4. Concept of balanced diet

Concept of a Balanced Diet

A **balanced diet** is a dietary pattern that supplies all essential macronutrients, micronutrients, water, and food-based bioactives **in quantities and proportions that meet an individual's physiological needs while preventing deficiency, excess, and chronic disease risk**. It harmonises **quantity (energy)** with **quality (nutrient density)** and **variety (food diversity)**.

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1 · Core Principles

Principle	Practical Implication
Energy adequacy	Match total caloric intake to basal metabolic rate + physical-activity level ± special states (growth, pregnancy, illness).
Macronutrient balance	Carbohydrate ≈ 50-60 % kcal (prefer complex, high-fibre), Protein 10-20 % kcal (high-quality sources), Fat 20-30 % kcal (MUFA/PUFA emphasis, minimal trans fats).
Micronutrient sufficiency	Fulfil RDAs for all vitamins & minerals through diverse foods; fortification or supplementation only when gaps persist.
Food-group diversity	Daily inclusion of all **8 ICMR-NIN groups**: cereals/millets, pulses, milk, fruits, vegetables (GLV & others), meat/fish/egg (or alternate), nuts & oil-seeds, limited fats/sugars.
Portion control	Use plate/hand measures or exchange lists to avoid over-/under-consumption.
Meal distribution	3 main meals + 1-2 snacks → sustained glycaemic control, satiety, even nutrient spread (see bar chart "Energy Contribution of Each Meal").
Minimal processing	Prefer whole, minimally processed foods; limit ultra-processed items (<20 % of calories).
Hydration	35 mL/kg body weight (≈ 2-3 L) mainly from water, with low-sugar beverages.
Cultural suitability	Respect local food habits, seasonality, religious and ethical preferences.
Sustainability	Embrace plant-forward, locally sourced foods to lower environmental footprint.

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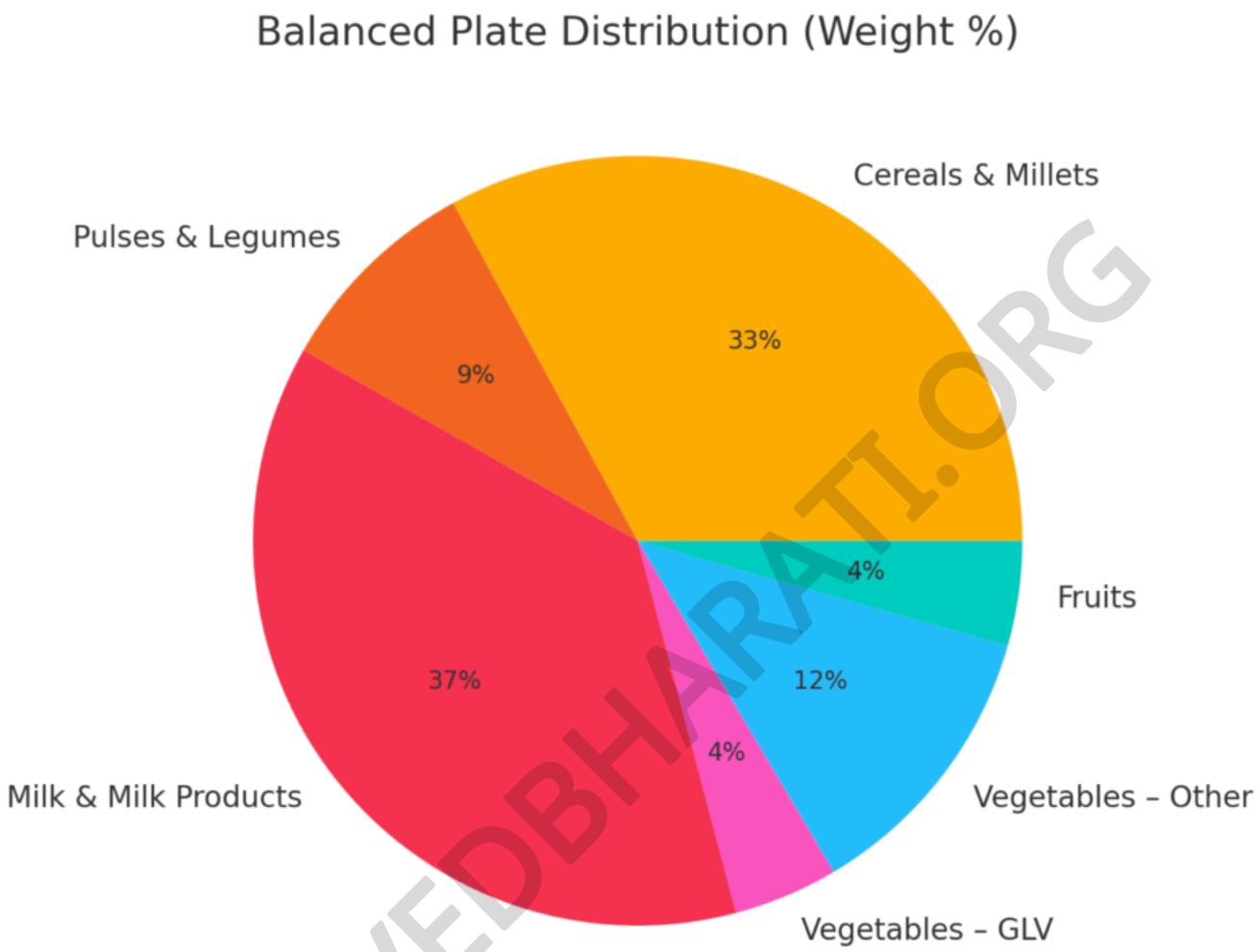
2 · Constructing a Balanced Plate

1. **Half the plate vegetables & fruit** (≥ 300 g veg + 100 g fruit/day).
2. **One-third cereals/millets** – favour whole grains and traditional millets.
3. **One-sixth protein foods** – pulses/legumes, egg, fish, lean meat or soy.
4. **Dairy (≈ 300 mL) or fortified plant alternative** for calcium & B-vitamins.
5. **Fats/oils** – 2-3 teaspoons of blended oils/ghee distributed across meals.
6. **Nuts & seeds** – small handful (≈ 30 g) for healthy fats & micronutrients.
7. **Sugar & jaggery** – ≤ 25 g free sugars/day.

(ICMR-NIN, 2024)

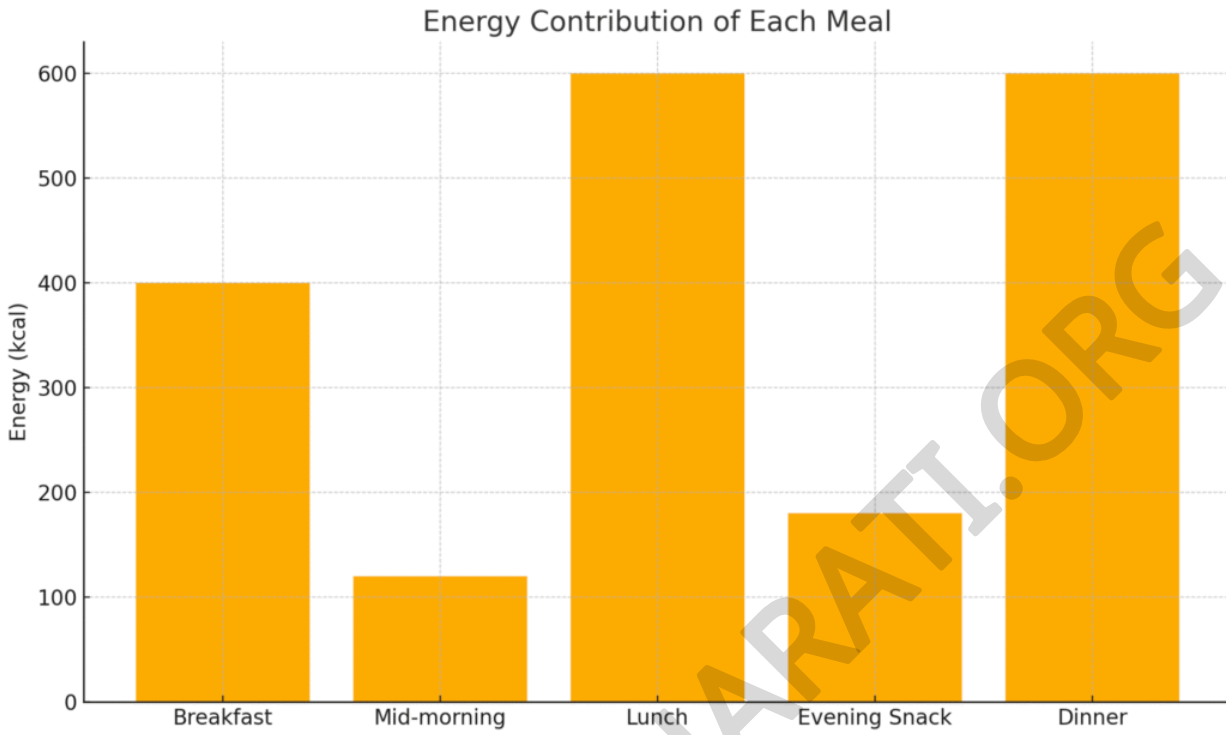


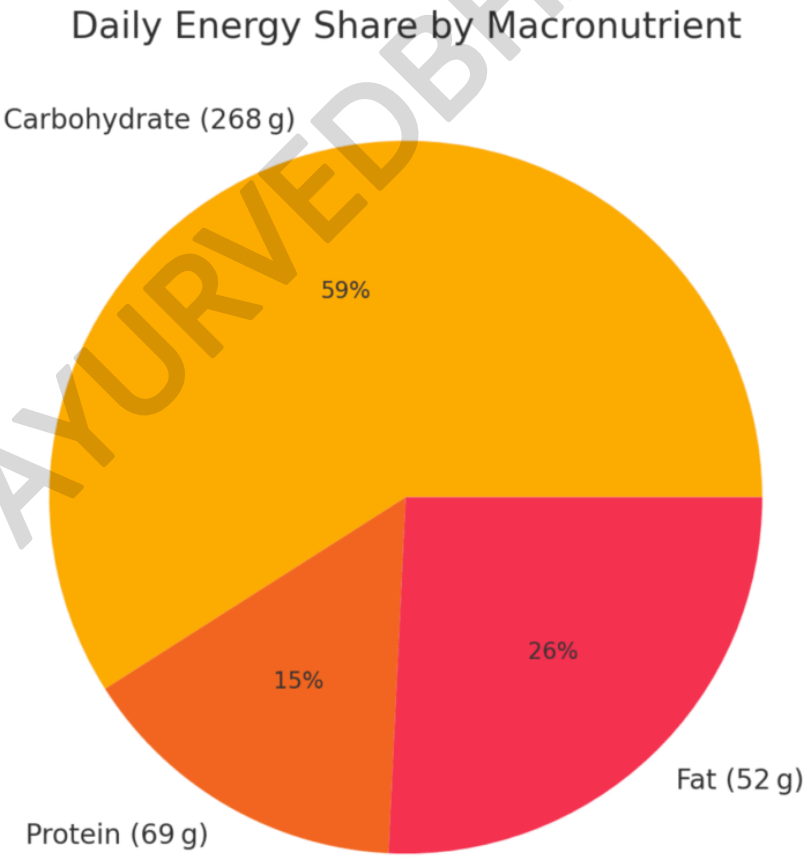
3 · Example: 2,000-kcal Balanced Day

Review the interactive **“Sample 2,000-kcal Balanced Day Menu”** table and linked charts:

Sample 2,000-kcal Balanced Day Menu

Meal	Menu Items	Energy_kcal	Carb_g	Protein_g	Fat_g
Breakfast	Vegetable upma (1 cup) + Curd (100 g) + Orange	400	65	12	10
Mid-morning	Roasted chana (30 g)	120	18	6	2
Lunch	Brown rice (1.5 cups) + Dal (1 cup) + Mixed veg curry + Salad	600	90	20	15
Evening Snack	Fruit-nut yogurt bowl	180	25	6	5
Dinner	Phulka (2) + Paneer curry (1 cup) + Saag (1 cup) + Buttermilk	600	70	25	20





- **Bar chart**: shows energy spread (≈20 % breakfast, 30 % lunch, 30 % dinner, remainder snacks) aiding steady blood glucose.
- **Pie chart**: macro split ~59 % carbs, 15 % protein, 26 % fat—well within guideline ranges.
- **Menu diversity**: 5 different cereals (wheat, rice, millet upma ingredient), 3 pulse forms (dal, chana, paneer counts toward protein), 6 vegetable colours, 2 fruits, and fermented milk (curd, buttermilk) for probiotics and calcium.

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4 · Life-Stage & Special Condition Adjustments

Population	Key Modifications
Infants (0-2 y)	Exclusive breastfeeding 6 mo; gradual introduction of complementary foods rich in iron, vitamin A, energy density.
Children & Adolescents	↑ energy & protein per kg; focus on calcium (peak bone mass), iron (growth spurts).
Pregnancy & Lactation	+350 kcal & +25 g protein (pregnancy); +600 kcal & +17 g protein (lactation); critical folate, iron, DHA, iodine.
Older Adults (≥60 y)	Slight ↓ energy, ↑ protein quality, vit D/B12, calcium; easy-to-chew fibre-rich foods; hydration vigilance.
Athletes	Periodised carbs (5-10 g/kg), protein (1.2-2.0 g/kg), electrolytes, antioxidant-rich produce; timing around training.
Therapeutic diets	Tailor macros/micros (e.g., low-Na for hypertension, low-glycaemic carbs for diabetes, renal-adjusted protein/potassium).

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5 · Common Pitfalls & Correction Tips

- **Hidden Hunger** – marginal micronutrient deficits despite enough calories ⇒ diversify colours, include fortified staples.
- **Excess free sugars & saturated fats** – swap sugary drinks for water; replace part of ghee/vanaspati with mustard/ground-nut oil blend.
- **Low fibre** – ensure ≥ 25 g/day by adding fruits with skin, salads, millets.
- **“Protein gap” in vegetarian diets** – mix cereals + pulses (e.g., rice-dal) for complementary amino acids; incorporate soy, dairy, nuts.
- **Vitamin D shortfall** – safe sun exposure, fortified milk/oil, or supplements.

Self-Evaluation Checklist

1. Does each main meal contain a *visible* protein source the size of your palm?
2. Are there at least **three different vegetable colours** daily?
3. Is half of your cereal intake whole grain or millet-based?
4. Are added sugars < 6 teaspoons (25 g) per day?
5. Do you drink plain water at regular intervals until urine is pale?

Affirmative answers to ≥ 4 questions indicate a diet trending toward balance.
