



"Delivery of Health Benefits of Plant Proteins through Snacks"



Protein Requirements

ICMR Recommends

1 gram Protein per kg Body weight per day.

RDA of Protein for Average Indian male

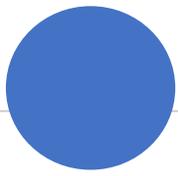
54 g/day

RDA of Protein for Average Indian female

45.7 g/day

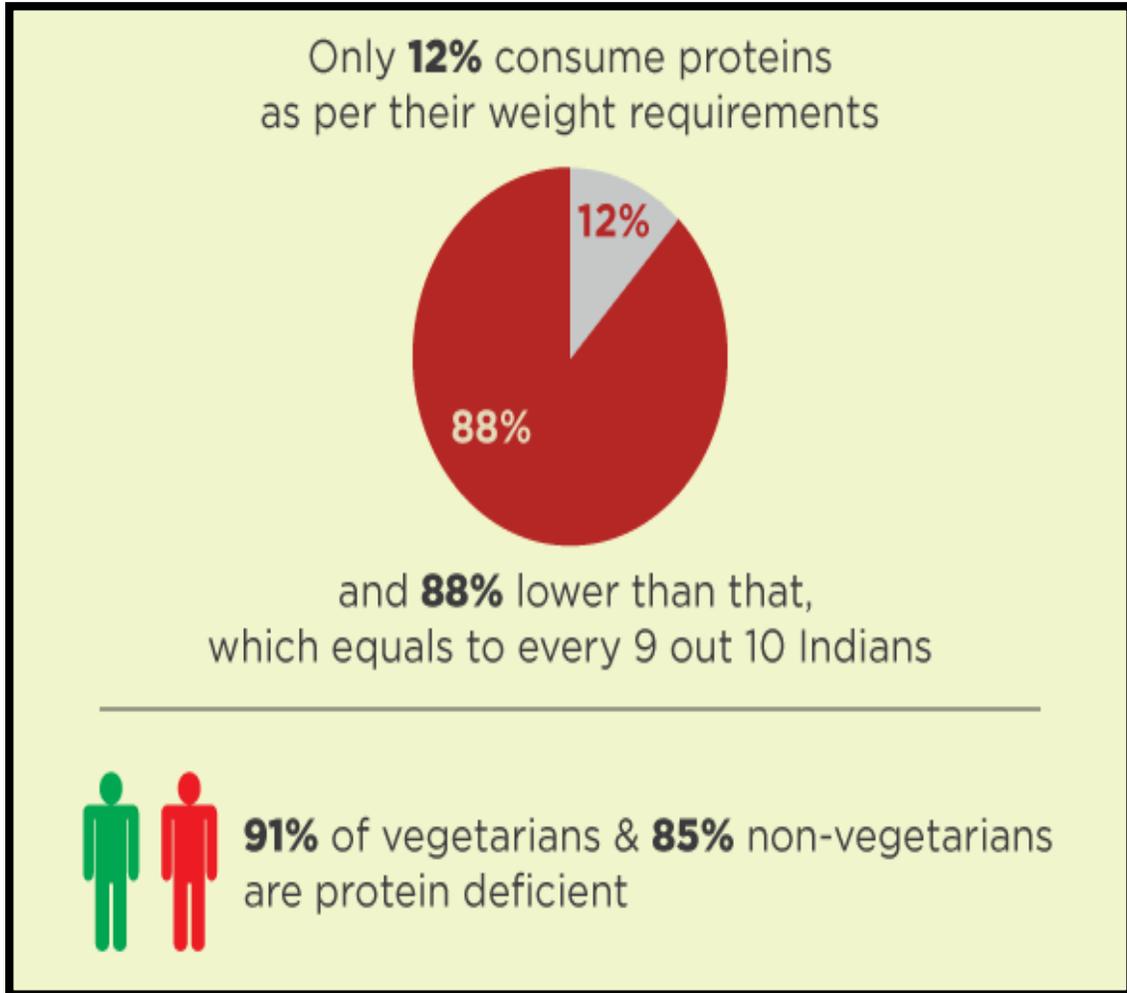
Safe requirement

Is determined to be 0.83 g/kg/d



IMRB survey

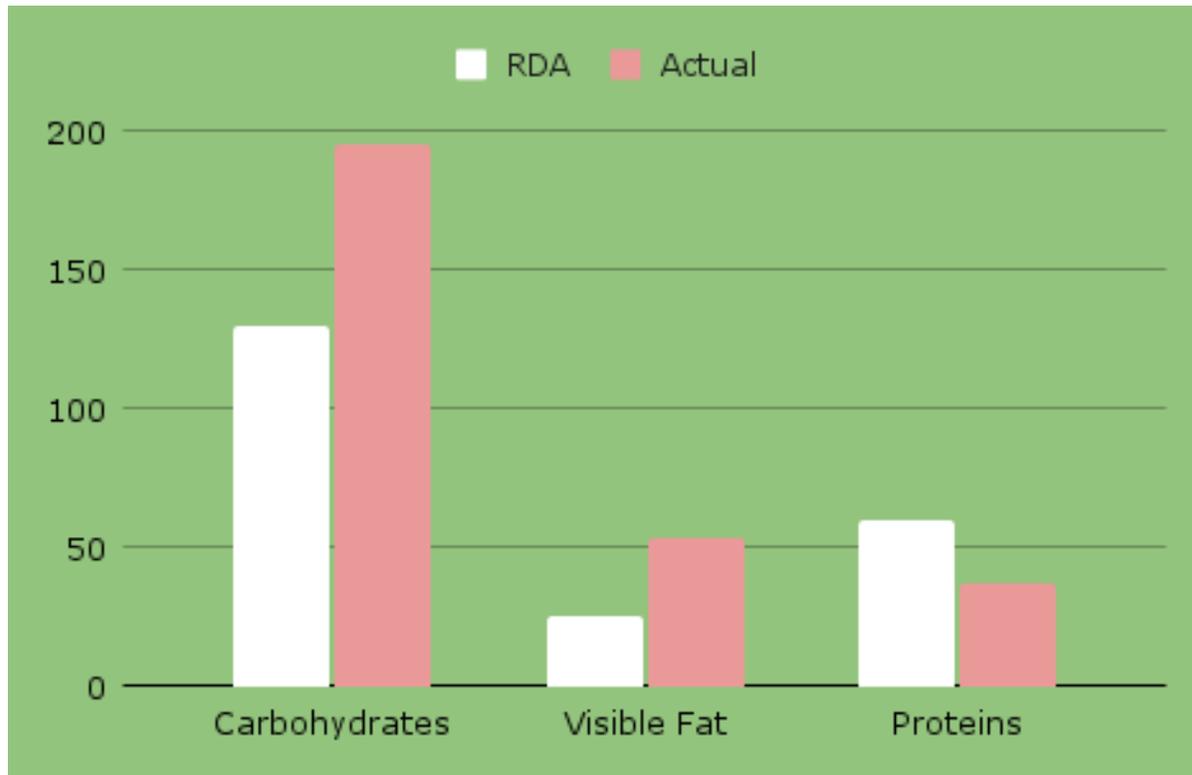
‘Protein Consumption in the Diet of adult Indians Survey’
(Prodigy), 2015



Prevalence of Protein Deficiency

More than 80% of Indians are Protein deficient.

RDA vs Actual Consumption

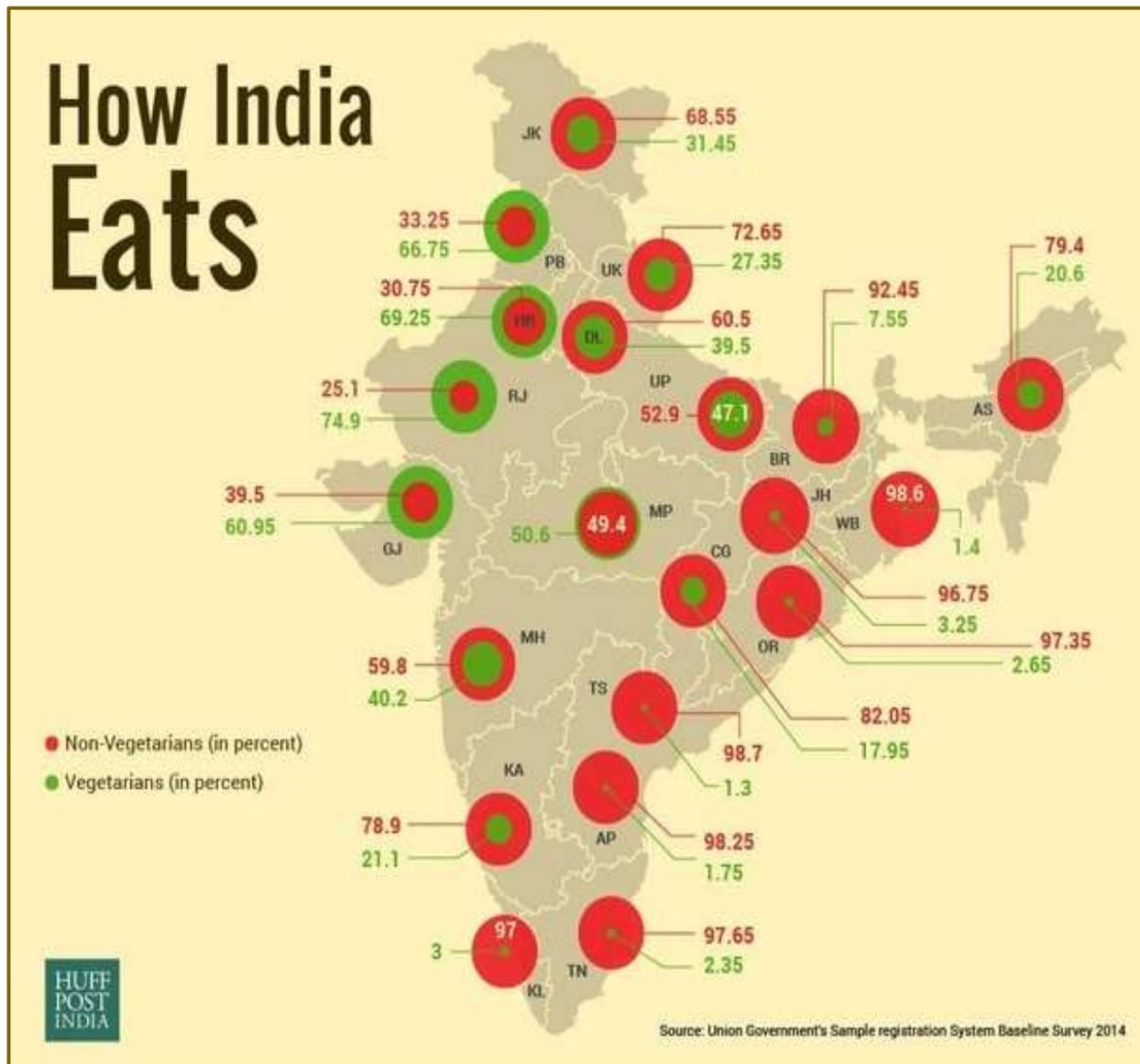


Source: Agrawal et. al., 2020

Protein consumption
37.48g/60g (RDA)

**i.e., 62.5% deficit in
consumption**

STATISTICS ON PROTEIN CONSUMPTION



- Indian diets- 60 % of protein from cereals.
- In one survey by National Nutrition Monitoring Board (NNMB) in urban and rural, Slums and sedentary rural Indian populations protein intake (mainly from cereals) = 1 gm/kg/day.
- However, less promising in terms of the protein digestibility corrected amino acid score (PDCAAS).

Swaminathan S, Vaz M, Kurpad AV. Protein intakes in India. Br J Nutr. 2012 Aug;



Reasons for Protein deficiency

**Maximum people
consume
vegetarian diets.**

**Indian diets derive
almost 60 % of their
protein from cereals
with relatively low
digestibility
and quality.**

**Lack of
understanding and
myths pertaining to
protein
consumption.**

PLANT BASED PROTEIN

→ Nowadays more consumers are turning to plant-based foods and focusing on:

- Eating clean
- More energy
- Lifestyle preference
- Environmental/sustainability reasons
- Better treatment of animals.

→ Clinical and consumer market interest is increasingly directed towards the use of plant-based proteins too.



- **Pulses, tofu, soya, tempeh, seitan, nuts, seeds, certain grains and peas.**
- **Provide nutritional, functional, and flavor attributes to vegan foods.**
- **Deliver protein quality equivalent to that of dairy and meat and enhance the nutritional quality of vegan products.**
- **Highly nutritious, and a good source of protein, fibre, vitamins and minerals.**

BENEFITS OF PLANT PROTEIN

**INCREASE BONE
MINERALIZATION**

RICH IN IRON



PROMOTES WEIGHT LOSS

**INCREASING DIET
DIVERSITY**

**PROMOTE POST WORKOUT
RECOVERY**

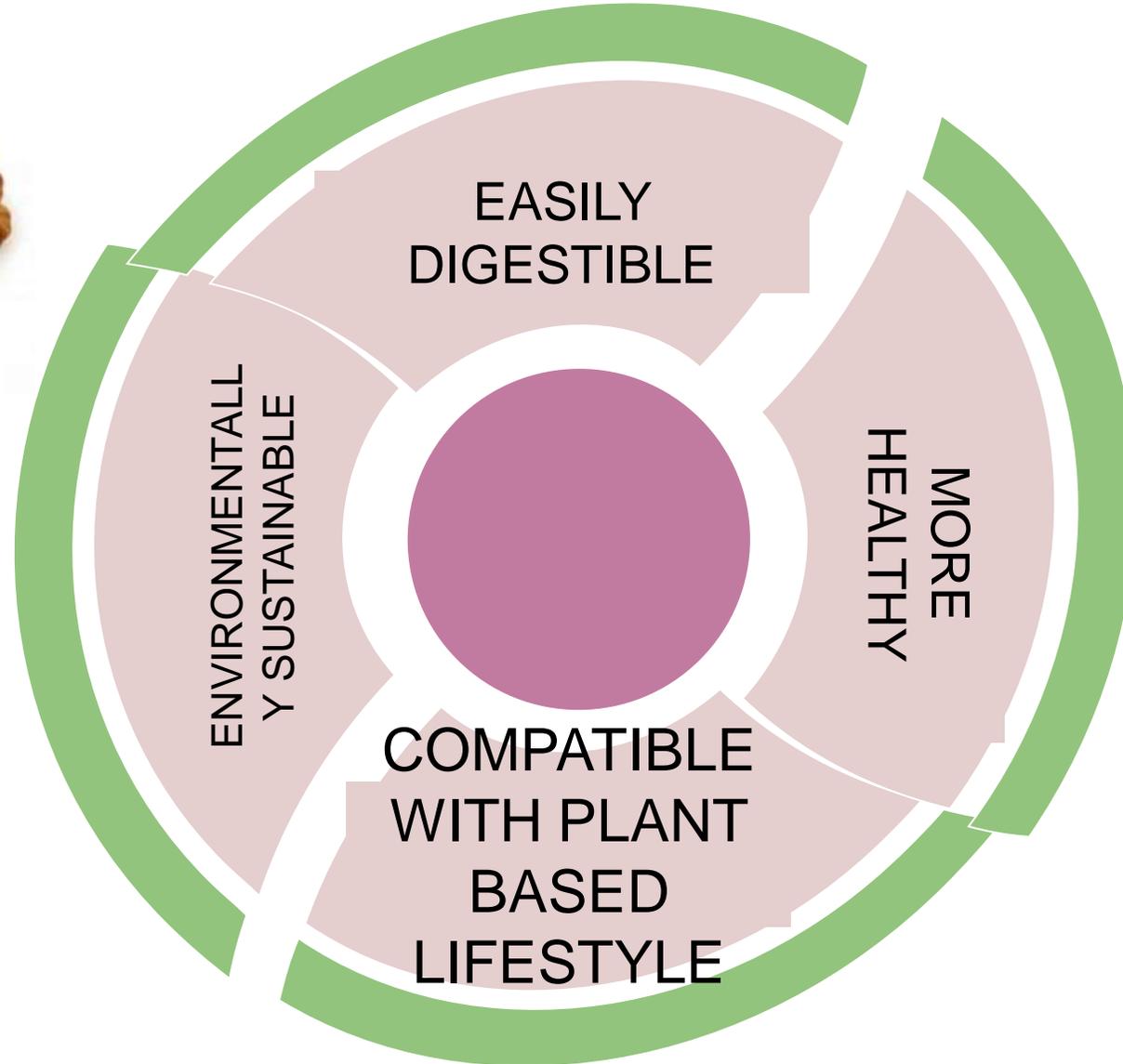
**LOWERS DIGESTIVE
STRESS**

**ENHANCE THERMOGENESIS
AND SATIETY**

**IMPROVES HEART
HEALTH**



PLANT PROTEIN OVER ANIMAL PROTEIN



The Benefits of Plant-Based Protein Snacks

Fibre

Lower risk of cardiovascular disease and cancers

No saturated fat and cholesterol

Antioxidants and Phytonutrients

Weight management





Types of Eaters

Meal
Skipper

Nighttime
Nibbler

Steady
Snacker

Heavy
Portioner

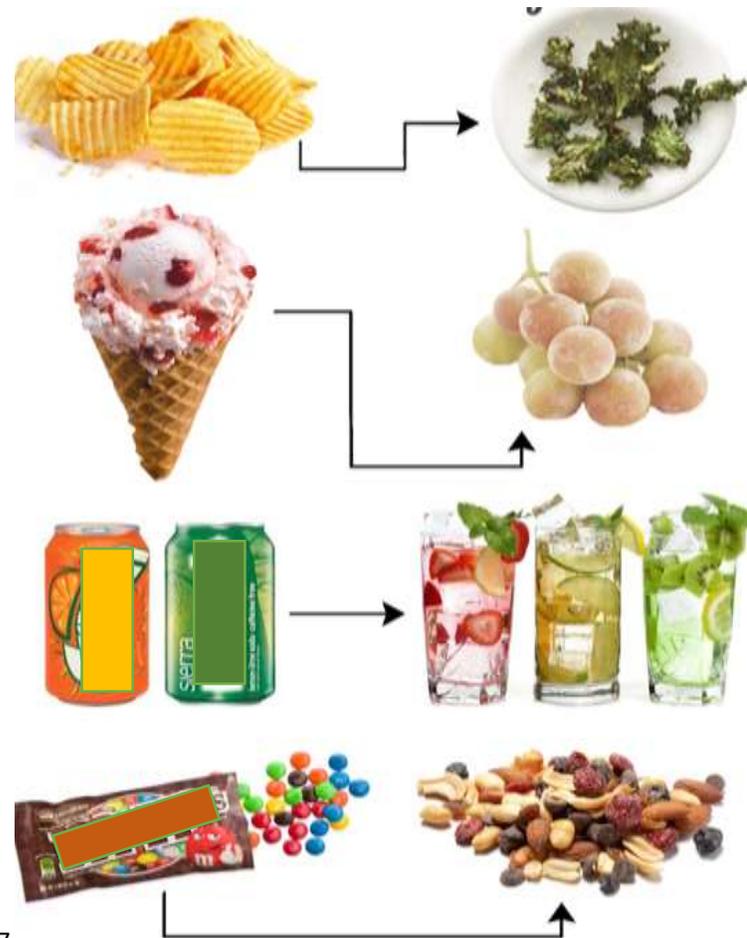
Convenient
Diner

Swing Eater

Fruitless
Feaster

“SNACKING” IS WHEN YOU CONSUME FOOD OR BEVERAGES BETWEEN YOUR REGULAR MAIN MEALS.

The term “snack foods” is often used to refer to processed, high-calorie, nutrient poor items like chips and cookies.



In today’s society, Millennials replace main meals and suffice on eating snacks all day.

Hence it is important to differentiate and choose snacks that are healthy, nutrient dense, high in protein and fibre.

According to the 2020 Food and Health Survey, during the pandemic:

85%

of adults have
changed their
eating or food
preparation
habits

24%

of women
reported eating
more food than
usual

17%

of men reported
eating more food
than usual

41%

of parents are
snacking more



FREQUENCY OF SNACKS CONSUMPTION (TIMES PER DAY)

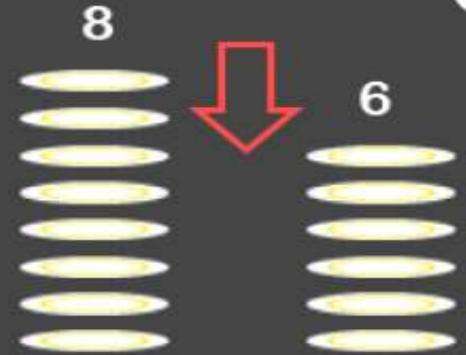


Snacking refers to all non main meal items.

Overall, FREQUENCY of snacks consumption during lockdown has INCREASED.

Whereas, VARIETY in snack consumption has DECLINED.

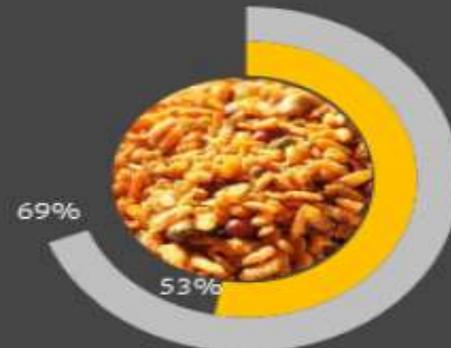
SNACKS VARIETY



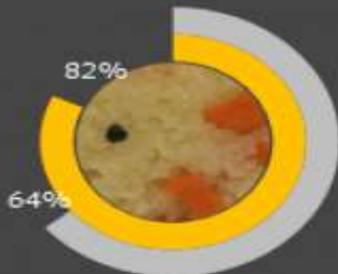
SNACKS CONSUMED



Bakery Products (Biscuits, Pastry, Cake slices)



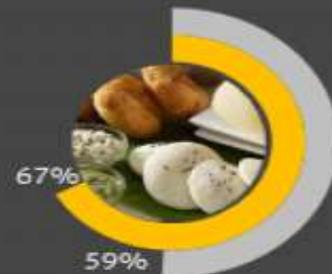
Dry Snacks



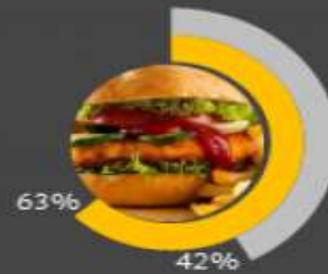
Indian Snacks (Poha, Upma, Dhokla)



Bread/Toast/Sandwich



South Indian Snacks



Burger/ Pizza/ Noodles/Pasta

■ Before Lockdown
■ During Lockdown



61%
↓
17%

Fried Snacks



58%
↓
25%

Chaat



29%
↓
6%

Momos



63%
↓
42%

Burger/ Pizza/ Noodles /Pasta



Variety FLAVOR, FLAVOR, FLAVOR Majority of Indian consumers replace meals with snacks: Mondelez report

Meenakshi Verma Ambwani | New Delhi, Feb 11 | Updated On: Feb 11, 2022

Mondelez International
SNAKING HABITS

MONDELEZ INTERNATIONAL RELEASES
FIRST-EVER GLOBAL STATE OF SNAKING™ REPORT

A STUDY THAT EXPLORES THE RISE OF SNAKING IN INDIA

- 7 IN 10** Indian adults say they eat more snacks than they did 10 years ago.
- 73%** Indian adults say they eat more snacks throughout the day, in contrast to a few years ago.
- 68%** Indian adults say, "I connect with my culture through the snacks I eat."
- 75%** Indian adults say, "Some of my favorite childhood memories are eating snacks with my parents."
- 80%** Indian adults say, "There is a time and place for healthy snacking and a new role for indulgent ones."

To learn more and download the entire report, please visit www.stateofsnacking.com/india contact: Rakhee Dandl / Vignesh Hari at meenakshiv@hindi.com

INTELLIGENT Snacks can be an important part of your diet

- Satiety, after eating, is important in suppressing overconsumption of meals.
- Eating snacks between meals **promote satiety**.
- **Suppress overconsumption** at the subsequent meal.



STUDIES

Relation between snack foods and satiety

Conclusion: Whole foods snacks high in protein, fiber, and whole grains enhance satiety.

Factors that influence snacking include

Age

Beliefs

Peer/ family
influence

Hunger (main
motivation)

Preference

Cravings

Location

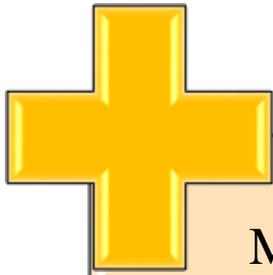
Social
environment

Time of day

Food
availability

Stress

SNACKING



Maintaining weight
Higher diet quality



Gaining weight
Lower diet quality



What differentiates the two scenarios is one's

Snacking Behavior:

- **What** you snack
- **Why** you snack
- **Frequency** of snacking
- **How** snacks fit into your overall eating plan.



Benefits

Provides a boost of energy

Provides extra nutrients

Maintain adequate nutrition if one has a poor appetite

Disadvantages

- Unwanted weight gain if portions or frequency is too much.
- Reduce hunger at mealtimes
- Regular intake of processed snacks high in salt, sugar, and fats but low in nutrients, leading to a change in eating behaviors and diet quality.

Effects of snacking

Effect on Metabolism

Effect on Appetite

Effect on Weight

Effect on Blood sugar

Effect on Hunger



Effects of Snacking- STUDIES

Effect on Metabolism

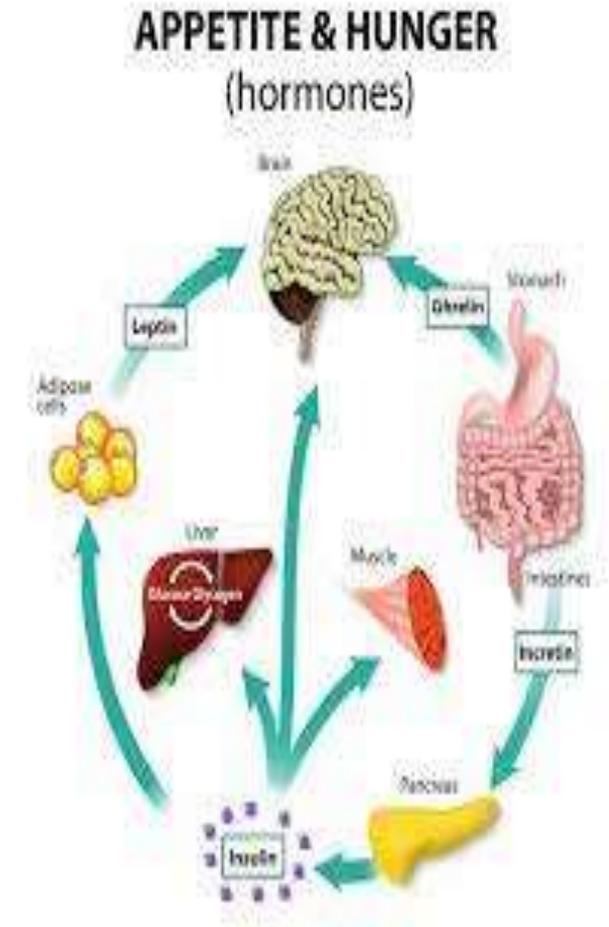
- **Night-time consumption of protein results in increased morning resting energy expenditure in active college-aged men**
- Active young men who ate a high-protein or high-carb snack before bed.
- Significant increase in metabolic rate in the morning.
- Snacking every few hours is often believed to increase metabolism.

Night-time consumption of protein or carbohydrate results in increased morning resting energy expenditure in active college-aged men
[Takudzwa A Madzima¹](#), [Lynn B Panton¹](#), [Sarah K Fretti¹](#), [Amber W Kinsey¹](#), [Michael J Ormsbee](#) 2014 Jan

Effect on Appetite

- Men eating a high-protein, high-fiber snack bar.
- Lower levels of the hunger hormone ghrelin.
- Higher levels of the fullness hormone GLP-1.

Differential effects of dairy snacks on appetite, but not overall energy intake
[Anestis Dougkas¹](#), [Anne M Minihane](#), [D Ian Givens](#), [Christopher K Reynolds](#), [Parveen Yaqoob](#), 2012 Dec



Effect on Weight

- Chronologically scheduled snacking with high-protein products within the habitual diet in type-2 diabetes patients leads to a fat mass loss
- Munching on snacks high in protein and slow-digesting carbs
- Resulted in weight loss of 1 kg within 4 weeks.
- Weight loss with snacking depends on the type of snack chosen.

Chronologically scheduled snacking with high-protein products within the habitual diet in type-2 diabetes patients leads to a fat mass loss: a longitudinal study [Santiago Navas-Carretero¹](#), [Itziar Abete](#), [M Angeles Zulet](#), [J Alfredo Martínez](#) 2011 Jul

Effect on Blood sugar

- Snacks with a high protein and Fiber content improve blood sugar control.
- Lower-carb, higher-fiber snacks have more favorable effect on blood sugar and insulin levels than high-carb snacks in people with and without diabetes.

Impact of dietary fibre-enriched ready-to-eat extruded snacks on the postprandial glycaemic response of non-diabetic patients [Margaret A Brennan¹](#), [Emma J Derbyshire](#), [Charles S Brennan](#), [Brijesh K Tiwari](#), 2012 May

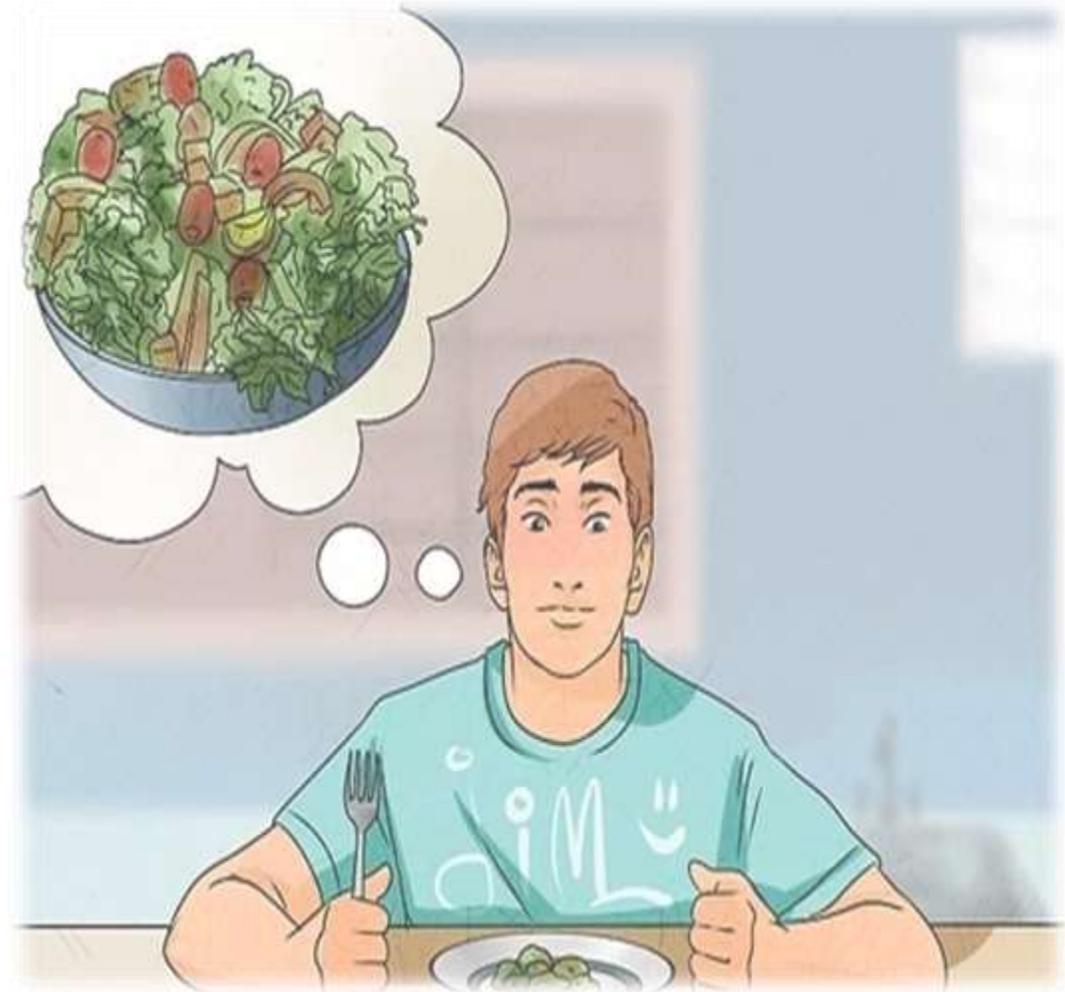


Effect on Hunger

Increasing the protein to carbohydrate ratio in yogurts consumed as a snack reduces post-consumption glycemia independent of insulin

Eating a protein and fibre rich snack.

Curb the hunger and prevent from making poor food choices and excess calorie intake.



Increasing the protein to carbohydrate ratio in yogurts consumed as a snack reduces post-consumption glycemia independent of insulin

[Dalia El Khoury¹](#), [Peter Brown²](#), [Gary Smith³](#), [Shari Berengut¹](#), [Shirin Panahi¹](#), [Ruslan Kubant¹](#), [G Harvey Anderson⁴](#)

A STUDY THAT EXPLORES THE RISE OF SNACKING IN INDIA

7 in 10

Indians say that they snack more today than they did a year ago



68%

Indian adults say, "I connect with my culture through the snacks I eat".



80%

Indian adults say, "There is a time and place for healthy snacks, and a time and place for indulgent ones".

73%

Indian adults say, "I prefer to eat many small meals throughout the day, as opposed to a few large ones".



75%

Indian adults say. "Some of my fondest childhood memories are sharing a snack with my parents".

SNACKING trends driving millennials

HEALTHY, CLEAN LABEL, NATURAL FOOD

- They want products that are **natural, organic, and sustainable**. Close to **90 percent of millennials** eat “**better-for-you**” snacks at least once a week.
- **ENVIRONMENTALLY-CONSCIOUS PRODUCTS, SUSTAINABLE SOURCING:**
- Millennials are interested in how their **food was sourced or grown**, and **sustainability is a priority when buying food**.

ETHNIC FOODS

- Millennials are described as **open-minded and curious**.
- They like trying **new flavors and love ethnic fusion** cuisines.

INFLUENCED BY THEIR PEERS RATHER THAN TRADITIONAL INFLUENCERS

- Millennials rely heavily on **websites, bloggers, and social media fitness professionals for health information**. According to research by the Center for Generational Kinetics, millennials will try a snack based solely on an **online rating, review, or social media post**.

A LOVE FOR SNACKS

- **Millennials graze instead of eating large meals**.
- They are defined as a generation that **skips meals in favor of snacks and are more likely than any other generation to snack upwards of four times a day!**

FLAVOR, FLAVOR, FLAVOR



Taste is a common denominator across categories, ethnic groups, and even countries.

Millennial consumers **no longer accept a tradeoff between taste and nutrition.**

Millennials expect their **healthy snacks to taste as good or better than traditional snacks.**

Offering new flavors, interesting textures, and fun, creative combinations, both in the savory and sweet snack categories.

MEANINGFUL SNACKS DON'T HAVE TO SACRIFICE TASTE & FLAVOUR- WHAT'S TRENDING?

- **Millennials want to experiment and try new things.**
- **This does not mean solely new ethnic food; they are also intensely focused on textural experiences.**
- **Manufacturers are placing texture claims on their products, and it is estimated a third of those claims feature crunchy, crispy, crusty, brittle, or nutty, while another third were classified as smooth, velvety, creamy, and buttery.**
- **There is a clear trend towards healthy and more nutritious snacks that deliver on taste.**
- **New taste and flavor combinations** are expected to flourish, as are snacks that feature alternative ingredients, different proteins, grains, vegetables, and “superfoods,” while delivering nutrition.
- **Protein has become a popular ingredient in better-for-you snack product development.** A good example are **high-protein snacks, thins, crackers, pancakes, noodles, pastas.**
- **As noted earlier, millennials love snacking throughout the day, and they seek salty and savory snacks.**

Making Snack Healthy

In Two Ways

Increase

Protein
Fiber
Antioxidant
Phytochemicals
Flavonoids
Micronutrients

Refined Carbohydrate
Fat
Salt
Sugar
Sodium
Trans Fats

Reduce

SMART SNACKING



1. Amount to eat

- Eat snacks that provide about 200 calories.
- Add at least 10 grams of protein to provide satiety.
- Put snacks in containers for portion control.
- It is easy to overeat straight from the package.

2. Frequency

- Your number of snacks varies based on your activity level and meal size.
- Active- prefer 2–3 snacks per day
- A more sedentary person may do best with 1 snack per day.

3. Portability

- Keep portable snacks with you when at work or traveling to avoid eating food from outside.
- Put snacks in small plastic containers or bags so they are easy to carry in a pocket.

4. Protein + Carbohydrate

- Pairing a protein with a carbohydrate will help the snack to keep you fullest for the longest.
- Example: whole wheat crackers with peanut butter, or plain yogurt and fresh fruit.

5. Choosing healthy snacks

- Read the Nutrition Facts label, which provides information on serving size, calories, fat, sodium, and added sugars.

SNACKS



High-sugar snacks



Candy



Cake



Cookies



Ice-cream



High Sodium snacks



Deep Fried snacks



Some Tips

- Do not keep junk food or other unhealthy snacks in your house.
- Store foods like cookies, chips, or ice cream where they are hard to see or reach.
- Move the healthier foods to the front, at eye level.
- Pick foods that are low in fat and added sugar and high in protein, fiber, and water.



SNACKING TIPS



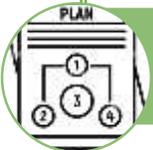
Serve a small portion of snacks- Use small plates, bowls



Make snacks look interesting- Cut into different shapes, and make the plate look colorful.



Prepare a nutrient-rich snack by combining various foods in one snack- eg: nuts and fruits mixed



Plan ,Shop and prepare well in advance



Do not allow snacking close to mealtimes



Involve teenagers while preparing the snacks

It's a good idea to include a protein source in your snack.



Apple slices
with peanut
butter



Tofu Rolls



Roasted Chana



Buttermilk



Yogurt



Chia Seed
Pudding



Mixed Nuts
Bowl



Protein Khakra



Granola Bars



Hummus with
Vegetable
sticks



Sprout Salad



Sprout Tikki



Protein Khakra
Sandwich



Protein Khakra
Pizza

HAVE A MINDFUL SNACK

S N A C K

STOP

what you are doing.
Don't just put anything in your mouth.

NOTICE

what are you feeling?

ACCEPT

Acknowledge what you are feeling and accept it for what it is.

CURIOUS

Ask questions, Why am I feeling this way?

KINDNESS

Be kind to yourself and get back on track.



MINDFUL SNACKING IS...

...eating with intention and attention, focusing on the present moment, and savoring how the food tastes so you really enjoy it.



RELEVANT

More and more people use mindfulness for well-being and balance.



SUSTAINABLE

Mindful eating can be practiced by anyone, anywhere, and by all ages.



EFFECTIVE

Research clearly shows multiple benefits of mindful eating. The evidence continues to build.



Snack
Mindfully

HOW TO SNACK MINDFULLY...

- Minimize distractions
- Portion out your snack
- Focus on the smell and taste
- Notice the textures
- Chew thoroughly
- Finish one bite before starting the next