

Nutritional challenges and opportunities pre and post London 2012

Sharon Madigan

RD, PhD, SENr



London 2012



Challenges of the variety of support

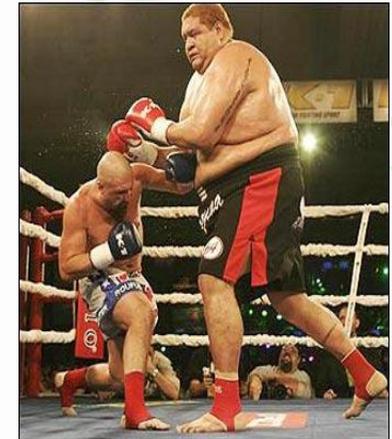
- “ Making weight sports
- “ Endurance Sports
- “ Paralympic Sports
- “ Horse sports
- “ Multi-event sports
- “ Court sports
- “ Swimming
- “ Sailing, canoe and rowing

Making Weight

- “ It means different things to different athletes.
- . Weight category sports
 - . Field based sports where size and weight gain is essential / key to performance
 - . How the athlete looks: coaching intervention which may not be appropriate and negative in their nature.
 - . Endurance: You don't want to have to carry it about.

Weight Control in Sport

- “Making weight” is a practice used by weight-class athletes to lose weight to compete
- Patterns of weight fluctuation vary among athletes and sports
- Some athletes chronically maintain low body weight (and body fat) while other “weight cycle”
- Some sports require an optimum weight which may require athletes to increase weight to perform optimally



Weight Loss Strategies



- “ Techniques and the magnitude of weight loss are varied.
- “ Only common factor is that they are not obese !
- “ As a result the effects of weight control on the physiology, health and performance of athletes are likely to be different to obese individuals

Strategies

Rapid weight loss (< 7 days)*

- “ Severe dieting
- “ Fasting
- “ Starvation
- “ Fluid restriction
- “ Dehydration
 - Active (sweat suits)
 - Passive (sauna)
- “ Diet pills
- “ Laxatives
- “ Diuretics
- “ Self induced vomiting
- “ Blood letting

*Principally through decreasing body fluids, food in GI tract and muscle energy stores

Strategies

2. Gradual weight loss (>7 days)

- “ Reduction in dietary energy intake* and/or increased exercise activity levels
- “ Increase in specific exercise to aid weight loss very close to weigh in.

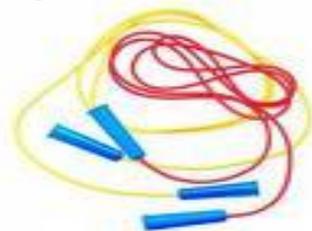
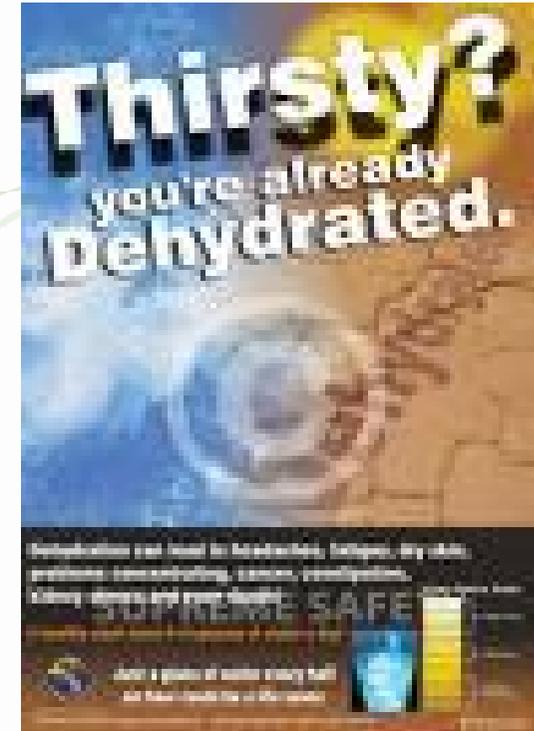
*Predominant method of body weight reduction

Female Light weight Rower

	071111	091111	111111	121111
Calorie Intake	1802	2357	1293	1431
Calorie output	4196**	3097	3361	3164
Difference	-2394	-740	-2068	-1733
Fluids	2645	2987	2740	3262
Carbohydrates	250	309	254	245
Fats	66		19	28
Protein	69	100	42	62
Vitamins / Minerals	Low	Low	Low	Low
Fibre	Low	Low	Low	Low
Lying down	8:13	8:59	10:41	9:04
Sleep	7:10	8:35	8:18	8:26

Rapid Weight Loss

1. Dehydration
 - “ Quick way to “make weight”
 - “ Considerable fluid loss is evident in all rapid weight loss methods
 - . Decreases as athlete becomes more dry.
2. Rapid weight loss through low calorie diets and restricted fluid intake is primarily through dehydration and glycogen depletion – not fat loss !



What the effects look like?

“ Video



Paddy&Nevin FatBurn Subtitles (mp4) - Shortcut.Ink

Rapid Weight Loss

2. Malnutrition (starvation !)

- “ Caused by inadequate intake of nutrients
- “ Liver and muscle glycogen levels are depleted
- “ Strenuous training and prolonged restricted calorie intake might stress the endocrine system and indirectly affect sports performance
- “ Mood is affected
- “ Recovery affected



Prolonged Weight Loss

“ Athletes who strive to maintain body weight or body fat levels that are inappropriate may be at risk of:

- Eating disorders
- Hormonal changes
- Amenorrhoea
- Disordered eating -
- Fatigue
- Anaemia
- Osteoporosis
- Immune function

These consequences may not only impact on health but also performance

Weight Cycling

- “ Repeated bouts of weight loss and regain are common in sports like rowing, boxing and wrestling
- “ In addition to impaired performance weight cycling has been associated with:
 - . Altered body composition,
 - . altered fat distribution, altered hormonal profile
 - . and possible nutritional deficiencies

Healthy Weight Loss

- “ Where possible major weight changes should be achieved outside the competition season
- “ An athlete should aim to be at competition weight (<1 kg) at least 2-3 days and ideally 3-5 days before***
- “ Establishment of weight zones ($\pm 5\%$) should be encouraged
- “ Minimum acceptable body fat levels should be established on a sports specific and individual basis
 - . *** Theory and practice very different
 - . My experience this often does not happen!

Healthy Eating is often not a priority.



"Having to eat broccoli twice a week is not child abuse."

The real world

“ Video McD



paddy macdonalds - Shortcut.Ink

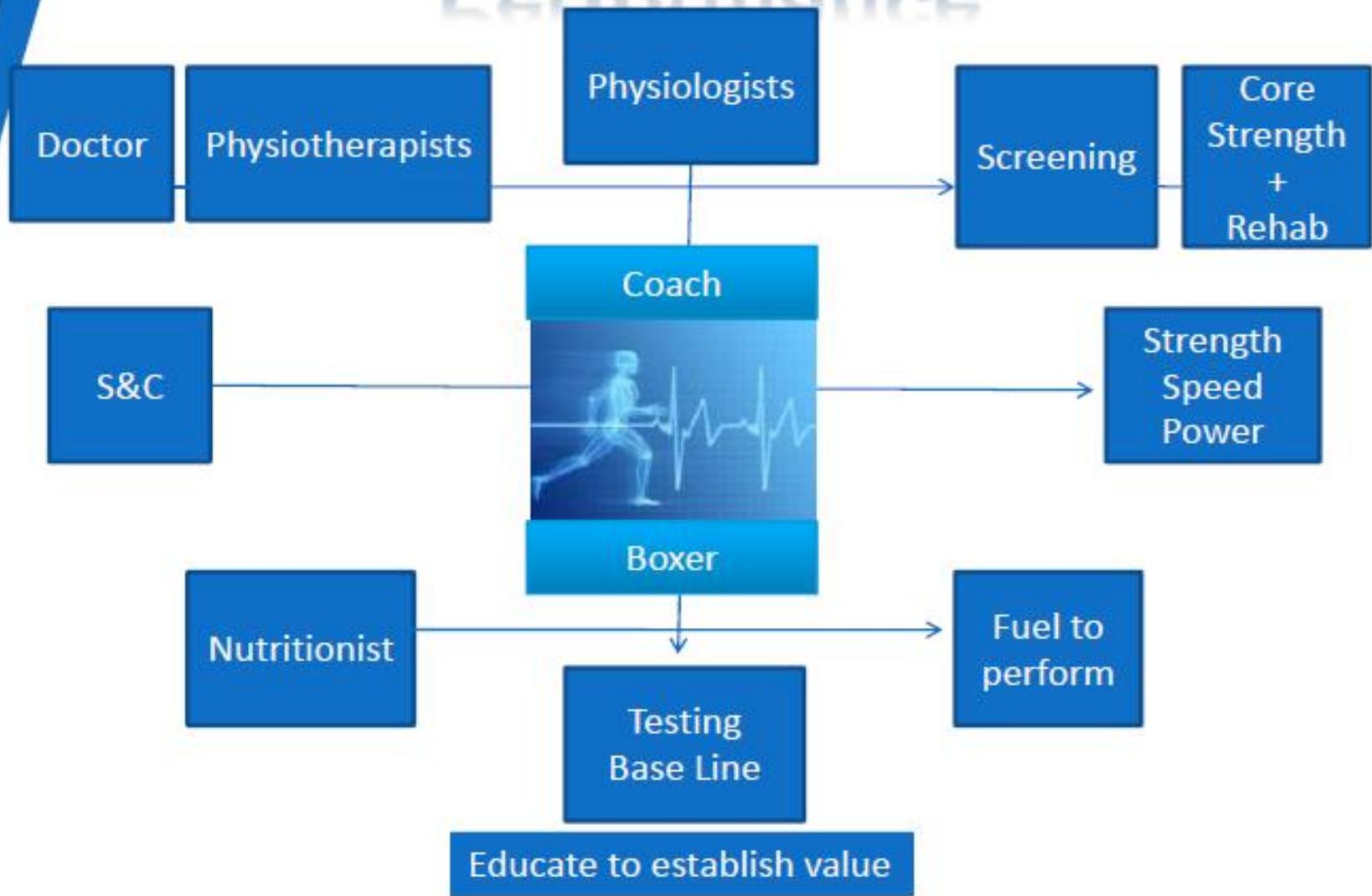
High Performance Irish Boxing



High Performance



Supporting Physical Performance



Nutritional Issues

- 
- “ Dehydration and sweat suits. Significant weight loss during sessions which boxers are pleased with.
 - “ Lack of any recovery strategy or its forgotten about.
 - “ Issues with weight categories.
 - “ No education program
 - “ A wing and a prayer!!

Sweat suits still exist



Case studies



Boxing

- [Sport Homepage](#)
- [Olympics](#)
- [Boxing](#)**
- [Event schedule](#)
- [Latest results](#)

- [A-Z of Sports](#)
- [Related BBC sites](#)
- [News](#)
- [Weather](#)
- [Sport Relief](#)

Page last updated at 20:09 GMT, Thursday, 7 August 2008 21:09 UK

 [E-mail this to a friend](#)

 [Printable version](#)

Medal hope Gavin out of Olympics

British gold medal prospect Frankie Gavin has pulled out of the Olympic Games having failed to make his weight.

The lightweight world amateur champion is now flying home from the Team GB training camp in Macau.

Gavin, 22, would have needed to weigh in at 60kg (9st 6lb) on every day he competed in Beijing but was



Gavin has been unable to get down to the 60kg limit



Boxers

Weight issues right up to end of June

Need to communicate dates between boxers and support staff as to when weight targets need achieved.

Softly softly approach was substituted by hard hitting message

Pre Olympic Camp targets and weigh in achieved

Boxers left for London on weight

Boxers able to eat well through games and timing of competition really helped also

Two days prior to opening fight



Case Observations : Judo

- “ Starting process is much different to where we have been in the last 12 months: couple of competitions well spread out and now up to May in competition every 2nd week.
- “ Repeated and regular DEXA scans and SF measurements indicated that this would just be possible due to the number of tournaments. Eye off the ball in how this would increase.
 - . 6-12 month DEXA BMD Has increased but % body fat VERY Low
- “ Qualification was tough
- “ Good performance at games
 - . Recovery issues
 - . Week of making weight
 - . Making weight every 2 weeks
 - . Post games recovery and weight increases required
 - . Different weight category for 6-9 months

Female Judo Athlete

Date	10-11 TH March	11-12 th	12-13th	13-14 th	14-15 th	15-16 th	16-17th
Days	Tue-wed	Wed-Thurs	Thurs-Fri	Fri-Sat	Sat-Sun	Sun-Mon	Mon-Tues
Time	22.15-23.20hrs	23.20-23.25	23.25-23.30	23.30-23.35	23.35-23.39	23.39-23.39	23.39-23.49
Expenditure	1924 cals	2384 cals	1979 cals	1802 cals	2096 cals	2313 cals	2210 cals
Intake	1337 cals	1696 cals	1737 cals	1824cals	1226cals	1262 cals	1243cals
Difference	-587	-688	-242	+22	-870	-1051**	-967
Training	no	yes	yes	No?	yes	yes	Yes

Endurance Sport: Unexplained under performance

- “ 30 year old male elite runner. 6 foot +
- “ National Cross Country Champion.
- “ Top 10 Euro Cross 2009.
- “ Fatigue/under performance and difficulty getting HR up.

Unexplained under performance

- “ On initial consultation it was felt that oral food intake was good and the discussion moved towards reducing body weight (80kg).
- “ However, food diary revealed a completely different picture and explained much of what was causing problems:
 - . No recovery
 - . Poor overall calorie intake
 - . Poor Iron intake
 - . Malnourished.

Unexplained under performance

- “ Abnormal blood tests
- “ Prolonged rest required
- “ Recurrent episodes fatigue intermittently
- “ Lifestyle issues, medical issues, what else??



What was done

- “ Adaptation of food intake to increase overall calorie intake and address recovery and fluid needs.
 - . Requires on going monitoring as he admits he can fall off
 - . He is “text book” no appetite after training
- “ This has resulted in Iron status remaining fine
- “ Weight dropped as training much more effective: BONUS!
- “ Olympic Qualification in Marathon
- “ Heat caused him to struggle at Race
- “ Post games evaluation of strategy in moving forward

Summary of Key Points for Weight Loss or Making Weight

Severe rapid weight loss due to fluid loss and to a lesser degree glycogen depletion not fat loss

Weight reduction best achieved through a combination of dietary restriction and exercise

Choose “training weight” that allows you to stay healthy and train optimally (<5% of competition weight)

Balanced diet

Don't crash diet ! Be prepared for it to happen. It does

Be wary of weight fluctuations i.e. off season

Use gradual weight reduction strategies – 0.2-0.8kg per week

Monitor weight and hydration status regularly

Get athletes to manage their weight : small steps!!

Athletes could manage weights better but choose not to.

Good outcome



Questions