

SASKATCHEWAN GROWN NUTRITION FOR OPTIMAL PERFORMANCE

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PERFORMANCE NUTRITION

1. **Quantity**- providing the body with enough total energy for growth and development, optimal body composition and training response
2. **Quality & Mix**- choosing high quality foods and fluids on a daily basis, meeting macronutrient and micronutrient needs, and minimizing empty calorie consumption
3. **Nutrient Timing**- ensuring that food and fluid intake is consumed at optimal times in order to maximize the training response

QUANTITY: ENERGY NEEDS

- Gender
- Height & Weight
- Age
- Training- Activity Needs
 - Changes occur during the competitive and off season
 - Sport specific needs
- Achieving an ENERGY balance is crucial for maintenance of lean tissue mass, immune function, reproductive function (female athletes), gain & maintenance of bone mass and optimal sport performance (DC, ADA, ACSM, 2009)



QUALITY & MIX

- **Carbohydrates (CHO)**- the body's primary FUEL source for exercise

Athlete Recommendations: 5-7 grams/KG bodyweight/day, can increase to 8-10+ grams/KG bodyweight/day

How can athletes meet their daily needs?

- Cereals
- Breads
- Grains
- Fruits
- Vegetables
- Pulses- Beans, Lentils, Peas, Chickpeas
- Milk and Milk products



QUALITY & MIX

Protein- the building blocks for optimal body composition for both power and endurance sports

Athlete Recommendations: 1.2-1.7 grams/KG bodyweight/day

- Dietary recommendations for adults (0.8g/KG bodyweight/day)

What types of foods should we consume?

- Low fat Fluid Milk, Low Fat Cheese, yogurts
- Fish
- Chicken
- Beef
- Pork
- Eggs
- Bison
- Pulses



QUALITY & MIX

Fats- critical for fat soluble vitamins, essential fatty acids and FUEL source for moderate to low intensity training

- General Recommendation: 2 to 3 Tbsp (30-45ml) of unsaturated fats each day (limiting saturated and trans fat intake)
- Athlete Recommendation: consume between 20 to 35% total calories per day
- Focus on Healthy Fats:

- Canola Oil
- Ground Flaxseed & Flaxseed Oil
- Nuts & Seeds
- Fish



NUTRIENT TIMING

- Breakfast
- AM Snack
- Lunch ← Training Session
- PM Snack
- Supper ← Training Session
- Bedtime Snack



PRE- TRAINING INTAKE: FOOD AND FLUIDS

- Focus is on high quality carbohydrates + small amount of high quality/low fat protein sources
- Consume 2 hours before exercise/training session
- Slow release carbohydrates (low to moderate glycemic index)
- Including at least 500ml fluids/water

Examples:

Whole grain cereals + low fat milk

Whole grain breads + eggs

Lentil based product + fresh fruit

Yogurt + granola based cereal

Whole grain crackers + hummus



Photo by Silas Polkinghorne
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RESEARCH WITH LENTILS.....

Conducted at the University of Saskatchewan

- Consumption of lentil based meal 2 hours pre-exercise trial (90-min soccer simulation) vs. high glycemic/low protein (mashed potatoes), high glycemic/high protein (potatoes + egg whites), and control (fasted)

- Decreased RPE
- Decreased use of CHO as primary fuel source
- Increased use of fat as fuel source
- Overall no significant difference in performance between trials

(Little et al., 2007)

- Consumption of lentil based meal vs. high glycemic meal consumed 2 hours prior to exercise trial

- Overall performance variables did not differ
- Improved metabolic profile with lentil based meal

(Bennett et al., 2009)

POST-EXERCISE: THE RECOVERY WINDOW

- Recovery =
 - Refuelling muscle and liver glycogen stores
 - Repairing muscle damage
 - Replacing fluid and electrolytes lost in sweat
 - Allowing the immune system to handle the damage caused by the training session
 - Manufacturing new proteins, red blood cells & other cellular components

(Hawley & Burke, 1998)

- **Recovery Window: is 15 to 30 minutes post exercise**

THE 3 COMPONENTS OF COMPLETE RECOVERY

1. Carbohydrates (50 to 100 grams)- fast absorption
2. Protein (10 to 20 grams)- high quality lean sources
3. Fluids (replacing sweat losses) with Sodium (Na) and Potassium (K)

Examples:

500ml 1% chocolate milk = 54g CHO, 16g Protein, 540mg Na, 898mg K

1 ww bagel + 2 hard boiled eggs + ½ cup berries = 48g CHO, 20g Protein, 503mg Na, 296mg K

¾ cup oats + ¼ cup raisins + ½ cup milk = 62g CHO, 12g Protein, 65mg Na, 350mg K



CHOCOLATE MILK... WHY ALL THE HYPE?

- 500ml Skim Milk vs. CHO Beverage vs. Soy Milk
 - Consumed immediately post workout & at 1 hour post
 - Increased Lean Muscle Mass
 - Decreased Fat Mass
- (Hartman et al., 2007)
- Fluid milk contains contain BCAA which have an integral role in protein synthesis
 - Milk also contains high concentration of electrolytes...which should aid with rehydration post exercise

(Roy, 2008)



PARTNERSHIP IN PLACE....

- A partnership between the Dairy Farmers of Saskatchewan (DFS) and Sport Medicine and Science Council of Saskatchewan (SMSCS)
 - With annual funding from the DFS, the SMSCS promotes and provides **FREE sports nutrition education sessions** for active individuals between 13 to 18 years of age. The program is promoted through the Saskatchewan High Schools Athletics Association (SHSAA), Provincial Sport Governing Bodies (PSGBs), and local sports club teams
- Promoting Nutrition and Sports together is a great way to help young athletes/active individuals make the connection between healthy food choices and optimal performance



SUMMARY AND OPPORTUNITIES....

- Athletes are very motivated to make dietary changes to enhance sport performance
- Excellent target audience in regards to promoting healthy food choices
 - Especially when research can show performance and/or body composition improvements
- They require a large volume of **high quality** foods and fluids on a daily basis
- Athletes require convenience foods/fluids due to training and traveling schedules
- Many opportunities for the development of new sport food products.



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