



HOME AUGMENTED SNACKS RECIPES

For undernourished women



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Important Instructions

1. Wash your hands with soap before cooking.
2. Cook your food on a medium flame.
3. Covering the utensils with their lids.
4. Wash the vegetables before cutting them, not after that.
5. While preparing rice and pulses, ensure that you soak them in water for around 15 minutes. Use the same water for cooking them.
6. Don't use vanaspati ghee for cooking.

RATIONALE

The present recipes for undernourished women were developed according to the study conducted to assess the nutritional status of mothers of children with severe acute malnutrition in Urban Facilities of India. The study was conducted between September 2016 and November 2017 in four Nutrition Rehabilitation Centres (NRCs); three of these were located in Delhi (Kalawati Saran Children's Hospital, Hindu Rao Hospital and Bhagwan Mahavir Hospital) and one in Aligarh (Jawaharlal Nehru Medical College and Hospital of Aligarh Muslim University). The study was also conducted in two Infant Young Child Feeding-Counselling Centres (IYCF-CC) of Delhi (Kalawati Saran Children's Hospital and Hindu Rao Hospital). The total sample size was 868. Study findings revealed that 20 percent of the mothers were stunted. According to the BMI ($<18.5\text{kg}/\text{m}^2$) and MUAC ($< 23\text{ cm}$) classifications, 26 percent and 37 percent were wasted respectively. Forty percent of the mothers were wasted either by BMI or MUAC criteria. Among 390 mothers with haemoglobin estimation, 377 (97 percent) were anaemic with moderate or severe anaemia being documented in 71 percent. The dietary gap among sedentary women having MUAC $<23\text{ cm}$ (37 percent) were also calculated using 24-hour dietary recall method in the IYCF settings. The recommended dietary allowances for energy and protein for sedentary women is 1900 Kcal and 55g protein. The study reported the energy gap of 927 Kcal and protein gap of 18.5 g. Since these women are not targeted by Integrated Child Development Scheme (ICDS) supplementary nutrition program and therefore, calls for extra provision to fulfill their calorie and protein gap. To bridge the gap of energy and protein amongst these mothers, the facility-based settings could be utilized, as the ICDS ration is only suggested for pregnant and lactating women and not for undernourished women.

Recommended dietary allowance of an adult woman

The normal dietary requirements of adult woman having sedentary lifestyle are as follows:

Category of adult women	Recommended Dietary Allowance (RDA)				
	Energy (Kcal)	Protein (g)	Fats (g)	Iron (mg)	Calcium (mg)
Non-pregnant non-lactating women	1900	55	25	21	600
Pregnant women	2250	78	30	35	1200
Lactating women (0-6 months)	2500	74	30	21	1200

Beneficiaries for augmented home-based snacks

The recipes that are provided in this book are of home based augmented snacks that will serve additional energy and protein required either to meet the increased physiological needs during pregnancy or lactation or to fill the dietary calorie and protein gaps in undernourished women.

Augmented home based snacks

The four snacks that were developed and approved for the trial by experts were:


1. Cereal-pulse premix
2. Paushtik ladoo
3. Daliya chikki
4. Energy dense biscuit


Servings per day were decided on the basis of the calorie gap (927 Kcal) for severely undernourished women (MUAC <21cm) in the study conducted and additional requirement of calorie, 350 Kcal (additional requirement of pregnant women) and 600 Kcal (additional requirement of lactating women).

For severely undernourished women, the serving of each snack fulfills about 76% of the identified calorie gap and almost 100% of the protein gap.

Nutritional composition of home based augmented snacks along with servings per day

1. Pregnant women

 **Energy:** 1900Kcal (RDA for non-pregnant non-lactating women) +350 Kcal (additional requirement during pregnancy) = 2250 Kcal

 **Protein:** 55g (RDA for non-pregnant non-lactating women) + 23g (additional requirement during pregnancy) = 78g

Snacks in combinations:

Combinations of snacks	Energy (Kcal)	Protein (g)	Iron (mg)	Calcium (mg)
85g premix	350	14.5	4.86	208
2 ladoos	350	9.9	3.4	66

Weight & price of one piece/packet


Premix = 85g = Rs. 14.4


1 laddoo = 35g = Rs. 5.6

1 piece chikki = 20g = Rs. 2.29

1 biscuit = 15g = Rs. 1.86

2. Breastfeeding women


 **Energy:** 1900 Kcal (RDA for non-pregnant non-lactating women) + 600 Kcal (additional requirement during pregnancy) = 2500 Kcal

 **Protein:** 55g (RDA for non-pregnant non-lactating women) + 19g (additional requirement during pregnancy) = 74g

Snacks in combinations:

Combinations of snacks	Energy (Kcal)	Protein (g)	Iron (mg)	Calcium (mg)
85g premix+ 2 chikkis+1 biscuit	600	22.2	7.73	314
2 ladoos+2 chikkis+1 biscuit	600	17.5	6.3	172

3. Undernourished Women (MUAC < 21cm)

 **Energy gap:** 700 (76% of 927 Kcal)

 **Protein gap=** 18.5g

Snacks in combinations:

Combinations of snacks	Energy (Kcal)	Protein (g)	Iron (mg)	Calcium (mg)
85g premix+2 chikkis +3 biscuits	700	26.1	8.9	354
2 ladoos+2 chikkis+2 biscuits	700	21.3	7.5	213

Weight & price of one piece/packet

Premix = 85g = Rs. 14.4

1 laddoo = 35g = Rs. 5.6

1 piece chikki = 20g = Rs. 2.29

1 biscuit = 15g = Rs. 1.86



CEREAL PULSE PREMIX

Serving size:

- 170g cereal-pulse premix



Nutrient composition in 100g

ENERGY
412
Kcal

PROTEIN
17.1
g

CALCIUM
244
mg

IRON
5.71
mg

Snacks	Dimensions
Cereal Pulse premix	1 packet=85g



Yield 170g

Ingredients

- ✓ **Whole wheat flour** 20g (2 Tbsp)
- ✓ **Bengal gram roasted** 50g (5 Tbsp)
- ✓ **Milk powder** 20g (2 Tbsp)
- ✓ **Peanut** 40g (2 ½ Tbsp)
- ✓ **Jaggery** 25g (2 ½ Tbsp)
- ✓ **Sesame seeds** 20g (2 Tbsp)

— 1 teaspoon (tsp)=5ml

— 1 Tablespoon (Tbsp) =15ml



Total cooking time: 15-20 minutes

Methods of preparation

- ✓ Roast the peanut, whole wheat flour, and sesame seeds separately in a Karahi until lightly browned and with pleasant aroma.
- ✓ Take the roasted bengal gram and roasted peanuts and remove their outer-skin by rubbing them between your palms to peel off the skin.
- ✓ Powder the peanuts, bengal gram roasted and sesame seeds together.
- ✓ Add jaggery and mix all the dry ingredients well and the premix is ready.
- ✓ Take an air-tight container and store the premix.
- ✓ **Reconstitution-** The premix can be reconstitute with half or a glass of hot water or milk depending on the desired consistency.



DALIYA CHIKKI

Serving size:

- 7 pieces of chikki



Nutrient composition in 100g

ENERGY
500
Kcal

PROTEIN
14.25
g

CALCIUM
216
mg

IRON
5.65
mg

Snacks	Dimensions
Daliya chikki	Length= 4 cm Width= 1 cm



Yield - 1 chikki of 140g
(7 pieces, 1 piece=20g)

Ingredients

- ✔ **Daliya** 10g (1 Tbsp)
- ✔ **Peanuts** 60g (4 Tbsp)
- ✔ **Sesame seeds** 15g
(1 ½ Tbsp)
- ✔ **Jaggery** 70g (7 Tbsp)
- ✔ **Cooking oil** 3ml(½ Tbsp)

— 1 teaspoon (tsp)=5ml

— 1 Tablespoon (Tbsp) =15ml



Total cooking time: 25-30 minutes

Methods of preparation

- ✔ Dry roast the daliya, white gingelly seeds (sesame seeds) and peanuts separately in a karahi
- ✔ Roast daliya and sesame seeds until lightly browned and when pleasant aroma appears.
- ✔ Take the roasted peanuts and remove their outer-skin by rubbing them between your palms to peel off the skin.
- ✔ Coarse grind the roasted peanuts.
- ✔ Add powdered jaggery in the karahi and add little water to it. Cook till the hard ball stage.
- ✔ Add all the ingredients to the syrup; remove from the heat, mix well and set in a greased plate. Cut into pieces.



PAUSTIK LADOO

Serving size:

- 4 ladoos



Nutrient composition in 100g


ENERGY
500
Kcal


PROTEIN
14.2
g


CALCIUM
94
mg


IRON
4.85
mg

Snacks	Dimensions
Paushtik ladoo	Diameter= 12.7 cm



Yield - 4 ladoos
(1 ladoo=35g)

Ingredients

- ✔ **Bajra** 10g (1 Tbsp)
- ✔ **Besan** 40g (4 Tbsp)
- ✔ **Green gram whole** 5g (1 Tbsp)
- ✔ **Peanut** 40g (2 ½ Tbsp)
- ✔ **Jaggery** 40g (4 Tbsp)
- ✔ **Ghee** 24ml (5 Tbsp)

— 1 teaspoon (tsp)=5ml

— 1 Tablespoon (Tbsp) =15ml



Total cooking time: 45 minutes

Methods of preparation

- ✔ Roast bajra, atta, besan and green gram whole separately on a medium flame using ½ tablespoon ghee for each in a karahitill golden brown. Remove from heat.
- ✔ Dry roast the peanut and remove their outerskin by rubbing them between your palms to peel off the skin.
- ✔ Powder roasted bajra, green gram whole and peanuts together.
- ✔ Mix the powdered items with roasted besan, and jaggery.
- ✔ Moist your hands with water and form into laddos using melted ghee.
- ✔ Store in an air-tight container (room temperature).



ENERGY DENSE BISCUIT

Serving size:

- 14 biscuits



Nutrient composition in 100g

ENERGY
333
Kcal

PROTEIN
13 g

CALCIUM
135
mg

IRON
4.09
mg

Snacks	Dimensions
Energy dense biscuits	Diameter= 5 cm Thickness= 6.4 mm



Yield - 14 biscuits
(1 biscuit-15g)

Ingredients

- ✓ **Whole wheat flour** 30g (3 Tbsp)
- ✓ **Bengal gram roasted** 55g (5 ½ Tbsp)
- ✓ **Soya granules** 15g (2 ½ Tbsp)
- ✓ **Milk Powder** 20g (2 Tbsp)
- ✓ **Jaggery** 20g (2 Tbsp)
- ✓ **Cooking oil** 20g (4 Tbsp)
- ✓ **Sesame seeds** 10g (1 Tbsp)
- ✓ **Baking powder** 1/4 tsp
- ✓ **Salt** a pinch

— 1 teaspoon (tsp)=5ml

— 1 Tablespoon (Tbsp) =15ml



Total cooking time: 30-40 minutes

Methods of preparation

- ✓ Preheat oven to 160°C for 15 minutes.
- ✓ Add 2 tbsp of oil and jaggery powder in a large bowl and beat the jaggery and oil well with the help of hand mixer and whisk until soft.
- ✓ Add whole wheat flour, ¼ tsp of baking powder over the jaggery.
- ✓ Add 2 tbsp of sesame seeds and 2 tbsp of soya granules and mix well.
- ✓ Grind the roasted Bengal gram whole (without cover) into powder.
- ✓ Add ½ tsp of salt and mix all the ingredients well.
- ✓ Reconstitute 2 Tbsp of milk powder with 70 ml of water and add to the mixture.
- ✓ Do not knead, just combine to make dough and make a ball.
- ✓ Now, flatten the ball and roll out not too thin with the help of rolling pin. Cut it round with the help of shape maker.
- ✓ Place the made rounds on to a greased tray till the edges turn slightly brown.

Without oven preparation of biscuits:

- ✓ Spread a layer of salt inside the medium/large size cooker so that the bottom of the cooker is covered in salt.
- ✓ Place a wire rack or perforated plate over it.
- ✓ Heat the cooker with the lid but without pressure 8-10 minutes on medium flame.
- ✓ Place the biscuits over the greased vessel or perforated plate.
- ✓ Cover the lid of the pressure cooker, remove the whistle and bake them for 15-20 minutes.
- ✓ After 15 minutes, take out the baking dish and leave to cool.
- ✓ Biscuits are ready to serve.

ADDITIONAL HOME FOOD OPTION

For undernourished women





CEREAL PULSE HALWA

Serving size:

- 1 Katori



Nutrient composition in 100g

ENERGY
360
Kcal

PROTEIN
18.3
g

CALCIUM
142
mg

IRON
5.7
mg

Snacks	Dimensions
Cereal Pulse Halwa	1 Katori (200g)



Yield - 1 Katori (200g)

Ingredients

- ✔ **Besan** 40g (4 Tbsp)
- ✔ **Whole wheat flour** 10g(1Tbsp)
- ✔ **Peanut** 20g (1 ½ Tbsp)
- ✔ **Jaggery** 15g (1 ½ Tbsp)
- ✔ **Sesame seeds** 10g (1 Tbsp)
- ✔ **Milk**-50ml

— 1 teaspoon (tsp)=5ml

— 1 Tablespoon (Tbsp) =15ml



Total cooking time: 15-20 minutes

Methods of preparation

- ✔ Dry roast the besan, whole wheat flour, peanut and sesame seeds separately in a Karahi until lightly browned and with pleasant aroma.
- ✔ Take the roasted peanuts and remove their outer-skin by rubbing them between your palms to peel off the skin.
- ✔ Powder the peanuts and sesame seeds together.
- ✔ Take karahi add besan, whole wheat flour, powdered peanut and sesame seeds and reconstitute with milk and prepare halwa.
- ✔ Take jaggery in a karahi and add ¼ glass of water and make jaggery syrup.
- ✔ Add in the prepared halwa.



Nutrient Composition	Energy (Kcal)	Protein (g)	Iron (mg)	Calcium (mg)
	360	18.3	5.7	142



MATHRI

Serving size:

- 4 Pieces



Nutrient composition in 100g

ENERGY
351
Kcal

PROTEIN
15.04
g

CALCIUM
34
mg

IRON
4.46
mg

Snacks	Dimensions
Mathri	4 Pieces



Yield - 4 Pieces

Ingredients

- ✔ **Wheat Flour** 20g (2 Tbsp)
- ✔ **Besan** 60g (6 Tbsp)
- ✔ **Refined Oil** 10ml (2 tsp)
- ✔ **Cumin seeds** ½ tsp
- ✔ **Black pepper** ½ tsp
- ✔ **Ajwain** ½ tsp
- ✔ **Salt** A pinch

- 1 teaspoon (tsp)=5ml
- 1 Tablespoon (Tbsp) =15ml



Total cooking time: 20-25 minutes

Methods of preparation

- ✔ Take wheat flour, besan, cumin powder, black pepper powder and salt in a big mixing bowl. (You can use whole cumin seeds and coarsely crushed black pepper instead of their powders).
- ✔ Crush the ajwain slightly between your palms and add it to the mixing bowl.
- ✔ Use a spoon or your hand to mix the ingredients in the bowl properly and then add oil. (Keep 1-2 tbsp oil aside.)
- ✔ Add very little water and knead a stiff dough.
- ✔ Add the remaining oil and make a smooth ball of dough.
- ✔ Dust the chakla or platform with wheat flour, and roll out the dough to form a big, thick circle.
- ✔ Use a fork to poke holes in the mathris from both sides. (This will ensure that the mathris remain flat while frying).
- ✔ Heat oil in a frying pan, and then add 4-5 mathris. (Since we want the mathris to become hard, the oil shouldn't be too hot).
- ✔ Turn over the mathris a few times and keep frying on medium-low heat till they turn golden brown.
- ✔ Store the mathris in an airtight container to ensure they don't become soft.

Nutrient Composition	Energy (Kcal)	Protein (g)	Iron (mg)	Calcium (mg)
	351	15.04	4.46	34



SWEET DALIA

Serving size:

- 1 Katori



Nutrient composition in 100g

ENERGY
345
Kcal

PROTEIN
9.87
g

CALCIUM
174
mg

IRON
3
mg

Snacks	Dimensions
Sweet Dalia	1 Katori (200g)



Yield - 1 Katori (200g)

Ingredients

- ✓ Dalia-55g (5 ½ Tbsp)
- ✓ Milk 100ml
- ✓ Jaggery 15g (1 ½ Tbsp)
- ✓ Oil-5ml (1 tsp)

— 1 teaspoon (tsp)=5ml

— 1 Tablespoon (Tbsp) =15ml



Total cooking time: 10-15 minutes

Methods of preparation

- ✓ Heat oil in a deep pan. Add dalia and sauté for 1 minute.
- ✓ Add milk to the dalia and stir to mix. Cover and cook for another 3-4 minutes.
- ✓ Take jaggery in a karahi and add ¼ glass of water and make jaggery syrup.
- ✓ Add in the prepared dalia and Serve hot.

Nutrient Composition	Energy (Kcal)	Protein (g)	Iron (mg)	Calcium (mg)
	345	9.87	3	174



POHA

Serving size:

- 1 Katori



Nutrient composition in 100g

**ENERGY**
350
Kcal

**PROTEIN**
10.31
g

**CALCIUM**
244
mg

**IRON**
2.21
mg

Snacks	Dimensions
Poha	1 Katori (200g)



Yield - 1 Katori (200g)

Ingredients

- ✓ **Rice flakes** 40g (2 Tbsp)
- ✓ **Peanut** 5g (1 Tbsp)
- ✓ **Onion** 50g (1 medium)
- ✓ **Refined Oil** 10ml (2 tsp)

— 1 teaspoon (tsp)=5ml

— 1 Tablespoon (Tbsp) =15ml



Total cooking time: 15-20 minutes

Methods of preparation

- ✓ Rinse the poha under the running water and place them in a strainer to drip away excess water.
- ✓ Dry roast the peanut in a pan till they become crunchy.
- ✓ Heat oil in a pan, crackle the mustard seeds first.
- ✓ Add onions and saute them till they become translucent, then add green chillies and saute for half minute.
- ✓ Add the roasted peanuts and stir.
- ✓ Add Poha and stir.
- ✓ Cover and steam the poha for 2-3 minutes on a low flame.
- ✓ Give a stir again, switch off the gas and let the poha remain covered for 1-2 minutes.



The prepared recipe can have with 1 glass (250ml) of chaach.

Nutrient Composition	Energy (Kcal)	Protein (g)	Iron (mg)	Calcium (mg)
	350	10.31	2.21	244

