

Child Nutrition for Training and Competition

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OUTLINE

- What sports nutrition is not
- What nutrition involves:
 - Eating expectations
 - Nutrition screening, (assessment/diagnosis)
 - Diet planning – whole day approach
 - Implementation of diet- plan meals and snacks
- Fuelling and Hydration Strategies for training and competition

What nutrition is NOT

- A one day wonder/miracle drug to take on the day of the race or just before the race such as a *specific food* like glucose, energy *food* or a *nutrient* supplement.
- Eating in a special way such as high carbohydrate or high protein/fat on the day when this was not daily practice all along –consider *nutritional adaptation*.
- Avoiding food or not having enough food or drink especially on the day of training or competition.
- A quick fix to correct inadequate eating or training preparation such as a list of '*healthy foods*' to eat like high glycemic index or low glycemic index foods.

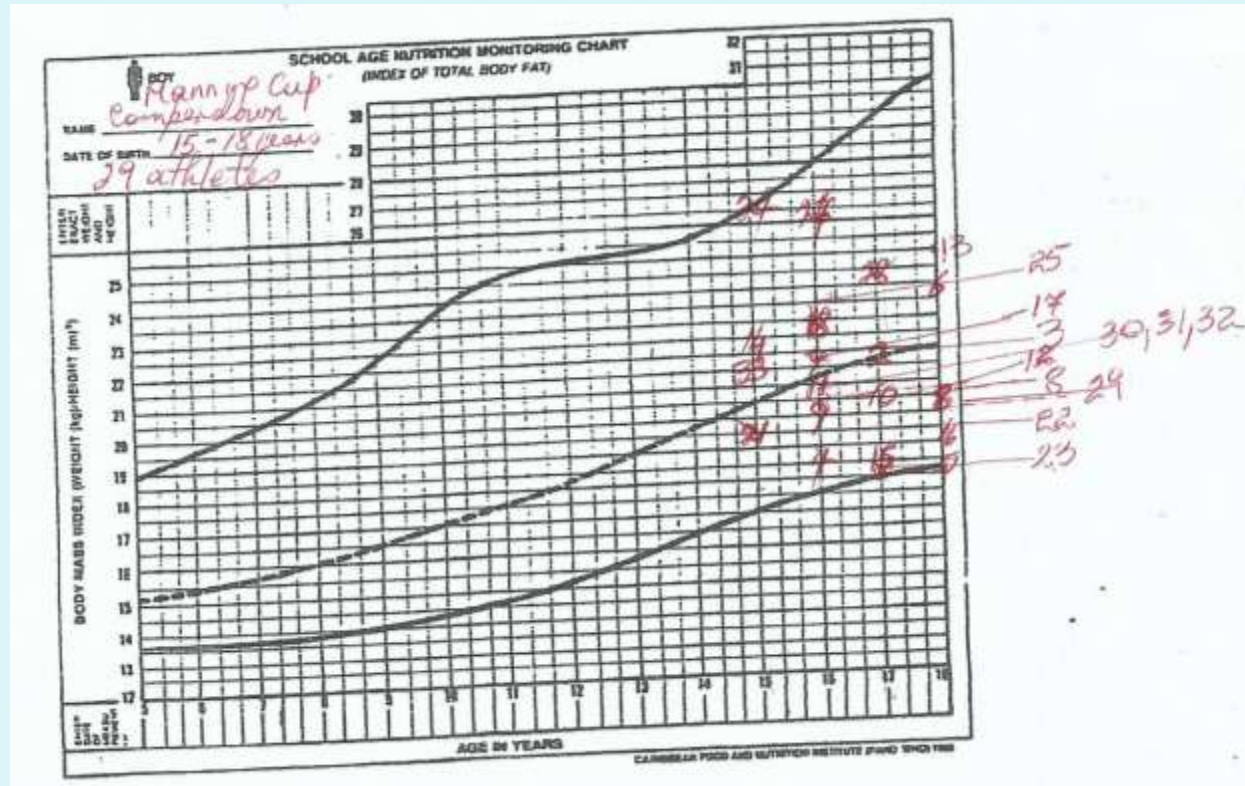
What Nutrition/Eating Is

- INDIVIDUALIZED – each athlete is different with own genetics, culture, SES, idiosyncracies etc.
- VARIABLE – e.g. from one person or sport to another, according to physical and physiological requirements, and from day to day - location.
- PROGRESSIVE – e.g. depending on growth pattern of child and stage of development in sport.
- A LEARNING PROCESS – you have to eat for yourself and you learn how to eat based on years of training and conditioning – *nutrition coaching*.

Specific Recommendations

- Professional nutrition advice and guidance should be sought long before and not just after the problems develop – nutrition is preferably '*promotive*' (*enhance performance*) and '*preventive*' (*avoid injuries and drug use*).
- Nutrition for sports success requires calculations, interpretations and monitoring.
- Institutions like schools require a structured eating environment and **should have** the guidance of trained nutrition professionals.

SCREENING OF FOOTBALL MANNING CUP PLAYERS



29 ATHLETES SCREENED, ONLY 8 (27.6%) OF ADEQUATE BMI SUITED TO WITHSTAND THE HECTIC TRAINING SCHEDULE, 18 (62%) WERE BELOW THE AVERAGE BMI, SOME EVEN TRENDING TOWARDS MALNUTRITION (ABOVE OR BELOW NORMAL) AND 3 WERE ALREADY BORDERLINE.

Food and Hydration needs of male footballers under 16 years

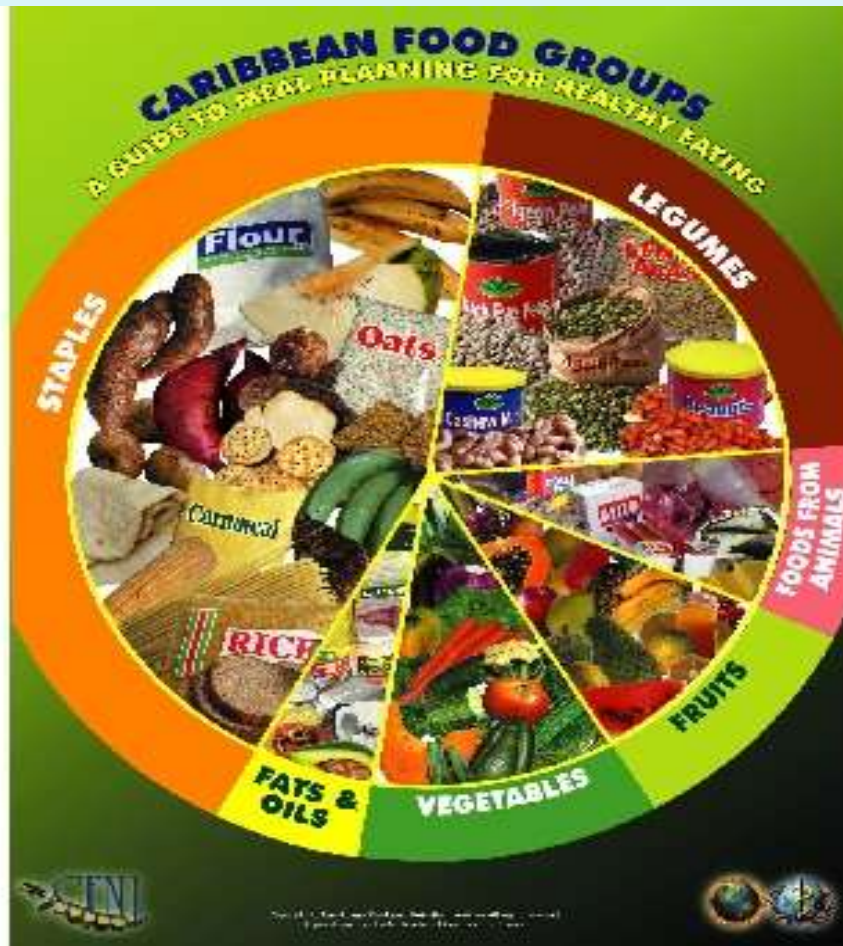
Current Weight	Desired Weight	BMI	Water taken (1 hr training)	Water needs (1 hr training)	Water needs (4 hrs training)
lbs	lbs	Age BMI	# 8 oz glasses	# 8 oz glasses	# 8 oz glasses
147.6	147	15 23.5	2.8	4.5	18
142.4	159	14 19.6	3	2	8
113.6	134	15 18.9	1.75	5	20
130.6	149	15 19.9	3	1.5	6
124	134	14 21.0	1.6	3.5	10
130.2	138	14 20.4	1	4.5	18
120	136	15 19.4	2	6	24
123.8	150	15 18.3	2	1.25	5
130	151	15 18.1	1.5	7	28
99.8	124	13 16.9	2	2	8
104.2	130*	14 16.3	3	2	8
91.2	121*	15 16.2	1.5	4	16

Basic Rules/Formula for good nutrition

- C = Foods eaten in the correct Combinations from all six food groups and ratio (calculated)
- A = Amounts of foods and liquid appropriate for the individual characteristics – *a single meal plan (menu with servings/portions) will not meet the needs of all persons on the team*
- T = Timing of intake known as nutrient timing and involves scheduling of intake

Diet Planning - The Whole Day Approach

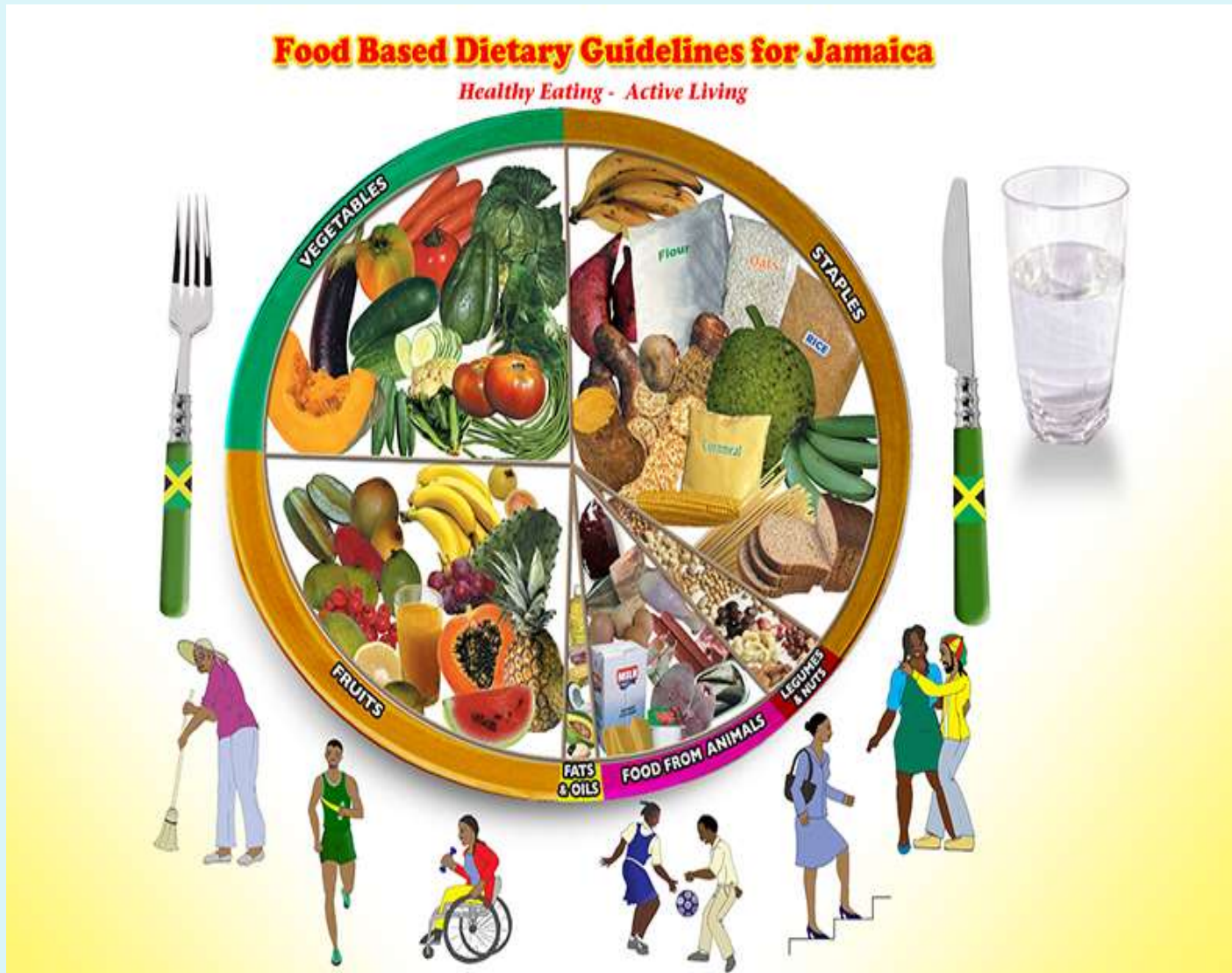
Distributing calories among Food Groups – **one example**



Calories

- Staple Foods - 45%
- Animal Foods - 10-20%
- Legumes - 10-20%
- Vegetables - 5%
- Fats & Oils - 5%
- Fruits - 10%
- Miscellaneous - 5%
- Total - 100%

Jamaica MOH Food Plate – by weight



Diet Planning

Food Group and Portion Line Up

Caribbean Food Groups	Total Daily Portions	
	2200 Cals	Ratio
• Staple	• 10	4½
• Food From Animals	• 4	2
• Legume	• 2	1
• Fruit	• 2	1
• Vegetables	• 1	½
• Sugar	• 1½	½
• Fats and Oils	• 1½	½

Caribbean
Calorie
Counter



Conscious
Eating Guide

PATRICIA Y. THOMPSON M.Sc.,
Registered Nutritionist

US\$12

NUTRIENT TIMING

Meal Schedules and Structures

One Example

<u>Meals</u>	<u>Meal Intervals</u>	<u>% total/calories</u>
	<u>Regular Day</u>	
• Episode 1	0 hours	32% (700)
• Episode 2	4 hours	32% (700)
• Episode 3	4 hours	16% (350)
	Training	
• Episode 4	4 hours	20% (450)

Box Lunch

**Full order - 2 cups rice n peas
750 calories**



**Half order - 1 cup rice n peas
400 calories**



Meal Spacing and Distribution

Match day

<u>Meals</u>	<u>Meal Intervals</u>	<u>% total calories</u>
• Intake 1	0 hours	20%
• Intake 2	3 hours	20%
• Intake 3	3 hours	23% (500)
• Intake 4	2 hours	15%
5 p.m.	Training or match – 2 hours	
• Intake 5	30 mins	10%
• Intake 6	1 hour	12%

Example of Meal Standard for one person for 500 calories (23% of day's intake)

Food Group	# portion equivalents	Approximate Weight/measure
Staple Foods	2	1 cup cooked rice or other
Food From Animal	1	1½ ozs cooked meat/substitute
Legume	0.5	1 oz cooked beans
Vegetables	0.25	½ -1 cup cooked vegetables
Fats & Oils	0.5	1 tbsp gravy
Fruits	0.5	1/2 cup mixed juice (4 ozs)
Sugar	0.25	Sugar in juice – plus water ₁₆

Meals + juice = 500 Calories

4-mix – 450 calories



3-mix – 400 calories



Local Breakfasts – 450 Calories

2 mix meals



Snacks = nourishment just like meals

450 Calories



100 Calories



Bulla with milk =
500 Calories



Snacks = nourishment just like foods

**Green Banana – 1 large
– 3 ozs Edible Portion**



**Mashed with 2 tsp 'butter' +
½ pinch salt**

Commercial chips – 1 oz (30g)



Nutrition Information

Calories	= 147	145
Fat	= 8g	8g
Protein	= 1g	1g
Salt	= 150mg	60 mg
Dietary fibre;		Vitamin C

Fuelling Strategies

For Training and Competition

- Practice careful timing of eating to avoid a full stomach and not to hinder performance.
- Pre-game meal with minimal grease and familiar foods 2-3 hours in advance. Avoid foods that cause distress e.g. high fibre such as vegetables.
- Topping up of extra CHO/Prot intake of 10-15g per 10-15 mins for exercise over 1-2 hours – use liquid.
- Post-training nourishment within 20 minutes of exercise completion.

Importance of hydration

- Water – medium for hydrolysis: digestion & metabolism of macronutrients to yield energy
 - **Young children do not produce sweat efficiently –**
 - **overheat faster**
 - Progressive hydration- throughout the day
- Small amount of dehydration: **under-perform**
 - **Gymnasts: 1 pound loss (1 pint fluid) was significant = 2 glasses water**

Fluid loss & needs for gymnasts

7 and 17 yrs

Age	Weight Before Training	Weight After Training	Weight Loss	Fluid loss	Fluid Needs
7 yr old female	82lbs (37.7kg)	80.8lbs (36.7kg)	1.2 lbs	18 oz	27 oz (3.25 glasses)
17yr old male	152.4lbs (69.3kg)	149.8lbs(67.9kg)	2.6 lbs	40 oz	60oz (7.5 glasses)

Hydration Guidelines

Ages 6-12

Before Sports

- 1 -2 hours before sports training:
4 -8oz water
- 10-15 minutes before sports:
4-8oz water

During Sports

Every 15-20minutes

**After Sports – depends on sweat rate and previous hydration plan
- Start within 15-30 mins**

Ages 13-18

Before Sports

- 1 -2 hours before sports training: 8
-16oz water
- 10-15 minutes before sports: 8-
12oz water

During Sports

Every 15-20minutes:

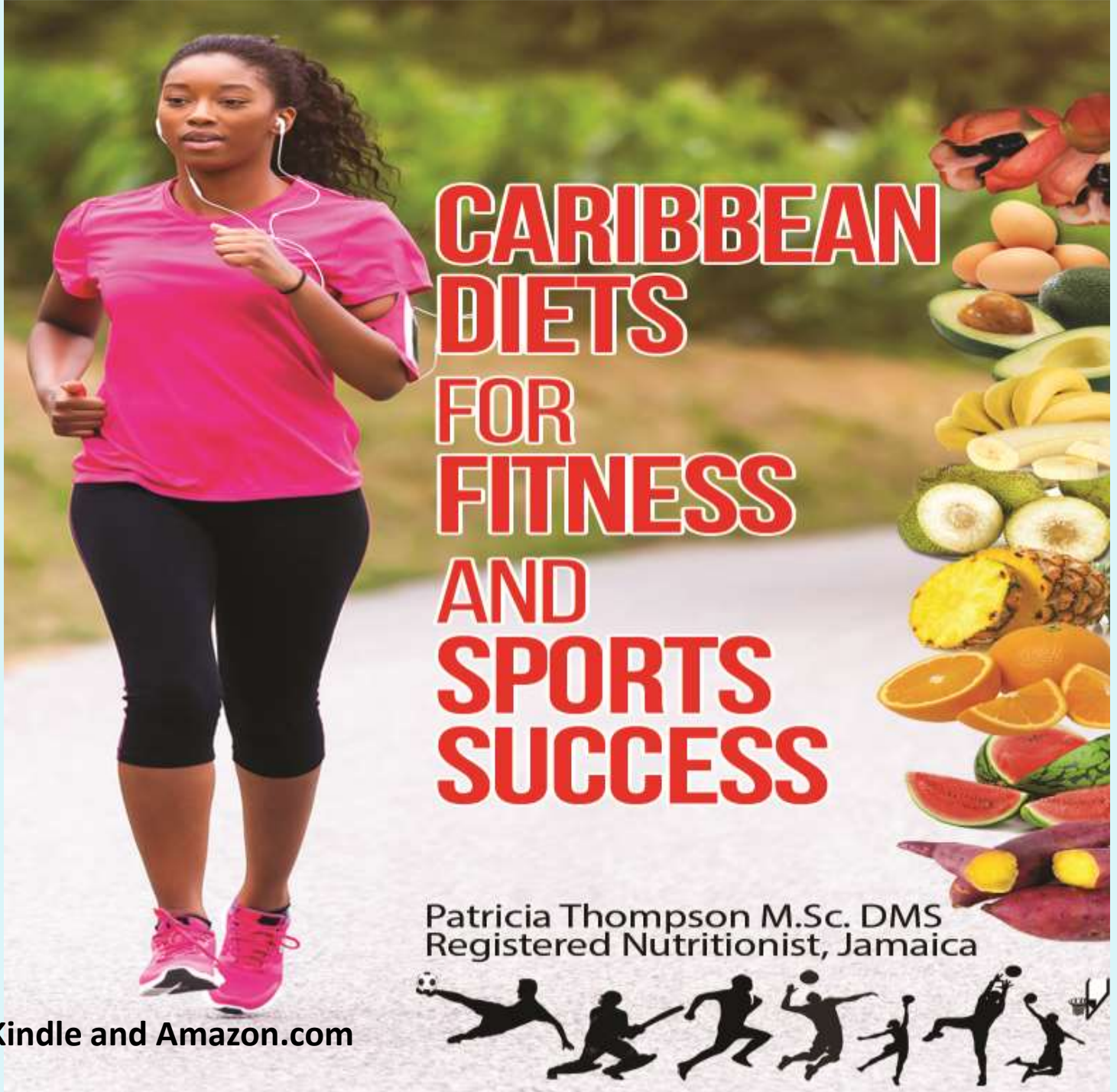
**After Sports- depends on sweat rate and previous hydration plan
- Start within 15-30mins**

Take home messages

- A lifestyle of good drinking and eating habits must be developed with professional nutrition coaching and practiced daily – whole day approach to diet planning.
- A way of eating requires that the **total** diet matches the nutritional needs of the **individual** taking into consideration:
 - Physical and physiological requirements - RDAs
 - The specific needs of the particular sports and other personal requirements
 - The training and competition schedule and work load

What parents & coaches should know

- Whatever eating practices are done on a regular basis, the same will be done on the day of competition and this includes the mistakes.
- An individual must be '***conditioned***' or trained to eat and drink a certain way over the long term in the same way that they train to develop skills and attributes for the particular sport.
- Children must be **CONDITIONED** to drink water and not juice. Juices (or snacks) are foods.
- Eating in a structured environment from birth, maintains the proper internal controls.



CARIBBEAN DIETS FOR FITNESS AND SPORTS SUCCESS

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Available on Kindle and Amazon.com
US\$18

Unit Portions – 100 calories each

STAPLE FOODS

CEREALS AND GRAINS

- 1 ounce dry (2 tablespoons)
- 3-4 ounces cooked ($\frac{1}{2}$ cup)
- Bread – 1 slice (1 oz +)

PROVISIONS

- $\frac{1}{4}$ lb market weight (AP)*
- 3 ozs peeled/cooked (EP)*
(1-2 pieces as used in soups etc.)

*AP – as purchased
EP – Edible portion

LEGUMES AND VEGETABLES

DRIED PEAS AND BEANS (PULSES)

- 1 ounce dry
- 2 ounces cooked ($\frac{1}{4}$ cup)
- $\frac{1}{2}$ cup stew peas (+ liquid)

NUTS AND SEEDS

- $\frac{1}{2}$ ounce (hand middle)

VEGETABLES

- Leafy Raw & fruit (AP) – 1 lb
- Roots e.g. carrot – $\frac{1}{2}$ lb

Unit Portions – 100 calories each

FOODS FROM ANIMALS

- RED MEAT -1½ ozs lean flesh
- CHICKEN - 2 ozs lean flesh
- WHITE FISH - 4 ozs
- CANNED FISH
 - Sardines - 2 ozs
 - Mackerel - 3 ozs
- EGG – 1 ex. large/2 small
- CHEESE – 1 ounce
- COWS MILK
 - Whole liquid-5 ozs /½ oz pwrdr
 - Low fat – 7 ozs
 - Skim – 8 ozs/1 oz (2 tbsp) pwrdr

FRUITS, FATS, OILS, SUGARS

- **FRESH** – 1 medium/2 small
 - Mango/Ripe Banana - 1
 - Orange, Apple - 2
- **JUICE**
 - Fresh squeezed – 8 ozs (1 cup)
 - Box or mixed – 6 ozs (2/3 cup)
 - Coconut water – 1 pint (2 cups)
- BUTTER, MARGARINE – 1 tbsp (½ oz)
- COOKING OIL – 1 tbsp (½ oz)
- ACKEE – 1 ounce
- COCONUT – 1 ounce
- AVOCADO PEAR – 2 ounces
- ALL SUGARS – 1½ tbsp (½ oz)
- KETCHUP – 6 tbsp/ 3 ounces