FIS NUTRITIONAL GUIDELINES

ORGANIZERS GENERAL GUIDE

Introduction

During competition, winter sport athletes rely on event catering to provide **meals** that **meet** their **nutritional needs** and **support performance, recovery and health**. Catering should therefore offer high-quality, **nutritionally balanced** meals that accommodate different sporting demands, dietary preferences, cultural backgrounds, allergies and intolerances.

Energy and nutrient needs

Winter sports include disciplines with very **different physiological demands**, **competition** formats and **training** loads. There is therefore no single menu that meets the needs of every athlete. Catering should provide sufficient flexibility and variety to support different **energy**, **carbohydrate**, **protein** and **recovery** requirements, allowing athletes to select foods according to their individual nutrition strategies. Athletes generally have **higher energy and nutrient requirements than the general population**. Menus should provide adequate energy, carbohydrate, high-quality protein, healthy fats and a wide range of **micronutrient**-rich foods. Individual needs vary with body size, training load, competition schedule, environmental conditions and performance goals.
Dietary practices are increasingly diverse, with more athletes choosing vegetarian or predominantly plant-based diets. Appropriately planned vegetarian diets can support performance, recovery and adaptation when energy intake and key nutrients such as protein, iron, calcium, vitamin B_{12}, vitamin D, iodine, zinc and omega-3 fatty acids are adequately supplied. **A nutritionally balanced vegetarian protein option should therefore be available at every meal.**

Sustainability, variety and flexibility

Increasing the availability of plant-based meals can also contribute to more sustainable event catering. Overall, menus should combine **nutritional quality, variety and flexibility**, ensuring that all winter sport athletes—including those following vegetarian or other specific dietary patterns—can meet their individual needs and perform at their best.

Meal composition/options - Minimum standard at every competition

It's important to offer **options for every macronutrient** to cover daily needs. A variety of foods over the week or weekend helps to avoid boredom. A small, but different selection each day keeps the menu interesting. Ideally, meals are served in **buffet style**. This allows the individual athlete to take based on their needs on a specific day. Plain options minimise the risk of missing important calories and nutrients because athletes skip meals due to flavour aversions or toppings they don't eat. Because athletes have individual preferences, simple and plain options allow them to choose, combine and select as they wish.
Considering sustainability standards and food quality, a **minimum of 50 % organic food is preferred**.
Every meal should contain:

Component	Minimum standard
Carbohydrate	choose 1 + gluten-free option (if main option is not gluten free)
Protein	choose 1 + vegetarian option (if main option is not vegetarian/vegan)
Fat	vegetable oils (olive oil, canola oil)
Vegetables	a mix or different types
Sauce	optional but low fat option preferred

Component	Minimum standard
Fruit	fresh fruit available; dried fruit optional
Water, tea, coffee	available

Building blocks or menus - Options for each block

(a minimum 50% organic food is preferred)

Building Block 1: Carbohydrates	Building Block 2: Protein		
• Pasta^ (+ gluten-free pasta*) • Rice*^ • Quinoa* • Couscous • Millet* • Polenta* • Potatoes, sweet potatoes* • Wraps (+ gluten-free corn tortilla*) • Pita • Pulses, legumes • Selection of breads (white, wholegrain breads) *gluten-free option	• Chicken^ • Turkey • Turkey mince • Lean beef mince • Boiled eggs • Tuna • Salmon • Cottage cheese • Yogurt^	Vegetarian/vegan • Tofu^ • Tempeh • Beans • Lentils or lentil bolognese • Chickpeas • Edamame • Greek soy yogurt • Natural/Skyr/Greek yogurt^ • Cottage cheese variety • Vegan patties (burgers)	
Building Block 3: Vegetables	**Building Block 4: Fat, Sauces, Condiments & Spreads**		
(examples:) • Carrots^ • Broccoli^ • Zucchini • Corn^ • Mixed vegetables • Roasted vegetables • Green salad (spinach, arugula, chard, wild rocket)^ Aim for different colours and less dressings & minimal fat rather than complex salads or vegetables.	• Olive oil^ • Canola oil • Seeds • Nuts • Butter^ • Margarine • Nut butter • Cheese • Avocado/guacamole • Sauce^ - low fat version preferred	• Jam^ • Honey^ • Mustard • Chilli sauce • Tomato sauce • Light sour cream • Soy sauce	
Building Block 5: Beverages	**Building Block 6: Snacks**		
• Water^ • Sparkling water • Tea^ • Coffee^	• Fruit | - Puffed rice/corn | selection^ | cakes | (fresh whole^, | | cut, fresh fruit | - Fruit bread | salad) | | | - Dried fruit | • Yogurt (natural | | full fat/low fat, | - Oats flavoured)^ | | | - Fruit muesli |		

Building Block 1: Carbohydrates	Building Block 2: Protein		
• Fruit juice • Sports Drink • Electrolyte Drink	• Non-dairy | | yogurt^ | - Granola | | | • Meal replacement | - Trail mix | drink | | (carbohydr | - Muesli bars/Oat | ate-protein-product) | bars (low fat | | preferred) | • Milk and | | lactose-free | | milk^ | | | | • Milk alternative | | (soy, oat, | | rice)^ | | | | • Low-fat cakes, | | muffins | |		
		^bronze level (minimum) requirement	

Portion size - Carbohydrate and Protein

A regular serving of carbohydrates should provide approx. 60 g of carbohydrates (females) and 80 g (males)

50 g of carbs are in	
65 g rice (raw weight)	1.5 tortillas
60 g pasta (dry weight)	100 g lentils (raw weight)
340-380 g potatoes	250 g chickpeas (raw weight)
80 g couscous (raw weight)	4 regular slices bread
80 g quinoa (raw weight)	250-300 g vegetarian burger
160 g gnocchi (dry weight)	70 g polenta (raw weight)

A serving of protein should provide approx. 20-30 g of protein

20 g of protein are in	
90-100 g meat	80 g prosciutto ham
90-100 g fish	120-150 g tofu
100-120 g mozzarella	100 g tempeh
220-240 g ricotta	100 g lentils (raw weight)
3 eggs	250 g chickpeas (raw weight)
2 eggs + 2 egg whites	180-200 g Skyr yogurt

Examples for protein options/substitutes:

Omnivore	Vegetarian/Vegan
Chicken breast	Marinated tofu
Turkey meatballs	Lentil & oat meatballs
Beef Chilli	Bean-Chilli
Pasta with tuna	Pasta with peas
— (only vegetarian option)*	Risotto with peas/lentils/beans (for all)
— (only vegetarian option)*	Quinoa with tofu (for all)

*It's possible to offer only a vegetarian option on some days for all athletes as omnivore athlete can cover their needs with plant based or vegetarian options as well.

Menu Levels (Bronze - Gold)

*where Bronze is minimum level and required

Level	Carbohydrates	Omnivore PRO	Vegetarian/vegan PRO	Vegetables	Snacks
Bronze	2	1	1	2	Fruit, yogurt
Silver	3	2	1	2-3	Fruit, yogurt, dessert
Gold	3-4	2	1-2	3 or more	Fruit, yogurt, 2 desserts

Buffet for Athletes (Lunch & Dinner)

Components	Minimum (Bronze) standard	Silver level
• Breads • Fruit selection • Spreads • Milk & low fat yogurt & non-dairy option • Tea, coffee • Water • Fruit juice	• Soup (esp. dinner) • Salads or cooked vegetables (2 types of vegetables) • Hot carbohydrate option (+ gluten free option) • Hot protein option (+ vegetarian/vegan option)	• Soup (esp. dinner) • Salads including legumes • Cooked vegetables (2-3 types of vegetables) • Hot carbohydrate option (+ gluten free option) + hot whole grain carbohydrate option • Hot meat option (+ vegetarian/vegan option) + hot fish option • Dessert*
		Gold level
		• Soup • Salads including legumes • Cooked vegetables (3-4 types of vegetables) • Hot simple carbohydrate option (+ gluten free option) + hot whole grain carbohydrate option • Hot meat option (+ vegetarian/vegan option) + hot fish option • Two desserts (cake/muffin/sorbet or similar)* • Smoothie • Cheeses • Selection of various spreads Buffet includes: • High iron source • High magnesium source • High calcium source • Several snack options

*Many common desserts are high fat foods. However, low fat-cakes and treats are preferred options.

Menu ideas

The following examples allow athletes to cover carbohydrate and protein needs with an omnivore or vegetarian/vegan diet:

	Carbohydrate	Protein	Vegetables	Fat
1	Rice	Chicken	Carrots, broccoli	Minimal to m oderate fat in c ooking. Fat source on buffet to adjust for higher needs (e.g. olive oil, canola oil)
	Couscous	Tofu		
2	Pasta	Fish	Peppers, green beans	
	Potato wedges	Tofu		
3	Couscous	Meatballs	Tomato, zucchini	
	Quinoa	Lentil meatballs		
4	Lentils risotto	Lentils form risotto	Broccoli, corn	
5	Potatoes	Beef chilli	Mixed vegetables	
	Rice	Bean chilli		
6	Rice	Chicken	Mixed vegetables, salad	
	Corn tortillas	Falafel, hummus		
7	Pasta	Beef	Mixed vegetables	
	Polenta	Marinated tofu		
8	Potatoes	Egg/Omelette	Carrots, broccoli	
	Pasta	Lentils stew		
9	Mashed potatoes	Meat burger	Mixed vegetables	
	Couscous	Lentils burger		
10	Brown rice	Fish	Spinach, carrots	
	Pasta	Tofu		
11	Whole grain pasta	Mozzarella/Feta	Tomato, zucchini	
	Rice	Tofu		

	Carbohydrate	Protein	Vegetables	Fat
1 2	Rice	Turkey	Corn, broccoli, carrots	
	Quinoa	Fish		
1 3	Couscous + C hicken-vegetable risotto		Broccoli, beets	
	Plain rice + Tofu-vegetable risotto			

Yogurt, **milk**, **bread** and **vegetable oil, seeds and nuts** on the buffet allow athletes to adjust carbohydrate, protein or fat servings if needed.

Breakfast Buffet

Breads, cereals and bakery	Milk & Dairy & Alternatives	Other
• Oats^ • Cornflakes^* • Fruit muesli • Crunchy muesli • Porridge/oatmeal (with water) • Selection of breads (white, wholegrain breads, bread roll)^ • Pasta (+ gluten-free pasta*) • Rice* • Cake or muffin-style bakery • Rice cakes or puffed rice* • Low-fat pancakes • Waffles *gluten-free option	• Low-fat milk^ • Full-fat milk • Milk alternative (soy)^ • Milk alternative, non-soy (oats, rice) • Natural yogurt^ • Sweetened yogurt (e.g. vanilla, fruit flavour) • Fromage frais (low-fat preferred) • Soy yogurt^ • Non-dairy, non-soy yogurt (oat, coconut) • Low-fat cheese • Cottage cheese • Ricotta	• Egg^, for example: • Boiled egg • Scrambled egg • Ham • Grilled vegetables • Olive oil • Other vegetable oil (e.g. linseed oil, canola oil)
Spreads	**Fruit**	**Beverages**
• Jam^ • Honey^ • Butter^ • Margarine^ • Nut butter • Syrup • Avocado/guacamole • Cream cheese (low-fat preferred)	• Fresh fruit, for example: • Banana^ • Apple • Pear • Dried fruit (unsweetened preferred) • Canned fruit (in water)	• Coffee^ • Tea^ • Water^ • Fruit juice
		^bronze level (minimum) requirement

Key Nutrients of Concern

Micronutrient needs are higher in athletes. Iron, calcium, magnesium, B vitamins and zinc are among the key nutrients for athletes. Providing good sources helps to meet daily nutrient requirements and avoid deficiency during competition phase.

Iron	Calcium	Magnesium
• Red meat (beef, pork, lamb) - best source • Liver • Chicken • Fish • Mussels • Pulses and legumes • Dark green vegetables (spinach, arugula, kale) • Oats and whole grains • Nuts and seeds • Fortified foods *providing lemon juice or any other vitamin C source helps iron absorption	• Milk • Yogurt • Buttermilk • Kefir • Fortified milk and yogurt alternatives • Quark • Ricotta • Cottage cheese • Fromage frais • Calcium fortified cereals • Tofu (some products with calcium sulfate) • Kale	• Grains and cereals • Pulses and legumes • Green leafy vegetables • Nuts and seeds, nut butter • Milk, yogurt • Fortified cereals • Fortified juices and other beverages • Potatoes • Edamame • Banana • Fish (halibut, salmon)
Vitamin B 12	**Zinc**	
Natural vitamin B12 is only found in animal products • Red meat • Poultry • Fish • Clams, oysters • Milk and dairy • Egg • Fortified breakfast cereals • Fortified fruit juices • Fortified nutritional yeasts	• Red meat • Poultry • Fish • Clams, oysters • Crabs • Milk and dairy • Fortified breakfast cereals • Fortified fruit juices	

Discipline-Specific Guidelines

This general guide is complemented by dedicated menu guidelines for each discipline group, covering discipline-specific timing of meals, fuelling strategies and day-by-day menu examples:

- Endurance (Nordic Combined)
- Endurance (Cross-Country)
- Power (Alpine Skiing)
- Power & Heats (Snowboard, Ski Cross, Freestyle)
- Ski Jumping