



NUTRITION IN CROSS COUNTRY SKIING

MoN SPORTS

NUTRITIONAL BASICS



Almost **every muscle is used**, the **metabolism is boosted** enormously, and the **cold increases the energy demand** even more.

To meet the special needs of this fascinating sport, **a high-energy, nutrient-rich, carbohydrate-rich diet is recommended**. Combined with a **high quality protein intake**.

Note: The fueling in the competition is not so easy to arrange, because it is difficult to carry drinks etc. For the shorter distances, no additional food is provided during the race.

However, for the classic longer distances, such as **30/50 kilometers**, you should **definitely take in nutrients** during the workout.

For this you either need someone to assist you on the course or you solve this with appropriately positioned water bottles.

Depending on the distance, 200, 300 or 400 calories are consumed at two or three refreshment points to fill up your energy stores.

Cross-country skiing is a classic strength-endurance sport – the **strength component is particularly high compared to other sports**.

This is why athletes are often more muscular than triathletes or long-distance runners, for example. Thus, the energy requirement is higher – and also the protein requirement is higher, since this also depends on the body weight.

Here are a few tips on how you can eat more energy in everyday life:

- Avoid skipping breakfast
- Include a portion of fruit or vegetables in a snack
- Adapt your lunch to your training session
- Recover smart! Refill your glycogen stores after your workout
- Distribute carbohydrates evenly throughout the day

Pay attention to your regeneration: It is well known that proteins play a crucial role in regeneration. Thus, the body is perfectly prepared for the next load.

NUTRITION ENDURANCE UNIT



General Info	Before Training	During Training	After Training
<p>Training goals: Improvement of fat metabolism/ decrease VLamax</p> <p>Training method: Continuous, alternating method</p> <p>Intensity: Low</p> <p>Duration: Medium – long</p> <p>Example units:</p> <ul style="list-style-type: none"> 15-50 km classic long run/ skating/roller skiing flat terrain <p>If you are on the road intensively for more than 2.5 h, you need carbohydrate quantities of more than 60g/h. Amounts of 100g/h and even up to 120g/h are recommended</p>	<p>Basic consideration: Requirement for an effective training of the fat metabolism is the control of the intensity (high intensities are to be avoided)</p> <p>Nutrition: Carbohydrate-moderate food 2-3h before the load, possibly increased protein content</p> <p>Example:</p> <ul style="list-style-type: none"> Muesli with yogurt/quark, salmon with baked vegetables, sweet potato 	<p>Basic consideration: Due to the lower intensity (up to FatMax range), primarily free fatty acids are used as energy sources, yet carbohydrates are also burned at the same time</p> <p>Fueling: Supply slow carbohydrates during the exercise to avoid a too high energy deficit and to use positive effects of training the fat metabolism optimally. Later, insulin effects are to be neglected and more concentrated, faster carbohydrates are recommended</p> <p>Tip: When cross-country skiing, a hydration belt is best for hydration during the session</p> <p>Example:</p> <ul style="list-style-type: none"> 30-35g/h <u>SLOW CARB</u> <p>The need for carbohydrates is higher when exercising for more than 2 hours:</p> <ul style="list-style-type: none"> Use <u>POWER CARB</u> after 1/3 to 1/2 of the total load, as higher dosage is possible here (60-80g/h) Cover additional energy demand with <u>PORRIDGE BARS</u>, possibly additionally <u>PROTEIN BARS</u> for very long sessions 	<p>Basic consideration: REFUEL (carbohydrate intake) = Replenishment of depleted glycogen stores</p> <p>REBUILD (protein intake) = support of the regeneration of the stressed muscles</p> <p>REHYDRATE (fluid intake) = compensation of water and electrolyte losses through sweating</p> <p>Nutrition: Combination of high value carbohydrates and proteins</p> <p>Example: Within 30min after end of exertion:</p> <ul style="list-style-type: none"> 30-40g <u>RECOVERY SHAKE</u> with rice or almond milk + 5 apricots or dates <p>Follow-up:</p> <ul style="list-style-type: none"> Carbohydrate-rich food within 2h after the load) + protective substances through fruits & vegetables E.g. couscous salad, pasta

NUTRITION INTENSE UNIT



General Info	Before Training	During Training	After Training
<p>Training goals: Improvement of carbohydrate metabolism/increase VO2max</p> <p>Training method: Interval, repetition, competition method.</p> <p>Intensity: Medium – intensive</p> <p>Duration: Medium</p> <p>Example units:</p> <ul style="list-style-type: none"> • „Norwegian Method“: 4x4min intervals • 40/30 intervals • 3x8min Z4 	<p>Basic consideration: A requirement for an intense training session is filled glycogen stores</p> <p><i>Note: Replenishing carbohydrate stores takes time. If an intensive session is scheduled for the next day, it is recommended to eat a carbohydrate-rich meal the evening before</i></p> <p>Nutrition: Carbohydrate-rich meal 3h before exercise (high stress on gastrointestinal tract during intense training sessions)</p> <p>Example: Overnight Oats, quinoa bowl, bread with almond butter and banana</p>	<p>Basic Consideration: Exponential carbohydrate consumption when training around or above threshold range</p> <p>Fueling: Supply of rapidly available carbohydrates to avoid the body having to rely on the third source of energy, proteins</p> <p>Example:</p> <ul style="list-style-type: none"> • 40g/h <u>FAST CARB</u> or at higher/longer loads 60-80g/h <u>POWER CARB</u> • For longer sessions: Can be supplemented with <u>PORRIDGE BARS</u> <p><i>Tip: If you are aiming for long marathons, you can regularly plan a „train-the-gut training“; here the amount of carbohydrates can be increased up to 120g/h (the digestive tract has to be trained for potentially higher carbohydrate intake during the competition)</i></p>	<p>Basic consideration: REBUILD - REFUEL - REHYDRATE</p> <p><i>OPEN WINDOWS EFFECT: Increased sensitivity towards infections after intense exertion + improved absorption of nutrients = immediate supply of proteins and carbohydrates after end of exertion</i></p> <p>Nutrition: Combination of high-quality carbohydrates and proteins</p> <p>Example: Within 30min after end of exertion:</p> <ul style="list-style-type: none"> • 30-40g <u>RECOVERY SHAKE</u> + 5 apricots or dates • Additionally, after particularly intensive training: 40-50g <u>RECOVERY 8</u> with water <p>Follow-up:</p> <ul style="list-style-type: none"> • Carbohydrate-rich food within 2 hours after the load + protective substances via fruit & vegetables + some proteins • E.g. vegetable curry with rice + chicken

NUTRITION SHORT DISTANCES (10KM)



Before Competition	During Competition	After Competition
<p>Basic consideration: Requirements for optimal performance in competition are filled glycogen stores</p> <p>Nutrition: 2-3h before the start last meal: carbohydrate-rich, low in fiber and fat</p> <p>Example: Breakfast: roll with honey + cashew puree or oatmeal with almond milk + banana, soft egg</p>	<p>Basic consideration: With short load times, the body does not need any supply during the load</p> <p>But: Good preparation and follow-up of the intensive load are particularly important here!</p> <p>Fueling: No supply necessary</p>	<p>Basic consideration: After the competition, it is important to supply the body with high-quality energy sources and thus actively promote the regeneration processes</p> <p>Nutrition: Post-load supply of high value & complex protein source + carbohydrates</p> <p>Example: Within 30min: <ul style="list-style-type: none"> • 40-50g <u>RECOVERY 8</u> Within 60-90min: <ul style="list-style-type: none"> • 30-40g <u>RECOVERY SHAKE</u> + 5 dates </p> <p>Follow-up:</p> <ul style="list-style-type: none"> • High carbohydrate food + some protein • E.g. rice or pasta pan with feta cheese

NUTRITION LONGER DISTANCES (10KM)



Before Competition	During Competition	After Competition
<p>Basic consideration: Requirements for optimal performance in competition are filled glycogen stores</p> <p>Nutrition:</p> <ul style="list-style-type: none"> • 2-3h before start last meal: high carbohydrate, low fiber, low fat <p>Example: Breakfast: e.g. bread roll with honey, porridge, oatmeal with almond milk, banana, soft egg</p> <p><i>CARBOLOADING</i></p>	<p>Basic consideration: For long duration of competition, the body needs a constant and well-tolerated energy supply</p> <p>Fueling: Supply of quickly available carbohydrates; high dosage during competition</p> <p>Example:</p> <ul style="list-style-type: none"> • 80-100g/h <u>POWER CARB</u> <p>For particularly long races (e.g. Wasalauf), up to 120g/h should be aimed for (please test in training beforehand!)</p> <p><i>Tip: The MoN products can also be super dissolved in warm liquid!</i></p>	<p>Basic consideration: After the competition, it is important to supply the body with high-quality energy sources and thus actively promote the regeneration processes</p> <p>Nutrition: Post-exercise supply of high-value protein source + complex carbohydrates.</p> <p>Example:</p> <p>Within 30min:</p> <ul style="list-style-type: none"> • 40-50g <u>RECOVERY 8</u> <p>Within 60-90min:</p> <ul style="list-style-type: none"> • 30-40g <u>RECOVERY SHAKE</u> + 5 dates <p>Follow-up:</p> <ul style="list-style-type: none"> • High carbohydrate food + some protein • E.g. potatoes with vegetables, pasta, parmesan cheese

FINAL TIPS



5 tips for more effective training in cross-country skiing from MoN top athlete Katharina Hennig

- Optimize the basic nutrition & keep changing the focus of the training so that adaptation processes can take place
- Test race nutrition in advance for tolerance and handling (train the gut)
- Oatmeal or porridge mixed with fruit and nuts are ideal energy suppliers in the morning before a competition or intensive training
- Even for short distances: It is always better to have a drink, gel or bar with carbohydrates before hunger pangs develop
- Immediately after training/finishing, a post-run snack is crucial (open window)

Many more free tips & tricks on training & nutrition

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