



2016  
Best of  
yogurt publications

Selected for you  
by the **YINI experts**

# ▶ The latest science behind yogurt

Yogurt is recognized as a healthy food and it is part of the diet of many people worldwide. **This 'Best of 2016' compiles the 6 recent and significant studies**, reviewed and selected by the YINI board of experts, **to illustrate the latest findings on the potential health effects of yogurt** consumption on the nutritional quality of the diet, on maintaining a healthy body weight, as well as on reducing the risk of developing Type 2 Diabetes and metabolic syndrome.

Find more about us on [www.yogurtinnutrition.com](http://www.yogurtinnutrition.com)

## What is YINI?

Yogurt in Nutrition Initiative for a Balanced Diet is a collaborative project between the *Danone Institute International*, the *American Society for Nutrition* and the *International Osteoporosis Foundation*, dedicated to **examining the health effects of yogurt**, stimulating new research and communicating available scientific information on the subject.

## Board members

The Board of the Yogurt in Nutrition Initiative is composed by **experts within medical and nutrition fields from all over the world**. Find all information about YINI Board members in: [www.yogurtinnutrition.com/yini-board-members](http://www.yogurtinnutrition.com/yini-board-members)



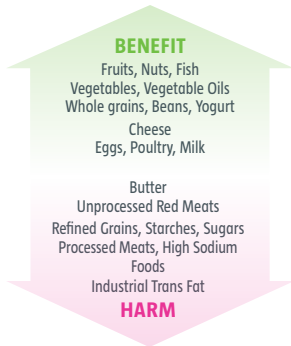
Picture taken in YINI Summit 2016 with YINI Chairs and YINI Summit speakers

# YOGURT AMONG DIETARY-PRIORITIES FOR CARDIOMETABOLIC HEALTH

Reference: Mozaffarian, Circulation 2016; 133 : 187-225.

Friedman School of Nutrition Science & Policy Global Health, Diet & Lifestyle, Cardiometabolic Disease, Policy Tufts University

**A comprehensive review from Mozaffarian D. summarizes recent science about cardiometabolic health, and highlights the key role of certain foods, including yogurt.**



## Consistency in the health effects of yogurt

When consumed over years, certain food may interfere with long-term weight homeostasis. For long-term weight gain, food rich in refined grains, starches, and sugar appear to be major culprits. Key foods in this group include potatoes, white bread, white rice, refined breakfast cereals, crackers, sweets, soda, and other processed foods high in starches or sugars. In contrast, intakes of low-fat milk and whole-fat milk, appear to be relatively neutral. **Increased fruits, non-starchy vegetables, nuts, yogurt, fish, and whole grains each appear to be associated with less weight gain over time.**

### Placement of food, based on its effects on cardiometabolic health.

Evidence-based dietary priorities for cardiometabolic health. Reproduced and adapted from Smith et al with permission at the publisher. © 2015; The American Journal of Clinical Nutrition

## The possible role of dairy fat

Interestingly, dairy fat itself may promote cardiometabolic health. Indeed in cohorts, using objective blood biomarkers, greater dairy fat consumption is associated with a lower incidence of diabetes mellitus and coronary heart diseases.

**In longitudinal studies, dairy foods effect on CVD and diabetes do not clearly differ by fat content, but seems to be more related to food type.** For example, the intake of yogurt, but not milk, is consistently associated with lower incidence of diabetes mellitus, whereas the intake of cheese, which has high calorie, fat, and saturated fat content, is also associated with lower diabetes risk in several, although not all, studies.

## Highlights

Scientific advances provide a wealth of new evidence to identify several key dietary priorities for cardiometabolic health focusing on foods and overall diet patterns, rather than single isolated nutrients; recognizing the complex influences of different foods on long-term weight regulation, rather than simply counting calories.

*"Increasing fruits, non-starchy vegetables, nuts, yogurt, fish, and whole grains each appear to be associated with less weight gain over time."* - D. Mozaffarian

*"Little evidence supports the opposing hypothesis, ie, the superiority of low-fat dairy products for health, including for risk of obesity."* - D. Mozaffarian

# A DAILY YOGURT, ASSOCIATED WITH LOWER T2D RISK

Reference: Gijssbers et al., American Journal of Clinical Nutrition 2016; 103 : 1111-24.  
Division of Human Nutrition, Wageningen University, Wageningen, Netherlands.

The authors performed a **meta-analysis to quantify the associations of incident Type 2 Diabetes (T2D) with dairy foods at different levels of intake**. Their literature search focused on international prospective cohort studies (22 studies comprised of 579,832 individuals and 43,118 T2D cases).

## A specific effect of yogurt

The main conclusion of this paper confirms previously published meta-analysis, suggesting an **inverse association of dairy food with incident T2D**. However it is important to highlight the fact that, as observed in previous meta-analysis, the global trend on dairy products and T2D is positive, but there is high heterogeneity between types of dairy products and study populations. According to the authors, **strong emerging evidence linking higher yogurt intake with lower risk for T2D indicates that the process of milk fermentation might modify milk in a beneficial way**. Also, yogurt may exert beneficial metabolic effects, because of probiotic bacteria.

## The subtype of dairy matters

**Total dairy and low-fat dairy were inversely associated with T2D risk (-3 % per 200-g/d increment)**. A much **stronger inverse association was found for yogurt intake (at 80 g/d, -14% compared with no consumption)** and ice cream intake (at very low intake ~ 10 g/d, -19%). But no added incremental health effects were found at a higher intake for total dairy, while other dairy types were not associated with T2D risk. Research is needed to better understand this observed association.



## Highlights

*"This dose-response meta-analysis of observational studies suggests a possible role for dairy foods, particularly yogurt, in the prevention of T2D." - L. Gijssbers*

# SYSTEMATIC REVIEW: THE ROLE OF YOGURT IN WEIGHT MANAGEMENT

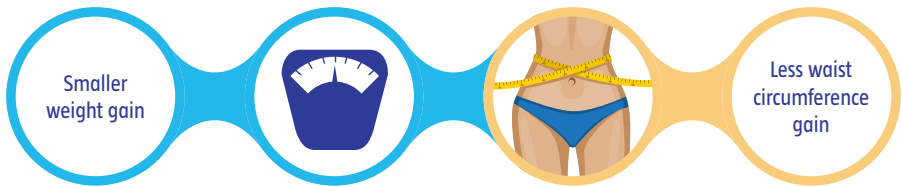
Reference: Eales et al., International Journal of Obesity 2016; 40 : 731-46.  
York Health Economics Consortium, University of York, York, UK.

This **comprehensive systematic review** examined the **effect of yogurt consumption on weight-related outcomes in healthy adults**. After a relevance assessment to weight-related outcomes in 13,000 studies, only 22 publications were selected for further analysis. These studies were carried out in 7 countries all over the world with a duration ranging from 5.9 years to 12.9 years.

## Less weight gain over time

The data suggest a role for yogurt in weight management, but cannot determine a cause-effect relationship. Almost all cross-sectional and cohort studies show a positive correlation of yogurt and weight management: **yogurt consumers may have a lower BMI, lower body weight/weight gain, smaller waist circumference and lower body fat, compared to non-consumers**. To date, existing controlled trials are not adequately designed, except for one from Zemel published in International Journal of Obesity\*, which suggests a significant favourable weight-related outcomes for yogurt, compared to the control group.

\* Zemel MB et al. Int J Obes (Lond). 2005 Apr;29(4):391-7.



## A modest, but promising effect

Therefore, this systematic review suggests a **role for yogurt in weight management**. The degree of health effects is probably a modest prevention of weight gain. The potential of yogurt for improving body weight/composition calls for increasing funding for research in this area. Well-designed, RCTs with adequate numbers for sufficient power are needed to get a better understanding of the possible mechanisms of action and the plausible cause-effect relationships.

## Highlights

This systematic review suggests that there is a potential role for yogurt in weight management over time. *"Consumption of yogurt will not be a panacea for overweight/obesity, but the simple addition of yoghurt to the daily diet may facilitate significant loss of body fat. This relatively achievable and low-cost dietary change could thereby help in minimising the impact of obesity and improve public health."* - J. Eales

# YOGURT CONSUMPTION RELATED TO LOWER RISK FOR DEVELOPING METABOLIC SYNDROME

Reference: Babio et al., Journal of Nutrition 2015; 145 : 2308-16.  
Human Nutrition Unit, Faculty of Medicine and Health Sciences, IISPV, Universitat Rovira i Virgili.

This **prospective study (PREDIMED study)** evaluated the **association between total and different subtypes of dairy products and the incidence of Metabolic Syndrome (MetS), in Mediterranean elderly at high cardiovascular disease (CVD) risk.** Data of 1,868 men and women (55-80 years), with no initial indication of MetS and with a median follow-up of 3.2 years, were used between October 2003 and June 2009 and followed up until December 2010.



## Yogurt, a dairy with many health effects

Compared to those who ate the lowest amount, **people, who had consumed the highest levels of dairy products, were 28% less likely to develop metabolic syndrome.**

When types of dairy products were investigated, the researchers identified **low-fat dairy, low-fat yogurt, whole-fat yogurt, and low-fat milk as being the most protective.** Furthermore, when subtypes of dairy product were also analyzed, the **yogurt and especially whole-fat yogurt (-27% vs 22% for low-fat yogurt) was associated to lower risk of developing MetS.** The relationship with cheese consumption was the opposite: people, who consumed the most, had the highest risk of developing metabolic syndrome during the study.

## Highlights

Consumption of low-fat and whole-fat yogurt is associated with a reduced risk of metabolic syndrome in individuals at high cardiovascular disease risk from a Mediterranean population.

*"The present study suggests that consumption of low-fat dairy products, all types of yogurt, and low-fat milk is associated with a lower incidence of MetS in older individuals at high CVD risk."* - N. Babio

# YOGURT CONSUMPTION IS ASSOCIATED WITH A HEALTHIER DIET IN CHILDREN

Reference: Zhu et al., European Journal of Nutrition 2015; 54 : 543-50.  
Department of Epidemiology, The University of Iowa, Iowa City, IA, USA.

Recent research had already described an **association between yogurt consumption and a better diet quality in adults, but not for children**. This study, conducted at the University of Iowa, analyzed data collected as part of the National Health and Nutrition Examination Survey (NHANES) involving 5,124 children (2-18 years) between 2003 and 2006 in the United States. The nutritional quality of the diet was assessed by using the Healthy Eating Index 2005 (HEI-2005), and metabolic profiles were obtained from the NHANES laboratory data.

## One serving of yogurt a week

It was found that **only 33.1 % of children consumed yogurt at least once per week**. However, these **yogurt consumers demonstrated a better diet quality, by consuming more fruit, whole grain and milk**. **Frequent consumers had a higher HEI-2005 total score**. They also had a lower fasting insulin level, **a lower insulin resistance and a higher index of insulin sensitivity, compared to the non-frequent users**. However, yogurt consumption was not associated with body weight, fasting glucose, serum lipid profiles, C-reactive protein, and blood pressures.



## Highlights

*"The results suggest that frequent yogurt consumers in children have better metabolic profiles, with a lower fasting insulin level, less insulin resistance and a better insulin sensitivity. Future longitudinal studies and clinical trials in children are warranted to explore the health benefits of yogurt consumption." - Y. Zhu*



# WHAT TO REMEMBER FROM 3 DECADES OF RESEARCH ON YOGURT?

Reference: Glanville et al, Front Pharmacol 2015; 6: 246  
York Health Economics Consortium, University of York, York, UK.

Yogurt consumption has been associated with health and well-being for centuries, but scientific research efforts on the potential health effects of conventional yogurt have mainly started during the last century. A **recent scoping review**, led by the University of York (UK), assessed the **volume of available evidence on the health effects of conventional yogurt**.

## 213 studies reviewed

The review of an extensive literature search was conducted in November 2013. Over the last 3 decades of publication, **213 studies were identified as relevant to the scoping question, according to the eligibility criteria, established in the protocol:**

- bone health (14 studies)
- weight management and nutrition related health outcomes (81 studies)
- metabolic health (6 studies)
- cardiovascular health (57 studies)
- gastrointestinal health (24 studies)
- cancer (39 studies)
- diabetes (13 studies)
- Other outcomes: ex. skin disease, Parkinson, allergies, etc. (14 studies)



## Yogurt: an indicator of a healthy lifestyle

According to the authors, there is a **substantial evidence base for investigating the health effects of conventional yogurt, which is associated with weight management and nutrition-related health outcomes, cardiovascular health, gastrointestinal health and cancer.**

Future systematic reviews of selected outcomes may provide further evidence for the health effects of yogurt consumption.

## Highlights

This scoping review, based on rigorous selection criteria, has revealed the extensive evidence base for many outcomes, related to yogurt consumption.

*"Our results provide a useful evidence base for those interested in developing future nutritional interventions with conventional yogurt."* - JM. Glanville





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