

Complimentary therapies in MPN

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Conflicts of interest

1. Employment

none

2. Advisory role

Ariad/Incyte, Novartis, Pfizer, GSK

3. Stock ownership

none

4. Honoraria

Ariad/Incyte, BMS, Novartis, Pfizer, GSK, AOP Orphan

5. Financing of research projects

none

6. Consultancy

none

7. Travel reimbursement

Alexion, Amgen, Hexal, Mundipharma, Novartis, Pfizer, Roche, AOP Orphan

8. Others

none

Agenda

- What is the definition of complementary therapies?
- What is already known about complimentary therapies in MPN?
- Why do complimentary therapies make sense in MPN?
- What is known about the potential of complementary therapies from other diseases?
- Future perspective

What is the definition of complementary therapies?

What is the definition of complementary therapies?

Complementary and alternative medicine are medicines and health practices that are not usually used by doctors to treat cancer.

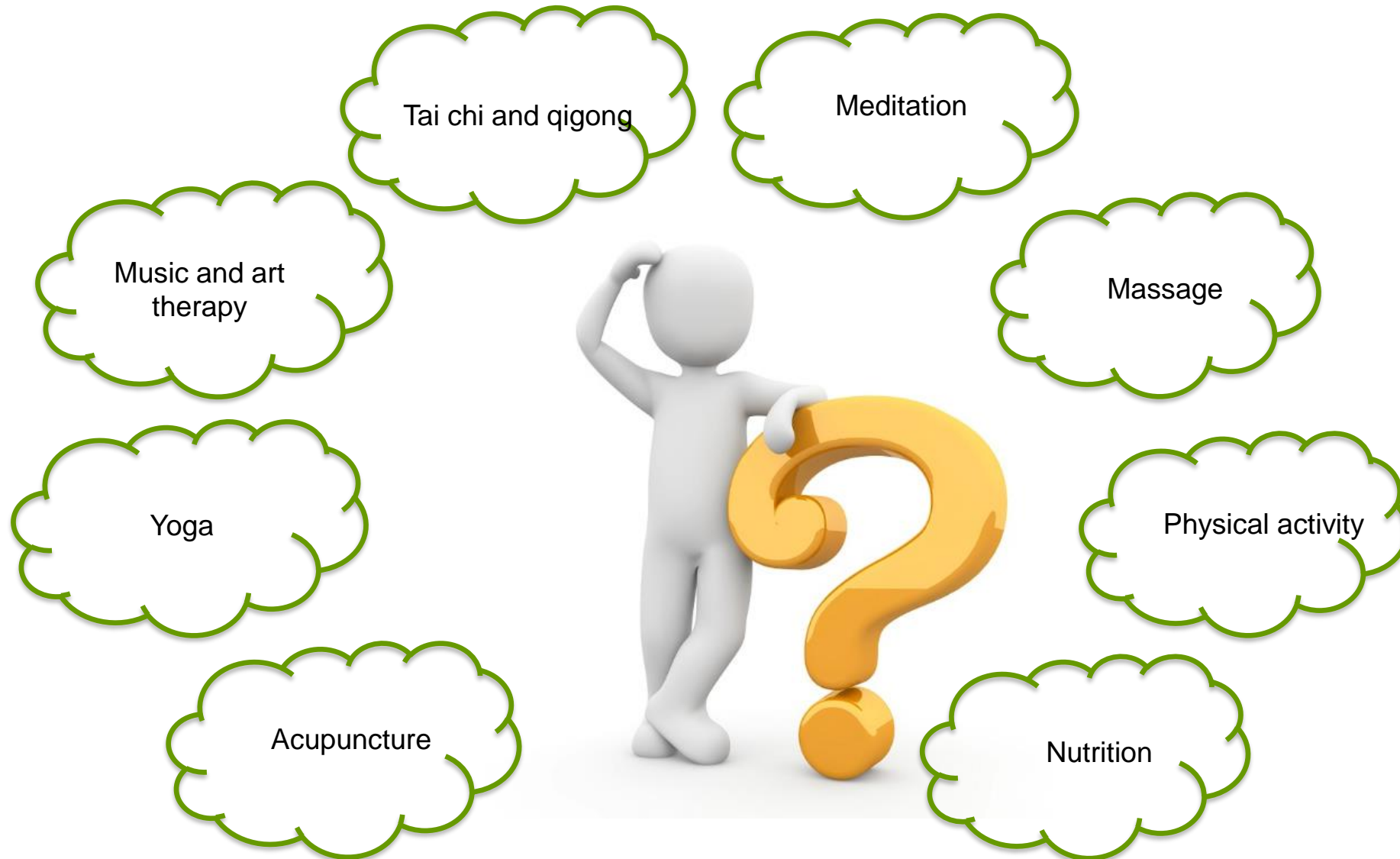
- *Complementary medicine* is used **in addition to** standard treatments.
- *Alternative medicine* is used **instead of** standard treatments.

What are complimentary therapies for?

Some people with cancer may consider using "complementary therapy" in addition to standard cancer treatment. Complementary therapies are used to:

- Reduce the side effects of cancer treatment
- Improve physical and emotional well-being
- Improve recovery from cancer

Examples for complimentary therapies



What is already known about complimentary therapies in MPN?



Online Yoga provides mental and physical health benefits

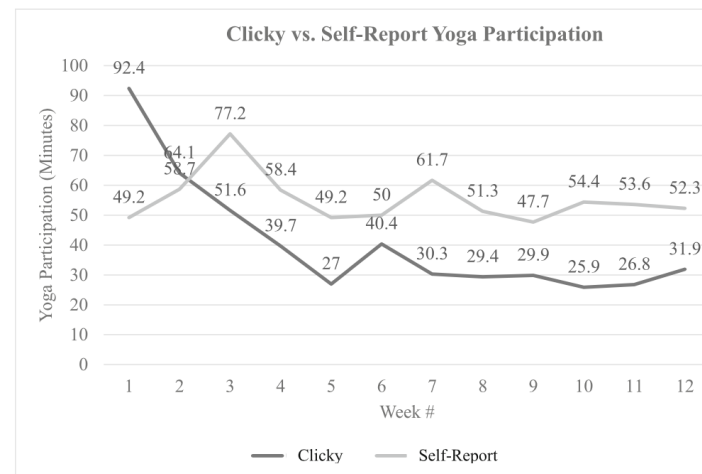
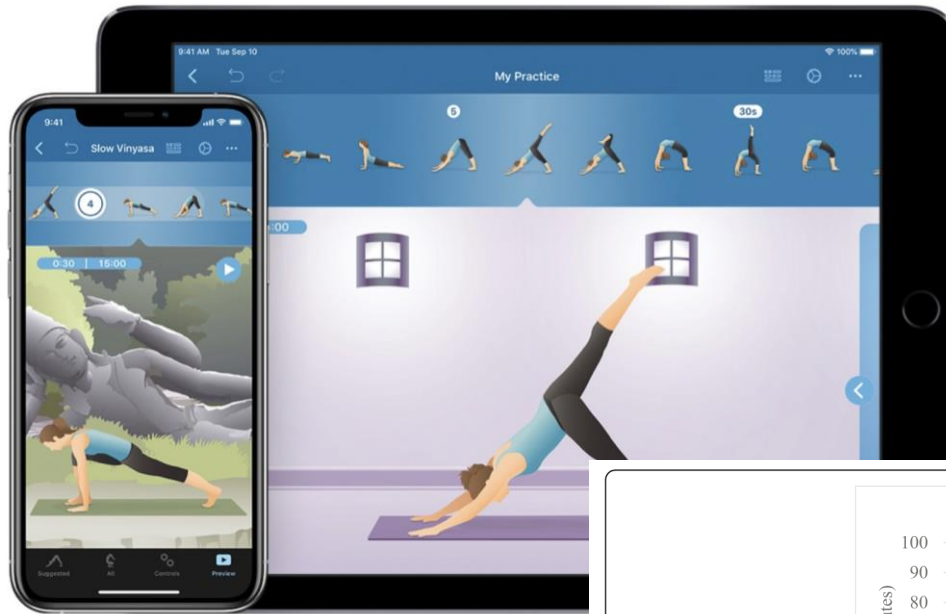


Fig. 2 A comparison between self-report and Clicky yoga participation minutes

Online Yoga provides mental and physical health benefits

Table 3. Numbers of Participants Reporting Positive or Negative Physical Impacts (n = 39).

	Number of Participants
Positive physical impacts	
Increased overall activity levels	27
Reduced fatigue	20
Better sleep	16
Increased strength or energy	14
Greater flexibility	13
Other improved cancer symptoms	10
Positive impact on diet or eating habits	6
Improved breathing	5
Reduced pain	3
Improved posture	2
Improved circulation	2
Feeling better in general	2
Negative physical impacts	
Caused pain or discomfort	11
Tiring or too demanding physically	5

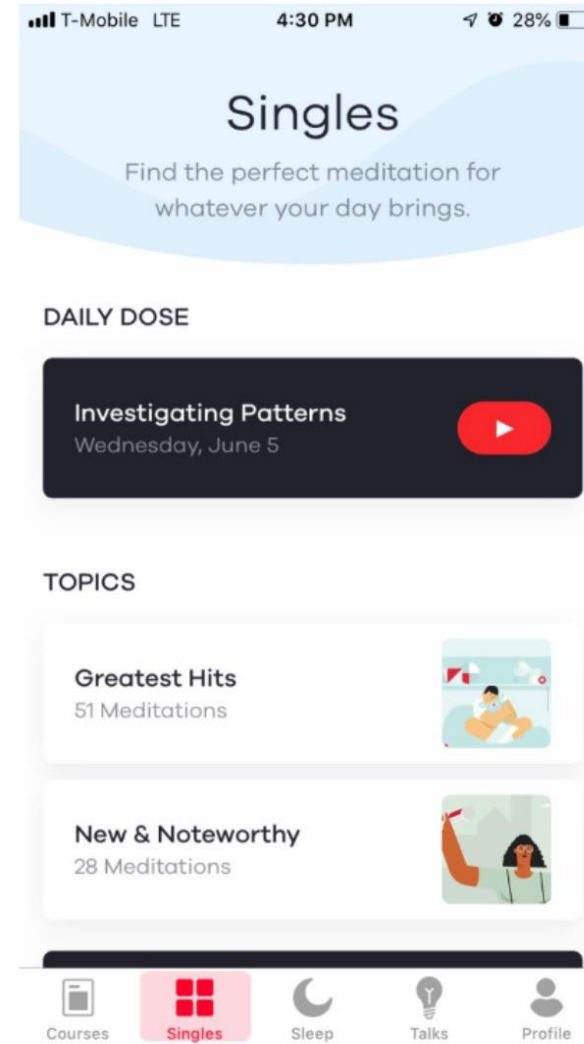
Table 4. Numbers of Participants Reporting Positive Mental Health Impacts (n = 39).

	Number of Participants
Positive mental health impacts	
Calming mind/Reducing stress	14
Improving self-image or self-confidence	13
General sense of well-being/enjoyment	7
Improving social relationships	7
Improved mood or reduced depression	4
Improved self-discipline or time management	4
Increased overall use of wellness practices	4
Improved memory or mental strength	2
Improved outlook on medical condition	5

Table 5. Main Likes and Dislikes About Online Yoga, by Numbers of Participants (n = 39).

	Number of Participants
Likes	
Time flexibility/Convenience	21
Variety/Flexibility of routines	21
Convenience of place	15
Opportunities for meditation/relaxation	14
Being able to repeat the same routines	10
Privacy	9
Ease of use	5
Low cost	3
Other/General likes	11
Dislikes	
Lack of feedback/accountability	16
Visual difficulties in following routines	13
Technical computer-related difficulties	11
Routines too hard or caused pain	9
Difficult to find suitable time or space	8
Miss the social interaction of a class	4
The need for equipment	3
Unable to achieve desired spiritual state	2
Other dislikes	2

Mobile Meditation App



The SIMM study: Survey of integrative medicine in MPN

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 [†]

The SIMM study: Survey of integrative medicine in MPN

Natural product	ET (N, % of total)	MF (N, % of total)	PV (N, % of total)	Overall (N, % of total)
Vitamin D	97 (28.7)	51 (27.1)	90 (28.6)	245 (28.6)
Multivitamin	89 (26.3)	42 (22.3)	52 (16.5)	188 (21.9)
Magnesium	79 (23.4)	32 (17.0)	66 (21.0)	181 (21.1)
Omega 3	76 (22.5)	28 (14.9)	61 (19.4)	170 (19.8)
Calcium	47 (13.9)	24 (12.8)	45 (14.3)	118 (13.8)
Turmeric	43 (12.7)	20 (10.6)	38 (12.1)	104 (12.1)
Green tea	40 (11.8)	21 (11.2)	40 (12.7)	102 (11.9)
Vitamin E	22 (6.5)	9 (4.8)	22 (7.0)	55 (6.4)
Medicinal marijuana	8 (2.4)	4 (2.1)	7 (2.2)	20 (2.3)
Medicinal mushroom	4 (1.2)	2 (1.1)	0 (0.0)	10 (1.2)

The NUTRIENT Trial (NUTRitional Intervention among myEloproliferative Neoplasms): Feasibility Phase

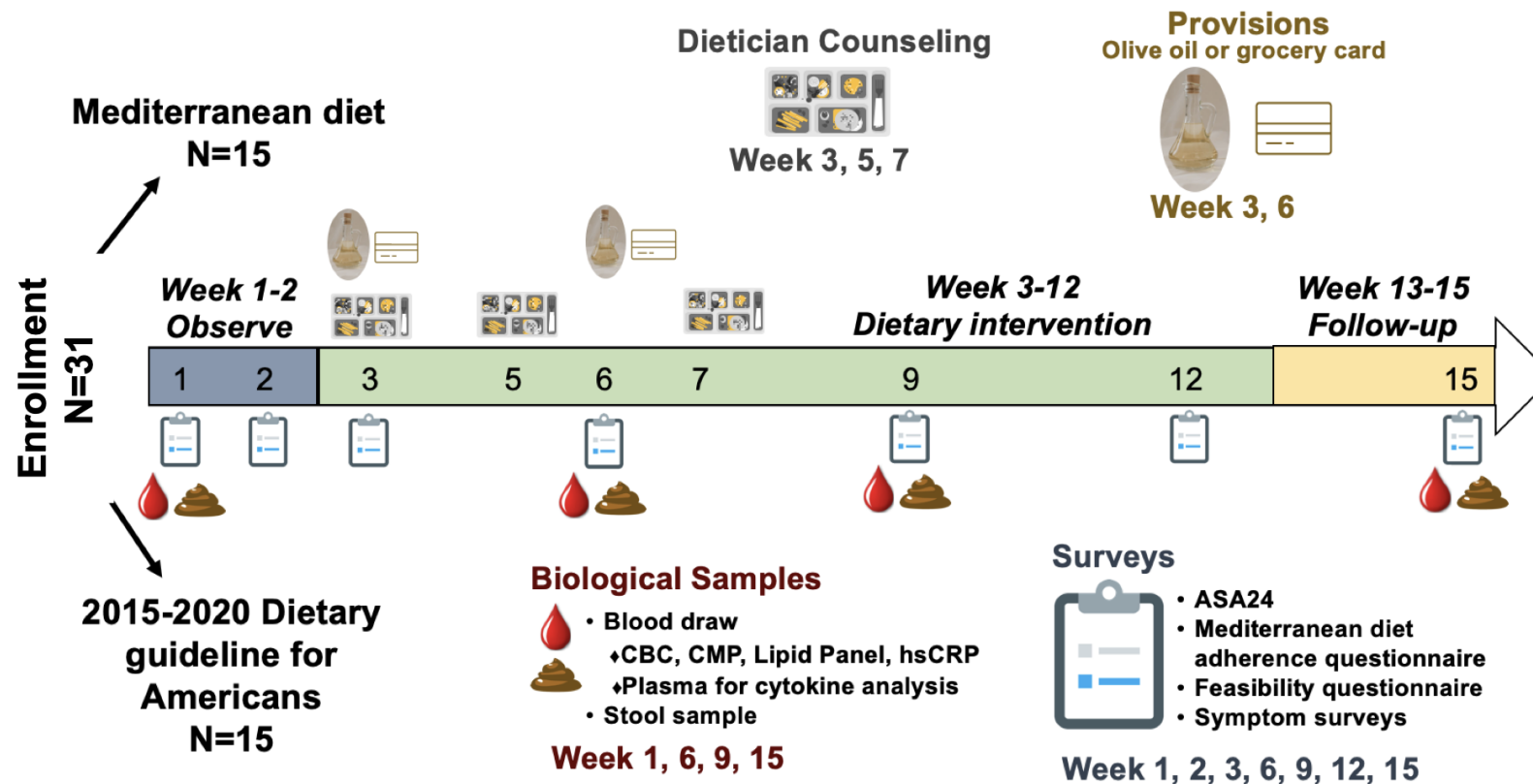
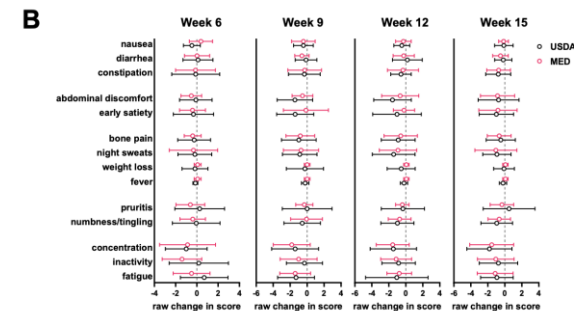
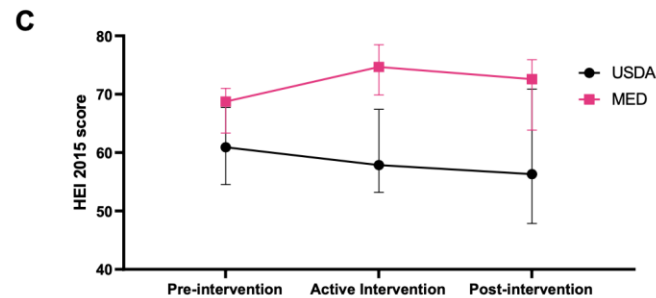
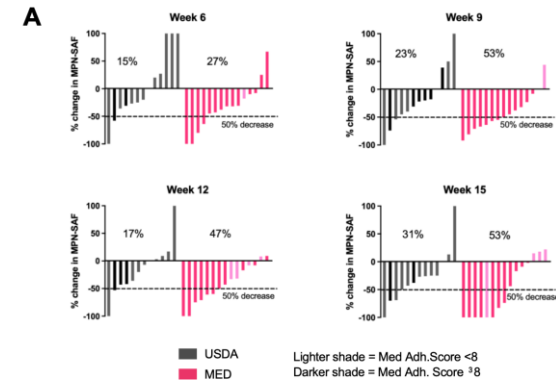
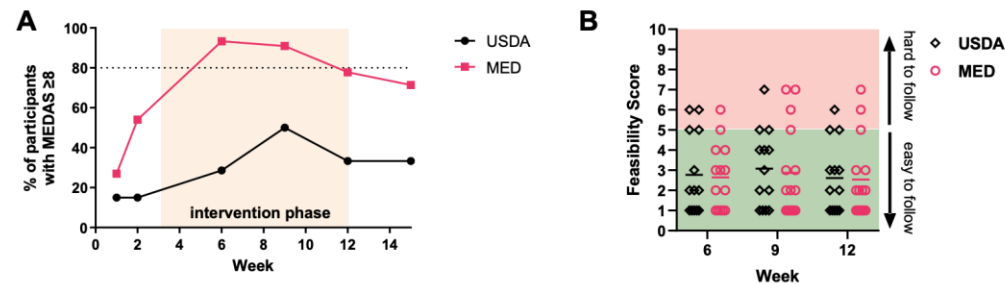


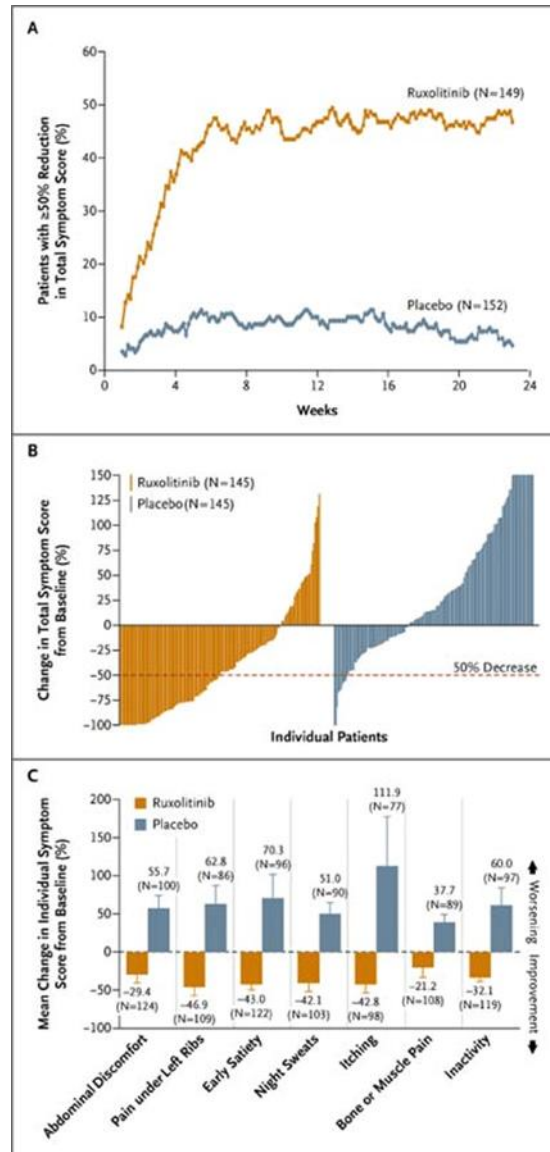
Figure 1. NUTRIENT study design

The NUTRIENT Trial (NUTRitional Intervention among myEloproliferative Neoplasms): Feasibility Phase



Why do complimentary therapies make sense in MPN?

Symptoms may be caused by MPN or treatment



Vs.

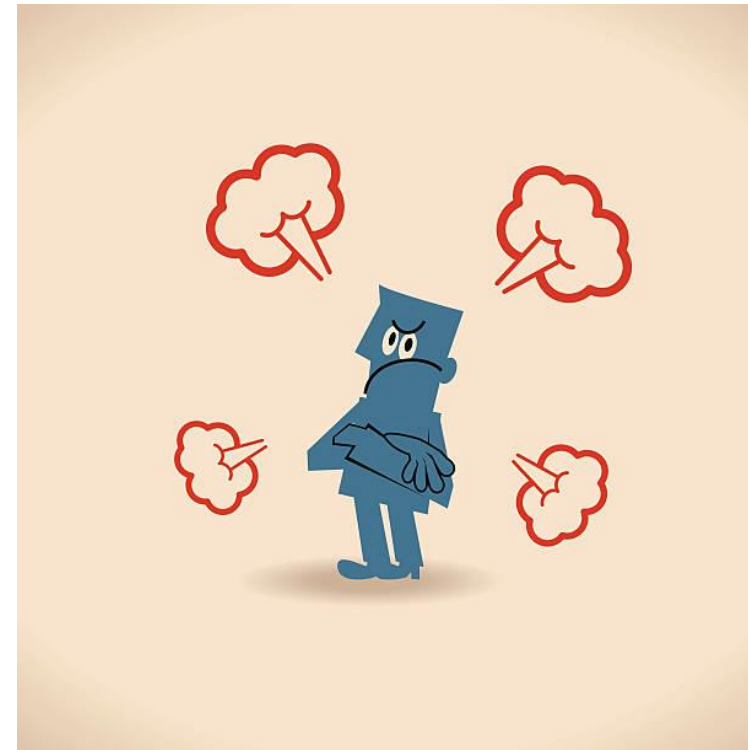
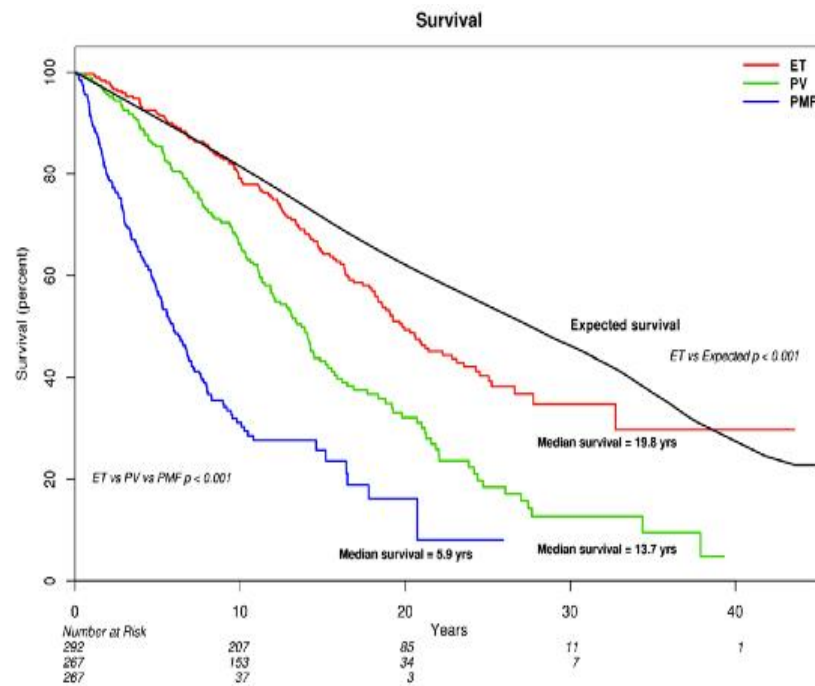
Table 2. Adverse Events Observed in 10% or More of Patients Who Received Ruxolitinib.

Event	Ruxolitinib (N=155)		Placebo (N=151)	
	All Grades	Grade 3 or 4	All Grades	Grade 3 or 4
<i>percent of patients</i>				
Nonhematologic				
Fatigue	25.2	5.2	33.8	6.6
Diarrhea	23.2	1.9	21.2	0
Peripheral edema	18.7	0	22.5	1.3
Ecchymosis	18.7	0	9.3	0
Dyspnea	17.4	1.3	17.2	4.0
Dizziness	14.8	0.6	6.6	0
Nausea	14.8	0	19.2	0.7
Headache	14.8	0	5.3	0
Constipation	12.9	0	11.9	0
Vomiting	12.3	0.6	9.9	0.7
Pain in extremity	12.3	1.3	9.9	0
Insomnia	11.6	0	9.9	0
Arthralgia	11.0	1.9	8.6	0.7
Pyrexia	11.0	0.6	7.3	0.7
Abdominal pain	10.3	2.6	41.1	11.3
Hematologic abnormalities*				
Anemia	96.1	45.2	86.8	19.2
Thrombocytopenia	69.7	12.9	30.5	1.3
Neutropenia	18.7	7.1	4.0	2.0

* Hematologic abnormalities are based on laboratory values. The data shown are for events of the worst grade during the study, regardless of whether this grade was a change from the baseline grade.

Living with MPN can be a marathon....

... and watch & wait can be hard to endure



Impact of Host, Lifestyle and Environmental Factors in the Pathogenesis of MPN

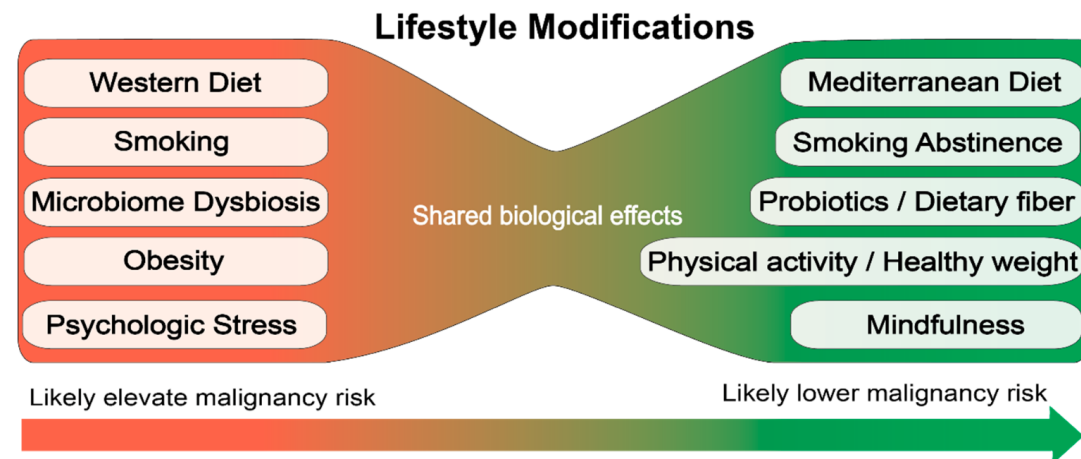
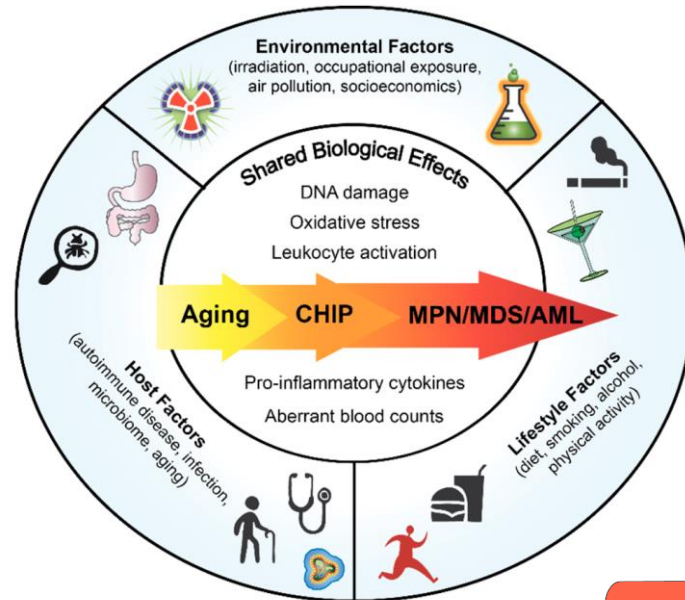
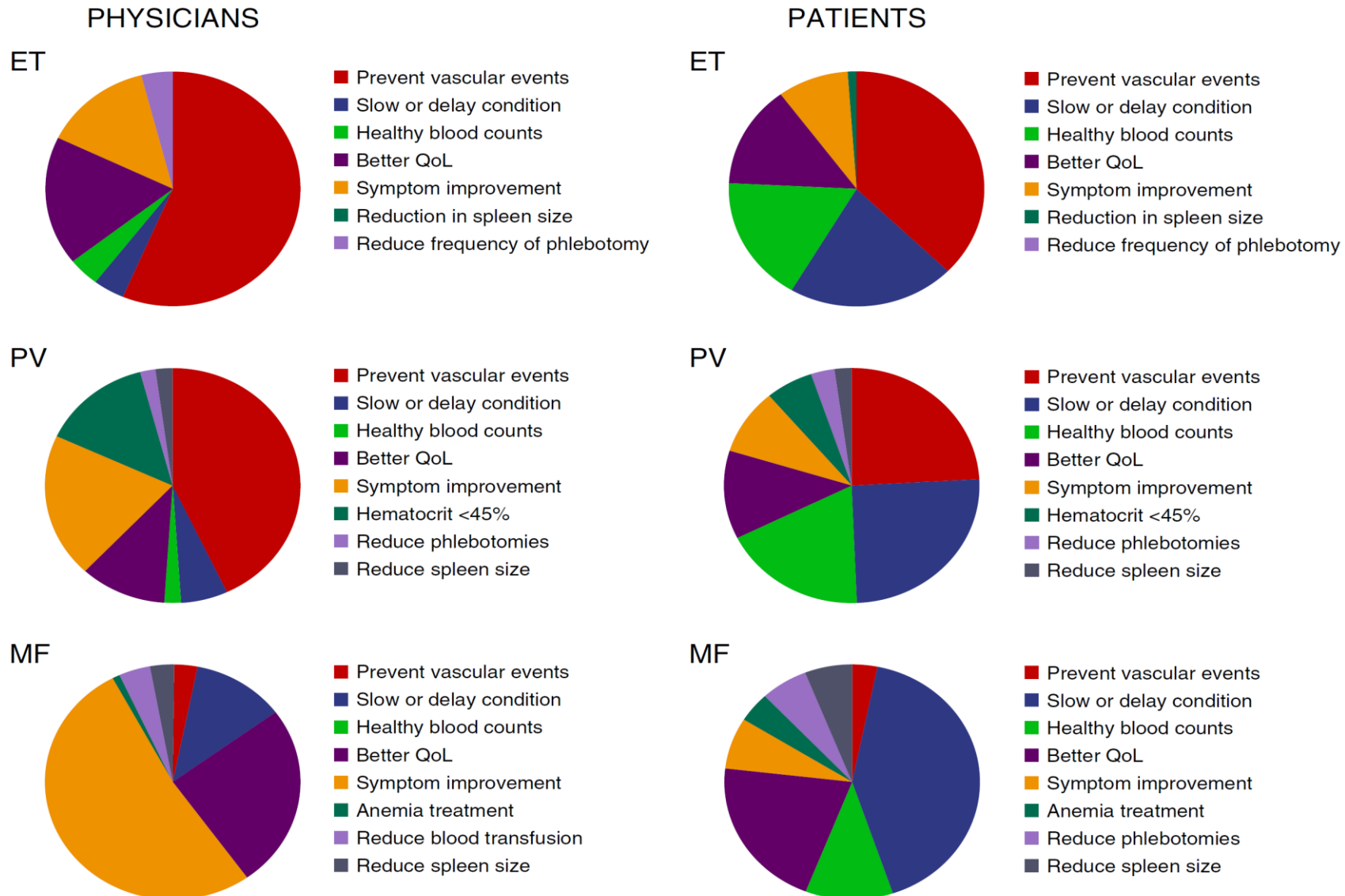


Figure 2. Proposed lifestyle modifications for prevention of hematologic malignancies.

Source: Ramanathan G. et al., *Cancers* **2020**, *12*, 2038;
doi:10.3390/cancers12082038

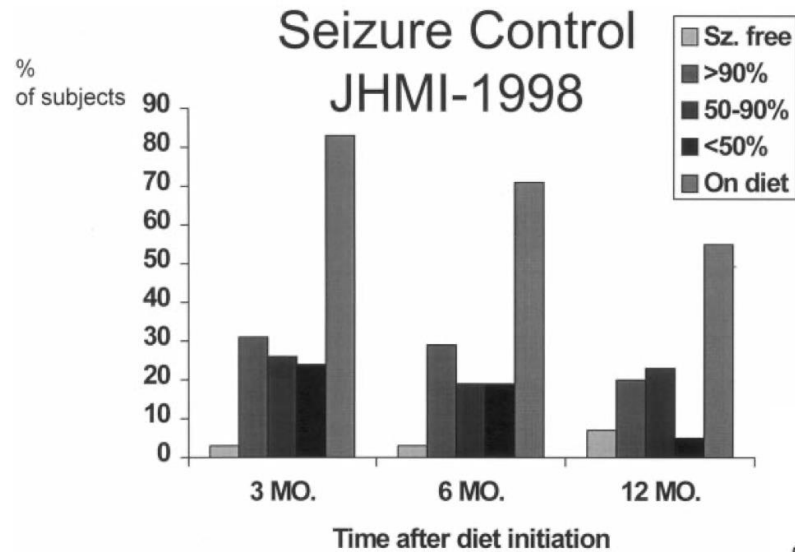
In order to achieve our goals, we have to widen our spectrum...



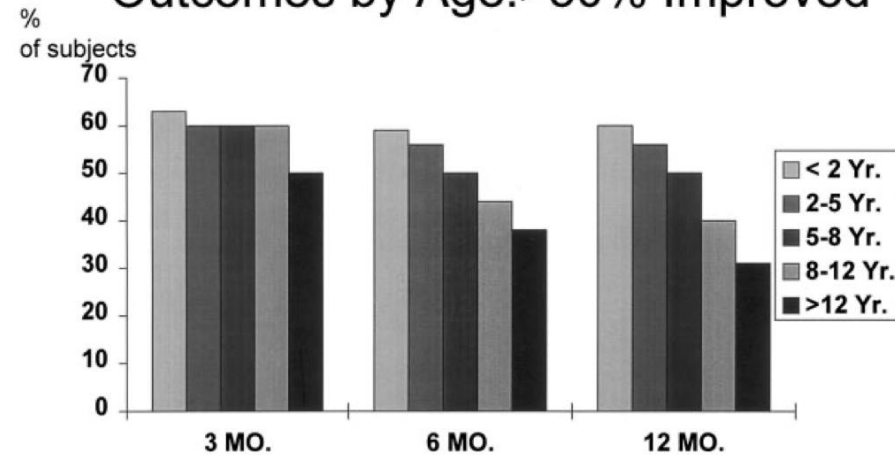
What is known about the potential of complementary therapies from other diseases?



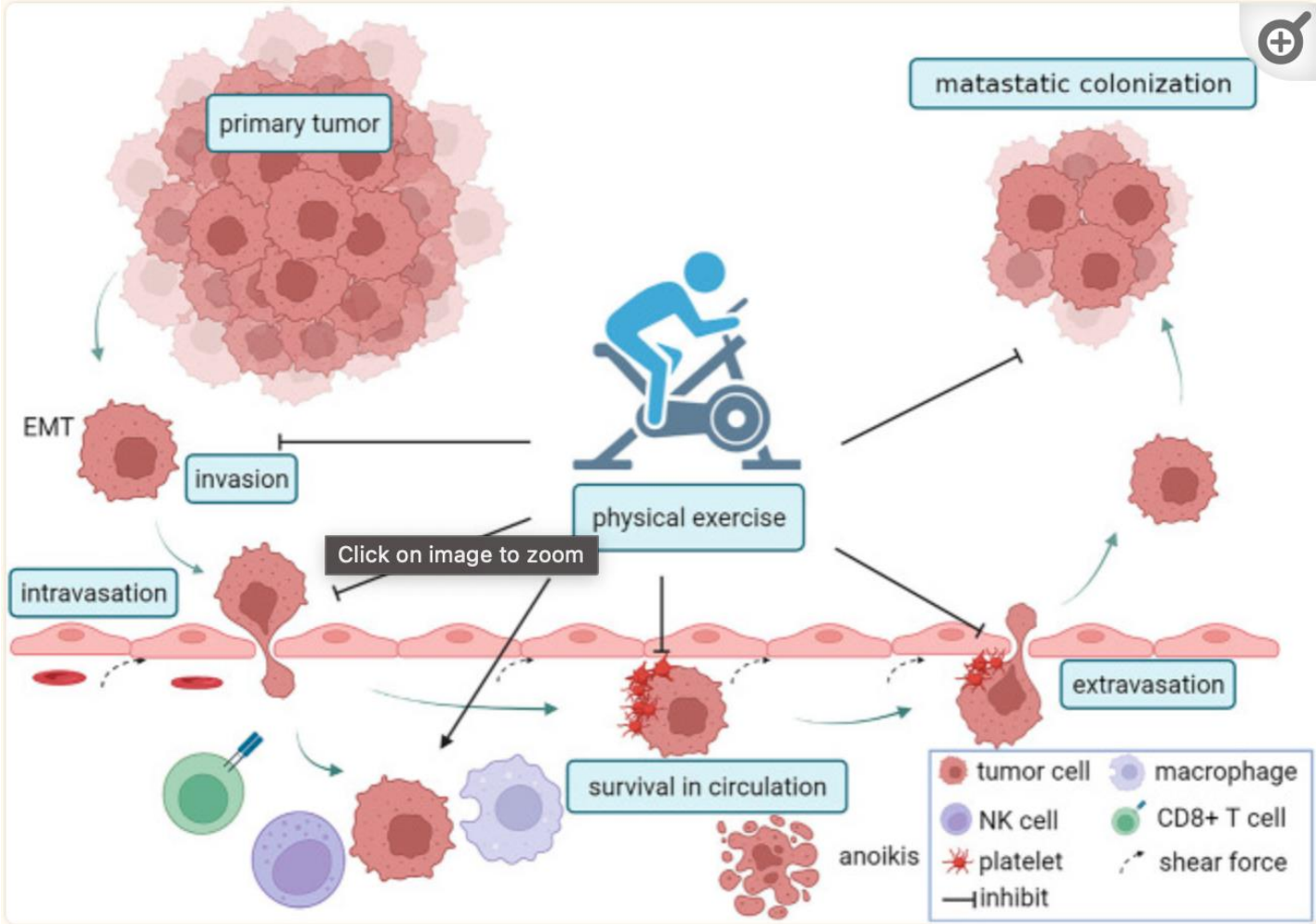
Ketogenic diet can control epilepsy



JHMI KETOGENIC DIET:150 Outcomes by Age:>50% Improved

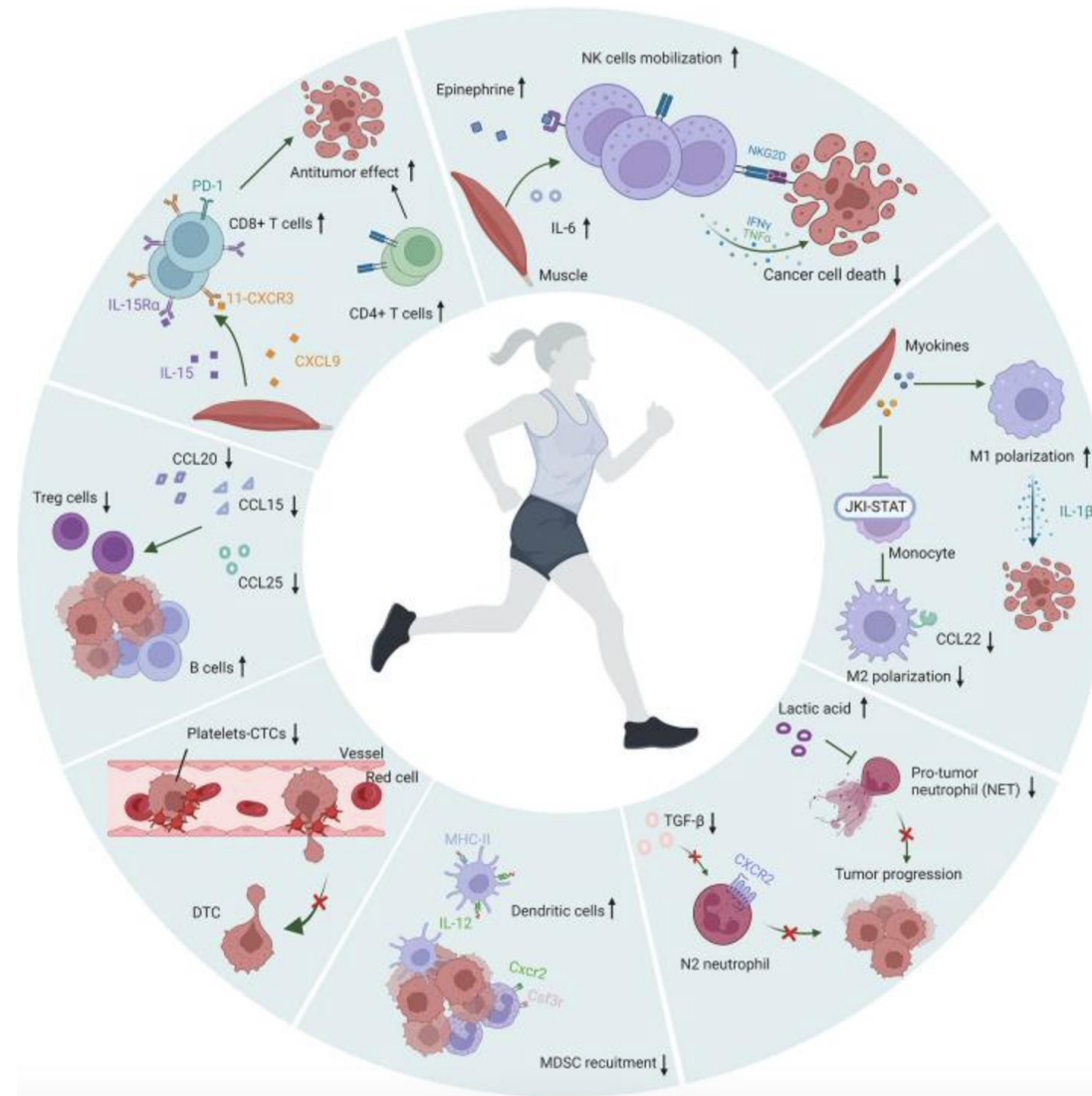


Physical activity prevents metastasis



Source: Zheng A. et al; [Front Pharmacol.](#) 2022; 13: 1034129.

Physical activity prevents metastasis



Future perspectives



What should we do?

We should try to implement new trials with focus on complimentary therapy in MPN

We should try to find funding for these trials

Patients and physicians should work together in order find the best working strategies for MPN patients which are feasible for a long time application

Thank you for your attention...

Questions?

