



THOUGHT FOR FOOD

Mahatma's Views on Nutrition, Controlled and Balanced Diets

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“As a searcher for truth I deem it necessary to find the perfect food for a man to keep body, mind and soul in a sound condition... I therefore still seek information and guidance from kindred spirits.”

– Mahatma Gandhi (*Young India*, 22-8-1929 as cited in ‘Moral basis for Vegetarianism’, 1959)

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This indeed is a landmark moment in history – Mahatma's 150th birth anniversary celebrations take off as the National Institute of Nutrition (ICMR-NIN) is celebrating its 100th Year. Being the oldest in the ICMR fraternity, NIN's 100-year long odyssey is dotted with many vignettes and indelible footprints on the sands of time. In fact, the modern history and evolution of nutrition research in India and NIN's growth as the country's premier nutrition research institute are almost inseparable, just like the history and evolution of independent India and Mahatma's life works are. Looking at the Institute today, one would not assume that NIN is a centenarian and was born way back in 1918; similarly, Mahatma's views about health, way of life and society appear contemporary and never senile.

Starting as a one-room beri-beri Enquiry Unit in Connoor, Tamil Nadu during colonial times and

emerging as a colossus of an entity today, ICMR-NIN's journey has been incredible. Many milestones were crossed, many heights were scaled, many innovations were made, many laurels were achieved and of course many contributions were made to empower the nation nutritionally. The Institute has been a trailblazer in the South-East Asian region and has carved a niche for itself with global renown.

Any institute, especially a science institute, they say, should be built on the firm foundation of not only Science but also 'Art' – the art of putting the knowledge of science for the benefit of the community; the art of reaching the fruits of science for building a nation. We can proudly say this Institute is an embodiment of not only the art of nutrition science but also the science of art. Not just science and art, there is an additional dimension to this Institute, the 'Heart'. The Institute has a large heart for the millions of malnourished,

a heart to build a nutritionally healthy nation and a heart to make India a powerful nation endowed with strong manpower, just as Mahatma would want science to be.

Anyone who goes through Gandhiji's works like *Diet and Diet Reform* or *Key to Health* would understand that he believed in a minimalistic approach to diet, as in everything else. He propagated that one should consider food as energy and even a medicine that is required to keep our body healthy and fit for work and, hence, one should take only what is required in minimum quantity and should refrain from eating to appease taste buds.

This article attempts to provide an overview of his views on food, diet, nutrition and 'experiments with food' and their relevance while showcasing NIN's work and its contributions to the development of nutrition science and health research in India.

FOOD SECURITY THROUGH LOCALLY AVAILABLE FOODS

Gandhiji emphasized the need to lessen hunger and malnourishment within a significant portion of the Indian population. He called attention to the importance of food security, especially in times of colonial rule when the self-sufficiency of India was in jeopardy. For Gandhi, true 'food security' meant that food production was done at the village level and fair access to locally grown quality foods was provided. As a consequence, all exports were to be halted, as relying on outside help could make India more dependent and unequal. He reiterated that food independence and security is achievable through a societal and economic system that allows for hard work, manual labour and the ability to reap the just rewards therefrom. He believed in making villages self-sufficient to consume locally available foods and fruits to achieve food and nutrition security for health. ICMR-NIN has been advocating for not only food security but nutrition security through diet diversification and advocating choice of locally available low-cost nutritious foods.

"There are people in the world so hungry, that God cannot appear to them except in the form of bread."

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VEGETARIANISM

Gandhiji was a strict vegetarian both by custom as well as by choice. He classified foods into three broad diets – vegetarian, mixed and flesh foods. He not only practised but also professed vegetarianism. In the 1880s, during his early days in London, in the window of a vegetarian restaurant, Gandhiji came across a copy of Henry Salt's book, *Plea for Vegetarianism*. He read it from cover to cover and often said that the book had a profound influence in shaping his thoughts on vegetarianism. Subsequently, in his address to the London Vegetarian Society on November 20, 1931, where he shared the dais with Mr. Salt himself, Gandhi revealed that before reading the book he had been vegetarian by custom and tradition, but upon reading the book, he became a vegetarian by choice. In fact, during his student days, he found that there was a London Vegetarian Society, whose meetings he attended. Struck by his new creed, he even formed a branch of the Society in the locality where he lived. His vegetarianism and campaign for vegetarianism continued throughout his life. His argument for vegetarianism was not just because of physical or health reasons, but he proclaimed it was on a moral basis as he believed that a (hu)man was not born a carnivorous animal, but born to live on the fruits and herbs that the earth grows.

"Man was not born a carnivorous animal, but born to live on fruits and herbs that the earth grows."

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FOODS FOR ENERGY

While the Mahatma believed in making India and Indians strong through healthy diets, among the various groups of foods after milk he gave the second place to cereals – wheat, rice, jowar, bajri, etc. In those days, apart from rice and wheat, many locally grown coarse cereals and millets also used to be a part of the staple diets. Considering that various cereals are used as staples in different provinces of India, he wrote "... in many places, more than one kind of cereal is eaten at the same time... This mixture is not necessary for the nourishment of the body... As all these varieties supply starch mainly, it is better to take one only, at a



Mahatma Gandhi (bottom row, right) with members of the Vegetarian Society, London, 1890.



Mahatma Gandhi addresses a social meeting of the London Vegetarian Society at the Chelsea Town Hall, November 20, 1931.



Mahatma Gandhi having breakfast at 6:45 am on a regular day at Mani Bhavan, Bombay 1929.

time. Wheat may well be described as the king among the cereals... From the point of view of health, if we can get wheat, rice and other cereals become unnecessary. If wheat is not available and juwar, *etc.*, cannot be taken on account of dislike or difficulty in digesting them, rice has to be resorted to." These views are a bit in contrast to the modern day recommendations of the nutrition scientists and also of NIN, which recommends that a combination of coarse cereals and millets alongside rice or wheat is necessary to get complex carbohydrates. However, Gandhiji was in favour of absolute moderation in terms of consuming carbohydrate rich foods, which is again concurrent with the modern day recommendation of NIN.

However, Gandhiji advocated against too much polishing of rice or too much refining of wheat flour. He liked to consume hand-pounded brown rice and recommended, "the cereals should be properly cleansed, ground on a grinding stone, and the resulting flour used as it is. Sieving of the flour should be

avoided. It is likely to remove the *bhusi* or the pericarp which is a rich source of salts and vitamins, both of which are most valuable from the point of view of nutrition. The pericarp also supplies roughage, which helps the action of the bowels..."

In the October 26, 1934 issue of *Harijan*, Gandhiji carried an article highlighting the ill-effects of polished rice and quoted from the *The New Knowledge of Nutrition* by McCollum and Simmonds. Further to this, Gandhiji also went on to cite the following lines from the work of McCarrison, the founder Director of Nutrition Research Laboratories (NIN in later years), to state that vitamin A is present in paddy before it is milled. The milling of raw paddy does not remove the whole content of this substance as it is not confined to the peripheral layers of the grain and is destroyed in great measure by steam passing through paddy when it is parboiled. Thus his constant interactions with Sir Robert McCarrison on several occasions have been mutually enriching, both for Gandhiji as well as nutrition science research of those days in the country.

SUGARS AND FATS

Drawing from the contemporary science of those days, Mahatma believed that there were diseases consequent to excessive eating, too frequent meals, and over-indulgence of concentrated starches and sugars. He suggested avoiding sweets as much as possible and consuming sugar or *gur* (jaggery) in small quantities. This is in tune with the current recommendations of NIN as well. Although he suggested avoiding refined sugars, he held a view that the native *gur* was better than sugar, not only for the health but also for the overall economy of rural areas. Writing about jaggery in *Harijan* (February 1, 1935) Gandhiji opined, "... *Gur* is any day superior to refined sugar in food value, and if the villagers cease to make *gur* as they are already beginning to do, they will be deprived of an important food adjunct for their children. They may do without *gur* themselves, but their children cannot without undermining their stamina. *Gur* is superior to bazaar sweets and to refined sugar. Retention of *gur* and its use by the people in general means several crores of rupees retained by the villagers."

As regards fats and oils, in tune with the contemporary science of those times, Gandhiji recognized the need for including fats/oils in the diet.

Even today, the Dietary Guidelines for Indians (NIN, 2011) suggests that about 10 per cent of the total daily calories should be met from visible fats. Mahatma also considered them as necessary foods but advocated for moderation and suggested, "... for human health... certain amount of fat also is necessary" (*Key to Health*, p16). For reasons best known to him, Gandhiji was in favour of ghee. He went on to write, "if ghee can be had, oil becomes unnecessary. It (oil) is difficult to digest and is not so nourishing as pure ghee. An ounce and a half of ghee per head per day, should be considered ample to supply the needs of the body... Those who cannot afford it should take enough oil to supply the need for fat." From his reading, he formed an opinion that sweet oil (vegetable oil), groundnut oil and coconut oil should be given preference. However, he gave utmost importance to safety and freshness of oil/fat to be used in diets. He abhorred vanaspati (hydrogenated vegetable oil), which was making inroads into the markets in those days and was widely being used to adulterate ghee. In *Harijan* (14-4-1946), citing the on-going activism against vanaspati, Gandhiji wrote, "Vanaspati is wholly superfluous. Oils may be refined of injurious property, but they do not need to be solidified nor need they be made to look like ghee... counterfeit coins are heavily punishable. Why not counterfeit ghee?" (Gandhi, 1959b p93). Today, after years of research and advocacy by health proponents, governments all over the world are endeavouring to reduce or curtail vanaspati intakes as they are rich in trans fats, which have negative health effects.

PROTEIN FOODS

Pulses: Proteins being the muscle-building nutrients, Mahatma deemed them necessary in the diet, especially locally-grown pulses and lentils. However, he strongly felt that those who were sedentary and consumed enough milk need not consume pulse at all. He wrote, "I can say without any hesitation whatsoever that those who follow sedentary occupations as for instance, clerks, businessmen, lawyers, doctors, teachers and those who are not too poor to buy milk, do not require pulses. Pulses are generally considered to be difficult to digest and are eaten in a much smaller quantity than cereals" (*Key to Health*, p15). NIN's recommendations suggest that protein should be sourced from diverse protein-rich foods.



Mahatma Gandhi eating an onion soup while reading newspaper, Dandi, April 7, 1930.

Milk: He gathered from his readings that proteins contained in milk and meat, or the animal proteins were more easily digestible and assimilable, and hence were more valuable than vegetable proteins. But Mahatma considered milk superior to meat. For vegetarians, milk being the only source of animal proteins, he felt it was a very important article of diet. Although he had vowed not to take milk, as he considered it 'equal to meat', he was compelled to add goat milk to his diet to recover from a serious weakness after a major illness. He rued his habit of milk consumption and inability to give it up for health reasons.

Eggs: Contrary to the popular belief, Gandhiji never explicitly categorized eggs as vegetarian. Given the context that the lay people in India do not consider milk to be animal food, but often regarded eggs as a flesh food, he said, "... in reality, they are not (flesh foods)... sterile eggs are also produced. The hen is not allowed to see the cock and yet it lays eggs. A sterile egg never develops into a chick. Therefore, he who can take milk

ICMR RESEARCH HIGHLIGHTS IN THE AREA OF NUTRITION

- NIN was set up as Beri-Beri Enquiry Unit in Connoor (1918)
- Nutritive Value of Indian Foods
- Recommended Dietary Allowance (RDA) and Dietary Guidelines for Indians
- Food fortification
- Nutrition Surveillance (NNMB)
- Urban Nutrition Data
- Food Composition Table
- Micro-nutrient Mix
- Nutrifly India Now (Mobile App)
- Human Resource Development in the area of nutrition
- Nutri-Smart Villages
- Addressing anaemia in adolescence
- Contribution to National Nutrition Programmes and policies

should have no objection to taking sterile eggs” (*Key to Health*, p 11). However, referring to the contemporary research works, in *Diet and Diet Reform*, he wrote about health benefits of eggs including egg yolk.

VEGETABLES AND FRUITS

Gandhiji advocated that locally grown fruits and vegetables should be preferred and consumed adequately but lamented that the shortage of greens and fruits was a slur on the then administration of the country. He wrote that fruits were generally considered to be delicacies meant for the city people in those days. He felt that the villagers could grow plenty of green vegetables if they wished to. The question of fruit cannot be solved so easily. Just as the current dietary recommendations suggest (NIN, 2011), Mahatma also suggested that a fair amount of potatoes, sweet potatoes, tapioca, *etc.*, supply starch mainly and they should be put down in the same category as starch supplying cereals. A fair helping of ordinary fresh vegetables, he said, was advisable. He held a view that our daily diet should include the available fruits of the season. Responding the McCarrison’s communication about the need for animal foods in the diet, Gandhiji wrote in *Young India* (August 15, 1929), “... Notwithstanding Dr. McCarrison’s claim for medical science, I submit that scientists have not yet explored the hidden possibilities of the innumerable seeds, leaves and fruits for giving the

fullest possible nutrition to mankind. For one thing, the tremendous vested interests that have grown round the belief in animal food prevent the medical profession from approaching the question with complete detachment.”

DRINKS AND BEVERAGES

Gandhiji firmly believed that tea, coffee and cocoa were absolutely not required for the human body. Arguing on the available scientific basis of those times, he even listed the negative aspects of tea like the presence of tanins, *etc.*, which would hinder nutrient absorption (*Key to Health*). Instead, he suggested that honey, hot water and some lemon would make a healthy nourishing drink. He was a firm believer of abstention from alcoholic drinks.

EXPERIMENTS WITH FOODS AND DIETS

Taste was not a strong or desirable element in the Mahatma’s diet. Gandhi’s experiments with food were as fascinating as his fasts. As a child, he even experimented with goat meat, turned into a goat milk consumer and goat’s curd devourer. His experiments with food covered a vast swathe of non-vegetarian, eggetarian, vegetarian, vegan and raw foods. He experimented throughout his life. He promised his mother on the verge of going to London for higher studies that he would abstain from meat. His dietary

TABLE 1. INTAKES FOR SEDENTARY MEN SUGGESTED BY GANDHIJI

Food	Suggested quantity *
Cow's milk.. or Butter 2 oz	2 lbs. (907 ml)
Cereals (wheat, rice, bajri, in all)	6 oz. (170 g)
Vegetables leafy	3 oz (85g)
Vegetables others	5 oz (142g)
Vegetables raw	1 oz. (28.35g)
Ghee or Butter	1.5 oz. (42.5g) or 2 oz (56.7g)
Gur or white sugar	1.5 oz (42.5g)
OTHER SUGGESTIONS:	
<ul style="list-style-type: none"> • Fresh fruit according to one's taste and purse. • In any case, it is good to take two sour limes a day. • Salt should be added afterwards according to taste. • How often should one eat? Many people take two meals a day. The general rule is to take three meals: breakfast early in the morning and before going out to work, dinner at midday and supper in the evening or late. There is no necessity to have more than three meals. • In the cities some people keep on nibbling from time to time. This habit is harmful. The digestive apparatus requires rest. 	

* All weights are of raw foods
Source: Key to Good Health (p 19)



Mahatma Gandhi and Sumati Morarjee cutting vegetables, 1945.



Food Pyramid proposed by NIN with four levels of foods according to recommended consumption (Source: Dietary Guidelines for Indians – 2011 after Manual).

experiments continued and he reached a point wherein he stopped eating all spices and only consumed boiled or raw food. His family too had to follow these food restrictions, sometimes grudgingly so. In one such case while experimenting with uncooked foods, Robert McCarrison wrote to Gandhi in July 1929, and urged him "... a little more 'fortissimo' on the 'milk' and milk products theme will do great good when you are leading the orchestra of Truth." Gandhi wilfully published this letter in *Young India* on August 15, 1929, albeit with his arguments against milk ("Moral basis for vegetarianism"; p11).

Gandhiji fasted on 17 occasions during the freedom struggle, the longest being for 21 days. The only thing he allowed himself to consume during his fasts was water and a little lime juice (Rajan, 2015).

He experimented with his diet all his life and shared and discussed the results of such experimentation and

**TABLE 2. MODERN DAY RECOMMENDATION BY NIN
BALANCED DIET FOR ADULTS – SEDENTARY/ MODERATE/ HEAVY ACTIVITY
(NUMBER OF PORTIONS)**

TYPE OF WORK							
	g/portion	Sedentary		Moderate		Heavy	
		Man	Woman	Man	Woman	Man	Woman
		No. of portions					
Cereals & millets	30	12.5	9	15	11	20	16
Pulses	30	2.5	2	3	2.5	4	3
Milk & milk products	100 ml	3	3	3	3	3	3
Roots & tubers	100	2	2	2	2	2	2
Green leafy vegetables	100	1	1	1	1	1	1
Other vegetables	100	2	2	2	2	2	2
Fruits	100	1	1	1	1	1	1
Sugar	5	4	4	6	6	11	9
Fat	5	5	4	6	5	8	6

To calculate the day's requirement of above mentioned food groups for an individual, multiply grams per portion with number of portions. Source: Dietary Guidelines for Indians – A Manual (NIN, 2011).

wrote elaborately in *Harijan* and *Young India* about his experiments and conclusions. He also drew from the works of contemporary scientists of NIN like McCarrison and Aykroyd, both of them then directors of NIN.

He even encouraged those around him to experiment too and adopt practices which caused the least violence to the plant and animal kingdom. He equally frowned on anyone who aped others' habits without experimenting themselves.

CLEANLINESS AND PERSONAL HYGIENE

Gandhiji was obsessive about regular bowel movements and sanitation. Whether it were Tolstoy Farm in South Africa or his ashrams in India, Gandhiji advocated cleanliness, personal hygiene to the extent that he said, "Everyone should be his own scavenger."

Today, when we talk about *Swachh Bharat* or *Swasth Bharat*, aren't we echoing what this astonishing man had adopted many decades ago?

The remarkable aspect of some of the diet recommendations is that they are relevant even today, much like the man himself. He abjured meat, spices, oil, onions and garlic, and was a firm believer in vegetables, curd, fruits, and freshly grown leafy vegetables. Today, beset as we are with lifestyle diseases driven by our faulty food choices and sedentary habits, 'locally grown', 'less oil and salt', 'less sugary', 'farm fresh', 'low fat' have become much bandied words.

Today's nutrition science extols the virtues of fresh vegetables and fruits, probiotic potential of curds or yoghurt and decry the ill-effects of sugar and refined flours. They even frown upon fruit juices, and recommend consuming whole fruit. The virtues of



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walking, regular exercise and good sanitary habits are all important according to NIN's Dietary Guidelines for Indians (2011). But these were all by-words that Gandhi lived by.

Gandhiji also upheld the view that our villages should become self-sufficient in growing their own foods, and always dreamed of an India where everyone is healthy, wealthy and well-nourished. He foresaw that this was possible if our country increased its cereals, millet, fruit and vegetable production to become self-sufficient. He envisaged an economy in which the locally-grown produce is consumed locally and only the excess is marketed. Today, although we are self-sufficient in food grain production and rank among the top in fruit and vegetable as well as milk production, we are still struggling to ensure enough consumption. Perhaps the search for the ideal state of ensuring nutrition security for all also lies in his message of linking nutrition, agriculture and science.

NIN, in its centenary year, rededicates itself to nutrition science and will extend all possible support to the Government in achieving convergence of all sectors like nutrition, agriculture, medical science, policy and regulation to Empower the Nation Nutritionally.

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REFERENCES

- Amrith SS. Food and Welfare in India, c. 1900–1950. *Comp Stud Soc Hist.* 2008; 50(4): 1010–35.
- Gandhi MK. Diet and Diet Reform. Navajivan Publishing House, Ahmedabad; 1960.
- Gandhi MK. Key to health. Navajivan Publishing House, Ahmedabad; 1960.
- Gandhi MK. Moral Basis for Vegetarianism. Navajivan Publishing House, Ahmedabad; 1959.
- Gandhi Research Foundation. Gandhiji and Diet.[Internet] Available from: <http://www.gandhifoundation.net/about%20gandhi5.htm>, accessed on August 29, 2018)
- Gavaravarapu SRM. Changing food and nutrition priorities in the public health agenda of India – A historical perspective. Ngwainmbi (Ed.), Healthcare Management Strategy, Communication, and Development Challenges and Solutions in Developing Countries. Lexington Books. 2014: 147-62.
- Guha R. Gandhi before India. Penguin UK; 2013.
- McCollum EV, Simmonds N. The Newer Knowledge of Nutrition, New York, 1922.
- National Institute of Nutrition. *Dietary Guidelines for Indians – A Manual.* Indian Council of Medical Research, Department of Health Research, Ministry of Health and Family Welfare, Govt. of India. 2011.
- Rajan EV. Food fit to be a Mahatma. One People One India. [Internet]. 2015. Available from: <http://oneindiaonepeople.com/food-fit-for-a-mahatma/>, accessed on September 2, 2018.
- SubbaRao GM, Sesikeran B. Nine Decades of leadership in nutrition research: 1918 – 2011. National Institute of Nutrition, ICMR, Hyderabad, India. 2011.
- Wente N. Food as a political tool: an analysis of the use of food towards attaining and sustaining swaraj (Indian independence) in the thought of Gandhi and Shiva [Internet] 2013. Available from: <http://public.wartburg.edu/mpsurc/images/wente.pdf>, accessed on September 1, 2018.

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Mahatma Gandhi on an evening walk at Panchgani, July 1944.