

Recommendations APA

The American Cancer Society recommends cancer survivors take these actions:

- Participate in regular physical activity
- Avoid inactivity and return to normal daily activities as soon as possible after diagnosis
- Exercise at least 150 minutes per week
- Include strength training exercises at least two days per week

From Dana–Farber Cancer Institute

- The level of exercise should produce shortness of breath, but the patient should be able to talk without much effort, corresponding to relative medium-intensity activity for the individual, according to Borg's Rating of Perceived Exertion Scale.

En Marche ! La France



What is physical activity?

- Physical activity (PA) is defined as any movement that uses skeletal muscles and requires more energy than does resting. Physical activity can include working, exercising, performing household chores, and leisure-time activities such as walking, tennis, hiking, bicycling, and swimming.
- In cancer patients, the practice PA should adapted to the patients situation, called APA (Adapted Physical Activity)

What is Qi gong?

- Literally, Qì 氣 means “air, breath, or energy” and gōng 功 means “Skill achieved through time + hard work and practice,”
- So Qì gōng means “breath practice” or “energy practice.”
- Simply put, **Qigong** is a regular breathing practice in condition of physical and mental relaxation to improve the Qi/energy circulation through the body, balance Yin and Yang, to increase your sensitivity and awareness of body coordination.

Key Elements of Qigong

Tai chi and qi gong are centuries-old, related mind and body practices. They involve certain (1) postures and (2) gentle movements with (3) mental focus, (4) breathing, and (5) relaxation (medication or automassage). In contrast to qi gong, tai chi movements, if practiced quickly, can be a form of combat or self-defense.



National Center for
Complementary and
Integrative Health



Ancestral Art, New Star



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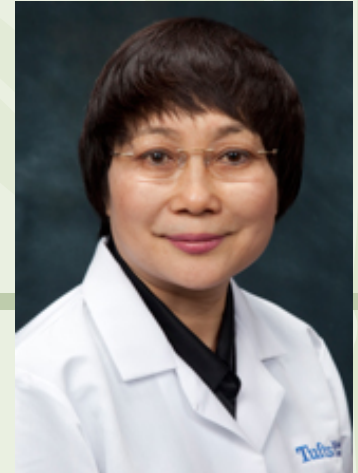
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CM

ORIGINAL ARTICLE

A Randomized Trial of Tai Chi for Fibromyalgia

Chenchen Wang, M.D., M.P.H., Christopher H. Schmid, Ph.D., Ramel Rones, B.S., Robert Kalish, M.D., Janeth Vinh, M.D., Don L. Goldenberg, M.D., Yoojin Lee, M.S., and Timothy McAlindon, M.D., M.P.H.
N Engl J Med 2010; 363:743-754 | [August 19, 2010](#) | DOI: 10.1056/NEJMoa0912611



ORIGINAL ARTICLE

Tai Chi and Postural Stability in Patients with Parkinson's Disease

Fuzhong Li, Ph.D., Peter Harmer, Ph.D., M.P.H., Kathleen Fitzgerald, M.D., Elizabeth Eckstrom, M.D., M.P.H., Ronald Stock, M.D., Johnny Galver, P.T., Gianni Maddalozzo, Ph.D., and Sara S. Batya, M.D.
N Engl J Med 2012; 366:511-519 | [February 9, 2012](#) | DOI: 10.1056/NEJMoa1107911



What is known about the relationship between physical activity and cancer risk?

- **Physical activity** is essential for people to maintain a balance between the number of **calories consumed** and the number of calories used. Consistently expending fewer calories than are consumed leads to obesity, which scientists have convincingly linked to increased risks of 13 different cancers .
- Leisure-time **physical activity** was associated with lower risks of many cancer types.



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SPECIAL REPORT

Body Fatness and Cancer — Viewpoint of the IARC Working Group

Béatrice Lauby-Secretan, Ph.D., Chiara Scoccianti, Ph.D., Dana Loomis, Ph.D., Yann Grosse, Ph.D., Franca Bianchini, Ph.D., and Kurt Straif, M.P.H., M.D., Ph.D., for the International Agency for Research on Cancer Handbook Working Group
N Engl J Med 2016; 375:794-798 | [August 25, 2016](#) | DOI: 10.1056/NEJMSr1606602

Original Investigation

Association of Leisure-Time Physical Activity With Risk of 26 Types of Cancer in 1.44 Million Adults

Steven C. Moore, PhD, MPH; I-Min Lee, MBBS, ScD; Elisabete Weiderpass, PhD; Peter T. Campbell, PhD; Joshua N. Sampson, PhD; Cari M. Kitahara, PhD; Sarah K. Keadle, PhD, MPH; Hannah Arem, PhD; Amy Berrington de Gonzalez, DPhil; Patricia Hartge, ScD; Hans-Olov Adami, MD, PhD; Cindy K. Blair, PhD; Kristin B. Borch, PhD; Eric Boyd, BS; David P. Check, BS; Agnès Fournier, PhD; Neal D. Freedman, PhD; Marc Gunter, PhD; Mattias Johansson, PhD; Kay-Tee Khaw, MD, MSc, PhD; Martha S. Linet, MD; Nicola Orsini, PhD; Yikyung Park, ScD; Elio Riboli, MD; Kim Robien, PhD; Catherine Schairer, PhD; Howard Sesso, ScD, MPH; Michael Spriggs, BS; Roy Van Dusen, MS; Alicja Wolk, DMSc; Charles E. Matthews, PhD; Alpa V. Patel, PhD

- The **absence of excess body fatness** lowers the risk of most cancers.

The risk of cancer was 33% lower in the (Bariatric) surgery group than in the control group.

Reference: 1. Arnold M, et al PLoS Med 2016;13:e1002081-e1002081

2. Sjöström L, et al.. Lancet Oncol 2009;10:653-662

Additional evidence indicates that
Increased Physical Activity
Associated with Lower Risk of 13
Types of Cancer through other
mechanisms, independent of its effect
on obesity.

Reference

Moore SC, et al. Leisure-time physical activity and risk of 26 types of cancer in 1.44 million adults. JAMA Internal Medicine. May 16, 2016. DOI:10.1001/jamainternmed.2016.1548.

What do You think about the difference.....

NEJM: Body fatness / lower Cancer risks	JAMA : PA / lower Cancer risks
Esophagus: adenocarcinoma	esophageal adenocarcinoma
Liver	liver
	Lung
Kidney	Kidney
Gastric cardia	gastric cardia
	endometrial
	myeloid leukemia
	Myeloma
Colon	Colon
	head and neck
Rectum	rectal
	Bladder
Breast: postmenopausal	breast

Exercise is helpful during and after cancer treatment, but **not specific**.

- Increase strength and endurance
 - Strengthen the cardiovascular system
 - Reduce depression
 - Decrease anxiety
 - Diminish fatigue
 - Improve mood
 - Raise self-esteem
 - Lessen pain
 - Improve sleep
-

Few information to prescriptors and policy makers.

Genetic background and timing to begin exercise is crucial for Prevention of tumorigenesis in mice

- Voluntary exercise significantly reduced tumor number in a strain dependent manner.
- Among strains where exercise reduced tumor number the **timing of voluntary exercise** relative to a carcinogen azoxymethane (AOM) exposure was crucial. Voluntary exercise **prior to or during** AOM treatment resulted in a significant reduction in tumor number,
- but exercise **following AOM exposure had no effect !!!**

Is Qigong on top of PA ?

Different “key components” of the practice of **meditation**, as well as **focused breathing** of Meditative Movement may add to the effects .

Which Qigong targets cancer?

- The unique form of Qigong (among hundreds) in China is widespread and used in all associations of cancer patient : the Guo-Lin Qigong.
- **also called Walking Qigong or Xi Xi Hu.**

Gou Lin et Guolin NEW Qigong



- **Guo Lin** (1909-1984)
- Fondatrice de GUO Lin nouveau Qigong (GLQG), aussi connu comme « Qigong en marchant », qui est à l'origine une artiste-peintre, membre de l'Académie des beaux-arts de Pékin, a été diagnostiqué de cancer à l'âge de 37 ans (1946) et a subi 6 importantes interventions chirurgicales à cause des métastases.
- L'utilisation du Qigong traditionnel qu'elle avait appris depuis son enfance de son grand-père n'empêche pas la progression de son cancer. Donc GUO Lin a cherché, développé et mis au point un nouveau Qigong pour aider sa guérison, maintenant connu sous le nom de GLQG. Après une rémission complète, elle a commencé à enseigner ce nouveau Qigong au grand public en 1971.
- Suite au succès de guérison de nombreux autres patients, en 1977, elle a fait un rapport au Ministère de la santé Chinois pour proposer une nouvelle approche pour lutte contre le cancer en combinant les forces de la médecine occidentale, la médecine traditionnelle chinoise et le GLQG.

L'innovation monumentale de GuoLin (NEW) qigong

1. Le premier et le seule Qigong à conçu pour lutte contre le cancer en utilisant la Respiration comme le vent: **XI (inspirer)- XI(inspirer) – HU(expirer)**, qui était déconseillé dans les qigong anciennes
2. Le premier d'enseigner le Qigong ouvertement dans les parcs publiques et en groupe.



Kye elements of Guolin Qigong

- 1. The mouvements. (APA+Mind-fulness)
six walking styles.六大行功
- 2. The respirations. (constant Oxygenation)
Three styles of Respirations.
- 3. The conscience and mind. (Meditation)
- 4. The self – massage on the meridiens. (Feel the body)
- 5. The voice. (energy resonance)

- This Walking Qigong's special breathing technique(called “breathing like the wind”) brings in huge quantities of oxygen, supporting healing. As the emotional state of a patient improves, healing can happen faster. Walking Qigong promotes necessary calmness, spiritual wholeness, relaxation, and other emotional benefits.

Caractéristiques de Guolin Qigong

- 1. 放松 Fang Song (lâcher-prise)
- 2. 入静 Ru Jing (entrer dans le calme)
- 3. 吸氧 Xi yang (Inspirer plus d'oxygène)
- 4. 脚翘 Jiao Qiao (Orteils - soulevés)
- 5. 手摸 shou mo (Mains- tatonner)
- 6. 吸吸呼 Xi Xi Hu (Inspirer-inspirer-expirer)

LET'S GO OUTSIDE!!!!



Guolin Qigong Targets Cancer metabolism and hypoxia

Semin Oncol. 2013 December ; 40(6): . doi:10.1053/j.seminoncol.2013.09.011.

Energy Balance and Metabolism after Cancer Treatment

Emily S. Tonorezos, MD MPH¹ and Lee W. Jones, PhD²

¹Weill Cornell Medical College and Memorial Sloan-Kettering Cancer Center, New York NY

²Duke Cancer Institute, Durham, NC

The screenshot displays the Nature Reviews Cancer website. The header features the 'nature REVIEWS' logo in white on a dark teal background, with 'CANCER' in white text on a white rectangular background to its right. A search bar is visible on the far right of the header. Below the header, a breadcrumb trail reads 'Journal home > Archive > Erratum > Full Text'. On the left, a 'JOURNAL CONTENT' sidebar lists links: 'Journal home', 'Advance online publication', 'Current issue', 'Archive' (highlighted in teal), 'Web Focuses', and 'Article Series'. The main content area is titled 'Erratum' and contains the following text: 'Nature Reviews Cancer 11, 618 (August 2011) | doi:10.1038/nrc3108', 'Otto Warburg's contributions to current concepts of cancer metabolism', 'Willem H. Koppenol, Patricia L. Bounds & Chi V. Dang', and a link to 'Nature Reviews Cancer 11, 325-337 (2011)'.

Pioneer of **cancer metabolism**



Otto Warburg. Otto Heinrich Warburg in his laboratory of the Kaiser Wilhelm Institute (predecessor of the Max Planck Institute) for Biology in Berlin-Dahlem, 1931.

Warburg Effect linked to HIF

- Otto Warburg was a pioneering biochemistry researcher who made substantial contributions to our early understanding of **cancer metabolism**. Warburg was awarded the Nobel Prize in Physiology or Medicine in 1931 for his discovery of cytochrome *c* oxidase, not for his work on cancer and the formulation of the Warburg hypothesis.
- The Warburg effect is the reverse of the Pasteur effect (the inhibition of fermentation by O²) exhibited by cancer cells; alteration of the Pasteur effect in cancer is linked to prolyl hydroxylases and **hypoxia-inducible factor (HIF)**.
- Tumour suppressors and oncogenes converge on HIF to reverse the Pasteur effect and thereby induce the Warburg effect.

New Appreciation for Oxygen

- Oxygen is required not just for the maintenance of ATP production, it is increasingly recognized as a critical component of the regulation of a wide variety of host events including cellular differentiation, immune defense, and tissue repair.

2016 Albert Lasker Basic Medical Research Award

Oxygen sensing – an essential process for survival



William G. Kaelin, Jr.

Dana-Farber Cancer
Institute, Harvard Medical
School



Peter J. Ratcliffe

University of Oxford, Francis
Crick Institute



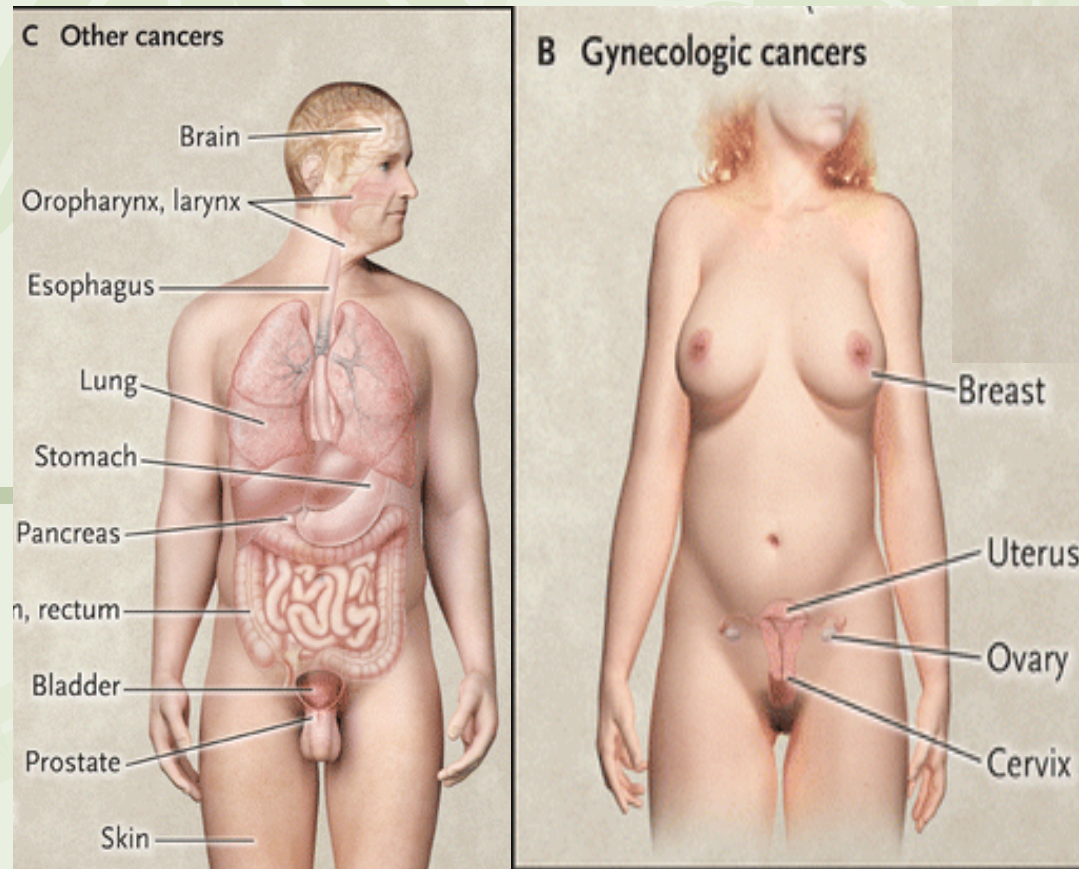
Gregg L. Semenza

Johns Hopkins University
School of Medicine

For the discovery of the pathway by which cells from humans and most animals sense and adapt to changes in oxygen availability – a process essential for survival.

In human, tumor hypoxia and HIF-1 signaling are both strongly correlate with aggressive capacity and poor prognosis .

Increased HIF-1 α protein levels in a diagnostic biopsy specimen are associated with an increased risk of death among patients with gynecologic cancers (Panel B) and other types of cancer (Panel C).



N Engl J Med 2011; 365:537-547 [August 11, 2011](#)

- Cancer cells invade the surrounding tissues, make their way into the blood vessels, and spread throughout the body. What are they looking for? My (Semenza's) hypothesis is ...
-

...Oxygen

Tumor hypoxia with Chemotherapy and radiotherapy

Tumor hypoxia is also known to mediate some chemo- and radio-resistance . Because these therapies work in large part by stimulating the overproduction of reactive oxygen species (ROS) within the tumor, limited oxygen availability lessens their efficacy .

METOXIA

(Metastatic tumours facilitated by hypoxic tumour micro-environments)



A European Collaborative Project

The history of our hypoxia-sequence of Nordic- and EU-financed programmes

- 1997-2002: NORMOKSI (NORFA-Nordic network)
- 2001-2003: OXNORM (EU thematic network)
- 2003-2009: EUROXY (EU-FP6; Collaborative project)
- 2009-2014: METOXIA (EU-FP7; Collaborative project)
- 2013- ????: SPEC (Application submitted for EU-FP7 on micro-environmental sensors)

Total cost:

EUR 9 918 380

EUR 16 038 623,20

448 Publications



This course is funded with the support of the METOXIA project under the FP7 Programme.



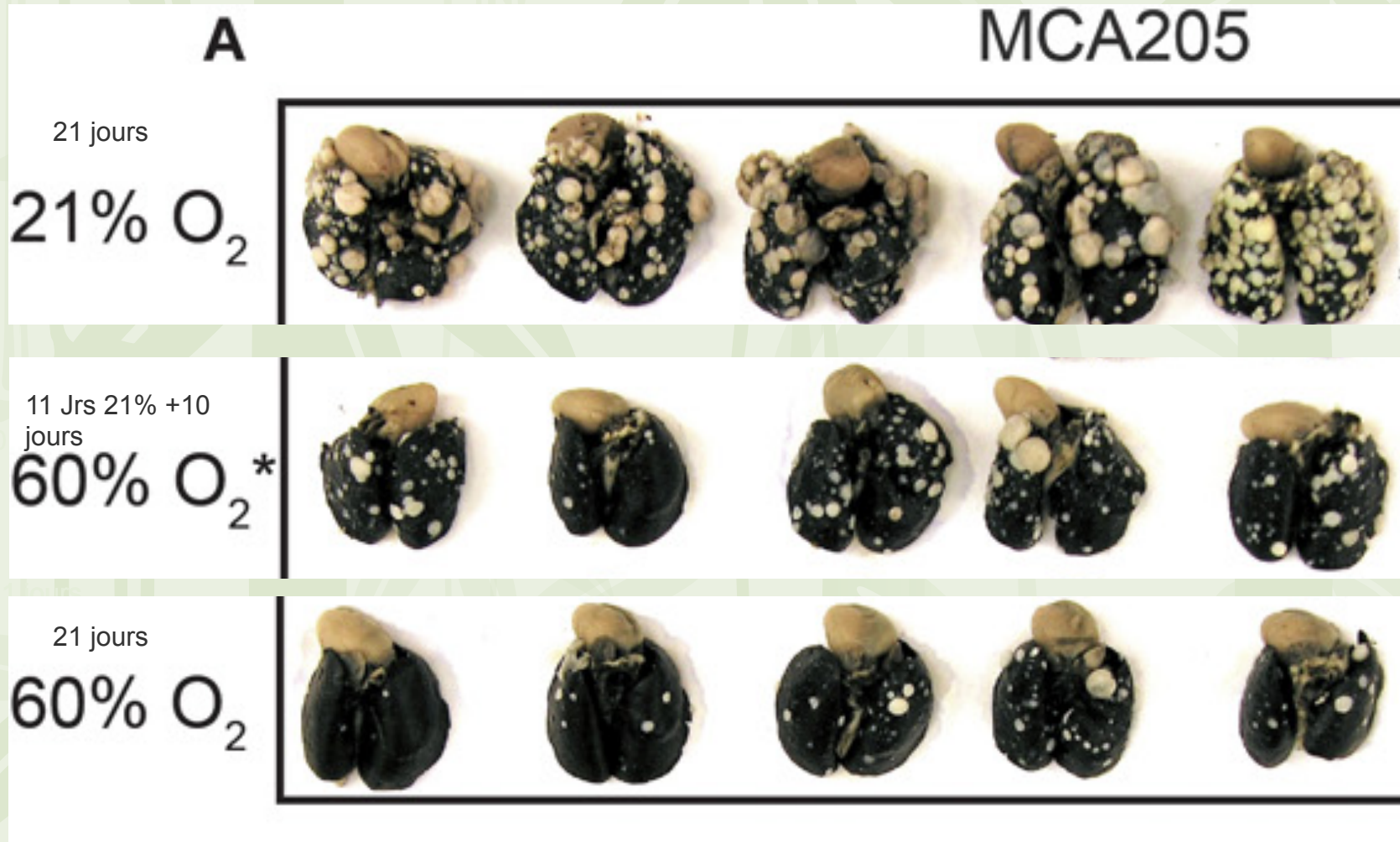
So, Do you believe?

OXYGEN

TO KILL CANCER



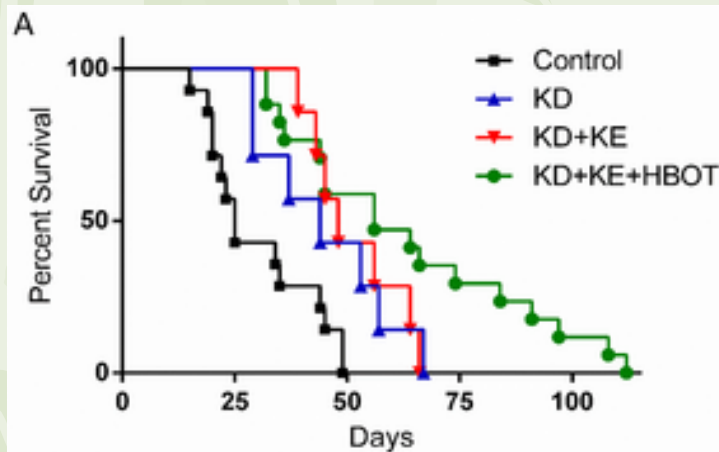
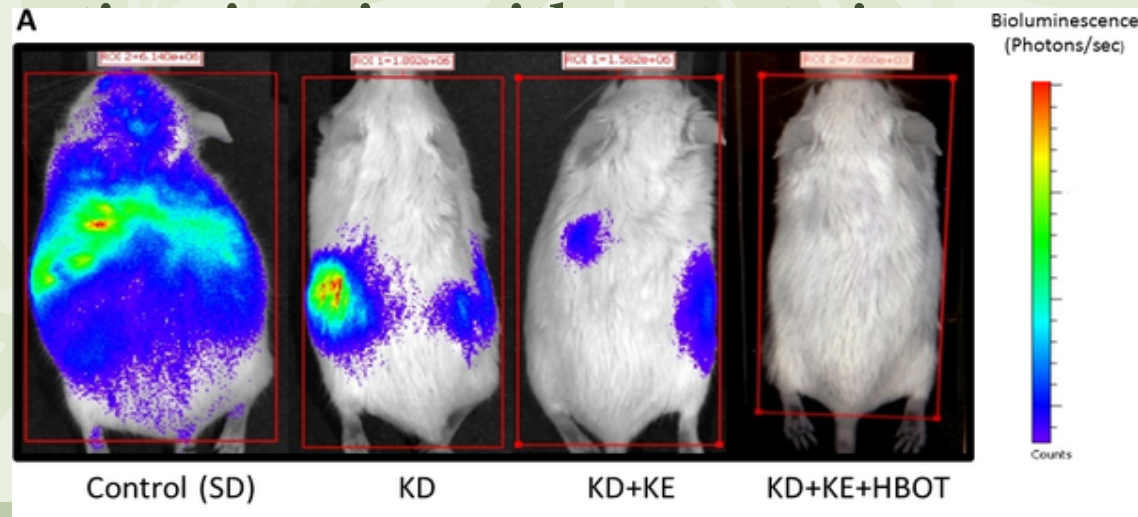
Respiratory hyperoxia promotes tumor regression and survival and decreases metastasis.



In Mouse, Inhaling supplemental oxygen can awaken anti-tumor cells

- supplemental oxygenation inhibits the hypoxia driven accumulation of adenosine in the tumor microenvironment and weakens immunosuppression.
- This, in turn, could improve cancer immunotherapy and shrink tumors by unleashing anti-tumor T lymphocytes and natural killer cells.

Ketogenic Diet, Ketone Supplementation, and Hyperbaric Oxygen Therapy slows tumor growth and extends survival



B

Treatment	Cohort Size	Mean Survival (days)	% Increase in Survival Time
Control (SD)	13	31.2	
KD	7	45.1	44.6*
KD+KE	7	51.6	65.4**
KD+KE+HBOT	17	63.4	103.2***

Poff AM, Ward N, Seyfried TN, Arnold P, D' Agostino DP (2015) Non-Toxic Metabolic Management of Metastatic Cancer in VM Mice: Novel Combination of Ketogenic Diet, Ketone Supplementation, and Hyperbaric Oxygen Therapy. PLOS ONE 10(6): e0127407. <https://doi.org/10.1371/journal.pone.0127407>

<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0127407>

Hypoxia promote the epigenetic aberrations

- **Hypermethylation** silences the expression of tumor suppressing genes, thereby enabling the aberrant behavior of cells and the excessive growth of tumors.
- **Hypoxia** explains up to 50% of the hypermethylation in tumors.
- In Tumor Cells, maintaining a proper oxygen supply in tumors inhibits these so-called 'Epigenetic aberrations': **hypermethylation**.
- And this mechanism has a similarly broad impact in bladder, colorectal, head and neck, kidney, lung and uterine tumors.

So, LET'S GO OUTSIDE!

With the help of

OXYGEN

TO KILL CANCER



Advantages of Guolin Qigong

- 1. Guolin Qigong is a whole mind-body exercise. The main difference is that qigong is not just PA, but a body-mind exercise.
- 2. Guolin Qigong gives you more energy than you expend in practicing it.
- 3. Hyper-oxygenate the body can down regulate HIF gene which induce cancer progresse and metastasis.
- 4. It is easy, fun, and all ages can practice it anywhere.

Keep it safe, keep it fun, and
make it **work** for you.



Walking, breathing, restructuring for a new life!

Comité de pilotage --- Centre Intégré de Médecine Chinoise

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