Towards personalised food and nutrition

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September 20, 2017
The science behind a meal

Biology
Technology
Data
Behaviour x Design

Which one is sweetest?
Mood-enhancing food menu to create calmer in-flight experience

Mood food

Monarch Airlines

Health = your biology + environment + lifestyle

Koen Kas @kaskoen
Public health recommendations based on averages of population data

Individuals differ in their response because of inherent variations in & complexity of individual genetic makeup & lifestyle & environment

Tools emerge to translate these variations into personalized recommendations

Based on great review van Ommen et al., Nutrition Reviews, Volume 75, 1 August 2017, 579–599
https://doi.org/10.1093/nutrit/nux029

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Disease incidence ~ Change in dietetic habits when people migrate

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4 cups a day and other mortality studies (N=20,000)

N = 135,000 study challenges conventional wisdom about carbs & fats

THE LANCET

Associations of fats and carbohydrate intake with cardiovascular disease and mortality in 18 countries from five continents (PURE): a prospective cohort study

Dr Mahshid Delghan, PhD, Andrew Mento, PhD, Xiaohoe Zhang, MSc, Sumathi Swaminathan, PhD, Prof Weil Li, PhD, Prof Viswanathan Mohan, MD, Romina Iqbal, PhD, Prof Rajesh Kumar, MD, Edelweiss Wentzel-Viljoen, PhD, Prof Annika Rosengren, MD, Leela Itty Amma, MD, Prof Alvaro Avezum, MD, Jepht Chifamba, DPhil, Rafael Diaz, MD, Rasha Khatib, PhD, Prof Scott Lear, PhD, Prof Patricia Lopez-Jaramillo, MD, Xiaoyun Liu, PhD, Prof Rajeek Gupta, MD, Noushin

Published: 29 August 2017
Can your diet help fight disease?

“Our food should be our medicine and our medicine should be our food.”

~ Hippocrates
In L.A., Kids At Risk Of Diabetes Are Getting Prescriptions For Free Fruit

Prevention—in the form of healthy, affordable produce—is what the doctor ordered.
Caelum Health wants to use software to improve people’s health without prescribing them drugs. It’s starting with irritable bowel syndrome, which affects 20 percent of Americans and leads to $55 billion worth of prescriptions. Caelum provides behavioral health treatments that it says are 3x more effective than prescription drugs, all on a mobile app platform.

Food as medicine

Become your healthiest self

Improve your digestive health and IBS symptoms through a clinically-proven, physician-recommended FODMAP diet

Get Started    How It Works
“Doctors pour drugs of which they know little, to cure diseases of which they know less, into patients of whom they know nothing”

Molière, French author (1622-1673)

3 guardian angels

8755hrs

(Gen)omics & biomarkers
Sensors (wearables,..)
Internet of Things
Your personal genome - DNA code 3,000,000,000

The era of Personal genome analysers

Oxford Nanopore

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The 1000$ genome

There’s a map inside every one of us. And it’s treasure indeed.

Understand your genetics and know more about your health.

Live in the know™

DNA RESULT: AVOID LACTOSE

Explore nutrition insights and more. With Helix, unlock a lifetime of new discoveries with your DNA.

Shop now >
Personalised nutrition based on DNA polymorphisms

(Neuro) biology of personalised food
Resto menu based on your DNA

The sweet tooth gene
Obese people lack cells with satiety hormones

Walnuts activate portion of the brain involved in cognitive control, making it easier for you to stop overeating
Eating at 'wrong time' affects body weight, circadian rhythms

https://www.cara-app.com/
Genes VERSUS diet -> Genes AND diet
The epigenetic code

Calorie restriction -> lengthened lifespan by slowing down epigenetic drift
Diet & gut microbiome influence epigenetic modulation

No guts no glory: Harvesting the microbiome of athletes
Gut bacteria trigger gene complex protecting against autoimmune disease (T1 diabetes, ...)

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Balance your blood sugar with personalized nutrition.

What’s healthy for others may not be healthy for you. Discover which foods help balance your blood sugar, based on your gut microbiome.

Watch a demo of the DayTwo app

Order now

Sign up for updates


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Quantified Self generation 1.0

1. Step detection
2. Heart Pulse
3. Heart rate variability
4. Blood pressure
5. Blood oxygenation
6. Body temperature
7. Sleep

Actionable insights
Track calories simply photographing your food

INTRODUCING SNAP IT BY LOSE IT!

Now, tracking your food is as easy as snapping a picture.
Tracking diet with chew-monitoring necklace or speech

Wearable food nutrition feedback system

Microsoft

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Unhealthy cravings curbed by smartphone treatment – project ICare

Artificial intelligence to turn images of food into recipes

Pic2Recipe!
Upload an image

Bestand kiezen
Gerecht bestand gekozen

or select one of these

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Ingredient scanners marching on
Portable food scanners

Allergen detector could fit in your pocket
Towards “precision diets” that prevent or delay tumor progression based on individual's mutation profile

High-fat diet speeds tumour growth in mice, but this can be counteracted by drugs that lower levels of a metabolite in the blood

Xia et al., Cell Metabolism, online Jan 12, 2017
1st artificial pancreas approved, T1D

Medtronic, Sugar.IQ, powered by IBM Watson
Food for every body.
The smart search and discovery solution that finds foods and recipes to match your unique dietary needs.

By combining proprietary artificial intelligence with expert nutritional knowledge, we are able to deliver relevant food choices that exactly fit your individual food preferences.
If nutrition labels looked like this

The average restaurant meal today is more than four times larger than in the 1950s

SOURCE: CDC
Designing eating habits
Mirrored tableware tricks brain to change eating habits

Studio Playfool

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Lifestyle options – from restrictions to opportunities

HealthSlate

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Insurance policy rewards employees’ healthy shopping choices with cash

EatRight Rewards is encouraging healthy eating among employees by offering cash to those that buy fruit and veg at the supermarket.

Filed under:
- Food & Beverage
- Health & Wellbeing

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It pays to live healthy

Introducing Wellcoin, the world’s first health currency. Earn Wellcoins for all your healthy choices, big and small.

Jobs of the future

Communication with (food) coaches
Soon 1st mobile Personalised food App

Medicare to reimburse for Diabetes Prevention Program, including Omada's digital version

By Jonah Comstock | March 23, 2016

HHS Secretary Sylvia Burwell announced today that Medicare will cover the Diabetes Prevention Program, including digital versions like omada Health. This marks the first time a preventative model from a CMS innovation center has been expanded into the Medicare program.

“This program has been shown to reduce health care costs and help prevent diabetes, and is one that Medicare, employers and private insurers can use to help 66 million Americans live healthier,” Burwell said in a statement. “The Affordable Care Act gave Medicare the tools to support this groundbreaking effort and to expand this program more broadly. Today’s announcement is a milestone for prevention and America’s health.”

HHS reported that, based on pilot studies, participants in the program lost an average of 5 percent of their body weight, 90 percent attended at least four weekly sessions, and, compared to Medicare beneficiaries outside the program, the DPP would save about $2,650 per enrollee.
Sickcare -> Healthcare
Precise medicine to Personalised Prevention

Baymax, Big Hero 6
How can we help you?

Eye-opening, inspiring
Keynotes

Self-learning
Newsletter
Unknown unknowns

Connectors
unlocking
data silo’s

healthskouts

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