

A photograph showing the lower legs and hands of a person wearing blue patterned leggings. The person is holding a green mat or piece of equipment. The background is dark.

# Practical Sports Nutrition: Insights from a practitioner

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# Overview

- Range of athletes within the Olympic disciplines
- Areas of interest from a nutritional perspective
- Dairy in sport



# Performance Nutrition and Gymnastics



**Trampolining**  
Senior  
Av. Age: 23.7  
Range: 22-29  
  
Junior  
Range: 14-19



**Women's Artistic**  
Senior  
Av. Age: 18.5  
Range: 16-23  
  
National squad  
Av Age: 17.7  
  
Junior  
Range: 10-14

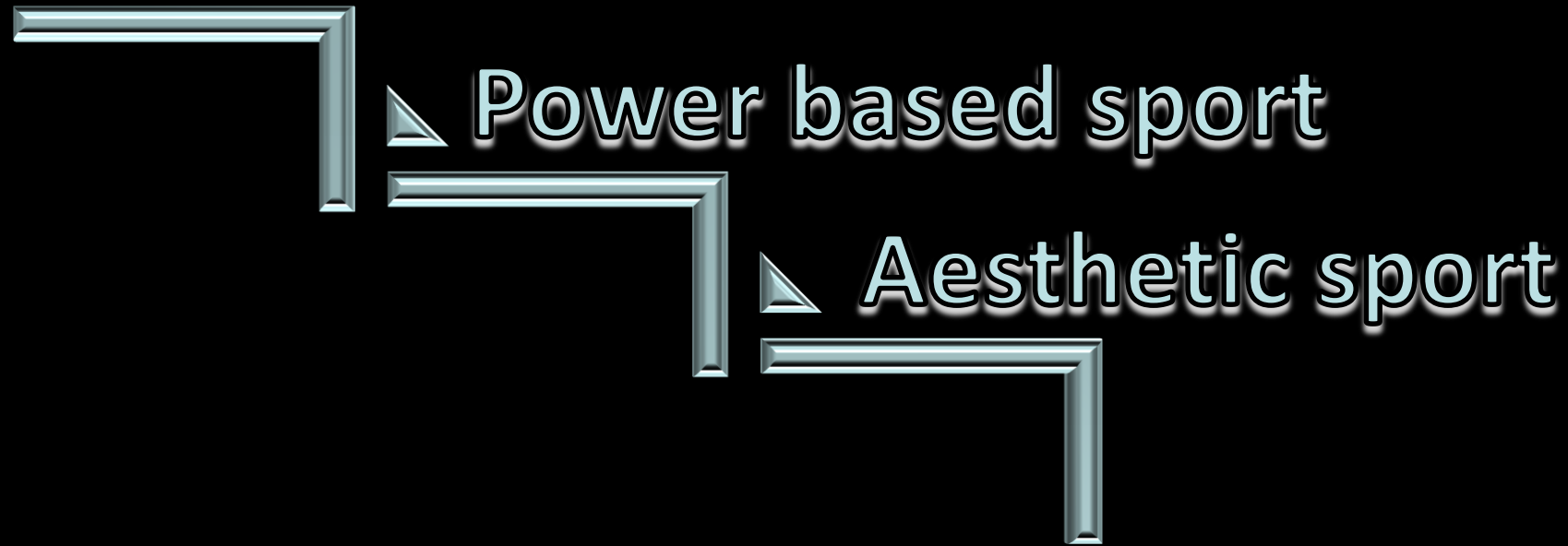


**Men's Artistic**  
Senior  
Av. Age: 22.4  
Range: 19-26  
  
Top Junior  
Av. Age: 15  
  
Elite  
Range: 10-14

# Areas of focus



Young developing athletes



# Nutrition and the growing athlete





The growing  
gymnast

# Performance Nutrition and Gymnastics



<b>Weight (kg)</b>	<b>Height (cm)</b>	<b>BMD</b>	<b>Z score</b>
<b>60.1</b>	<b>164.1</b>	<b>1.21</b>	<b>0.6</b>
<b>54.8</b>	<b>163.1</b>	<b>1.28</b>	<b>1.4</b>
<b>44.7</b>	<b>155.8</b>	<b>1.09</b>	<b>0.6</b>
<b>56.0</b>	<b>164.3</b>	<b>1.22</b>	<b>0.9</b>
<b>44.7</b>	<b>154.3</b>	<b>1.02</b>	<b>-0.7</b>
<b>56.2</b>	<b>167.0</b>	<b>1.15</b>	<b>0.8</b>
<b>76.0</b>	<b>173.1</b>	<b>1.37</b>	<b>2.1</b>
<b>48.5</b>	<b>157.4</b>	<b>1.33</b>	<b>-0.2</b>
<b>58.3</b>	<b>164.2</b>	<b>1.14</b>	<b>0.0</b>

# The growing gymnast





# Performance Nutrition and Gymnastics

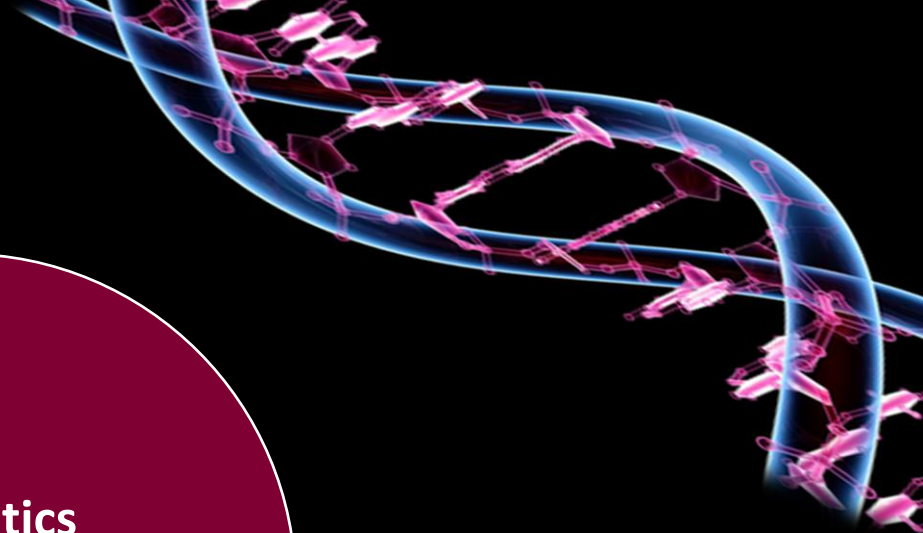


	Gymnast A			Gymnast B		
	13	14		13	14	
	19/02/2014	12/11/2014	Change	19/02/2014	12/11/2014	Change
<b>Weight (kg)</b>	32.7	34.4	1.7	53.8	57.0	3.2
<b>Height (cm)</b>	146.0	148.0	2.0	161.0	163.0	2.0
<b>Whole body fat (%)</b>	14.2	12.8	-1.4	11.1	14.2	3.1
<b>Whole body fat (kg)</b>	4.6	4.4	-0.2	5.9	8.1	2.1
<b>Whole body muscle (kg)</b>	26.6	28.5	1.8	45.5	46.5	1.0
<b>Z score</b>	-0.1	0.1	0.2	3.3	2.8	-0.5



# Physique, weight and body composition





**Aesthetics**

**Injury prevention**

**Performance**

# Body composition and weight



# Body composition and weight

**WEIGHT**

Bone



Fat mass



Lean mass



# Body composition and weight



	<b>Measured RMR</b>	<b>Predicted RMR</b>	<b>Ratio</b>
<b>S1</b>	1022	1367	0.7
<b>S2</b>			
<b>S3</b>	1337	1365	1
<b>S4</b>	1188	1416	0.8
<b>S5</b>	1529	1415	1.1
<b>S6</b>	1220	1417	0.9

# Body composition and weight



	kcal.d	kcal.FFM
<b>S1</b>	2882	63
<b>S2</b>	3319	67
<b>S3</b>	2848	67
<b>S4</b>	3628	77
<b>S5</b>	2886	58
<b>S6</b>	3033	63

# Dairy in sport

## Research highlights



### Milk and bones

Zittermann et al (2002)

Moderate exercise may increase intestinal calcium absorption

Scott et al (2011)

Weight bearing exercise increases markers of bone turnover

Barry et al (2011)

Calcium supplementation before running training attenuated reduction in PTH

Haakonssen et al (2015)

Pre-exercise calcium rich meal reduced markers of bone resorption post cycling training



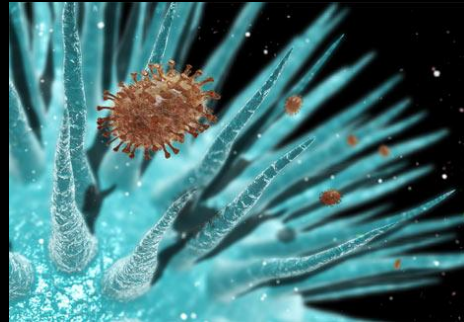


# Pre-training snacks

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# Post-training Recovery



# Post training Recovery



# Dairy in sport

## Research highlights



### The benefits of milk proteins:

Mixed protein sources

Leucine content

Protein and satiation



# Dairy in sport

## Research highlights

	<b>Egg (boiled)</b>	<b>Greek Yoghurt</b>	<b>Milk</b>	<b>Tuna</b>	<b>Whey protein</b>
<b>Quantity</b>	2 eggs	170g	300mL	1 can (60g)	15g
<b>Total protein (g)</b>	13	17	10.2	14	14
<b>Isoleucine (g)</b>	0.7	0.7	0.6	0.7	0.8
<b>Leucine (g)</b>	1.1	1.2	1.0	1.2	1.5
<b>Valine (g)</b>	0.4	1.0	0.7	0.8	0.7
<b>Cost</b>	£0.30	£1	£0.20	£0.70	£1.50

# Dairy in sport

## Research highlights

**Chocolate milk and recovery?**

**Sugar content and impact on body composition**



# Recovery

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# Dairy in sport

## Research highlights



**Dairy and weight loss?**

**Fat metabolism?**

**Fat absorption/excretion?**

**Appetite and energy intake?**





**Dairy in sport**

**Research highlights**

**Milk and hydration**





Questions?