

Nutrition for Recovery



Nutritionist
Maki SHIBASAKI

overview

- Recovery from weight loss and weigh-in in Judo
- Recovery for the period of races in Swimming



2



3



3

The number of medals in men's judo team : 2 in Beijing ⇒ 4 in London!



2



Judo National Team(Men)

Background and Contents of Nutritional Support Service

«Problems Found»

Repetitive failure of weight loss in OG.

⇒ *Advise for weight control methods*

Importance of nutritional support

«Contents of Nutrition Service»

- Weight control and advice for weight loss on the daily basis
- Provide recovery meal and refeeding after the weight-in (world championships, OG)

The range of weight-loss and determination of individual appropriate weight

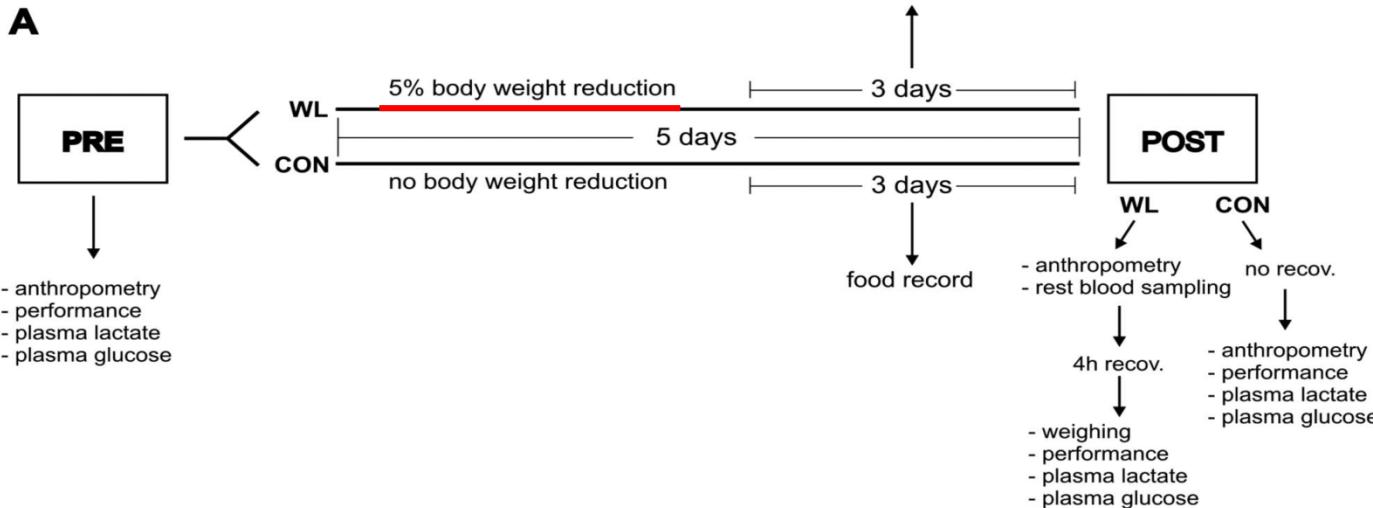


Table II. Body weight and body composition of the weight loss and control groups before (PRE) and after (POST) the intervention (mean \pm s).

	Weight loss		Control	
	PRE	POST	PRE	POST
Body weight (kg)	77.9 \pm 12.2*	74.1 \pm 11.4	67.3 \pm 5.8	67.4 \pm 5.8
Body fat (kg)	8.8 \pm 2.6#	8.0 \pm 2.3**	4.0 \pm 1.6	4.2 \pm 1.7
Lean body mass (kg)	66.2 \pm 4.6*	63.5 \pm 4.9	63.3 \pm 5.1	63.2 \pm 5.1

*Significantly different from POST ($P < 0.01$). #Significantly different from control before the intervention ($P < 0.01$). **Significantly different from control after the intervention ($P < 0.01$).

Table III. Average energy and macronutrients intake reported by the participants in 3-day food records (mean \pm s, with range in parentheses).

	Weight loss	Control
Energy ($\text{kcal} \cdot \text{kg}^{-1} \cdot \text{day}^{-1}$)*	19.6 \pm 4.4 (14.4–25.8)	38.7 \pm 5.5 (32.6–45.3)
Carbohydrate ($\text{g} \cdot \text{kg}^{-1} \cdot \text{day}^{-1}$)*	2.7 \pm 0.8 (2.1–4.1)	5.6 \pm 0.9 (4.8–7.1)
Fat ($\text{g} \cdot \text{kg}^{-1} \cdot \text{day}^{-1}$)*	0.5 \pm 0.1 (0.3–0.7)	1.2 \pm 0.4 (0.6–1.6)
Protein ($\text{g} \cdot \text{kg}^{-1} \cdot \text{day}^{-1}$)*	1.0 \pm 0.3 (0.7–1.5)	1.7 \pm 0.4 (1.2–2.3)

*Significant differences between groups ($P < 0.001$).

Recommended weights per category

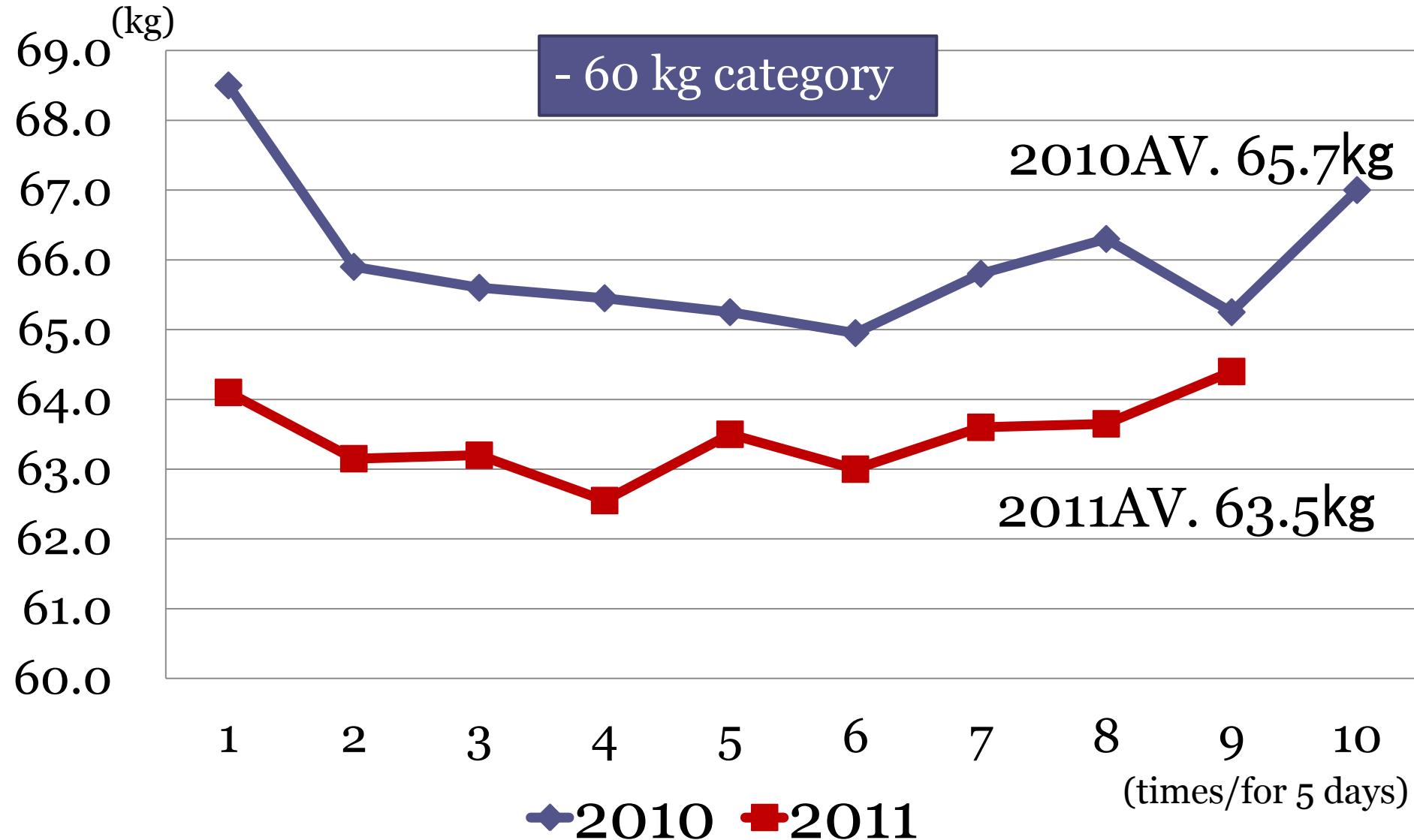
Control their weight on daily basis within **+ 5 ~ 8 %** of their weight category

⇒ Less than + 5 % 10 days prior to the match

	+ 3 %	+ 4 %	+ 5 %	+ 6 %	+ 7 %	+ 8 %
6 0 k g	61.8kg	62.4kg	63.0kg	63.6kg	64.2kg	64.8kg
6 6 k g	67.9kg	68.6kg	69.3kg	69.9kg	70.6kg	71.2kg
7 3 k g	75.1kg	75.9kg	76.6kg	77.3kg	78.1kg	78.8kg
8 1 k g	83.4kg	84.2kg	85.0kg	85.6kg	86.6kg	87.4kg
9 0 k g	92.7kg	93.6kg	94.5kg	95.4kg	96.3kg	97.2kg
1 0 0 k g	103.0kg	104.0kg	105.0kg	106.0kg	107.0kg	108.0kg

Support for weight-loss on daily basis

~Case in proper control of the appropriate weight~



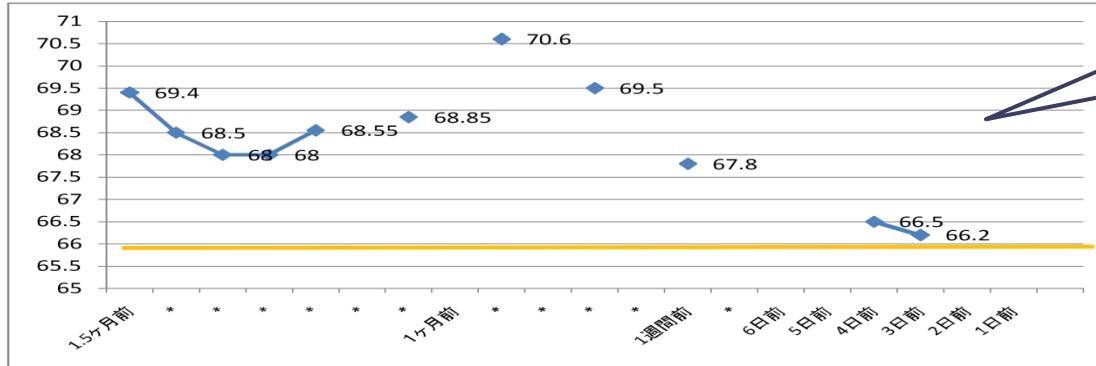
Methods for weight loss toward competition

- Do not reduce the amount of meals rapidly before a week prior to the competition
- Eat the main dish even if small amount, and reduce the side dishes
- Do not reduce water intake until the last minute
- Preferable to take water and food as much as they can up to a day before the competition



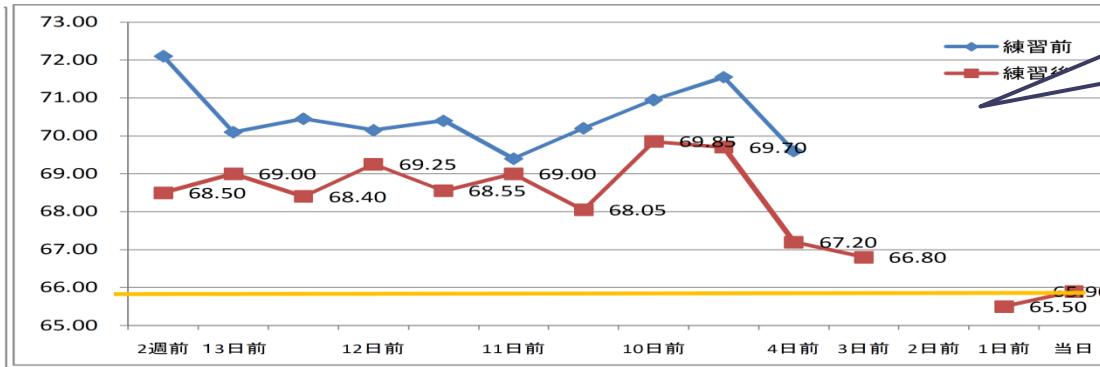
Changes in weights toward competition

海老沼匡選手
2011世界選手権(試合1.5か月前～試合)



2011world
champion ships

2011天理合宿～GSリオ(試合2週間前～試合までのシミュレーション)



2011 grand slam

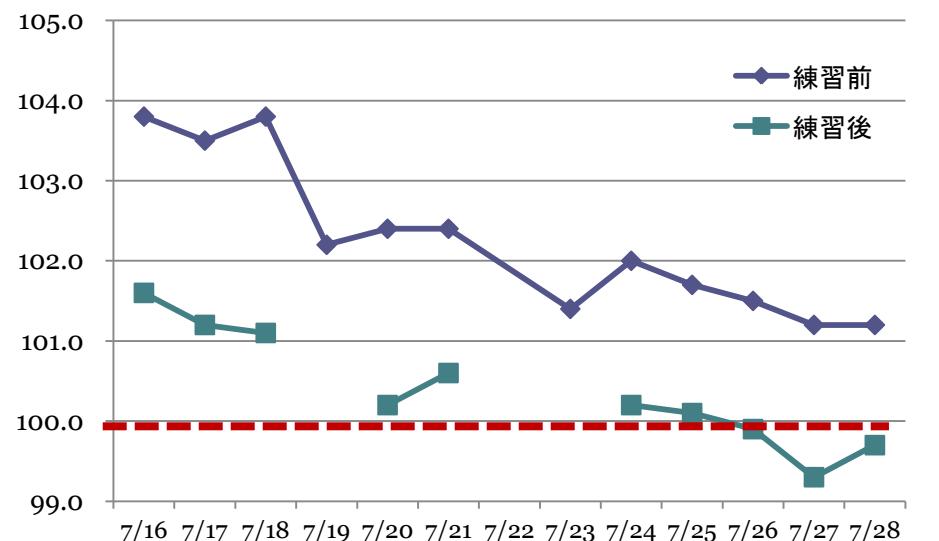
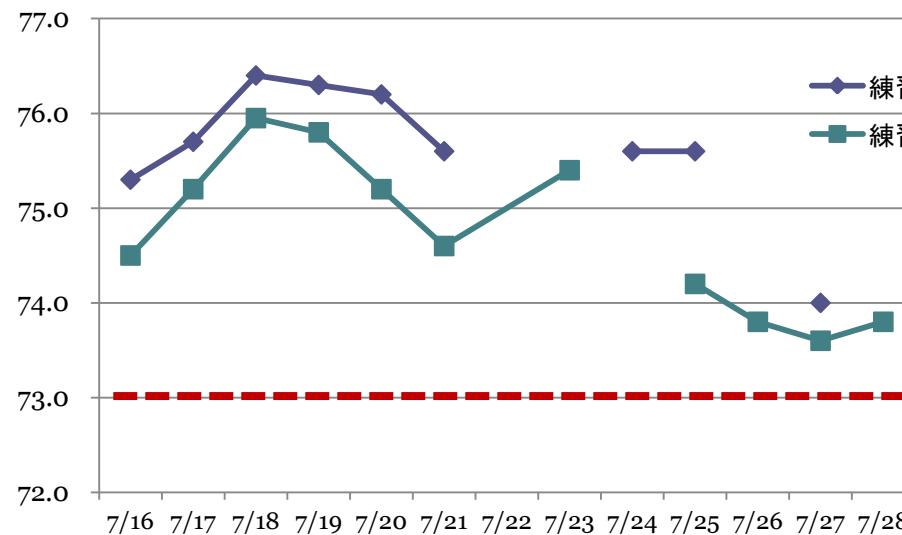
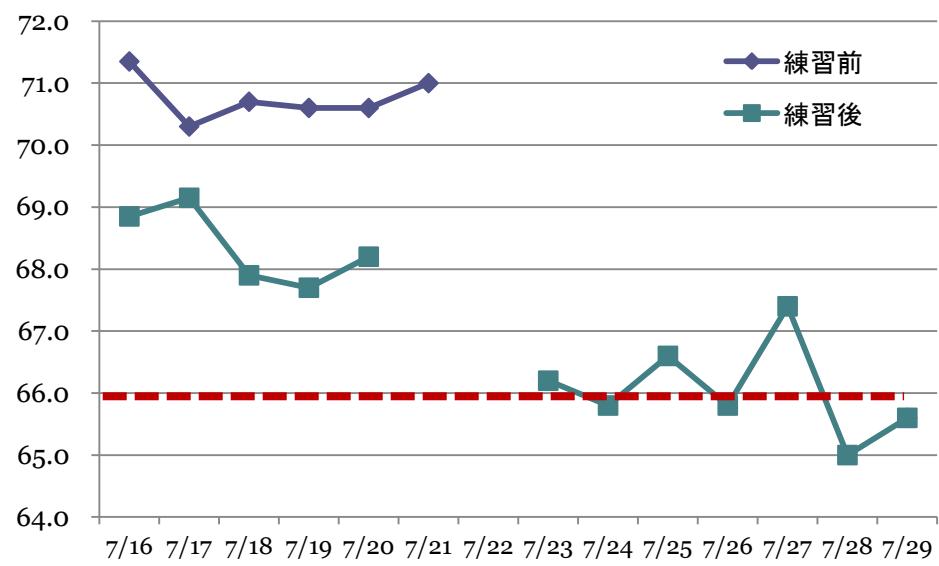
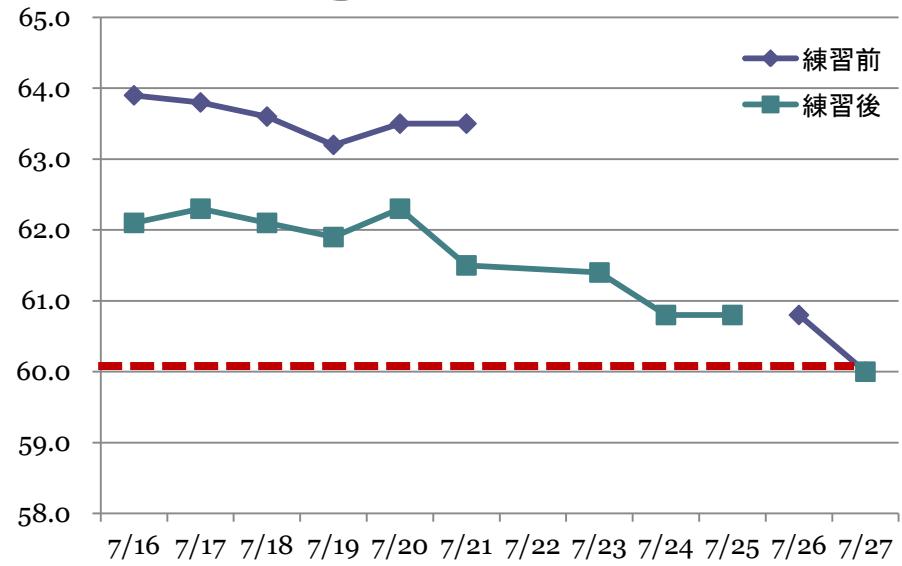
2010世界選手権(試合1か月前～試合)



2010world
champion ships

Identify the best pattern for conditioning
based on the evaluation in each
competitions

Changes in weights during the preparation period toward OG



Amount of carbohydrate and energy intake during the recovery period

«Review of Studies 1 : Wrestling»

- ▶ Performance recovery in 5 hours $\text{CHO} \sim 275\text{g} > \sim 175\text{g}$



(Rankin et al, 1996)

«Review of Studies 2 : Judo»

- During the 4-h recovery period, the weight loss group ingested $1391\text{kcal} \pm 375\text{kcal}$
 $(\underline{\text{201} \pm 62\text{g of carbohydrate}}, \text{50} \pm 16\text{g of fat}, \text{34} \pm 23\text{g of protein})$
- No significant difference in performance between CON and PRE groups(rapid weight loss 5 days)
- After the recovery period weight loss athletes regained $51 \pm 13\%$

Refeeding right after weight-in (Recovery Meal)



Carbohydrate and
Water Intake is
the priority

Carbohydrate intake
250~300g





**4 Japan Records • The most number
of medals in 68 years = 11 !**



London2012 • Schedule of Races



In the case of Suzuki
and Irie
100M • 200M • Relay

2times 1times

1st day
Womens
Free
4×100m

2nd day
Mens
Free
4×100m

3rd day

4th day
Mens
Free
4×200m

2times

5th day
Womens
Free
4×200m

1times

6th day

1times

7th day
Womens
Medley
4×100m
Mens
Medley
4×100m

1times

8th Day
Men&
Women
Medley
4×100m
Final

Weight Loss...
Lose appetite...

Preliminary
10:00～13:00

About 7 hours

Semi Final／Final
19:30～21:30

Conditioning Issues in OG

- **Conditioning to perform at maximum for 8 days**
- Daily Recovery for 8 days
- Quick recovery between races (Pre, SF, F)

Recovery Tips during Olympic Games

1. Quick Recovery between races

- Carbohydrate intake after preliminary race and before semi final
- Carbohydrate intake after semi final and before final in next day

2. Daily recovery to keep performance in races over several days

- Make sure to take the required amount of energy and carbohydrate on the race day
- Make sure to take the required amount of energy and carbohydrate on non-race days
- Protein, Vitamines, Minerals

High carbohydrate availability to promote optimal performance in competition

~IOC Sports Nutrition Consensus Statement 2010

- Preparation for Events < 90min exercise
7-12g • kg⁻¹ • body mass per 24h
- <8 h recovery between two fuel demanding sessions
1.0-1.2g • kg⁻¹ • h⁻¹ for first 4h then resume daily fuel needs
- Before exercise < 60 min
1.0-4g • kg⁻¹ consumed 1-4h before exercise

Nutritional Strategy on Race Day

~Importance of carbohydrate intake for recovery

- Determine the required amount of carbohydrate intake in one day for the period of competition

⇒7g/kg⁻¹/day

- Determine the required amount in the morning, afternoon, and right after the race

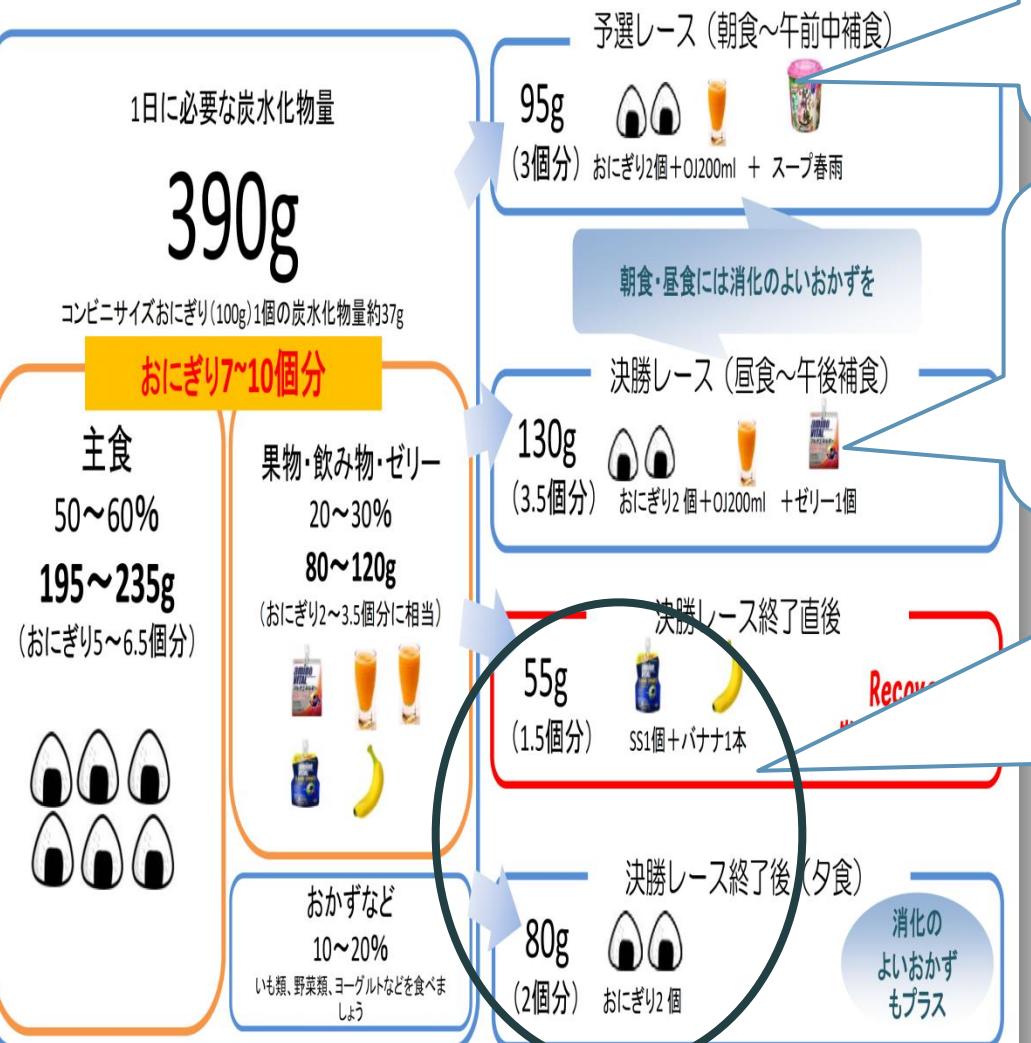
⇒Right after the races, 1g/kg⁻¹



Case of using Nutritional Strategy

Nutrition Program for Recovery

選手



Preliminary Race at 9:50
Breakfast 6:15 Hodgepodge, soup

Prior to race 9:00 Energy Jelly
After the race 10:45 Riceball

Semi final race at 19:30
Lunch 12:00 Chirashi-sushi, Watermelon, meat, veg.
Prior to race 17:00 riceball X1
⇒Sub approx. riceball x3.5

Dinner day before the race
⇒Sub approx. riceball x4



Recovery Nutrition Book Distribution



第30回オリンピック競技大会
(ロンドン/2012)

競泳日本代表
Recovery Nutrition Book

作成: チーム「ニッポン」マルチ・サポート事務
管理委員会 総務課



➢ 90分以内の試合準備料
7-12g/kg/24h



Recovery Nutrition for London 2012

①予選～準決勝・決勝レース間のすばやいリカバリー

- ▶ 準決勝を控えた予選後
 - ▶ 翌日の決勝を控えた準決勝後

②連戦を乗り切るための毎日のリカバリー

- #### レース日以外の栄養補給

毎日のエネルギー・栄養素摂取

アレルゲンとは?
たんぱく質をつくっている成分のこと。たんぱく質は蛋白、骨、歯などから成る材料になります。
アレルゲンは、たんぱく質に比べ、通常の量で食べても問題ないことが多いですが、過ったアレルゲンの摂取は免疫器官を活性化させることがあります。たんぱく質は、肉、魚、卵、大豆製品だけでなく、穀類、乳製品なども含まれています。

Example of recommended selection of food on the race day at the athlete village



Enough main dish, small side dish with less fat compared to usual



※-60kg athletes (energy / carbohydrate)

鶏団子入中華麺	146kcal
ごはん1/2杯分	73kcal
プレーンオムレツ	71kcal
オレンジジュース200ml	84kcal
ヨーグルト+はちみつ	82kcal
バナナ	73kcal



Breakfast

529kcal/91.6g

スパゲティ+マリナラソース	347kcal
バケット	120kcal
鶏むね肉のグリル	193kcal
ブロッコリーとトマト	67kcal
オレンジジュース200ml	84kcal
グリーンサラダ	



Dinner

811kcal/112.8g



ごはん1.5杯	219kcal
えびぎょうざ	116kcal
白身魚のグリル	180kcal
味噌汁	62kcal
ほうれんそうのガーリックソテー	70kcal
パイナップル・メロン	47kcal
ヨーグルト+はちみつ	82kcal
グリーンサラダ	



Lunch

776kcal/96.4g

おにぎり2個	268kcal
マルチエネルギー1個	160kcal
スーパースポーツ1個	100kcal



補食

Snack

528kcal/120g

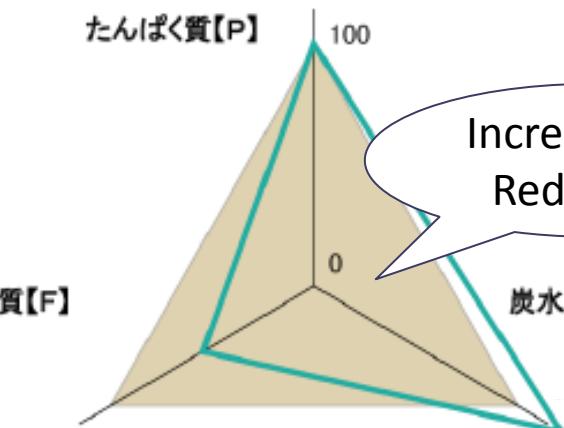
たんぱく質【P】

脂質【F】

Increase carb
Reduce fat

炭水化物【C】

Total in 1 day 2644kcal/420.8g



Use of McDonalds



商品名		energy (kcal)	carbohydrate (g)	protein (g)	fat (g)	備考
Burguer	ハンバーガー	250	30 	14 ★	8 ★	炭水化物がとれる 脂肪少なめ
	フィレオフィッシュ	335	38 	14 ★	13 ★	炭水化物がとれる 脂肪やや多め
	マックチキンサンド	385	44 	16 ★★	16 ★	炭水化物がとれる 脂肪やや多め
Sand	グリルチキンサラダ	435	56 	27 ★★★	10 ★	炭水化物・たんぱく質がしっかりとれる 脂肪少なめ
	クリスピーチキン&ベーコン	620	73 	33 ★★★★	21 ★	炭水化物・たんぱく質がしっかりとれる 脂肪多め
Wraps	グリルドチキン	330	38 	24 ★★★	9 ★	炭水化物・たんぱく質がしっかりとれる 脂肪少なめ
	クリスピーチキン&ベーコン	495	55 	23 ★★★	20 ★	炭水化物・たんぱく質がしっかりとれる 脂肪多め

商品名	エネルギー (kcal)	たんぱく質 (g)	脂肪 (g)
ガーデンサラダ	10	1	0
グリルチキンサラダ	115	18 ★★	2
クリスピーチキンサラダ	270	23 ★★★	12 ★

パックでサラダがとれるので、ダイニングが混みあっているときに便利です。
他のおかず類との組み合わせでチキンあり／なしを選びましょう。
体重が増えやすい人はノンオイルドレッシングにしましょう。



Case to maximize the use of sport science and medicine support service comprehensively

Develop swim to minimize the water resistance

Weight loss



Lactate measurement

Objectives from Coaches +
Athletes subjectivity
To change the swimming form



Training & care



Motion analysis



Race analysis

Thank you for your attention