

# SOY - A HUMAN NUTRITION SOLUTION

**Seminar on Innovative Food Industry**

**Responsibly Catering to the Nutritional and Economic progress in India**

**30 May 2025**

**Dr Nandita Iyer**

1. Right to Protein campaign
2. Why protein?
3. Challenges in meeting the needs
4. Soy as a Nutritional Solution
5. Nutritional Profile of Soy
6. Health Benefits of Soy
7. Soy and Sustainability
8. Myths and Concerns about Soy
9. Soy in Everyday Diet – Practical Suggestions
10. Role of Professionals and Policymakers

# Right to Protein

- Right To Protein is an awareness initiative, powered by USSEC, to educate consumers on the importance of adequate protein consumption, regardless of their economic or dietary background.
- Enough calories but not enough protein
- Empower people to make informed food choices



# WHY PROTEIN?

## Protein, Protein, Protein - An Obsession??

- Role of protein in body: growth, repair, immune function, enzyme and hormone production.
- Recommended daily allowance (RDA) of protein.
- Common misconceptions (e.g., protein is only for athletes/bodybuilders).
- Protein deficiency in India and other developing nation

# CHALLENGES

- Lack of awareness and education.
- Cost and accessibility of high-quality protein sources.
- Dietary patterns: vegetarianism and low animal protein consumption. “*dal chawal -protein flavoured carbs*”
- Environmental concerns with animal-based proteins.

# SOY AS A SOLUTION

- What is soy? (legume, plant-based, traditional and modern uses).
- Forms of soy: soybeans, tofu, soymilk, soy flour, soy protein isolate, textured vegetable protein (TVP), tempeh

Processed forms of soy - TVP, Isolates, tempeh — help into various healthy products like weight management, infant formula, etc., Products like Meat substitutes, giving a healthy option and sustainability

- Accessible, affordable and complete protein sources

# SOY - NUTRITIONAL PROFILE

- High-quality **complete protein** – contains all 9 essential amino acids
- Rich in fibre, iron, calcium, potassium, and B vitamins
- Contains beneficial compounds like **isoflavones** (phytoestrogens)
- Low in saturated fat, zero cholesterol – heart-healthy

# SOY IN DIFFERENT FORMS

- Processed foods
  - TVP used in ready meals, snacks
  - Soy Protein Isolates in protein shakes, bars, infant formula

Health Benefits: Supports muscle growth, weight management, heart health

- Meat substitutes
  - plant based meat, sustainable, nutrient rich
  - driven by health trends, ethics, climate awareness



# HEALTH BENEFITS OF SOY

- Supports muscle maintenance and growth.
- Helps in **cholesterol reduction** – good for heart health.
- May reduce risk of certain **cancers** (e.g., breast, prostate – with moderation).
- Supports **bone health** and reduces risk of osteoporosis.
- Beneficial in **menopause management** due to isoflavones.
- Helps in weight management and managing type 2 diabetes.

# SOY AND SUSTAINABILITY

- Soy as an environmentally friendly protein source.
- Low carbon footprint compared to meat/dairy.
- Water-efficient and land-efficient crop.
- Contribution to sustainable food systems.

# DEBUNKING MYTHS

- Debunking myths: hormonal effects, thyroid issues, GMOs
- Scientific evidence supporting soy safety and benefits.
- Recommendations for **safe daily intake**

# Myth 1: Soy messes with your hormones

- Isoflavones - a type of plant based oestrogen, doesn't behave like human oestrogen  
modulating effect — sometimes mimicking estrogen weakly, sometimes **blocking stronger estrogen effects**.
- Large-scale reviews (e.g., **Messina et al., 2021, *Nutrients***) find **no feminising effects in men**, no fertility issues in women, no increased risk of hormone-related cancers with moderate intake.

**Bonus Fact: In populations with high soy intake (e.g., Japan, China), breast cancer and prostate cancer rates are *lower*, not higher.**

# Myth 2: Soy causes thyroid problems

Yes, soy contains goitrogens — but only a problem if someone is iodine-deficient.

If you use iodised salt in your kitchen, your thyroid is already protected.

Tofu isn't the villain here

A 2019 meta-analysis in *Scientific Reports* confirmed no effect on TSH, free T<sub>3</sub>, or free T<sub>4</sub> in healthy adults

# Myth 3: Soy is GMO and scary

- **Truth:** Most GMO soy is used in **animal feed, not human soy foods** like tofu, tempeh, soy milk, or edamame.
- In India, GMO soy is not approved for direct human consumption. Most soy sold here is non-GMO by regulation.

So that fear is based more on WhatsApp than reality.

- And even GMO soy has not been shown to have **inherent health risks**. The fear is often based on **mistrust of corporations**, not actual science.

If concerned, ensure iodine sufficiency (from iodized salt, seaweed, etc.) when consuming soy regularly.

# Scientific Evidence : Soy's Safety & Benefits

- **Protein Quality:** Soy is a **complete protein**, containing all 9 essential amino acids. Its **PDCAAS score is 1.0** — same as eggs and dairy.
- **Cholesterol-lowering:** Daily soy intake can reduce LDL cholesterol — approved by the **US FDA** and backed by multiple meta-analyses (e.g., *American Journal of Clinical Nutrition*, 2019).
- **Heart health:** A 2020 study in *Circulation* showed that soy intake was associated with **lower cardiovascular mortality**, especially in women.
- **Bone health:** Isoflavones may help preserve bone density, particularly in postmenopausal women (*Journal of Bone and Mineral Research*, 2022).

**Soy is also rich in iron, calcium (fortified soy milk), potassium, and fiber.**

# Safe Daily Intake Recommendations

1–2 servings/day is safe and beneficial for most people.

What counts as 1 serving? (Choose ONE per serving)

- 1 cup soy milk
- ½ cup cooked tofu or tempeh
- ½ cup boiled soybeans (edamame)
- 1 tbsp soy flour
- ½ cup soy yogurt

Up to 3–4 servings/day is still safe especially for those on vegetarian diets or from cultures with high traditional soy intake (e.g., Japan, China).

◆ Always balance with other protein sources for diversity.

➡ You can mix and match within the safe daily limit.

Example: 1 cup soy milk + ½ cup tofu = 2 servings.

Special considerations: Breast cancer survivors, men, thyroid



# Easy ways to add soy to 🇮🇳 diet

- 🥛 **Soy milk** in chai, coffee or smoothies or with oats/cereal
- 🍛 **Tofu** in curries, stir-fries, or bhurji (scramble)
- 🌸 **Soy chunks (nuggets)** in biryani, pulao, or gravies
- 🌾 **Soy flour (besan mix)** in rotis, cheelas, or baked snacks
- 🍲 **Tofu/soy cutlets or kebabs** for evening snacks or lunchboxes

# ROLE OF PROFESSIONALS AND POLICY MAKERS

- Need for **education and advocacy** by nutritionists and doctors
- Importance of including soy in school feeding programs, hospitals, and public nutrition schemes
- Encourage local farmers and food processors to promote soy-based products

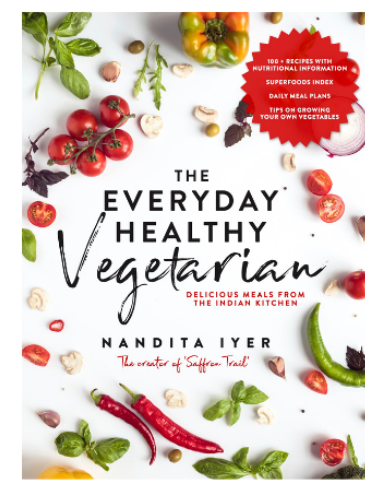
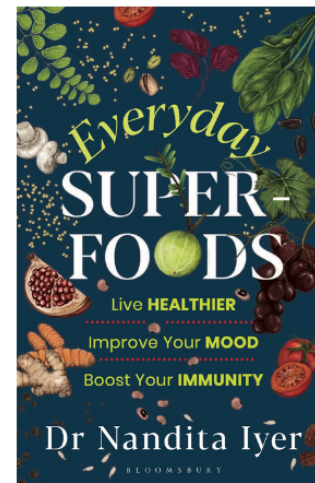
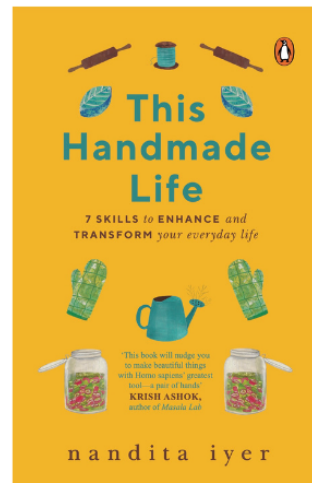
# SUMMARY

Soy isn't a new trend.

It's a time-tested, affordable, versatile and nutritious food that we've misunderstood for too long.

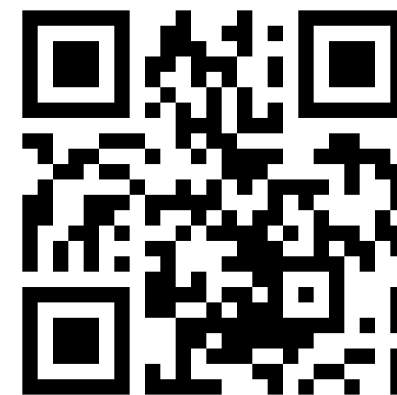
It's time we give it a fair place on our plates — and in our policies.

# Thank you!



**FIND ME ON SOCIAL MEDIA**  
**@saffrontrail on Twitter and Instagram**

**SCAN QR code FOR MY BOOKS**



**Your questions are  
welcome**