

NMI SUMMIT 2024

An Energetic View: Mitochondrial Nutrition for Fatigue, the Brain, & Healthy Ageing

Saturday 12th October


Featuring Dr. Joseph Pizzorno, Lorraine Nicolle, Claire Sehinson, Professor Robert Thomas, Dr. Deanna Minich

An event by:  Nutritional Medicine Institute

Platinum sponsors:  

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An Energetic View: Mitochondrial Nutrition for Fatigue, the Brain, and Healthy Ageing





Professor Robert Thomas

Gut Health and Nutritional Intervention Strategies for Long Covid – What We Know So Far

2:00-2:45pm

An event by:  Nutritional Medicine Institute

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Gut Health and Nutritional Intervention Strategies for Long Covid – What We Know So Far



Professor Robert Thomas

Bedford and Addenbrookes, Cambridge University NHS Hospitals
Biological & Exercise Science Bedford University
Director of integrative Oncology UCLH

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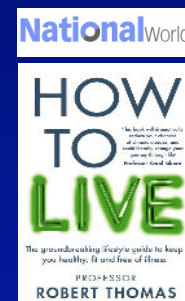
Disclosures and affiliations

Travel grants and speaker fees or shares:
Helsinn integrative Health Care, Astrazeneca, Novartis,
Johnson and Johnson, Janssen, Nature medical, Roche,
Ak-medical, Schoders & State street Banks

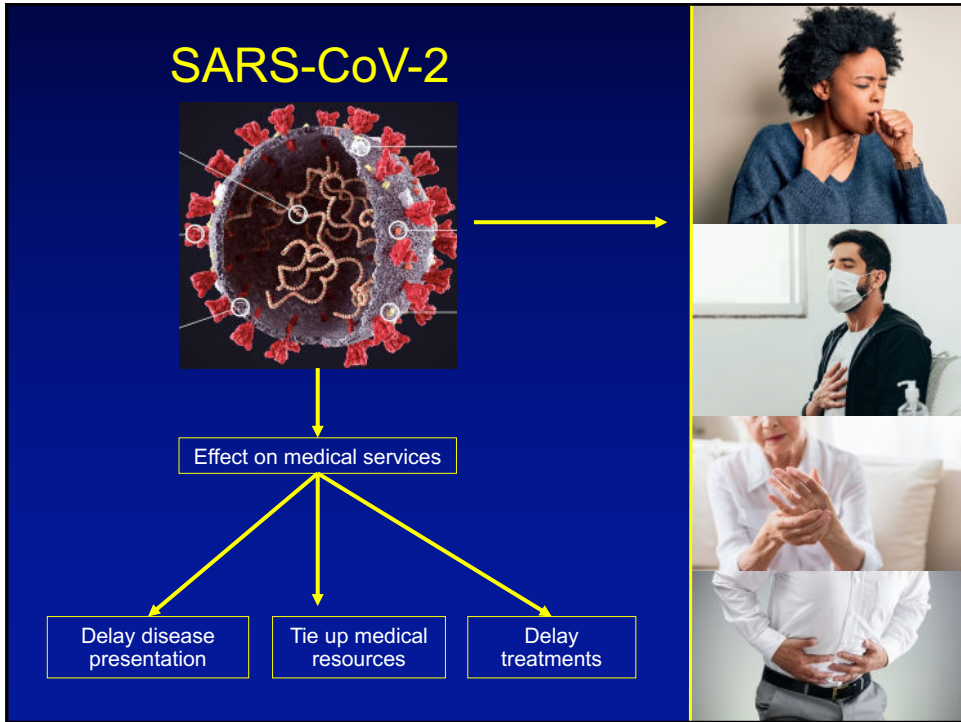
Paid external appointments:
Medical editor for Nationalworld News.
Author of "How to Live" by Short books

No financial connection with:

- YourPhyto
- YourGut Plus
- Phyto-V



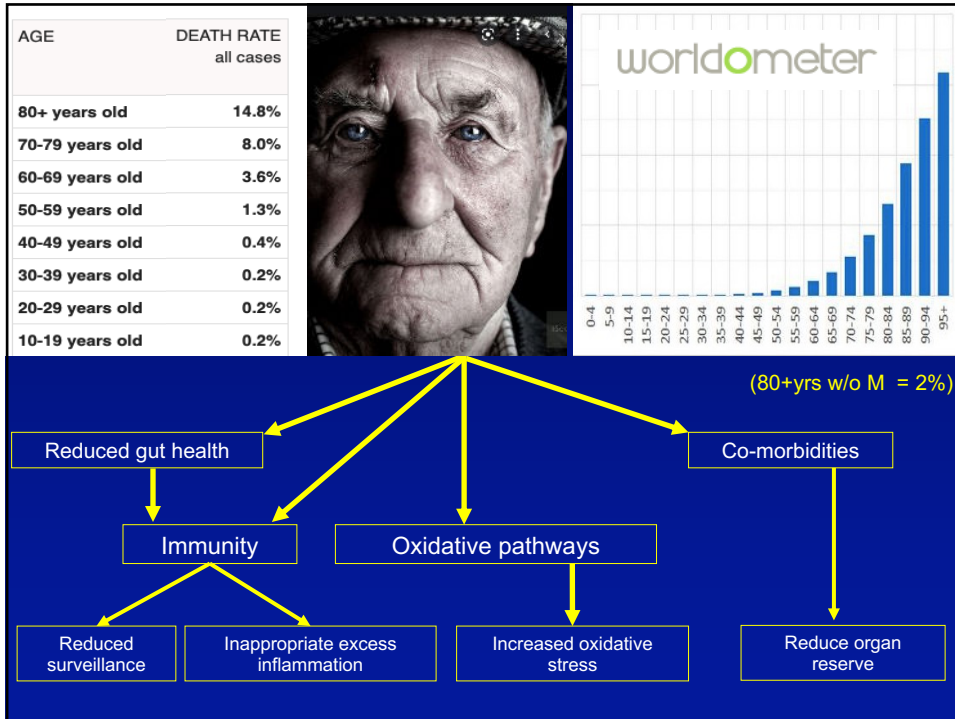
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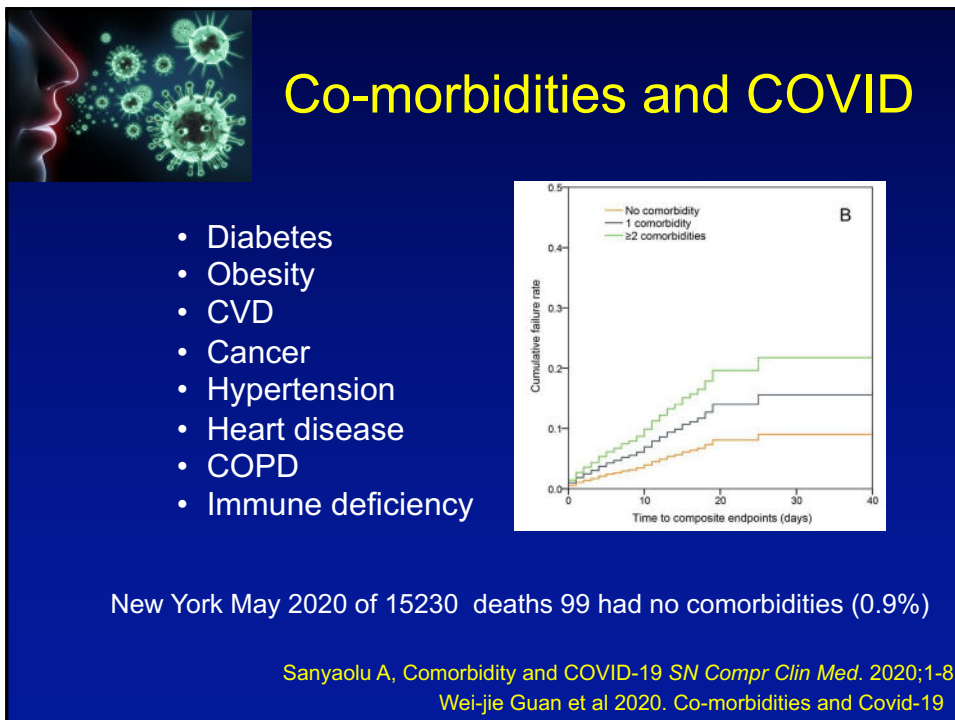
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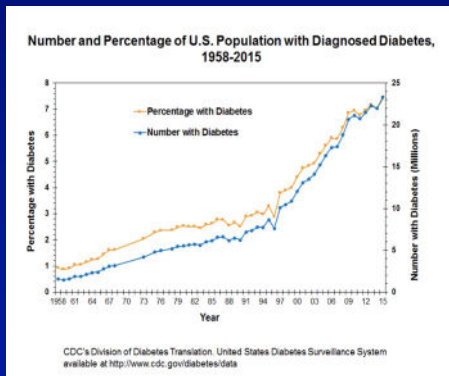
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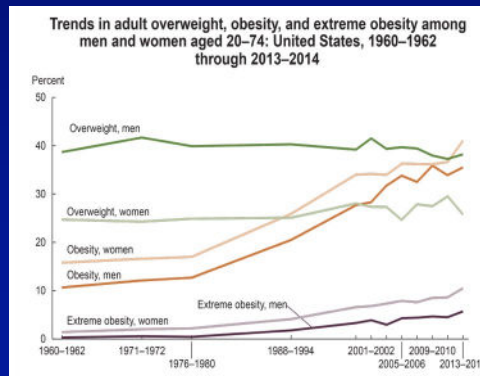
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Trends in lifestyle associated conditions

Hypertension

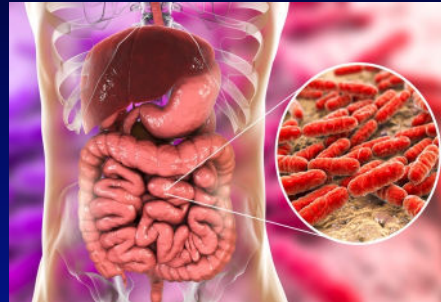


Obesity



9

Gut microbiome and covid



- Depleted healthy strains of *Lactobacillus* reported in the majority
- GI symptoms – worse dysbiosis
- GI and other non-respiratory symptoms increased risk of long Covid

Chen et al. Gut microbiota in patients with Covid-19 Gut. 2021. 10.1136/gutjnl-2021-324090.
 Gu et al. Alterations of the Gut Microbiota in Patients With Coronavirus. Clin Infect Dis. 2019; 71: 10, 2669
 Ng. Covid-19 and the gastrointestinal tract: Gut 2020;69:973-974.
 Yeoh et al. Gut microbiota reflects severity & dysfunctional immunity in patients with Covid: Gut 2021;70:698.

10

Long Covid



2 million people in the UK:

- Age, overweight, smoking, sedentary
- Co-morbidities - diabetes, heart disease BP & COPD

Three pivotal dietary-related factors :

- Gut health
- Vitamin D
- Phytochemical-rich food intake

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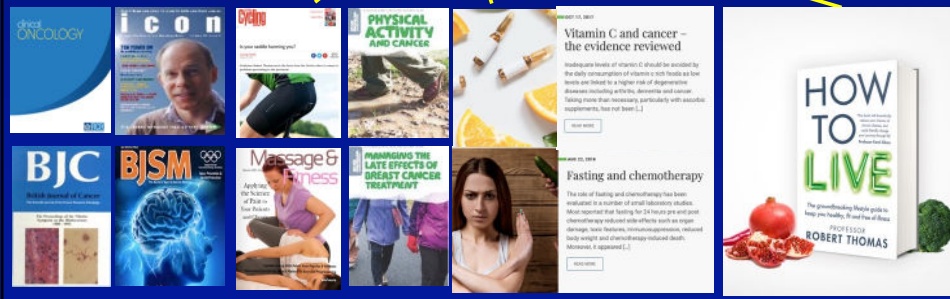


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Primrose Lifestyle Research Unit

Exercise | Plant based natural interventions


- Summaries and understand the international evidence
- Lifestyle surveys with patients
- Randomised controlled Trials



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A double-blind, placebo-controlled randomised trial evaluating the effect of a polyphenol-rich whole food supplement on PSA progression in men with prostate cancer—the UK NCRN Pomi-T study

R Thomas^{1,2,3}, M Williams¹, H Sharma¹, A Chaudry² and P Bellamy³



Median percentage rise in PSA between the two randomised groups

Difference 63.8% ANCOVA p=0.0008


Group	Median rise (%)	95% CI
Pomi-T	14.7%	3-36%
Placebo	78%	48-115%

Thomas et al The Pomi-T study Prostate cancer & Prostate diseases 2014 2014, (17)
 Thomas et al. J Lifestyle Med. 2015 (1) 01

14

The Pomi-T Women's study Tokyo

Hot flushes, mood and joint pains





2 mnth prospective intervention

Mood rating scale:
15% improvement (p=0.01)

Hot flushes score:
10% less number and severity (p=0.015).

Joint pain, stiffness, mobility
13% improvement (p=0.01)

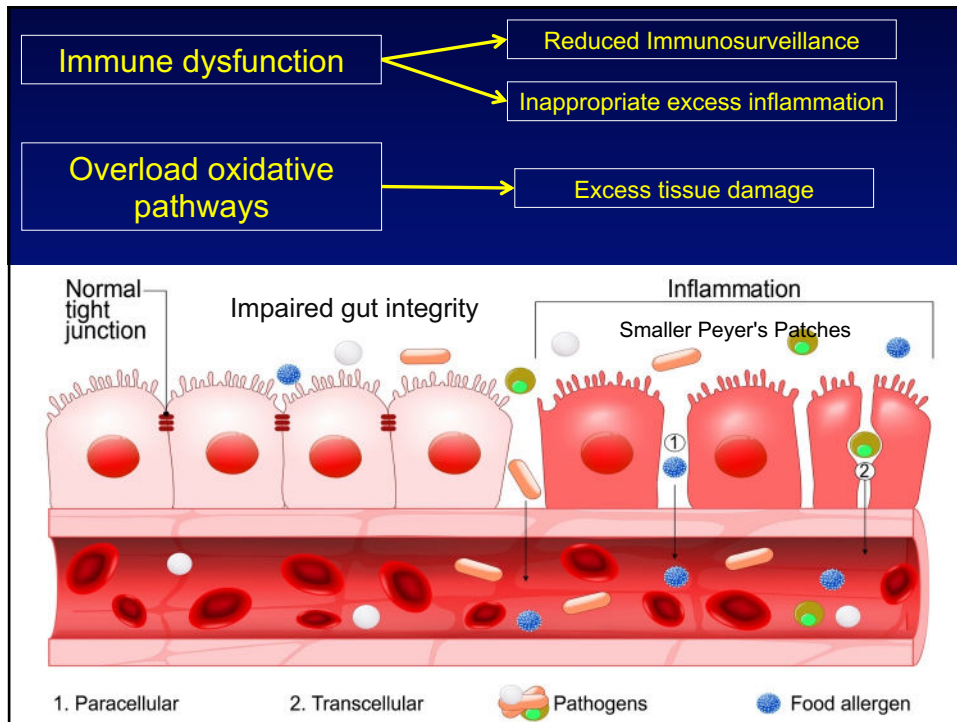


Yanagisawa Y & Thomas R et al (2021).
168. DOI: 10.29011/2577-1450.100068

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17

Better response to Immunotherapies PDL1 inhibitors

40% Better response rates

- Better gut flora
- Metastatic melanoma

THE UNIVERSITY OF TEXAS
**MDAnderson
Cancer Center**

Gong et al Microbiome and immune checkpoint inhibitors Clin Transl Med 2019;8:9

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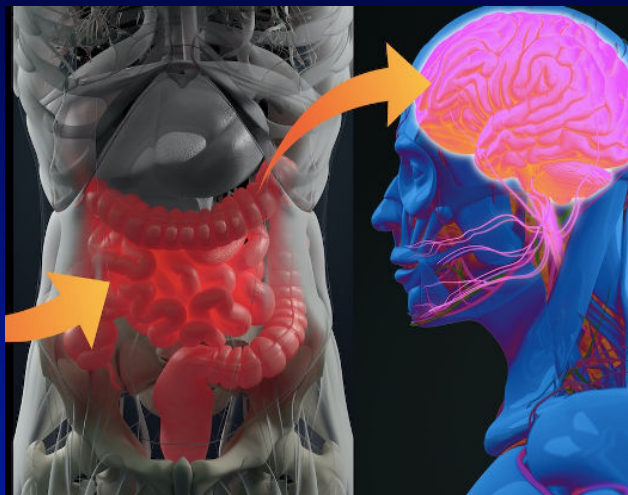
- Food intolerance
- Inflammatory bowel
- Ulcers
- Bloating
- Constipation
- Indigestion
- Bowel cancer
- Cancers elsewhere
- Arthritis
- Lower immunity
- High allergies



Shahanavaj K: Cancer and the microbiome: . *Expert Rev Anticancer Ther* 15:317-30, 2015.
Russo E et al. The microbiome and immune response. *Therapy Adv Gastrol* 9:594, 2016.
Pevsner-Fischer. Role of the microbiome in non-GI cancers. *World J Clin Oncol* 7:200-13, 2016.


19

- Fatigue
- Low mood
- Depression
- Dementia
- Parkinson's



Appleton J. The Gut-Brain Axis: *Integr Med (Encinitas)*. 2018;17(4):28-32.

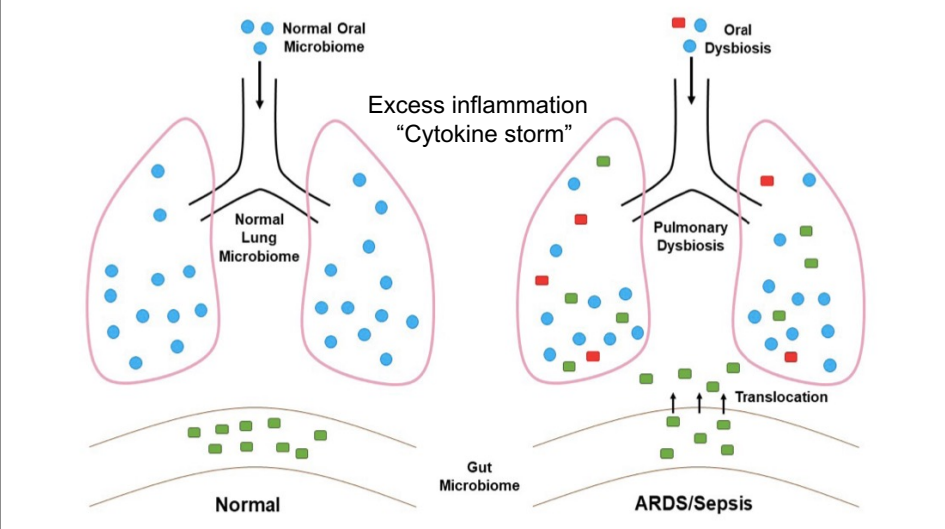
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- Asthma
- Colds
- Viral infections
- Pneumonitis
- ARDS

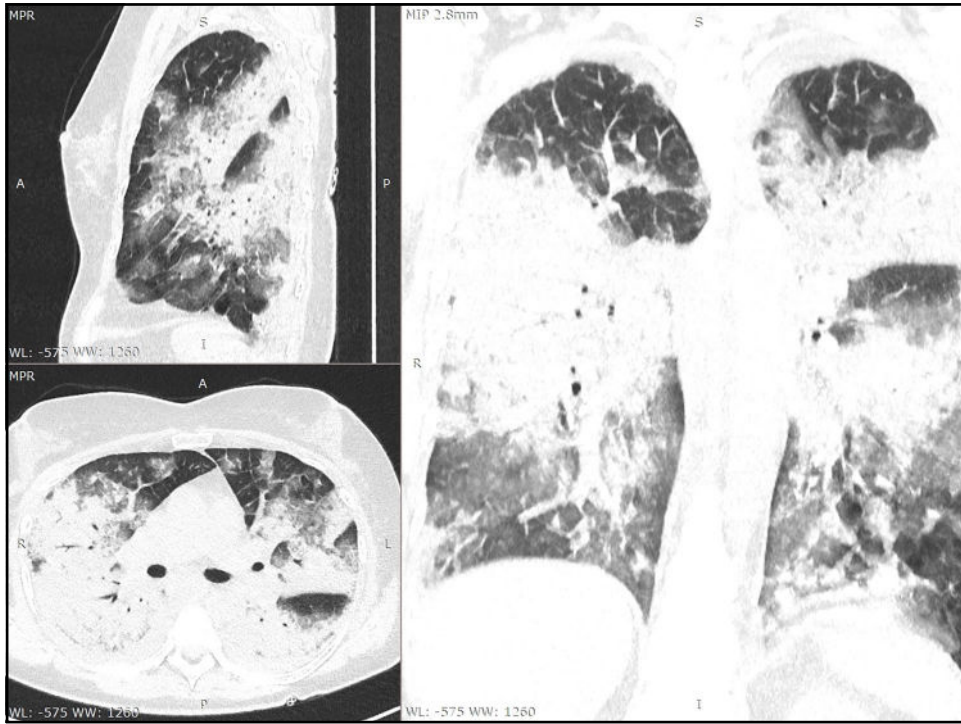
Dang, A et al Microbes and the gut–lung axis. *Mucos. Immunol.* 12, 843 (2019).
 Hufnagl et al. Dysbiosis of the gut & lung microbiome *Semin. Immunopathol.* 42, 75 (2020)
 Mukherjee et al How two microbiomes meet in ARDS. *Yale J. Biol. Med.* 91, 143 (2018).
 Budden *et al.* Links between microbiota and gut–lung axis. *Nat Rev Microbiol* 15, 55 (2017)
 Wang et al Crosstalk between lung and bowel diseases. *World J. Gastrol.* 19, 6794 (2013).

21



Smyk W. et al (2020). COVID-19: do not forget the GI tracts *Eur. J. Clin. Invest.* 50, e13276,
 Wan, Y. et al. Enteric involvement in hospitalised patients with COVID-19 outside Wuhan. *Lancet Gastroenterol. Hepatol.* 5, 534–535 (2020).
 Fanos et al (2020). Lung microbiota in acute coronavirus J. *Pediatr. Neonat. Individ. Med.* 9, .

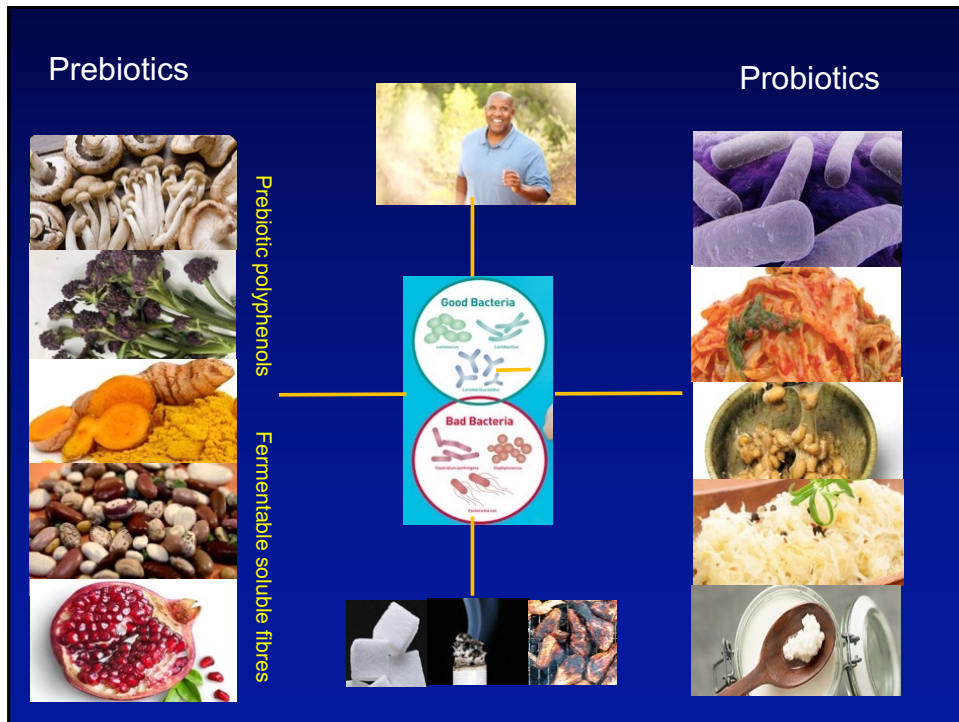
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Pre-biotic mechanism

- Prevent adhesion of bad bacteria - more space for good bacteria
- Protect good bacteria from enzymes in saliva and stomach
- Their natural antibiotics kill firmicutes but not bacteroidetes

26



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Berggren A et al. Double-blind RCT using lactobacilli against viral infections. *E J of Nut* 2010

Fujita R et al. Decreased respiratory tract infections a multicenter, double-blinded, RCT in an elderly population. *Am J of Infection Control* 2013;41(12):1231-5.

Rerksupphol S et al RCT of probiotics to reduce common cold in schoolchildren. *Pediatrics International* 2012;54(5):682-7.

Hao Q et al Probiotics for preventing acute upper respiratory tract infections: A cochrane metanalysis (2015) <https://doi.org/10.1002/14651858.CD006895.pub3>

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KING'S MAIN SITE

RESEARCH PORTAL

HOME
RESEARCHERS
RESEARCH GROUPS
RESEARCH OUTPUTS
RESEARCH FUNDING
INTERNAL

Research Outputs
Theses
Journals
Publishers

Modest effects of dietary supplements during the COVID-19 pandemic: insights from 445 850 users of the COVID-19 Symptom Study app

Contribution to journal > Article > peer-review

Bano Louca, Ben Murray, Kerstin Klaser, Mark Graham, Mohsen Mazidi, Emily Leeming, Ellen Thompson, Ruth Bowyer, David A Drew, Ha-Long Nguyen, Jordi Merino, Maria F Gomez, Olatz Mompeo Masachs, Ricardo Costeira de Oliveira Costeira, Carole H. Sudre, Rachel Gibson, Claire Steves, Jonathan Wolf, Paul W. Franks, Sebastien Ourselin & 6 more







VIEW GRAPH OF RELATIONS

- Vitamin D
- Probiotics

<https://nutrition.bmj.com/content/early/2021/04/20/bmjnph-2021-000250>

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Ongoing studies		 U.S. National Library of Medicine ClinicalTrials.gov	
2	<input type="checkbox"/> Not yet recruiting NEW	Efficacy of a Dietary Supplementation in Reducing Hospital Admissions for COVID-19. Randomized Clinical Trial	<ul style="list-style-type: none"> Covid19 Dietary Supplement: Vitamin and trace elements Dietary Supplement: Placebo
3	<input type="checkbox"/> Recruiting	Metabolic Cofactor Supplementation and Hydroxychloroquine Combination in Covid-19 Patients	<ul style="list-style-type: none"> COVID-19 Drug: Hydroxychloroquine + Metabolic cofactor supplementation Drug: Hydroxychloroquine + Sorbitol
4	<input type="checkbox"/> Recruiting	Anti-inflammatory/Antioxidant Oral Nutrition Supplementation in COVID-19	<ul style="list-style-type: none"> COVID-19 Dietary Supplement: Oral supplement enriched in antioxidants Dietary Supplement: cellulose-containing placebo capsules
5	<input type="checkbox"/> Active, not recruiting NEW	Trial Efficacy of Saisel Pharma Dietary Supplements MAF Capsules, 148 mg and M Capsules, 148 mg in Hospitalized COVID-19 Patients	<ul style="list-style-type: none"> Covid19 Dietary Supplement: MAF capsules 148 mg Dietary Supplement: M capsules 148 mg Other: Standard of care
6	<input type="checkbox"/> Withdrawn	Treatment of Covid-19 Using Infrared and/or Vitamin C	<ul style="list-style-type: none"> Covid19 Other: Infrared Energy and Dietary Supplement
7	<input type="checkbox"/> Not yet recruiting	Vitamin D and Zinc Supplementation for Improving Treatment Outcomes Among COVID-19 Patients in India	<ul style="list-style-type: none"> COVID-19 Dietary Supplement: Vitamin D3 (cholecalciferol) Dietary Supplement: Zinc (zinc gluconate) Dietary Supplement: Zinc (zinc gluconate) & Vitamin D (cholecalciferol) Other: Placebo
8	<input type="checkbox"/> Completed	Vitamin D Supplementation in Patients With COVID-19	<ul style="list-style-type: none"> COVID-19 Dietary Supplement: Vitamin D Dietary Supplement: Placebo
9	<input type="checkbox"/> Not yet recruiting NEW	Dietary Supplements for COVID-19	<ul style="list-style-type: none"> Covid19 Drug: Vitamin D3 50,000 IU Dietary Supplement: Vitamin C/Zinc Dietary Supplement: Vitamin K2/D (and 2 more...)
10	<input type="checkbox"/> Not yet recruiting	Impact of Zinc and Vitamin D3 Supplementation on the Survival of Aged Patients Infected With COVID-19	<ul style="list-style-type: none"> SARS-CoV 2 Dietary Supplement: Zinc gluconate Dietary Supplement: 25-OH cholecalciferol

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Polyphenol rich foods

Not direct anti-oxidants

Enhance anti-oxidant enzyme capacity
via Nrf-2 efficiency and other cytoprotective phase 2 enzymes

- SOD
- Gluathione
- Catalase

Inflammatory regulation:

- Cox-2 and 5- Lox
- Nf-KappaB
 - Genetic transcription factor for innate immunity
 - Cytokines, chemokines, adhesion molecules

Epigenetic expression

- Promote tumour suppressor genes
- Inhibit cancer promotor genes

Improve gut health

- Pre-biotics
- Interfere with firmicute (inflammatory) growth

Diabetic protection

- Slow Glycaemic index
- Increase insulin sensitivity

Direct cancer proliferation inhibition

- HER2
- PARP
- BCL-s

Improve DNA repair

- Upregulate BRCa 1
- Upregulate p53

BMJ 2013;347:f1153

Polyphenols in cancer prevention & management?

Robert Thomas, Elizabeth Beebe, Fabio Mauceri and Malvina Williams


Current Research in Complementary & Alternative Medicine

Review Article

Phytochemicals in Cancer Management

Robert Thomas¹, Dorothy Young², Catherine Robinson³, Malvina Williams⁴

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Phytochemicals anti-viral properties

- Viral attachment
- Penetration
- Proliferation
- Shedding

- Ellagic Acid and EGCG (*Pomegranate*, tea)
- Curcuminoids (*Turmeric*)
- Apigenin (*Chamomile*, parsley, celery, citrus)
- Quercetin (*Pomegranate*, onions)
- Hesperetin and other *citrus bioflavonoids*
- Aloe Emodin (*Aloe Vera*)
- Resveratrol

For references see Phyto-v.com

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A randomised double blind placebo controlled trial evaluating the influence of **phytochemical** rich foods capsule plus or minus a probiotic capsule on clinical outcomes among individuals with covid-19 viral infection
(The UK Phyto-V Study)





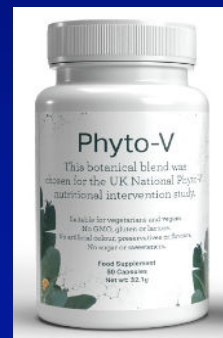
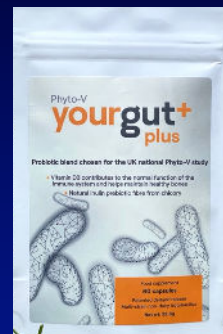
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Interventional nutritional capsules

- 10 Billion CFU:
 - Lactococcus lactis
 - Lactobacillus rhamnosus
 - Lactobacillus bulgaricus
 - Lactobacillus parcasei
 - Lactobacillus plantarum
 - Inulin prebiotic 100mg
 - Delayed release vegan capsule
-
- Citrus Sinensis (*Citrus Sinensis*, fruit)
 - Chamomile (*Matricaria recutita* L. flower)
 - Curcumin (Turmeric)
 - Resveratrol
 - Pomegranate (*Punica granatum* L. rinds)



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Primary end points

- Fatigue and malaise
- Cough symptom score
- Subjective wellbeing
- Other NCI toxicities

- Acute phase
- Chronic phase

1. Cough Symptom Score

DAYTIME COUGH

0 No cough during the day
 1 Cough for one short period
 2 Cough for more than two short periods
 3 Frequent coughing, which did NOT interfere with usual daytime activities
 4 Frequent coughing, which did interfere with usual daytime activities
 5 Distressing coughs most of the day

NIGHT TIME COUGH

0 No cough during the night
 1 Cough on waking only
 2 Wake once or early due to cough
 3 Frequent waking due to coughs
 4 Frequent coughs most of the night
 5 Distressing coughs preventing any sleep

	less than usual	no more than usual	about the same	much more than usual
do you have problems with tiredness?				
do you need to rest more?				
do you feel sleepy or drowsy?				
do you have problems starting things?				
do you lack energy?				
do you have less strength in your muscles?				
do you feel weak?				
do you have difficulty concentrating?				
do you make slips of the tongue when speaking?				
do you find it more difficult to find the right word?				
how is your memory?				

2. Subjective Well-Being (SWB)

Overall, how satisfied are you with your life nowadays?

0 1 2 3 4 5 6 7 8 9 10
 Not at all Completely

Overall, to what extent do you feel that the things you do in your life are worthwhile?

0 1 2 3 4 5 6 7 8 9 10
 Not at all Completely

Overall, how happy did you feel yesterday?

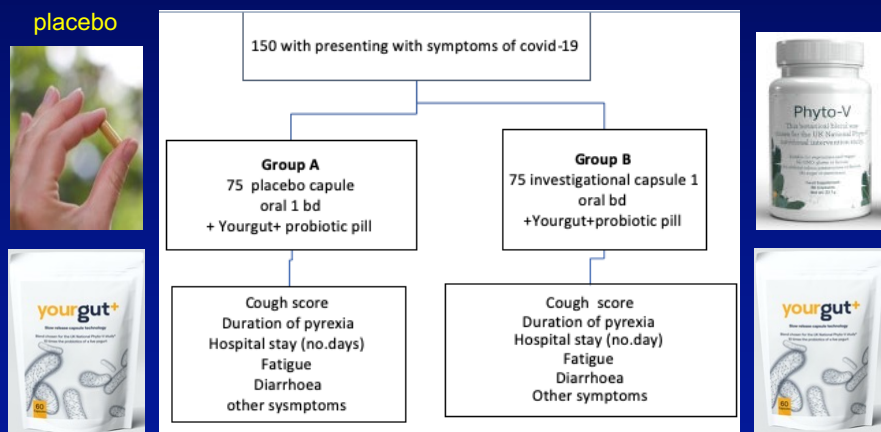
0 1 2 3 4 5 6 7 8 9 10
 Not at all Completely

Overall, how anxious did you feel yesterday?

0 1 2 3 4 5 6 7 8 9 10
 Not at all Completely

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The UK Covid-19 nutritional intervention study The UK Phyto-V study



<http://Phyto-v.com>

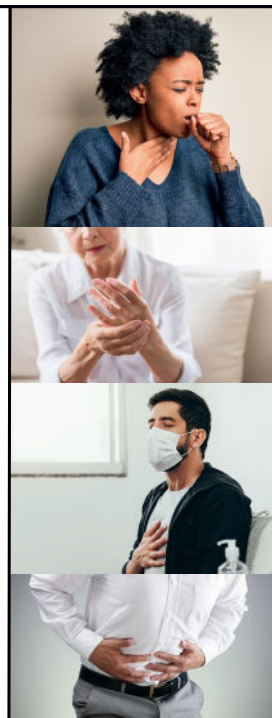
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Demographics

- 151 recruited
- 126 received probiotics
- Male - 56
- Female - 70
- Age 53 years (16-82)
- 32 (25%) acute phase
- 94 (75%) long covid phase
- Average duration of symptoms 118 days

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Self-reported symptom at baseline	Number (%)
Fatigue	117 (92%)
SOB / SOBOE	53 (42%)
Anosmia / Phantosmia	31 (25%)
Cough	30 (24%)
Headache	24 (19%)
Indigestion / gastric discomfort / altered bowel	23 (18%)
Muscle weakness	22 (17%)
Chest pain	22 (17%)
Joint pains	21 (17%)
Fever / chills	18 (14%)
Insomnia	11 (9%)
Poor appetite	8 (6%)
Brain fog	8 (6%)
Heart palpitations	8 (6%)
Sore throat	7 (6%)
Anxiety / depression / low mood	7 (6%)
Skin rash / covid toes	6 (5%)
Increased BP	6 (5%)
Nausea / vomiting	6 (5%)
Peripheral neuropathy	6 (5%)
Dizziness	5 (4%)
Hair loss	5 (4%)
Increased perspiration	4 (3%)
Sneezing	4 (3%)
New onset asthma / asthma flare	4 (3%)
Deafness / altered hearing	3 (2%)
Weight loss	3 (2%)
Altered voice / hoarseness	3 (2%)
Hyperesthesia	3 (2%)
Reduced vision	3 (2%)
Irregular menstruation	2 (2%)



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Effect of Probiotic

	Day 1	v	Day 30	
Cough	1.5		0.7	(p<0.001)
Fatigue	7		4.5	(p<0.001)
Wellbeing	3		9	(p<0.001)



Extra effect of phytochemical supplement

	Placebo	v	Phyto-V	
Cough	1.1		0.4	(P=0.0.02)
Fatigue	6.1		3.4	(p<0.001)
Wellbeing	5.5		6.6	(p<0.001)



Thomas R, Aldous J, Forsyth R, Chater A, Williams M (2021) The Influence of a blend of Probiotic Lactobacillus and Prebiotic Inulin on the Duration and Severity of Symptoms among Individuals with Covid-19. *Infect Dis Diag Treat* 5: 182.
 Thomas, R. A Double-Blind, Placebo RCT -Controlled Trial Evaluating a Phytochemical-Rich Nutritional Capsule in Addition to a Probiotic Capsule on among Individuals with COVID-19—The UK Phyto-V Study. *COVID* 2022, 2, 433-449.

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General findings

Those with GI symptoms had worse:

- Fatigue
- Cough
- Subjective well being

Who did significantly better with capsules:

- Males, Older > 60 years
- Hospitalised
- Prior indigestion
- Little exercise



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Summary of findings

Indigestion / bowel discomfort suggestive of poor gut health

- Correlates with higher systemic symptoms and subjective wellbeing

Lactobacillus / inulin probiotic - Associated with a very significant improved:

- Fatigue,
- Cough
- Subjective well being

Those with bowel symptoms / males / elderly / hospitalised

- Greater benefit to probiotics

Addition of phyto-v supplement further significantly improved

- Fatigue,
- Cough
- Subjective well being

See <https://phyto-v.com>

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The image shows a screenshot of a YouTube video player. At the top, there are logos for 'BBC NEWS' and 'YouTube'. The main content area is a red background with the text 'LOOK EAST' in large white letters. Below this, there is a smaller 'BBC NEWS' logo. At the bottom of the video frame, there is a blue banner with the text 'View on YouTube - <https://youtu.be/5Vc8fQs0ntE>'. The video frame also shows some curved text at the bottom right, including 'LOWESTOFT COLCHESTER GREAT YARMOUTH BURY ST'.

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Other International research

North Carolina, 182 participants
Double blind RCT of *Lactobacillus rhamnosus* v placebo
Reduced symptomatic covid in house hold members(26% v 43%, $p=0.02$)

Wischmeyer et al (PROTECT-EHC): medRxiv 2022.01.04.21268275;

Mexico City 300 participants, Double blind RXT
Lactobacillus blend v placebo
Reduced viral load, increased anti-covid specific IgM and IgG

Gutiérrez-Castrellón P, et al. *Gut Microbes*. 2022;14(1):2018899.

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Further research



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Post vaccination antibody titres

Higher titres:

- Less likely to catch and spread
- Less likely to get symptoms
- Less likely to be fatal

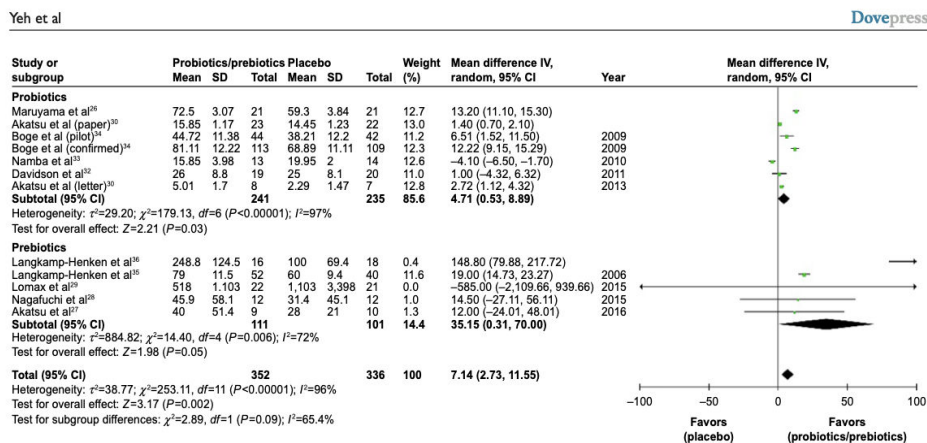


Higher titres:

- Women
- Younger
- Not obese
- Had previous covid infection

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Probiotic supplements

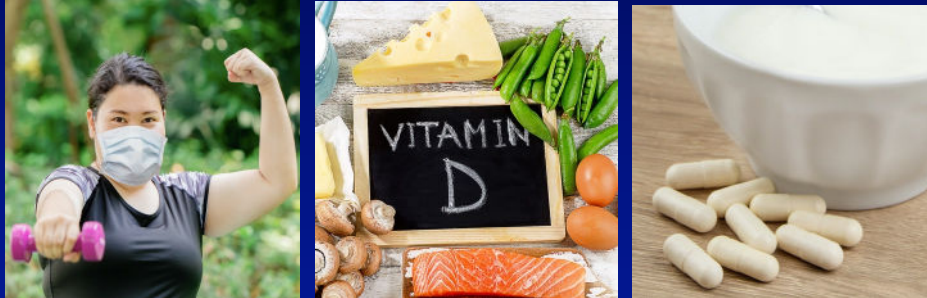


Yeh TL, et al. The influence of prebiotic or probiotics on antibody titres after influenza vaccination: a systematic review of RCTs trials. *Drug Des Devel Ther.* 2018;12:217-23

[Keep-healthy.com/probiotics-exercise-and-covid-vaccines/](https://www.Keep-healthy.com/probiotics-exercise-and-covid-vaccines/)

48

Modifiable lifestyle and dietary factors which influence post vaccine antibody titres



Kaufman HW, et al (2020) SARS-CoV-2 positivity rates associated with circulating 25-hydroxyvitamin D levels. *PLOS ONE* 15(9): e0239252.

Yeh TL, et al. The influence of prebiotic or probiotics on antibody titres after influenza vaccination: a systematic review of RCTs trials. *Drug Des Devel Ther.* 2018;12:217-23

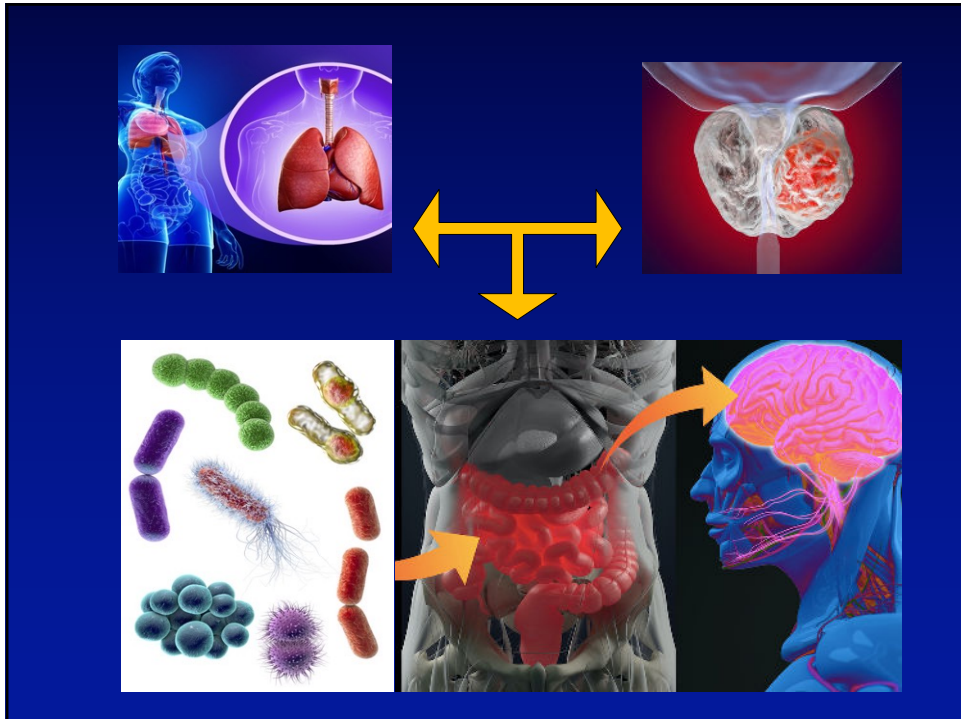
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Lactobacillus probiotics to promote vaccination effectiveness

The UK yourgut-Covax study



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Can an intervention to improve gut health improve Prostate Cancer Outcomes?

IRAS 321309

Chief investigator: Robert Thomas Bedford & Addenbrookes

Co-Collaborators: Stacey Kenfield, USC San Francisco
Rob Newton, Australia,
Simon Russel Cambridge,
Anita Mehta UCLH

NHS
Bedfordshire Hospitals
NHS Foundation Trust

Cambridge University Hospitals
NHS Foundation Trust

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Ingredients:

- Whole broccoli
- Whole turmeric
- Pomegranate
- Green tea

Additional Ingredients:

- Whole broccoli
- Whole turmeric
- Turmeric extract
- Whole pomegranate
- Pomegranate extract
- Green tea
- Whole organic ginger
- Cranberry extract

Bio-enhancing Ginger:

- Better tolerance
- Improved absorption
- Further trial data

Cranberry:

- Further trial data
- Potential symptoms

Standardised:

- Curcuminoid Ellagic Acid

Higher strength:

- Whole plant plus
- Targeted extracts

Your-Phyto
 Broccoli, Green Tea, Turmeric, Pomegranate, Cranberry
 Bio-enhancing organic Ginger
 Whole plant based with purified extracts
 Food supplement designed for the UK nutrition list
 40 single capsules
 Net weight 20.4g

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Can a probiotic & Vita D plus a phytochemical rich foods aid men with CaP? A double blind placebo RCT

220 men with CaP surveillance – no ADT

1:1 randomisation

110 men

Probiotic
Vitamin D
Inulin

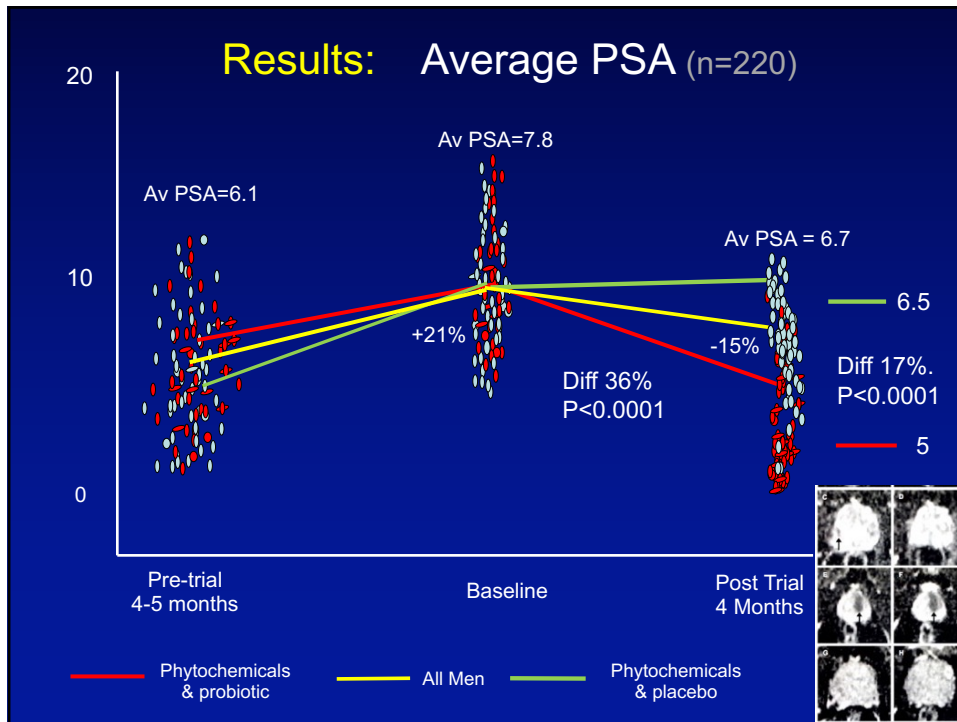
110 men

Placebo

Outcomes:

- Psadt (density) – pre and post trial between two groups
- MRI changes
- IPSS
- Erectile function (IIEF)
- Grip strength
- Testosterone and vitamin D levels


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Conclusions

The Worlds 1st robust RCT to show interventions to improve gut health reduces (halts) PSA progression



Lifestyle & nutrition advice after CaP to improve gut health is justifiable

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Conclusions

A new phytochemical rich fortified food supplement has a significant impact on PSA & urinary symptoms



Advice to improve phytochemical intake is justifiable in men after CaP

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Summary

Long Covid is a significant public health consequence of this pandemic

Gut health and long covid are connected

Strategies to improve gut health and phytochemical rich foods can help

Lessons learnt from covid research are now helping other diseases

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Ongoing information

rt@cancernet.co.uk

Cancernet.co.uk

Keep-healthy.com

Yourgutplus.com

News

Receive our quarterly lifestyle updates

Email:

NationalWorld

CANCERNETUK

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NMI SUMMIT 2024

An Energetic View: Mitochondrial Nutrition for Fatigue, the Brain, & Healthy Ageing

Saturday 12th October

Featuring Dr. Joseph Pizzorno, Lorraine Nicolle, Claire Sehinson, Professor Robert Thomas, Dr. Deanna Minich

An event by:  **Nutritional Medicine Institute**

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