

Khichdi to mutton rolls: NIN to craft spl diet for Gaganyaan crew

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SPL MENU FOR ASTRONAUTS

Hyderabad: From khichdi to mutton rolls, chicken nuggets to fruit purée, Hyderabad-based ICMR-National Institute of Nutrition has begun developing space food for India's astronauts as part of the Gaganyaan programme.

In Nov, scientists from the institute will participate in a 14-day microgravity simulation study organised by Indian Space Research Organisation in Kolkata. The study will focus on creating food formulations that can withstand microgravity conditions while ensuring astronauts receive

► **Khichdi, mutton rolls, chicken nuggets and fruit purée** are among the foods being designed for astronauts under the Gaganyaan mission

► **Scientists will study how food behaves in low gravity** during a 14-day head-down bed-rest simulation in Kolkata



► **Dry and crumbly foods are avoided** because floating particles can interfere with spacecraft equipment

all essential nutrients. The Gaganyaan mission, India's first indigenous human spaceflight programme, is scheduled for launch in 2027.

Scientists told **TOI** that the menu, largely based on Indian food preferences with a

mix of continental dishes, is being designed not only to meet the crew's nutritional requirements but also to suit the practical challenges of space travel.

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Food texture equally critical: NIN

Photo for representation

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The meals will be rich in micronutrients, antioxidants and Vitamin D, with carefully balanced sodium levels and a mix of vegetarian and non-vegetarian options. Fibre intake, however, will be closely regulated to maintain gut health in space conditions.

NIN researchers are also studying how different food forms behave in low-gravity environments. As part of the Kolkata simulation study, eight healthy participants will remain in a strict head-down bed-rest position for 14

PROPOSED MENU		WHAT MATTERS
	VEG: Khichdi, Dal Tadka, Soft Chapati Rolls, Veg Upma, Oats Porridge, Fruit Puree	<ul style="list-style-type: none"> • Ready-to-eat & rehydratable food, Semi-solid, low-crumb texture • High protein & micronutrient-rich, Vitamin D & antioxidants added • Designed for microgravity conditions. • Freeze-dried & infrared-dried formulations
	Non-Veg: Chicken Roll, Chicken Nuggets, Soft Mutton Keema, Fish Curry	

days to mimic the physiological effects of microgravity.

Even routine activities such as eating and using washrooms will be carried

out without getting up, under carefully monitored protocols. "The meals are being developed so astronauts can consume them easily in confi-

ned and low-gravity conditions. The final menu and food formulations will undergo extensive testing before being incorporated into astronaut training modules," an NIN scientist said.

"The diet is being prepared in semi-solid, ready-to-eat and dehydrated forms that can be reconstituted using small amounts of water," the scientist added. Researchers said food texture is equally critical in spacecraft environments. "Dry and crumbly items cannot be used because floating particles may interfere with onboard equipment," the scientist explained.