OPTIMIZING WEIGHT MANAGEMENT IN INDIAN WRESTLING –
A WRESTLER'S PROTOCOL FOR HEALTH AND PERFORMANCE

Wrestling is a weight category-based combat sport, where wrestlers often follow long-term weight management plans to remain lean and muscular within their weight limit. Additionally, many adopt acute weight loss strategies shortly before weigh-ins to compete in lower weight classes, potentially gaining an edge by facing smaller opponents. While this practice can enhance performance, it also poses health risks, including severe and fatal outcomes.

The information provided in this document will:

- Detail the principles for a safe and effective approach to chronic weight management
- Specify safe and effective strategies for acute weight loss
- Offer an acute weight loss strategy by a decision tree approach
- Explain the hazards of unsuitable weight management techniques

Choosing the Right Weight Class Based on Physique and Function

- A valid and reliable body composition assessment (percentage of fat, bone, and muscle in your body) is essential for all wrestlers to decide the right weight category. This is especially important for those who have struggled to make weight in the past, even with nutrition support.

- Choosing the correct weight category must go hand-in-hand with a well-structured plan for both long-term (chronic) and short-term (acute) weight management, with timelines carefully planned to achieve goals safely.

Integrated Support System for Wrestlers' Health and Performance

Wrestlers should be supported by a multidisciplinary team comprising a sports doctor, sports psychologist, and sports nutritionist, all with expertise in weight-category sports and weight management. The team's approach prioritizes wrestlers' health and welfare.

- The sports nutritionist is the first point of contact, responsible for identifying the appropriate weight category and designing, implementing, and refining weight management plans.
- The psychologist supports wrestlers who may struggle with eating habits or show signs of disordered eating, ensuring mental well-being.
- The doctor monitors overall health, checks for changes in the body, and conducts diagnostic tests (e.g., blood chemistry, bone mineral density).

Annual Planning and Monitoring of Target Weights

Wrestlers should set specific weight targets throughout the season to manage both chronic and acute weight loss effectively.

- Establish specific goals with respect to the competition schedule, while including:
  a. Define the off-season maximum weight.

b. Set weight checkpoints at 2, 4, 6, and 8 weeks before weigh-ins, which helps avoid excessive reliance on acute weight loss (short-term weight loss) beyond the recommended limit of 5% body mass loss.

For example: Suppose a wrestler's normal body weight is 61 kg, but they need to compete at 57 kg. This means they must reduce 4 kg before the weigh-in.

To do this safely, weight checkpoints can be set at 2, 4, 6, and 8 weeks before the competition:

8 weeks before: The wrestler should be around 60.5–61 kg (just slightly above target).
6 weeks before: Weight should come down to about 59.5–60 kg.
4 weeks before: Around 58.5–59 kg.
2 weeks before: Close to 57.5–58 kg.

By following these gradual checkpoints, the wrestler only needs to lose a very small amount (about 0.5–1 kg) in the last few days. This avoids depending too much on acute weight loss methods (like dehydration or glycogen cuts), which should not exceed 5% of body weight (around 3 kg for this wrestler).

- The recommended weekly weight loss should not exceed approximately 1% of total body mass.

For example: For a wrestler in the 57 kg category, weekly weight loss should not be more than about 0.6 kg (1% of 57 kg).

- Nutritional strategies within training sessions should focus especially on maximizing fat loss during both exercise and recovery while also minimizing fat storage throughout the day:

  a. Lower carbohydrate and saturated fat intake later in the day.
  b. Take carbohydrate, approx. 3 hrs before exercise to support fat use during exercise.
  c. For long or hard training sessions lasting more than 2 hours, athletes should eat a high-carbohydrate diet of about 8–10 grams of carbs per kilogram of body weight to keep up their energy and performance.

For example: A wrestler weighing 57 kg would need around 450–570 grams of carbs before such sessions.

  d. Fat-burning sessions are best done early morning after an overnight fast, at moderate intensity.
  e. Hydrate before, during, and after training.
  f. Replenish carbohydrate and protein within 30 min post-training.
  g. For rehydration after weigh-ins or training, athletes should drink about 150% of the fluid they lost, using a carbohydrate–electrolyte drink (what you lost in kg plus 50%).

For example: If a 57 kg wrestler loses 2 kg during training, that equals about 2 litres of fluid. To rehydrate, they should drink 3 litres (2 L lost + 50%).

  h. Monitor training-related weight changes, hydration habits, urine colour, and blood markers (Hemoglobin, Hematocrit).

- Considerations during camps or pre-competition phase
  a. Strategic and gradual decreases in calorie intake for steady weight loss.
  b. Eat a meal 2–3 hours before the first training session.

- The number of competitions must be kept in mind, because if events are close together, wrestlers have less time to regain weight between them.

- Longer breaks between competitions may allow some weight changes, but large fluctuations should be avoided. Staying at low energy for too long can hurt performance, health, and mental well-being.

Weight loss is usually aimed at reducing fat, but cutting calories can also cause loss of fat-free mass—like muscle, body water, and bone. How much muscle is lost depends on diet, calories, gender, starting body fat, training type and intensity, and hormonal factors.

Chronic weight loss — Structured Long-Term Body Composition Management

Wrestlers must consider both health and performance risks linked to both acute (short-term) and chronic (long-term) weight loss strategies. Big energy cuts or long periods of low energy intake can increase the risk of **RED-S syndrome** and other health issues.

While each wrestler needs a personal plan, some basic rules for long-term weight management include:

- Set your target weight and body composition according to your competition category before starting weight loss.
- Safe body fat levels are at least 5% for men and 12% for women, but these numbers may not be healthy or realistic for everyone. Very low body fat does not always improve performance and can harm health.
- Decide your weight targets together with your sports nutritionist and coaching/science team.
- Aim to lose weight safely at 0.5–1 kg per week (about 1% of body weight) and avoid long-term or extreme dieting.
- Focus on both physical and mental health, and ensure support staff watch for signs of disordered eating or stress.

Relative Energy Deficiency in Sport (RED-S) *happens when athletes don't eat enough food to match the energy they spend in training and competition. This lack of energy affects the body in many ways.*
One common problem linked to RED-S is bone stress injuries (BSIs), such as stress fractures. These happen when bones get tiny cracks from repeated stress, and the body cannot repair them fast enough.
Female athletes are especially at risk. In them, RED-S can show up not only as bone stress injuries but also as issues like unhealthy eating habits and irregular or absent menstrual cycle.

Acute weight loss — Short-Term Weight Reduction Tactics Before Competition

Wrestlers should try out various acute weight loss (short-term weight loss) strategies both individually and in combination before target competitions, under the supervision of the sports nutritionist or coach.

The aim is to understand how the body reacts, how much weight is lost, and how health and performance are affected. These learnings help build a personalized acute weight loss (short-term weight loss) and recovery plan, updated after each event. The plan should incorporate the following recommendations:

- Wrestlers should always consult a sports nutritionist before planning any short-term weight loss.
- If weight loss is needed, it should be limited to about 5% of body weight, taking into account the time between weigh-in and competition.
- The first method to try is reducing gut contents by following a low-fiber diet (less than 10 grams per day) for 2–4 days.
- Reducing carbohydrate intake can lower glycogen levels, which may help with short-term weight loss.
- Severely cutting down carbohydrates to very low levels should only be done if there are at least 12 hours to recover — to allow the body to refill its energy stores before the event.
- If the weigh-in is less than 2 hours before competition, wrestlers should lose no more than about 3% of their body weight through methods like drinking less or sweating.

For example: For a 57 kg wrestler, if the weigh-in is less than 2 hours before competition, the wrestler should not lose more than 1.7 kg through fluid loss.

- Wrestlers should avoid excessive exposure to hot environments, such as saunas or hot baths, and non-breathable clothing (like plastic sweat suits) for prolonged periods, as this can lead to adverse effects.
- When there is a longer recovery period before competition, wrestlers may lose up to 4% of their body weight through dehydration and sometimes use passive sweating, **but this must be done carefully with close monitoring and proper recovery.**

For example: A 57 kg wrestler could safely lose about 2.3 kg in this way if enough recovery time is available.

Acute Weight Loss Limits:

a. In most cases, wrestlers should not lose more than 5% of their body weight.
   For example: For a 57kg wrestler, the safe limit (5% of weight) is about 2.85 kg.

b. If there is less than 12 hours before the event, weight loss should be very small, as there is little time to recover.
   For example: For a 57kg wrestler, around 1–1.5 kg, as there is little time to recover.

c. If there is more than 12 hours to recover, slightly larger weight loss may be possible, **but it must still consider health and performance risks.**
   For example: For a 57kg wrestler, up to 2–2.5 kg.

Important: *These limits only apply if the athlete starts in good condition—fully hydrated, with full glycogen stores, and eating a nutrient- and fiber-rich diet. If the athlete is already dehydrated, low on glycogen, or has been on previous dietary restrictions, further weight loss is not safe.*

Table 1. Summary of the advantages and disadvantages of individual acute weight loss (short-term weight loss) methods.

Acute Weight Loss Method		Advantages	Disadvantages
Gastrointestinal (gut) tract content manipulation	Laxatives	Can reduce approx. 1–2% body weight in less than 1 day	i. Decreased exercise capacity ii. Body water loss iii. Electrolyte imbalances
	Food restriction	Can reduce approx. 1–2% body weight in less than 1 day	i. Low energy intake ii. Poor pre-event nutrition iii. Hunger
	Low-fiber diet (low-residue)	Reduces gut content in 2–4 days with minimal effect on performance	i. Low satiety (less “full”) ii. Nutrition knowledge and planning required iii. Constipation risk with water restriction

Acute Weight Loss Method		Advantages	Disadvantages
Glycogen depletion	Low-carb intake + glycogen depletion training	Can reduce approx. 2–4% body weight in 3–7 days without affecting short bursts of strength/power	i. Performance drop in high-intensity events ii. Requires high carbs to recover—difficult if weigh-in is same day
Body water manipulation	Moderate dehydration (more than 4% weight loss)	Largest component of rapid weight loss	i. Reduced heat tolerance ii. Performance Drop iii. Aggressive fluid/electrolyte recovery needed
	Mild dehydration (less than 3–4% weight loss)	Fast loss (1–3 hours) Reversible within 4 hours	
	Fluid restriction	Can lose approx. 1–2% weight in 1 day, with fewer side effects	Increased thirst
	Active sweating (exercise-induced)	Fits into training easily Keeps blood plasma better than passive sweating	i. Fatigue risk ii. Gut distress from high intensity exercise
	Passive sweating (sauna, hot bath, etc.)	Simple method, may improve mood/relaxation	i. Fluid loss from plasma ii. Heat stress risks
	Sodium restriction (1–5 days pre-weigh-in)	May reduce water retention, can be combined with a low-fiber diet	Effectiveness not well tested
	Water loading (high fluids for 3 days before 1-day restriction)	Increased urine output may allow more weight loss later	Dangerously low sodium (Hyponatremia) risk, especially with extreme practices

***Note**: The choice of protocol for a specific wrestler depends on several factors related to the sport, recovery potential after weigh-in, and current body composition.*

Managing Weight Across Multi-Day Competitions

In the case of multiple weigh-ins, wrestlers often face several weigh-ins during a single competition, especially in multi-day events or tournaments, such as Olympic Games and World Championships, where re-qualification for weight classes is necessary. This reduces the chance of full recovery from acute weight loss (short-term weight loss) strategies (like fluid or glycogen loss). To cope, wrestlers should aim for smaller weight cuts through acute weight loss (short-term weight loss).

- For gut management, eat low-fiber, energy-dense foods to keep gut weight low while still providing enough fuel for the body.
- Glycogen strategy: Eat enough carbohydrates to meet daily training or competition needs, keeping glycogen levels steady. This ensures that daily weight changes come mostly from water, not large swings in body mass.
- Recovery between bouts: After competition, rehydrate and eat to refuel, then monitor body weight to get ready for the next weigh-in. Balance immediate recovery with overall energy needs.

Finding one perfect approach is difficult. Some wrestlers may eat too little to stay as light as possible, while others may overeat after weigh-ins, making it harder to manage weight for the next day. It's strongly recommended that athletes work with a sports nutritionist to create and adjust personalized plans for handling multiple weigh-ins safely.

Rehydration and Refuelling for Performance Recovery

A sports nutritionist can help wrestlers figure out their nutritional requirements after weigh-in and create a suitable strategy for food and fluid consumption leading up to the competition.

If there is a long gap between weigh-in and competition (more than 12 hours), the plan might include distinct strategies for recovery and preparation for the competition. On the other hand, if the time between weigh-in and competition is short (less than 2 hours), the focus should be on a practical approach that prioritizes what can be done quickly and effectively.

Hazardous Methods in Rapid Weight Reduction

A wrestler's weight management strategy must consider the health and performance risks of both acute (short-term) and chronic (long-term) weight loss.

Some wrestlers use extreme or unsafe methods, alone or in combination, leading to excessive weight loss, physiological issues, or heat stress. Tragically, such practices have caused deaths in weight-category sports.

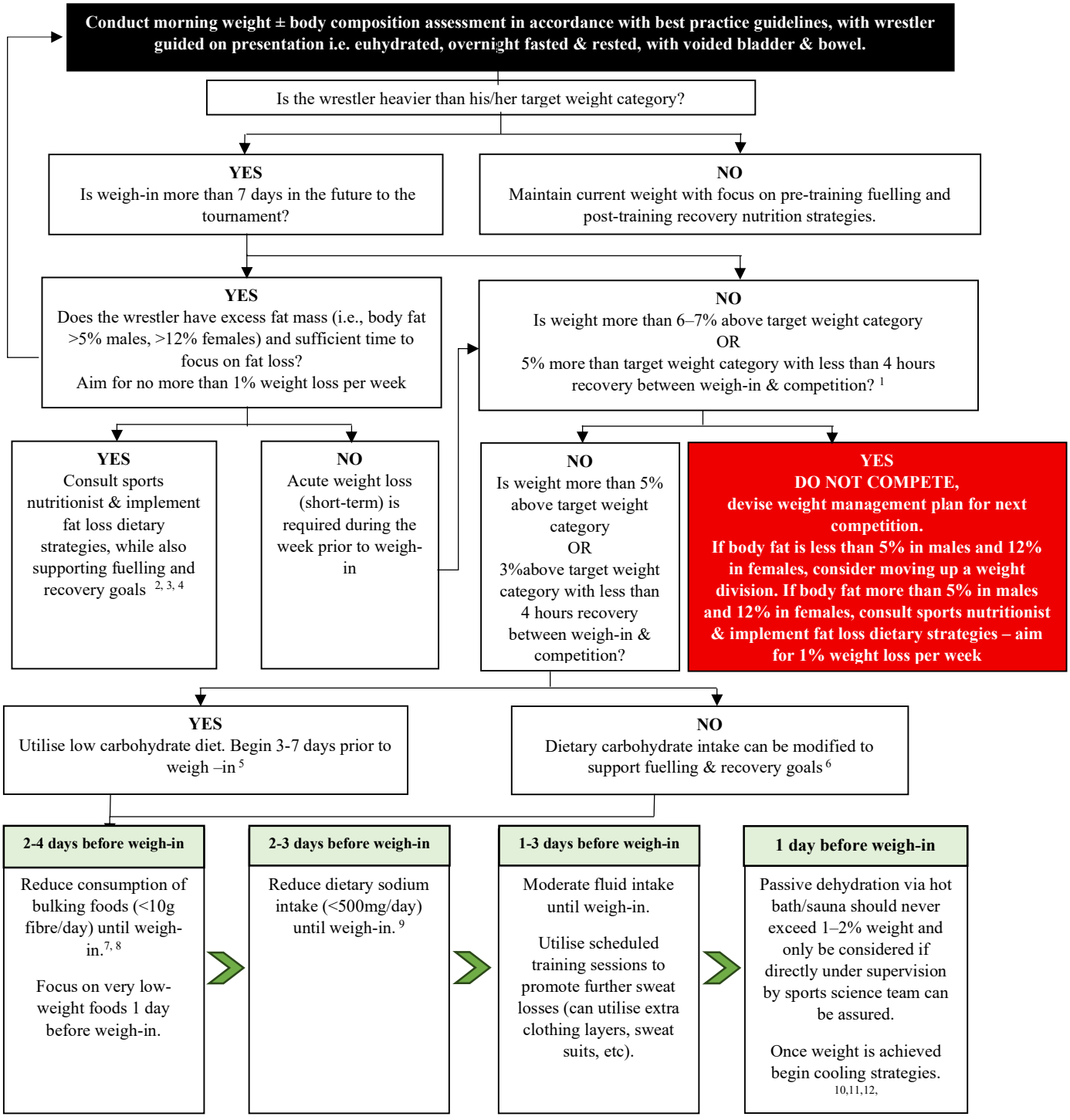
The following methods are **strongly discouraged**:

a. Inducing vomiting
b. Using bowel-clearing solutions, laxatives, or diuretics.
c. Taking unapproved supplements, "diet pills," or stimulants for weight loss
d. Consuming supplements that have not been third-party tested and approved by the sports nutritionist and performance team.
e. Severe restriction of fluids/food combined with sweat-loss practices
f. Prolonged exposure to saunas, hot baths, or non-breathable clothing (e.g., plastic suits), especially during exercise.

Signs such as the absence of sweating, dizziness/confusion, or feelings of nausea should raise immediate concerns and necessitate a prompt exit from the heat exposure, implementation of cooling methods, and access to medical assistance.

The Weight Management – Performance Recovery Continuum

Acute Weight Loss Strategy: A Decision Tree Approach



When time permits, it's important to test all acute (short-term) weight loss strategies individually before a competition to check their effectiveness as well as their potential effects on performance and health. Additionally, any combined approaches should also be tested beforehand, along with specific strategies meant to be used after the weigh-in.

1. Safe body weight loss before a weigh-in is roughly 6.7% if 72 hours are available, 5.7% if 48 hours, and 4.4% if only 24 hours before the weigh-in.

For example: For a 57 kg wrestler, safe weight loss before a weigh-in would be:

- 72 hours before: About 3.8 kg (6.7% of 57 kg)
- 48 hours before: About 3.3 kg (5.7% of 57 kg)
- 24 hours before: About 2.5 kg (4.4% of 57 kg)

2. A small amount of acute (short term) weight loss may still be needed to achieve the required weight before the tournament, depending on the time before weigh-in, body fat, etc.
3. By exercising and eating fewer carbohydrates, wrestlers can lower glycogen (which holds water) and lose about 1–2% of body weight. Eating a low-fiber diet (less than 10 g/day for 4 days) can also give a similar weight loss.

For example: A 57kg wrestler can lose around 1% – 2%, i.e., 06.kg – 1.1kg of weight.

4. Tournament week/acute (short term) weight loss strategies
   - Glycogen depletion can start up to 7 days before weigh-in and may reduce body weight by 1–2%. Carbohydrate restriction should be used only when necessary for rapid weight loss and kept as limited as possible.
   - Fiber manipulation can be used to support rapid weight loss. Switching from a high-fiber diet (more than 30 g/day) to a low-fiber diet (less than 10 g/day) for 4 days may reduce body weight by 1–2%.
   - Eating a low-sodium diet (less than 2.3 g per day) during fight week can help lower body weight by reducing water retention. However, weight and fluid levels must be monitored carefully, as too much restriction can be unsafe.
   - Passive sweating (like sauna or hot baths) and active sweating (exercise-induced) can both be used for short-term weight loss, but care is needed as active sweating may cause fatigue.

5. The time needed to fully reduce glycogen with carbohydrate restriction depends on the athlete's current glycogen levels and training volume/intensity in the week before weigh-in. Athletes with heavier training loads will need fewer days of carbohydrate restriction to deplete glycogen stores.
6. Before multi-day tournaments, athletes should eat a high-carbohydrate diet and lower their training intensity and duration for the 3 days before competition to fully restore glycogen stores.
7. The time needed to fully reduce gut contents with a low-fibre diet depends on each individual's gut transit time. Wrestlers should track how their own body responds to low-fibre intake to find the right duration.
8. Follow a low fibre diet for 1 – 4 days with minimal food weight.
   - Effective in lowering the weight of gut content.
   - Enables continued consumption of adequate energy.
9. Temporarily reducing sodium intake can help lower the amount of "bound" water in the body.
10. Use acute water loss methods like sauna, hot water immersion, etc., under supervision. These can reduce about 2–4% of body weight within 24 hours before weigh-in.

For example: For a 57 kg wrestler, this equals about 1.1–2.3 kg of weight loss.

11. Passive or active sweating techniques.
12. The stomach can only empty about 1 litre (1 kg) of fluid per hour. So, if weigh-ins are just 1 hour before wrestling, avoid losing more than 1 kg through dehydration, since it cannot be replaced in time.
13. Follow a low-fibre diet for 1 – 4 days while keeping food intake as low as possible.