Diet, Nutrition, Physical Activity and Cancer

The Future

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The James
Conflicts of Interest
None

Opinions
Many

Research Support
NIH, AICR, DOD, ACS, USDA, Pelotonia
The Future: Topics for Commentary

- **Education**
  - RDN – PhD or similar
  - Physicians

- **Science**
  - Progress is defined by technology used by smart scientists
  - The “omics” era.
  - Clinical trials
  - The Domains
    - Etiology, therapy, recovery, survivorship
    - The life cycle

- **Impact / Politics**
“EDUCATION IS THE PASSPORT TO THE FUTURE, FOR TOMORROW BELONGS TO THOSE WHO PREPARE FOR IT TODAY.”

MALCOLM X

© Lifehack Quotes
Education:
The Dietetic/Nutritionist Discipline

- Take ownership of the research mission
- PhD-RDN
  - Training programs
  - Generate the data that defines “value” (safe, effective, efficient) in the care spectrum
- Get a seat at the table
Education: Medical Training (MD)

- Stop obsessing about medical school
  - Too much already, no one wants to share the sandbox

- What does every physician need to know?
  - Be a good example for their patients…..
  - Teach MDs to recognize disease and use the tools available
    - EMR
    - RDN

- MD nutrition experts
  - Self selection – K-awards and other grant mechanisms

- Is there a role the Academy of Nutrition and Dietetics
  - Training programs in residency/fellowship and beyond
Future Science:
ABCD’s of Clinical Research

- **Agent**
  - Dietary patterns, diet/exercise, targeted foods, nutrients, phytochemicals
  - Dose

- **Biomarkers**
  - Exposure
  - Effect”

- **Cohort**
  - Public Health Model: value of public health guidelines
  - Medical Model: personalize our interventions: understand and treat the heterogeneity (genetics, familial predisposition, premalignant state….)
  - Timing: in utero, developmental stages, adult, “senior”

- **Dollars**
  - “omics”, transcriptomics, proteomics, metabolomics
  - Computation, statistics, bioinformatics, systems biology
Can we reduce burden of chronic disease through government mediated evidence-based approaches based upon diet and nutrition?
Science Informs Public Health Interventions

Rickets
Vit D
Pellagra
Niacin
Goiter
Iodine
Anemia
Iron
Neural tube Defects Folate

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Neural tube Defects  
Folate
Science Informs Public Health Interventions

- Rickets
- Pellagra
- Lack of Niacin
- Anemia
- Deficiency of Iron
- Neural tube Defects
- Folate Deficiency

Vit D, Niacin, Iodine, Iron, Folate
The Continuous Update Program (CUP)

AICR/WCRF's CUP systematically collects the evidence and updates the research on an ongoing basis. The evidence is added to a central database, the world's largest resource of existing scientific literature on food, nutrition, physical activity and cancer.

Once the database is fully up-to-date for all cancer types, the AICR/WCRF CUP expert panel will evaluate whether any adjustments need to be made to AICR/WCRF's Recommendations for Cancer Prevention.

The process of updating the database on a rolling basis is underway, adding systematic literature reviews of new evidence, cancer site by cancer site.
The Continuous Update Program (CUP)

2010: Breast Cancer
2011: Colorectal Cancer
2012: Pancreatic Cancer
2013: Endometrial Cancer
2014: Ovarian Cancer
2014: Prostate
2014: Breast Cancer Survivors
2015: Liver
2015: Gallbladder
2015: Kidney
2015: Bladder
2016: Lung
2016: Esophagus
2016: Stomach
Excess body fat is one of the strongest factors that increases risk for this cancer.

A high-glycemic-load diet (a diet high in sugary foods, sugary drinks and processed foods high in carbohydrates) increases risk.

Daily moderate physical activity reduces the risk.

Drinking coffee – both decaffeinated and caffeinated – reduce the risk.
CUP : Endometrial Cancer

The American Institute for Cancer Research estimates that **59%** of U.S. endometrial cancer cases, or about **3 in 5**, could be prevented by being at a healthy weight and being physically active.²

That’s roughly **29,200** cases each year that never have to happen.
WCRF-AICR / WHO Global Impact

**N** = Nutrition label standards and regulations regarding claims and implied claims on foods
**O** = Offer healthy foods and set standards in public institutions and other specific settings
**U** = Use economic tools to address food affordability & purchase incentives
**R** = Restrict food advertising and other forms of commercial promotion
**I** = Improve nutritional quality of the whole food supply
**S** = Set incentives and rules to create a healthy retail and food service environment
**H** = Harness food supply chain & actions across sectors to ensure coherence with health
**I** = Inform people about food & nutrition through public awareness
**N** = Nutrition advice and counselling in health care settings
**G** = Give nutrition education and skills

More than 260 implemented government policy actions across 100 countries.
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DIETARY GUIDELINES FOR AMERICANS 2015-2020

Available at: http://health.gov/dietaryguidelines/2015/guidelines/
Politics and Sustainability
Politics and Regulatory Issues

Dietary Supplements
Lessons from the Wizard of Oz

The great and powerful Wizard of OZ

Quackery, Deceit, Fraud……. The Truth
Dr. Oz: A Modern Day Purveyor of Wizardry.
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TRUTH in advertising and marketing!
Supplement Industry / Food Labeling

Smart cookies? They’re just white flour, sugar, and oil… plus a dose of whole grain, processed fiber, and added calcium.

Each cup has 60 mg of omega-3s. A 6 oz. serving of salmon has 800-3,000 mgs

- Political
  - DSHEA, repeal / revise
  - Enhance FDA oversight and the Office of Dietary Supplements
  - Demand safety, quality control, and accurate labels
  - Truth in marketing/advertising
Dietary Supplement Health and Education Act


- Dietary supplements do not need approval from FDA before they are marketed
- Firms do not need to provide FDA with information regarding safety, efficacy
- Manufacturers do not need to register their products with FDA before producing, marketing them
- Currently, no regulatory standards exist to ensure quality, purity of dietary supplements
  - FDA proposes to develop regulatory standards in future
    - Currently, the manufacturer is responsible for this
    - Contrast with drugs (Good Manufacturing Practices, Good Laboratory Practices)