oil as the main culinary fat
2. Consumption of ≥4 tablespoons/d of olive oil (including oil used for frying, salads, out-of-house meals, etc.)
3. Consumption of ≥2 servings/d of vegetables
4. Consumption of ≥3 servings/d of fruits
5. Consumption of <1 serving/d of red meat, hamburger or meat products (ham, sausage, etc.)
6. Consumption of <1 serving/d of butter, margarine, or cream
7. Consumption of <1 serving/d of sweetened and/or carbonated beverages
8. Consumption of ≥1 serving/d of wine
9. Consumption of ≥3 servings/week of legumes
10. Consumption of ≥3 servings/week of fish or shellfish
11. Consumption of <3 servings/week of commercial sweets or pastries (not homemade), such as cakes, cookies, biscuits or custard
12. Consumption of ≥3 servings/week of nuts (including peanuts)
13. Preferential consumption of chicken, turkey or rabbit meat instead of veal, pork, hamburger or sausage
14. Consumption of ≥2 servings/week of sofrito, a sauce made with tomato and onion, leek or garlic and simmered with olive oil.



Martinez, et al. PREDIMED Study. Progress in Cardiovascular Disease. 2015.

Physical Activity

Exercise Recommendations

- Recommendations

-150-300 min of moderate intensity or 75-150 min vigorous intensity

- Breast cancer meta-analysis (136 Physical Activity Studies)

	Cardiovascular	Strength	Flexibility
Frequency	3-5 days per week	2-3 days per week	2 days per week
Duration	20-30 min	8-12 repetitions of all major muscle groups	10-30 seconds per stretch
Intensity	Moderate (40-60% of heart rate reserve)	Gradually increasing to tolerance	Slow static stretching

Source: McNeely, et al. 2006

❖Paucity of data in literature for physical activity interventions in hematologic disease

Eckert, et al. Physical activity as non-pharmacologic symptom management approach in myeloproliferative neoplasms: Recommendations for future research. Int Cancer Ther. 2016.

MPN and Yoga

Key Eligibility

- MPN Patient
- Not Depressed
- PS<3
- Not already doing yoga or Mindfullness
- <150 Min of weekly exercise

MPN Yoga Team:

Arizona State University: Jennifer Huberty PhD
Linda Larkey, PhD
Ryan Eckert, B.S.

Mayo Clinic Arizona
R. Mesa, MD
Amylou Dueck, PhD
K. Gowin, MD

MPN and Yoga

- 62 patients enrolled, 48 completed intervention
- Patients averaged 40 min per week yoga
- Significant decrease in TNF-a from baseline to week 12 (p=0.005)
- Small to moderate effect sizes for sleep disturbance, pain intensity, anxiety, and depression.

MAYO CLINIC

ASU ARIZONA STATE UNIVERSITY

RESEARCH ARTICLE Open Access

Online yoga in myeloproliferative neoplasm patients: results of a randomized pilot trial to inform future research

Jennifer Huberty[1*], Ryan Eckert[2], Amylou Dueck[3], Heidi Kosiorek[3], Linda Larkey[4], Krisstina Gowin[5] and Ruben Mesa[2]

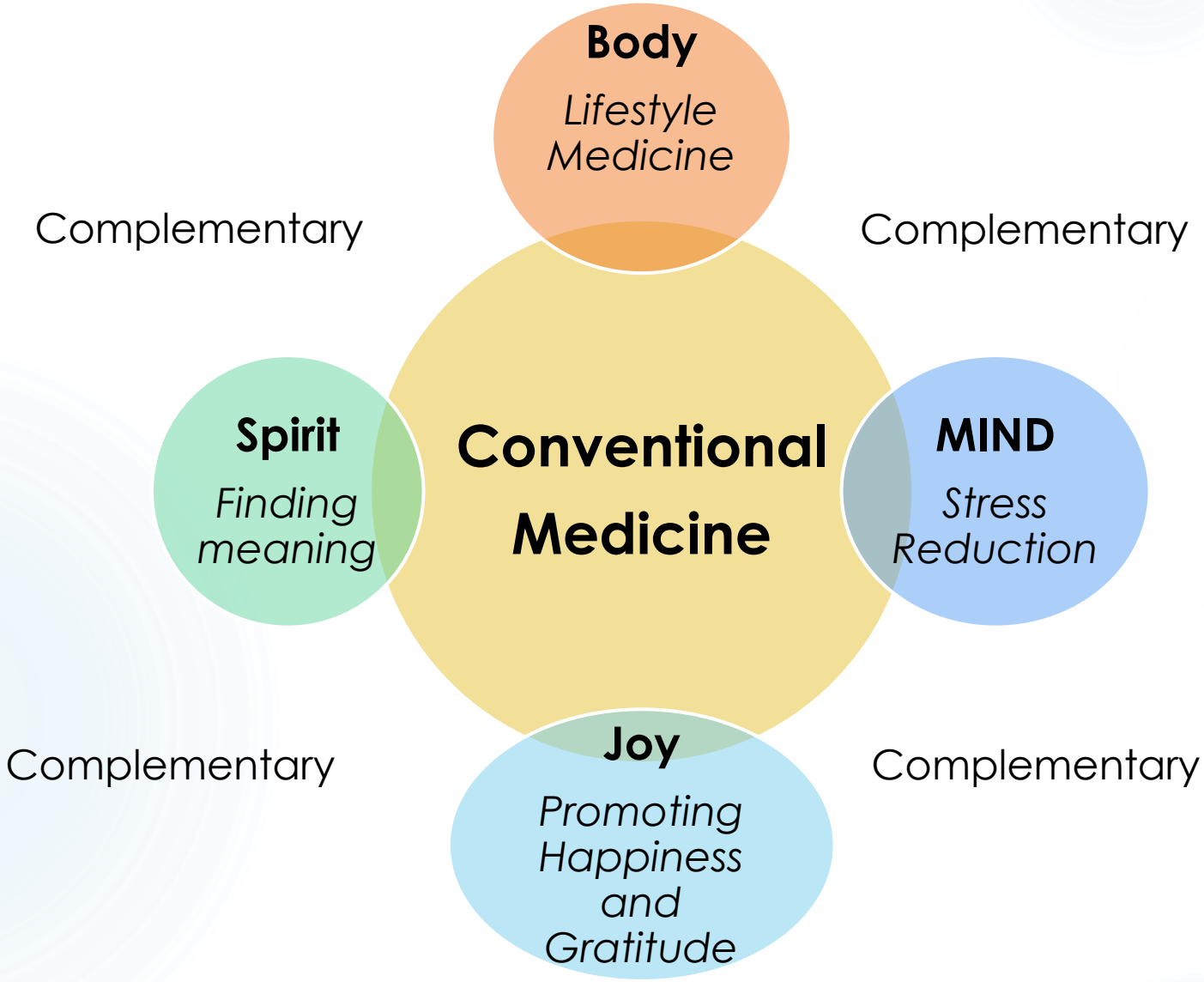
BMC Complementary and Alternative Medicine

Effectiveness of exercise-based rehabilitation to patient with MPNs

- 5- day interdisciplinary exercise-based rehabilitation, 12 week self directed
- Fatigue (BFI, MDFI), Symptoms (MPN SAF), Anxiety/Depression (HADS) at 12 weeks
- No significant difference observed on fatigue, QOL
- Significant increase in physical capacity

Pedersen, Et al. The effectiveness of exercise-based Rehabilitation to patient with myeloproliferative neoplasms: An explorative study. Eur J Cancer Care 2018.

The Four Pillars of Wellness



Finding MEANING-Fighting STRESS-FosteringJOY

Two Joyful Intentions

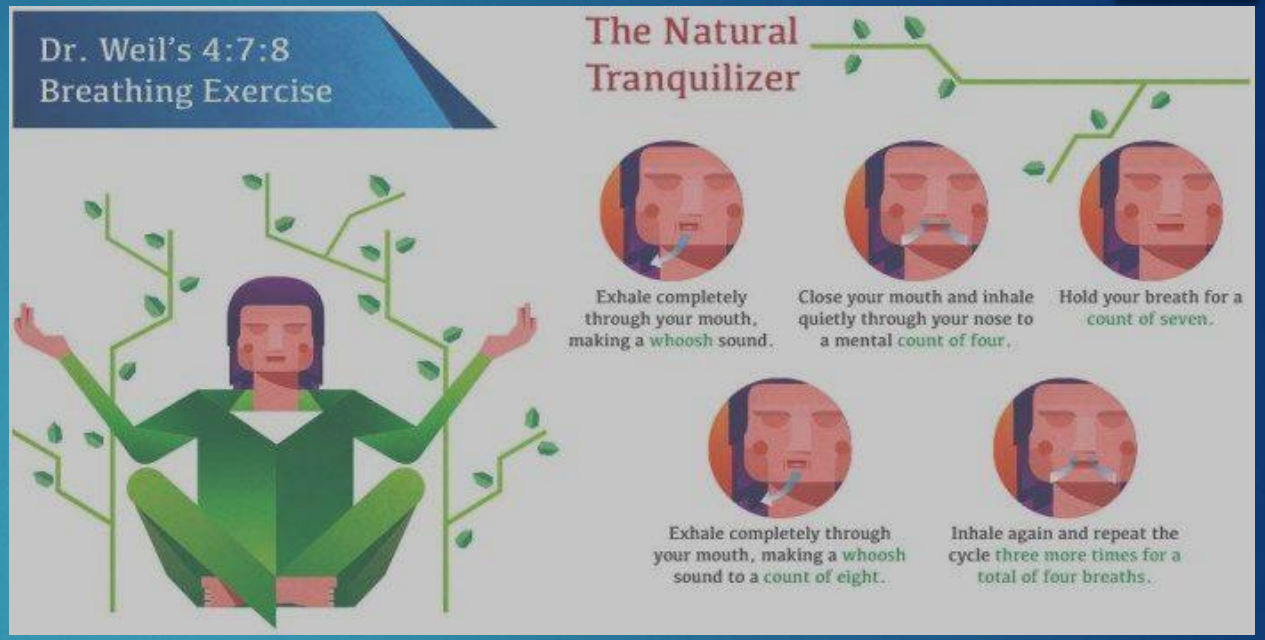
Daily Joy Intention

Sit down and think of instances in your life that you felt the most joyful. Evaluate the circumstances around them. Did they occur during family time? During a favorite activity? Now think about the last week – can you identify a moment of happiness? An important aspect of joy is recognizing that joy can come in small moments. For example, enjoying your morning cup of coffee: Imagine the aromatic steam emerging from the freshly poured pot, the feeling of warmth in your hands from a favorite cup, the flavor of roasted beans…. this can be a joyful experience!

Take at least 10 minute EVERY DAY to intentionally practice joy. First, name your joyful practice (whatever that means to you!) and then revel in each minute of your practice. When complete, take a moment to have gratitude for your joyful practice.

Greeting the Day with Gratitude

Before you get out of bed each morning, start your day by naming three things you are grateful for. Allow your mind to bring these things into clear focus and appreciate every aspect of them. How do they make you feel? See if you can turn up the volume on your gratitude and say a final "thanks" before your rise to greet your day.

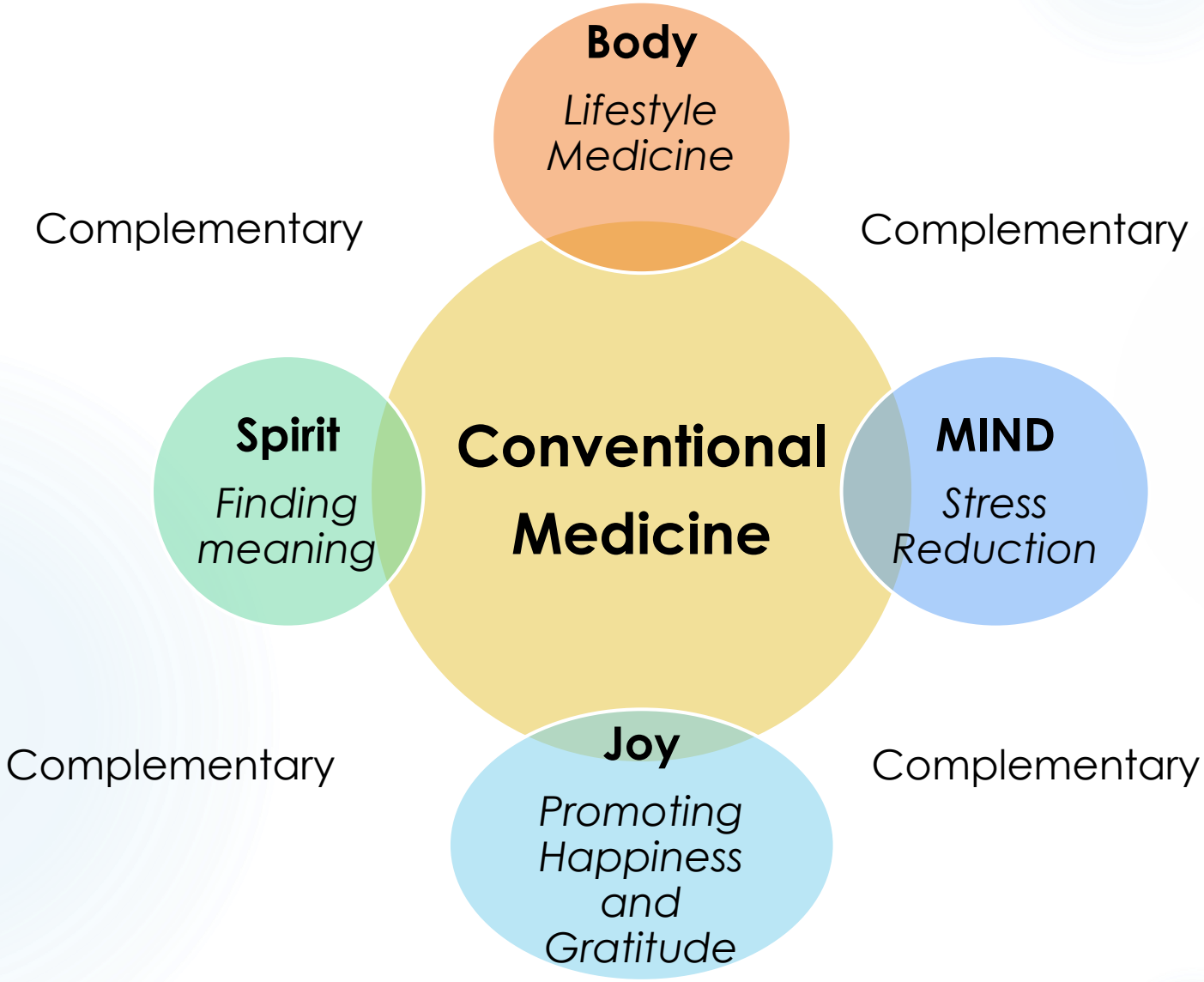


"Joy is far less vulnerable than happiness. Joy seems to be a part of the unconditional wish to live, not holding back because our life may not meet our preferences and expectations. Joy seems to be a function of the willingness to accept the whole, and to show up to meet with whatever is there."

-

Rachel Naomi Remen,
Kitchen Table Wisdom

The Four Pillars of Wellness



Complementary Care Modalities

- Acupuncture
- Naturopathic care
- Chinese herbal medicine
- Meditation
- Ayurveda
- Hypnosis
- Native Healing, Prayer lodge, ceremony
- Biofeedback
- Essential Oils
- Homeopathy
- Meditation
- Prayer
- Pet Therapy
- Reiki
- Massage
- Cranial Sacral
- Laugh therapy
- Music Therapy
- ETC!

Data suggests 40-60% of cancer patients use complementary and alternative medicine -NHS survey 2012

J Natl Cancer Inst Monogr (2017) 2017(52): lgx005

doi: 10.1093/jncimonographs/lgx005
Article

OXFORD

ARTICLE

The National Cancer Institute's Conference on Acupuncture for Symptom Management in Oncology: State of the Science, Evidence, and Research Gaps

Farah Z. Zia, Oluwadamilola Olaku, Ting Bao, Ann Berger, Gary Deng, Arthur Yin Fan, Mary K. Garcia, Patricia M. Herman, Ted J. Kaptchuk, Elena J. Ladas, Helene M. Langevin, Lixing Lao, Weidong Lu, Vitaly Napadow, Richard C. Niemtzow, Andrew J. Vickers, Xin Shelley Wang, Claudia M. Witt, Jun J. Mao

Acupuncture

Botanical Medicine

Resources:

- Natural Medicines Database

https://naturalmedicines.therapeuticresearch.com

- Memorial Sloan Kettering Cancer Center: About Herbs

https://www.mskcc.org/cancer-care/diagnosis-treatment/symptom-management/integrative-medicine/herbs/search

Issues with Botanicals

- Source and contamination
- Pharmacologic Interaction
- Safety
- Bioavailability
- Difficultly with Study: Source, Funding
- LOSS of Synergy and *"plant medicine"*

Finding Quality Dietary Supplements

When it comes to supplements, the quality of products may be quite variable. Look for products that have been evaluated by quality assurance companies. They will bear the label print of USP, NSF, or Consumer Labs to ensure the product has been tested, contains what the label indicates, and is free of toxic chemicals.

ORIGINAL RESEARCH

Cancer Medicine WILEY

The SIMM study: Survey of integrative medicine in myeloproliferative neoplasms

Krisstina Gowin[1] | Blake T. Langlais[2] | Heidi E. Kosiorek[2] | Amylou Dueck[2] | Denise Millstine[3] | Jennifer Huberty[4] | Ryan Eckert[5] | Ruben A. Mesa[5]

Cancer Medicine. 2020;9:9445–9453.

SIMM Study

- 858 Patients (338 ET, 188 PV, 315 MF)
- Patients used broad spectrum of integrative therapies (aerobic activity (51%), massage (28%), yoga (25%), nutrition (25%), strength training (23%), acupuncture (19%), mediation (19%), etc.
- Natural products used in prior 6 months by 48% ET, 42% MF, and 45% PV patients
- 20% reported NOT disclosing supplement use to physician
- Only 24% received nutrition advice
- 80% felt integrative "felt integrative need were NOT heard by provider"

- OMEGA- 3 Supplementation

-Correlated with Lower MPN SAF, BFI

- Caution with blood thinners

(may increase risk of bleeding)

Correlation Does Not = Causation
Trials are needed!

	Supplement utilization		
	Yes	No	*p* value (*t*-test)
MPN-SAF TSS, mean (SD)			
Vitamin D	27.7 (17.6)	26.9 (17.9)	0.56
Multivitamin	26.5 (16.3)	27.3 (18.2)	0.58
Magnesium	27.0 (15.9)	27.2 (18.3)	0.92
*Omega 3**	*24.4 (16.5)*	*27.8 (18.0)*	*0.03*
Calcium	25.2 (15.7)	27.4 (18.1)	0.22
Turmeric	24.2 (16.4)	27.5 (17.9)	.079
Green tea	24.1 (17.7)	27.5 (17.8)	0.08
Vitamin E	26.1 (15.8)	27.2 (17.9)	0.67
Medicinal marijuana	31.7 (17.7)	27.0 (17.8)	0.25
Medicinal mushroom	39.5 (23.2)	27.0 (17.7)	0.03

Brief fatigue inventory, mean (SD)			
Vitamin D	4.7 (2.5)	4.4 (2.6)	0.21
Multivitamin	4.5 (2.5)	4.5 (2.6)	0.97
Magnesium	4.7 (2.4)	4.4 (2.6)	0.33
Omega 3	*4.1 (2.5)*	*4.6 (2.6)*	*0.02*
Calcium	4.4 (2.4)	4.5 (2.6)	0.64
Turmeric	4.4 (2.7)	4.5 (2.6)	0.61
Green tea	4.0 (2.7)	3.7 (2.6)	0.10
Vitamin E	4.4 (2.4)	4.5 (2.6)	0.90
Medicinal marijuana	5.6 (1.9)	4.5 (2.6)	0.06
Medicinal mushroom	5.1 (3.2)	4.5 (2.6)	0.48

SIMM study, Gowin et al 2020.

SIMM STUDY RESULTS

- **MPN-SAF:**

-Lower with aerobic activity/strength training
-Higher in massage/support groups

- **Quality of Life**

-Higher with massage/support groups
-Lower with aerobic activity/strength

- **Depression**

-Depression were less likely with
Aerobic activity, yoga, strength training

TABLE 5 Adjusted intervention comparisons for symptom burden, QOL, depression, and fatigue

Overall ($N = 858$)	MPN-SAF TSS, mean yes/no	QoL, mean yes/no	PHQ-2, odds ratio (95% CI)	BFI, mean yes/no
Aerobic activity ($n = 442$)	33.2/39.7†	4.2/5.2†	0.60 (0.42, 0.86)†	5.1/5.9†
Massage ($n = 244$)	40.5/35.3†	5.0/4.6*	1.05 (0.72, 1.55)	6.1/5.4†
Yoga ($n = 220$)	35.1/37.3	4.5/4.8	0.61 (0.39, 0.94)*	5.5/5.6
Nutrition ($n = 216$)	35.5/37.3	4.6/4.8	1.09 (0.71, 1.67)	5.5/5.6
Strength training ($n = 204$)	34.0/37.7*	4.2/4.9†	0.58 (0.37, 0.91)*	5.2/5.7*
Acupuncture ($n = 166$)	38.2/36.6	5.1/4.7	0.74 (0.47, 1.17)	5.9/5.5
Meditation ($n = 163$)	35.4/37.3	4.7/4.8	0.62 (0.38, 1.01)	5.4/5.6
Breathing exercise ($n = 158$)	39.5/36.4	5.1/4.7	1.47 (0.95, 2.28)	6.1/5.5*
Chiropractic ($n = 139$)	36.7/37.0	4.8/4.8	.75 (0.46, 1.21)	5.6/5.6
Support groups ($n = 124$)	42.3/36.0†	5.4/4.6†	1.45 (0.91, 2.31)	6.2/5.5†

Note: Results adjusted for alcohol consumption, smoking status, BMI, current dietary modification, and MPN type. Odds ratios show the likelihood of a PHQ-2 score ≥3 (yes vs. no). Yes: Those who participated in intervention; No: Those who did not participate in intervention.

Abbreviations: BFI, brief fatigue inventory; CI, confidence interval; MPN-SAF TSS, Myeloproliferative Neoplasm Symptom Assessment Form Total Symptom Score; PHQ-2, patient health questionnaire; QoL, quality of life.

*p value <0.05.

†p value <0.01.

SIMM Study-Take Home Points

HIGH Level of **Need** for Integrative Education and Research

Need to **communicate with provider**

My Health Study:

- Mobile Wellness Application

-30 participants

-Encouraged to set up at least two goals

-Questionnaires at baseline, 12 weeks (MPN SAF, PROMIS sleep, Diet, Physical activity)

My Wellness Coach

HOW DOES IT WORK?

- SCORE how satisfied you are in the 7 Core Areas of Health
- EXPLORE your health by answering simple questions.
- MAKE A GOAL in any Core Area of Health
- TAKE ACTION—step-by-step to reach your goal in 1–3 months.

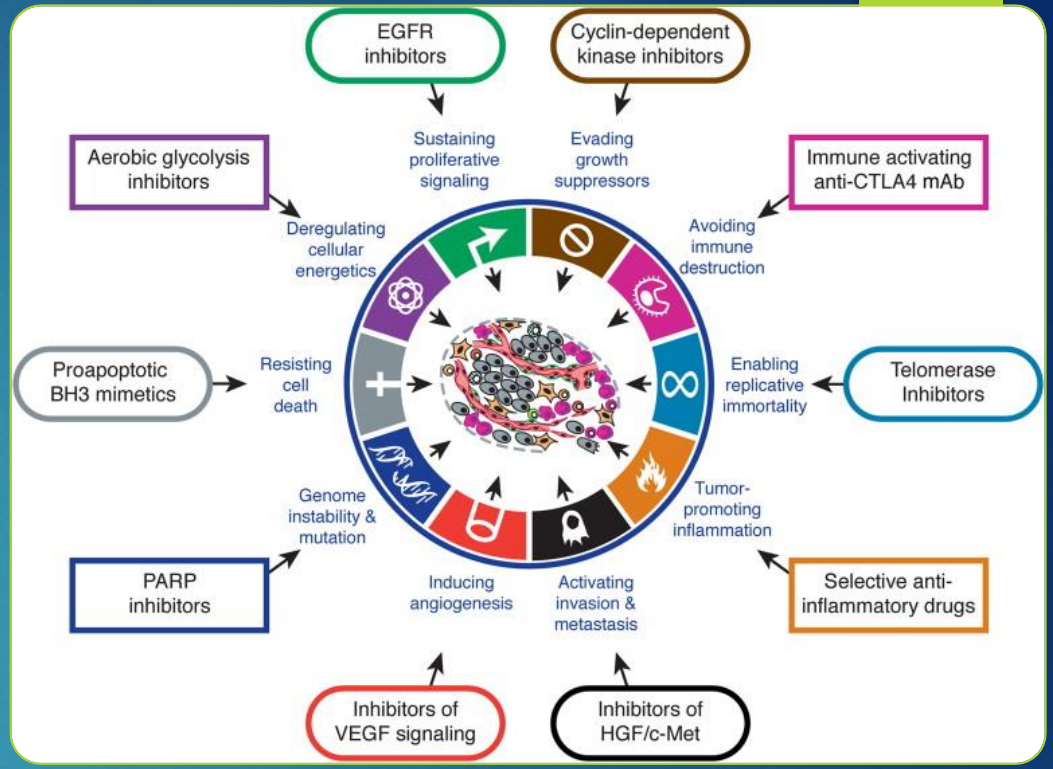
- 43% set up at least 1 goal (ranging 1-5).
- 53% were retained at 12 weeks
- Total Symptom score improved at 12 weeks p=0.001.
- No significant impact on sleep, diet, physical activity was detected but limited due to small number
- Planned next phase to include health coaching, inflammatory laboratory marker assessment

Take Home Points

- DISCUSS YOUR TREATMENT PLAN WITH PROVIDERS
- Eat Intentionally
- Move often
- Breathe
- Manage Stress
- Cultivate Joy

Tumor Promoting inflammation

- Chronic infections, obesity, smoking, alcohol consumption, environmental pollutants and high fat diets are now recognized as major risk factors for most common types of cancer; and, importantly, all these risk factors are linked to cancer through inflammation.



Hallmarks of Cancer, Hanahan and Weinberg 2011.
Cancer related-inflammation, Mantovani et al, Nature 2008.

PROGRESS IN CARDIOVASCULAR DISEASES 58 (2015) 50–60

Available online at www.sciencedirect.com

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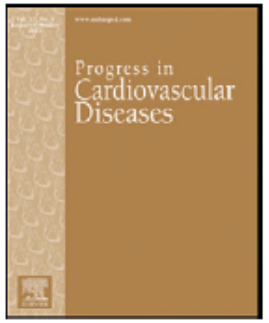


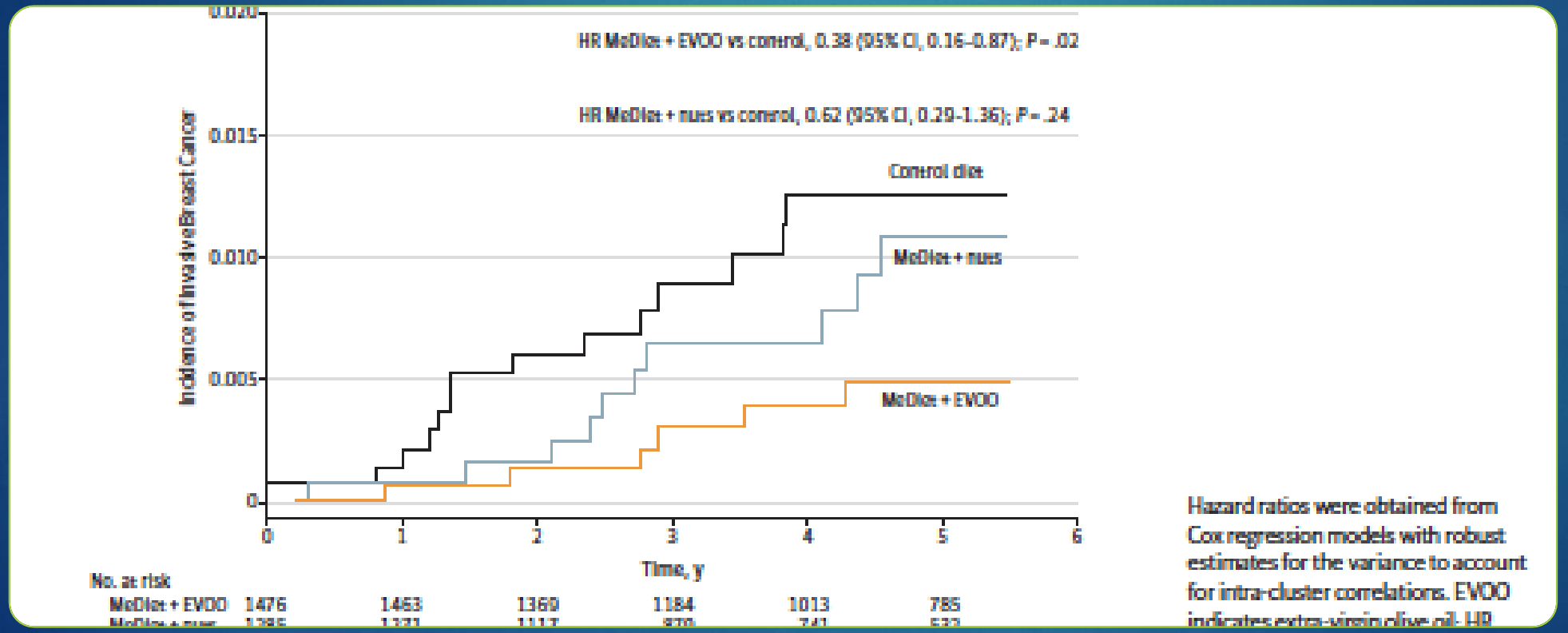
Benefits of the Mediterranean Diet: Insights From the PREDIMED Study

Miguel A. Martínez-González[a, b, c, *], *Jordi Salas-Salvadó*[b, c, d], *Ramón Estruch*[b, c, e], *Dolores Corella*[c, f], *Montse Fitó*[c, g], *Emilio Ros*[c, e], *for the PREDIMED INVESTIGATORS*[1]

[a]*Department of Preventive Medicine and Public Health, University of Navarra, IDISNA (Navarra Health Research Institute), Pamplona, Spain*
[b]*The PREDIMED Research Network (RD 06/0045), Instituto de Salud Carlos III, Madrid, Spain*
[c]*Centro de Investigación Biomédica en Red Fisiopatología de la Obesidad y Nutrición (CIBERobn), Instituto de Salud Carlos III, Madrid, Spain*
[d]*Human Nutrition Department, Hospital Universitari Sant Joan, Institut d'Investigació Sanitaria Pere Virgili, Universitat Rovira i Virgili, Reus, Spain*
[e]*Institut d'Investigacions Biomèdiques August Pi i Sunyer, Hospital Clinic, University of Barcelona, Barcelona, Spain*
[f]*Department of Preventive Medicine and Public Health, University of Valencia, Valencia, Spain*
[g]*Cardiovascular and Nutrition Research Group, Institut de Recerca Hospital del Mar, Barcelona, Spain*

JAMA Internal Medicine | Original Investigation

Mediterranean Diet and Invasive Breast Cancer Risk Among Women at High Cardiovascular Risk in the PREDIMED Trial A Randomized Clinical Trial



Hazard ratios were obtained from Cox regression models with robust estimates for the variance to account for intra-cluster correlations. EVOO indicates extra-virgin olive oil; HR

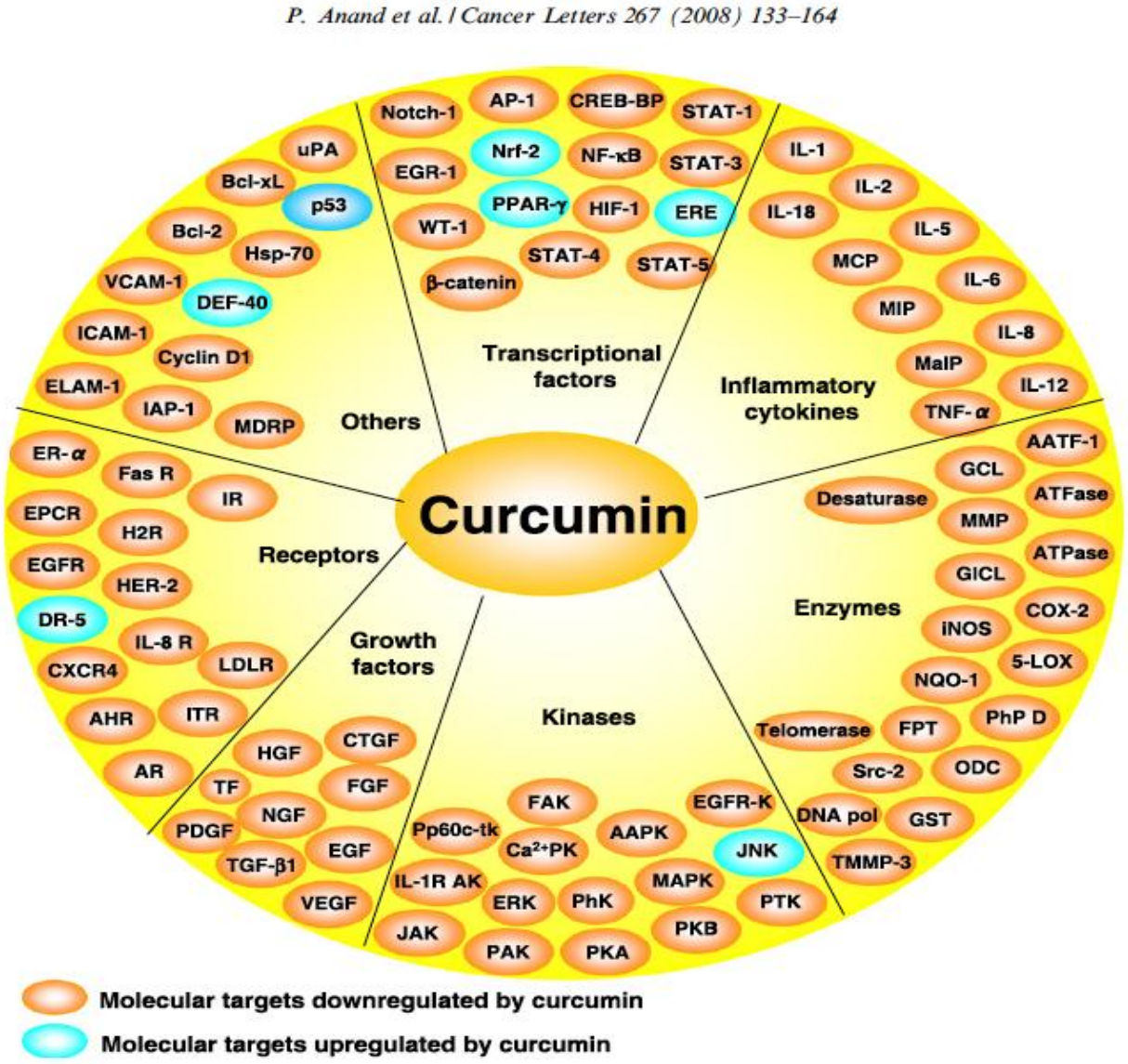
JAMA Intern Med. 2015;175(11):1752-1760. doi:10.1001/jamainternmed.2015.4838
Published online September 14, 2015. Last corrected on November 5, 2018.

Curcumin (Curcuma Long)

CURCUMIN and CANCER

63 Trials in ClinicalTrials.gov

"Curcumin and Cancer"



Curcumin and cancer: An "old-age" disease with an "age-old" solution

Preetha Anand, Chitra Sundaram, Sonia Jhurani, Ajaikumar B. Kunnumakkara, Bharat B. Aggarwal*

Cytokine Research Laboratory, Department of Experimental Therapeutics, The University of Texas M.D. Anderson Cancer Center, Houston, TX, USA

Table 1 **Effect of curcumin alone or in combination on molecular targets of cancer treatment.**

Type of cancer	Molecular targets of curcumin
Prostate cancer[31]	↑ (Bcl-2 L1, Bcl-2 L11, BAK1, BAX, BBC3, PMAIP 1, p53 protein) ↓(NFKBIA, AKT 1, Bcl-2, BIRC4, BIRC5, PTEN, NKX 3A, CSF 1R, EGFR, NF-κB) ↑↓ (caspase-3, caspase-8)
Pancreatic cancer[32,33]	↑ (caspase-3, PARP, P-ERK1/2, c-Jun protein, p38 MAPK, p53 protein, miR-200) ↓ (NF-κB, cyclin-D1, c-myc protein, Bcl-2, Bcl-xL, cIAP-1,MMP, COX-2, VEGF, Sp-1, Sp-3, Sp-4, survivin, VEGF, PGE_2, miR-21)
Colorectal cancer[4,34,35]	↑ (DR-5, IGF-1R, IGFBP-3) ↓ (COX-2, NF-κB, Bcl-2, Bcl-xL, cyclin D1, c-myc, VEGF, IL-8, MMP-9, PGE_2) ↑↓ (EGFR)
Breast cancer[4,36,37]	↑ (TIMP-1, p21, p27) ↓ (NF-κB, AP-1, COX-1, COX-2, VEGF, FGF, cyclin E, IL-6, IL-11, TGF-β, MMP-2, MMP-9, MMP-13)
Multiple myeloma[4]	↑(caspase-7, caspase-9, PARP) ↓(IkBα, Bcl2, Bcl-xL, cyclin D1, IL-6, COX-2, NF-κB)
Leukemia[38-40]	↑(BAX, caspase-3, caspase-8, p21, p27) ↓(Bcl-2, PARP, cyclin D3, STAT3, AKT, NF-κB, Mcl-1, XIAP)

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