

WARRIOR LAB • PRO INSIDER ELITE

HYROX FUEL + SUPPLEMENT PLAYBOOK

Competitive • Pro • Elite • Coach Resource

A performance-first system for carbohydrate availability, race execution, hydration, caffeine, evidence-based supplements, anti-doping risk, testing protocols, and athlete-specific decisions.

OPEN PLAYBOOK | RESOURCE HUB

Version 2.0 • Updated July 2026 • Clickable PDF

HOW TO USE

Build the plan from athlete data — not from sponsor visibility.

Performance hierarchy: energy availability → carbohydrate plan → hydration/ sodium → caffeine → evidence-based supplement → product choice.

Competitive athlete

Use the race architecture, caffeine, hydration, and testing sections. Keep the system executable at high heart rate.

Coach / practitioner

Use the audit, decision trees, supplement hierarchy, and testing block to document rationale and risk.

Clickable playbook

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01 • ATHLETE AUDIT

Do not prescribe a stack before you understand the athlete.

Race demand

- ✓ Expected finish time
- ✓ Open / Pro / Doubles / Relay
- ✓ Venue heat + travel
- ✓ Station and run limiter

Tolerance

- ✓ GI symptoms
- ✓ Pelvic urgency
- ✓ Caffeine response
- ✓ Gel/drink texture

Health + risk

- ✓ Medication + diagnosis
- ✓ Pregnancy
- ✓ REDs risk
- ✓ Anti-doping status

Minimum data set

Variable	Why it changes the plan	Record
Body mass	Caffeine and bicarbonate are dose-sensitive.	_____ kg
Expected finish	Determines total carbohydrate opportunity and need.	_____ min
Usual caffeine	Habit, sensitivity, sleep, and withdrawal affect response.	_____ mg/day
Sweat pattern	Fluid/sodium needs are individualized; indoor does not mean “no sweat.”	Low / medium / high
GI / urgency history	Changes texture, timing, concentration, and caffeine choice.	_____
Certifications needed	Anti-doping risk management changes product selection.	NSF / Informed Sport / other

Guardrail: supplements never compensate for low energy availability, inadequate carbohydrate, poor sleep, or an unresolved medical problem.

02 • CARBOHYDRATE AVAILABILITY

Race-day fueling starts in the training week.

HYROX requires repeated high-intensity running and station work. Carbohydrate availability should be periodized to training demand — not chronically suppressed in the name of “fat adaptation.”

Day type	Carbohydrate emphasis	Coach intent
Recovery / low load	Lower end of athlete’s normal range; nutrient-dense meals	Maintain energy availability and recovery without forced high intake
Strength / skill	Moderate; place carbs around session	Support quality and glycogen restoration
Intervals / compromised run / simulation	High availability before and after; during if duration supports it	Train the target pace and the gut under realistic load
Race-eve / race day	High confidence, low novelty, lower residue if GI-sensitive	Start fueled without bloating or bathroom disruption

Performance signs of underfueling

- Falling interval quality
- Heavy legs early
- Repeated illness/injury
- Poor recovery and sleep
- Loss of training tolerance

Health signs to escalate

- Menstrual disruption
- Low libido / hormonal symptoms
- Bone stress injury
- Persistent fatigue or low mood
- Disordered eating patterns

REDs note: low energy availability affects female and male athletes. Low carbohydrate availability can compound health and performance risk. Screening and diagnosis belong with appropriately qualified clinicians.

03 • RACE FUEL ARCHITECTURE

Use the minimum effective plan that protects the back half.

Finish time	Practical carb target	Execution architecture	Advanced note
<60 min	0–30 g near start	Strong pre-race meal; optional carb top-up or mouth rinse.	Mid-race fuel may cost more time than it saves.
60–75 min	30–45 g total	20–30 g pre-start; optional micro-dose at 30–40 min.	Useful if racing fasted, early, or with long meal gap.
75–95 min	45–75 g total	20–30 g pre + 20–30 g at 35–50 min; optional later top-up.	Most competitive age-group plans live here.
95–120+ min	60–90 g total	Pre-start + two planned hits; use liquid/micro-dose if high HR.	Higher hourly intake only after gut training.

Carbohydrate system options

Gel-led

Clear counting, low volume, easy race card. Best if water access and texture tolerance are known.

Drink-led

Useful for pre-race and training. Less convenient if the athlete cannot carry or sip during race flow.

Hybrid micro-dose

Liquid gel or resealable product in smaller hits; useful for high HR, nausea risk, or pelvic urgency.

> **Performance principle:** the theoretical hourly target is secondary to what the athlete can execute at race intensity.

04 • PRE-RACE

Pre-load the work. Do not overload the gut.

Timing	Target	Coach options
24 h before	High carbohydrate availability; normal sodium/fluid; low novelty	Adjust fiber/residue only if the athlete has a proven GI need.
3–4 h before	1–3 g/kg carbohydrate practical range for many athletes	Familiar meal with 20–30 g protein; moderate-low fat/fiber.
60–90 min	Fluid top-up; optional electrolyte based on need	Small sips; avoid aggressive hyperhydration.
10–20 min	20–30 g fast carbohydrate	Gel, isotonic gel, chews, or drink; count caffeine separately.

Race-eve performance meal

Carb base + lean protein + familiar vegetables. Enough food to restore glycogen, not a food challenge.

Travel / hotel adaptation

Carry shelf-stable breakfast, electrolyte, and exact race fuel. Do not depend on hotel timing or unfamiliar foods.

Pre-race checklist

- ✓ All products tested in hard sessions.
- ✓ Caffeine total written in mg.
- ✓ Fuel packaging and carry position tested.
- ✓ Bathroom timing practiced.
- ✓ No supplement “loading” added at the last minute.

Pre-race carbohydrate targets should be individualized for body size, start time, event duration, and GI tolerance.

05 • IN-RACE EXECUTION

Place fuel at low-complexity moments.

Good windows

- ✓ Immediately after a station once breathing settles
- ✓ Controlled Roxzone movement
- ✓ Before the athlete’s known late-race fade
- ✓ During a planned 5–10 second walk if needed

Poor windows

- × Peak ventilation during burpees/lunges
- × Immediately before a choking-prone station
- × When the athlete is already nauseated
- × During a panic surge to “make up time”

Execution matrix

Issue	Best adjustment	Why
High HR / cannot swallow	Liquid or isotonic gel; half-dose; 5-second walk	Reduces chewing and bolus size
Dry mouth	Choose product that needs less water or time it near aid station	Improves swallow and reduces residue
Urgency risk	Lower caffeine; lower osmolality/concentration; earlier timing	Reduces additive gut stress
Late fade despite fueling	Review daily carbohydrate and pacing, not only gel dose	The cause may be underfueling before race or over-pacing

Elite cue: “Fast hands, calm swallow, controlled restart.”

06 • FLUID + SODIUM

Sodium is a data decision — not a toughness badge.

Sweat rate

Measure in representative sessions when possible: pre/post body mass, fluid consumed, urine produced, duration.

Sweat sodium

Use test data or consistent salt-loss signs. Do not infer exact sodium needs from “I sweat a lot.”

Race access

HYROX has limited drinking windows; the best plan often front-loads hydration and uses small race sips.

Decision table

Athlete pattern	Likely strategy	Watch-out
Low sweat / cool venue / short race	Normal hydration; water to thirst	Unnecessary high-sodium products
High sweat / salty sweater / hot travel	Pre-race electrolyte + planned sips; sodium based on data	Stacking multiple products without counting total
GI-sensitive / sloshing	Smaller fluid volumes; lower concentration; earlier pre-hydration	Last-minute chugging
Medical condition / medication	Clinician-led plan	Generic sodium or fluid prescriptions

Safety: both dehydration and overdrinking can be harmful. Confusion, severe headache, repeated vomiting, or neurological symptoms require urgent medical assessment.

07 • CAFFEINE

Count the dose. Protect the execution.

Lane	Practical range	When it fits	Main risk
None / minimal	0–1 mg/kg	Sensitive athlete, late start, anxiety/urgency, stimulant medication	Possible withdrawal if habitual high user
Performance practical	1–3 mg/kg	Many trained athletes; balances benefit and tolerability	Over-pacing, GI, sleep disruption
Evidence-standard high	3–6 mg/kg	Only after structured trials and individual justification	Side effects rise; not automatically better

Caffeine quick calculator

Body mass	1 mg/kg	2 mg/kg	3 mg/kg
50 kg	50 mg	100 mg	150 mg
60 kg	60 mg	120 mg	180 mg
70 kg	70 mg	140 mg	210 mg
80 kg	80 mg	160 mg	240 mg
90 kg	90 mg	180 mg	270 mg

Stack audit: coffee + gel + gum + energy drink + pre-workout all count. Proprietary blends make precise dosing harder.

Caffeine may interact with medication and affect pregnancy, blood pressure, heart rhythm, anxiety, GI function, pelvic urgency, and sleep.

08 • EVIDENCE HIERARCHY

Use supplements only after the performance foundation is stable.

Level 1 • Foundation

- Energy availability
- Carbohydrate periodization
- Protein + recovery
- Fluid + sodium
- Sleep

Level 2 • Sports foods

- Gels / drinks / chews
- Protein supplements
- Electrolytes when needed
- Convenience, not magic

Level 3 • Ergogenic

- Caffeine
- Creatine
- Beta-alanine
- Bicarbonate
- Nitrate

HYROX relevance map

Supplement	Primary role	HYROX relevance	Decision
Caffeine	Perception, alertness, endurance/high-intensity performance	Potentially useful; large individual response	Race-specific and dose-counted
Creatine monohydrate	Training quality, repeated high-intensity capacity, lean mass	Strong training support; not an acute race fuel	Daily protocol
Beta-alanine	Muscle buffering for high-intensity efforts	Plausible for repeated station efforts; evidence is not HYROX-specific	Chronic trial
Sodium bicarbonate	Extracellular buffering	Potential high-intensity benefit; major GI risk	Advanced only
Dietary nitrate	Nitric oxide pathway, exercise efficiency	Small/variable benefit; lower response possible in highly trained athletes	Individual trial

Anti-doping: evidence does not equal product safety. Verify third-party certification and exact batch. No certifier can reduce risk to zero.

09 • CREATINE + BETA-ALANINE

Training tools — not last-minute race hacks.

Creatine monohydrate

- **Typical maintenance:** 3–5 g/day.
- **Optional loading:** ~0.3 g/kg/day for 5–7 days, divided, then maintenance.
- **Best use:** repeated high-intensity training, strength/power, lean-mass support.
- **Watch:** transient body-mass increase, GI tolerance, kidney disease/medical context.

HYROX note: daily training support; do not start in race week because social media says it is “fast.”

Beta-alanine

- **Typical evidence range:** 4–6 g/day for at least 2–4 weeks.
- **Split doses:** smaller divided doses or sustained-release can reduce tingling.
- **Best evidence:** intense tasks roughly 1–4 minutes.
- **Watch:** paresthesia, adherence, unclear direct HYROX transfer.

HYROX note: potentially relevant to repeated station bouts, but the athlete still needs race-specific testing.

Coach documentation: record product, dose, start date, compliance, side effects, body-mass change, and performance rationale.

Do not confuse “felt something” with “worked”

Beta-alanine tingling is a side effect, not proof of performance benefit. Creatine does not need to produce an acute sensation to be effective.

10 • BICARBONATE + NITRATE

Potential upside — but only with controlled trials.

Sodium bicarbonate

- **Evidence range:** 0.2–0.5 g/kg; 0.2 g/kg is a common minimum effective dose.
- **Best evidence:** high-intensity efforts ~30 seconds to 12 minutes and repeated bouts.
- **Main limitation:** nausea, bloating, diarrhea, urgency.
- **Use:** specialist-led; test timing, split/serial protocols, food, and fluid.

Not for: first race, uncontrolled hypertension/kidney/medical concerns, or athletes with severe GI urgency.

Dietary nitrate / beetroot

- **Common research dose:** roughly 5–9 mmol nitrate, usually 2–3 hours pre-exercise.
- **Response:** small and variable; may be lower in very highly trained athletes.
- **Use:** standardized nitrate product; test flavor, GI, and timing.
- **Watch:** antibacterial mouthwash may reduce conversion; medical interactions require care.

HYROX note: possible support for efficiency/repeated efforts, but direct race evidence is limited.

Do not combine advanced protocols for the first time. Bicarbonate + high caffeine + concentrated carbs is an excellent way to create an untraceable GI failure.

11 • LAB-LED, NOT GUESS-LED

Iron, vitamin D, calcium, and other medical supplements require context.

Item	Use when	Do not do
Iron	Clinical/lab assessment supports deficiency or elevated risk; plan is monitored.	Do not prescribe based only on fatigue or “female athlete” status.
Vitamin D	Lab status, sun exposure, bone health, and medical history support use.	Do not use megadoses without monitoring.
Calcium	Dietary intake is inadequate or clinician recommends it, especially with bone risk.	Do not ignore total dietary intake and timing interactions.
Magnesium / B vitamins	Documented need, dietary insufficiency, or clinician-led indication.	Do not assume more improves performance in replete athletes.

> **Female athlete / masters note:** fatigue can reflect low energy availability, iron deficiency, sleep issues, thyroid disease, medication effects, or training overload. The supplement is not the diagnosis.

Referral triggers

- ✓ Persistent fatigue despite deload and adequate fueling
- ✓ Menstrual disruption, bone stress injury, or recurrent illness
- ✓ Unexplained dizziness, fainting, palpitations, or chest symptoms
- ✓ Rapid weight loss, restrictive eating, or fear-based fueling
- ✓ GI symptoms that limit normal food intake

12 • SPONSOR-NEUTRAL PRODUCT MATRIX

Choose the tool that solves the athlete’s problem.

Need	Product lane	Examples	Audit
Neutral / low flavor	Hydrogel or simple standard gel	Maurten	Carb dose, caffeine, sodium, water need
Easy swallow	Isotonic / liquid gel	SiS, Enervit	Package size, carb density, sweetness
Clear 30 g units	Standardized 30 g gel	PF&H, Neversecond, Myprotein	Caffeine and sodium variants
Training bottle	Carb-electrolyte drink	Skratch, Tailwind, BPN	Concentration, fluid volume, portability
High-carb advanced	90 g drink/pouch systems	PF90, C90, Beta Fuel, Super High Carb	Gut training and race practicality

Sponsor rule: sponsor visibility is not proof of race-day use, optimal dosage, or athlete fit. Record only what the athlete actually uses and tolerates.

Product audit

- ✓ Exact product + flavor
- ✓ Country-specific label
- ✓ Carbs, sodium, caffeine per serving
- ✓ Expiration and storage

- ✓ Third-party certification
- ✓ Batch verification
- ✓ Medication/health interaction
- ✓ Training test completed

13 • SIX-WEEK VALIDATION

Test one variable at a time, then test the complete system.

Week	Test focus	Session	Pass metric
1	Pre-race meal	Hard morning session	Energy stable; no fullness/urgency
2	Gel/drink texture	Intervals at race HR	Can ingest and resume pace
3	Mid-race timing	60–75 min compromised session	No late fade or GI disruption
4	Caffeine	Race-specific key session	Benefit without anxiety, urgency, sleep loss
5	Hydration/sodium	Venue-like heat/sweat session	Comfort, body-mass loss, thirst, no slosh
6	Full dress rehearsal	Simulation	Plan is automatic and repeatable

Advanced supplement test rule

Test bicarbonate, nitrate, beta-alanine, or new caffeine protocols outside the final race-week window. Keep training, food, and recovery as standardized as possible so the result is interpretable.

> **Pass:** clear rationale + tolerable + repeatable + no meaningful adverse effect.
> **Fail:** strong side effect, unclear benefit, or plan complexity that damages race execution.

14 • THREE ARCHETYPES

Ready-to-customize race plans

Plan A • Competitive age-group • 75–95 min

Pre: familiar carb meal 3 h before; 20–30 g carb 10–15 min pre. **During:** 20–30 g around 35–50 min; optional 10–20 g later. **Caffeine:** 1–2 mg/kg if tested. **Hydration:** small water sips; sodium only as indicated.

Plan B • High-output Pro / sub-75 min

Pre: high carbohydrate availability; 20–30 g top-up. **During:** optional micro-dose only if it does not disrupt speed. **Caffeine:** individualized 1–3 mg/kg. **Priority:** pacing and transitions may matter more than mid-race intake.

Plan C • Elite / long-course 95–120+ min

Pre: robust carb meal + top-up. **During:** two planned 20–30 g hits, optional third micro-dose. **Caffeine:** structured total mg/kg, possibly delayed. **Hydration:** sweat-data-led pre-load and small race sips.

Not templates for blind copying. Adjust for sex, body size, finish time, gut, sweat, caffeine, health, and race access.

15 • PRINT / SCREENSHOT

Elite race fuel + supplement audit

Field	Plan
Expected finish / division	_____
24 h carbohydrate plan	_____
Pre-race meal + time	_____
Pre-start carbohydrate	_____
In-race dose(s) + windows	_____
Fluid / sodium plan	_____
Caffeine mg + mg/kg	_____
Chronic supplements	_____
Advanced protocol	_____
Certification + batch checked	Yes / No Details: _____

One performance cue

_____

Final 72 hours

- ✓ No new products
- ✓ No dose escalation
- ✓ Protect sleep
- ✓ Confirm carry and packaging

Post-race review

- ✓ Energy by race third
- ✓ GI/urgency score
- ✓ Caffeine effect
- ✓ Next change

16 • EVIDENCE + RESPONSIBILITY

References and athlete-safety statement

#	Source	Link
1	Nutrition and Athletic Performance — ACSM / Academy / Dietitians of Canada	Open source
2	Personalized carbohydrate intake during exercise — Jeukendrup	Open source
3	ISSN Position Stand: Caffeine and Exercise Performance	Open source
4	ISSN Position Stand: Creatine	Open source
5	ISSN Position Stand: Beta-Alanine	Open source
6	ISSN Position Stand: Sodium Bicarbonate	Open source
7	Expert Consensus: Dietary Nitrate as an Ergogenic Aid	Open source
8	IOC 2023 Consensus Statement on REDs	Open source
9	IOC Consensus: Dietary Supplements and the High-Performance Athlete	Open source
10	AIS Sports Supplement Framework — Group A	Open source
11	USADA Supplement Risk Guidance	Open source
12	NSF Certified for Sport	Open source
13	Informed Sport	Open source
14	WADA 2026 Prohibited List	Open source

Educational only — not medical advice. Supplement protocols require individualized review of health, medication, pregnancy, GI tolerance, kidney/heart/blood-pressure conditions, eating-disorder/REDs risk, and anti-doping obligations.

Strict responsibility: athletes remain responsible for every substance in their body. Third-party certification and batch testing reduce but do not eliminate risk.

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