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# COMPLEX SPORTS DRINK ENHANCES RECOVERY FROM PLYOMETRIC EXERCISE

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## Introduction

- In many sports, good and fast recovery is primordial in order to reduce injury risk and to repeat efficiently practice sessions and competitions over the season.
- Among various drug-free recovery strategies, effective post-exercise nutrition is essential, through intake of quality nutrients.
- Following exercise, the effects of isolated nutrients such as the  $\beta$ -hydroxy- $\beta$ -methylbutyrate<sup>[1]</sup>, glutamine or branched amino acids are well-known. But few works have examined the effects of complex sports drinks ingested immediately after strenuous exercise and dedicated to limiting muscle soreness emergence.
- Though synergistic action assumptions of the various ingredients as well as blocking or inhibition mechanisms may be envisaged.

## Aims

To assess the effects of a complex sports drink (Drink N'Récup®, SPD), in comparison with a placebo drink (PLA), on recovery following combined plyometric-eccentric training session.

## Methods

### Participants

Groups	SPD (n=9)	PLA (n=10)	p value
Age (year)	27.2 ± 2.5	23.9 ± 2.8	P = 0.39
Height (cm)	176.2 ± 1.3	176.3 ± 1.9	P = 0.95
Weight (kg)	70.1 ± 2.3	65.6 ± 1.7	P = 0.14
BMI (kg/m <sup>2</sup> )	22.6 ± 0.6	21.1 ± 0.7	P = 0.14
Physical activity (h/week)	7.5 ± 1.1	8.9 ± 1.7	P = 0.49

### Placebo (PLA) Energy 87 kJ/21 kcal

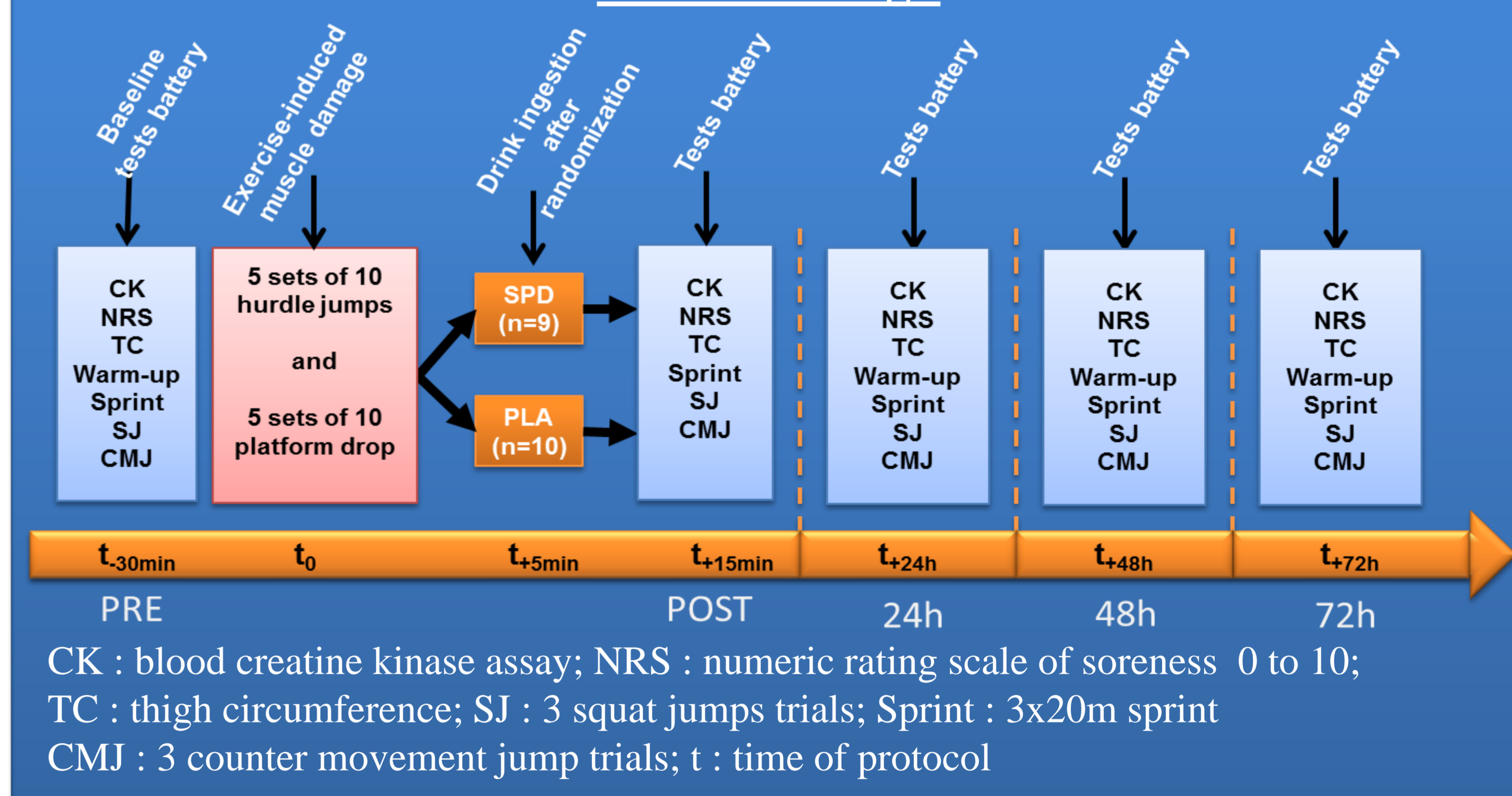
Ingredients	Quantities (in mg/500ml)
<b>Macronutrient and others</b>	
Carbohydrates	4 000
Fibers	1 700
Protein	20
Sodium	60

### Beverage contents

Sport Drink Beverage (SPD, Drink N' Recup®)  
Energy 627 kJ/148 kcal

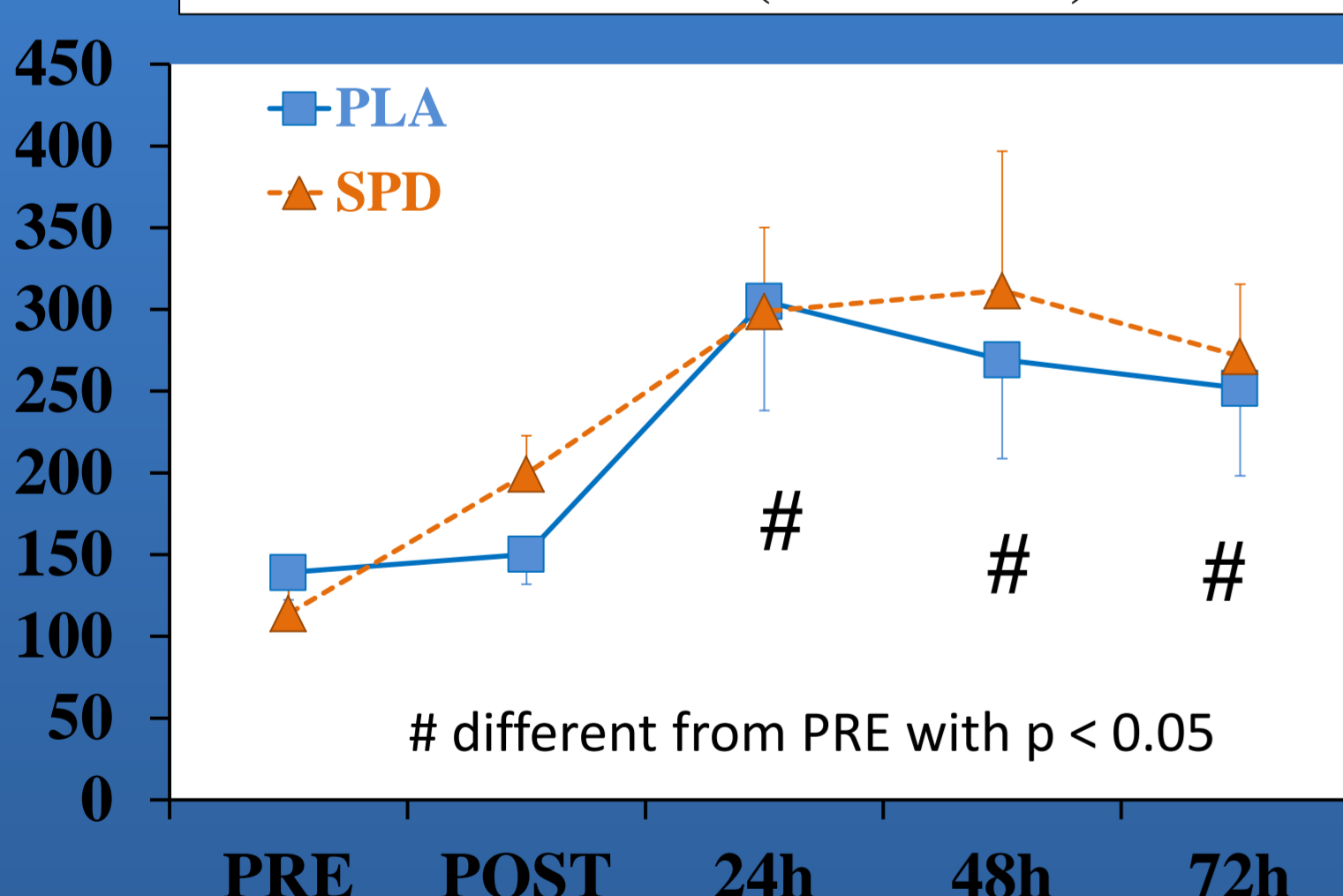
Ingredients	Quantities (in mg/500ml)
<b>Plant extracts</b>	
Green tea	396
Ginseng	200
Curcuma	84
<b>Amino acids and others</b>	
L-Arginine	2 008
L-Glutamine	1 936
L-Citrulline	1 160
L-Leucine	873
L-Creatine	512
L-Isoleucine	522
L-Valine	522
$\beta$ -hydroxy $\beta$ -methylbutyrate (HMB)	1 168
<b>Macronutrient and others</b>	
Carbohydrates	27 200
Fats	100
Minerals mixture	1 306
Vitamins mixture	118
Fibers	120

### Protocol design

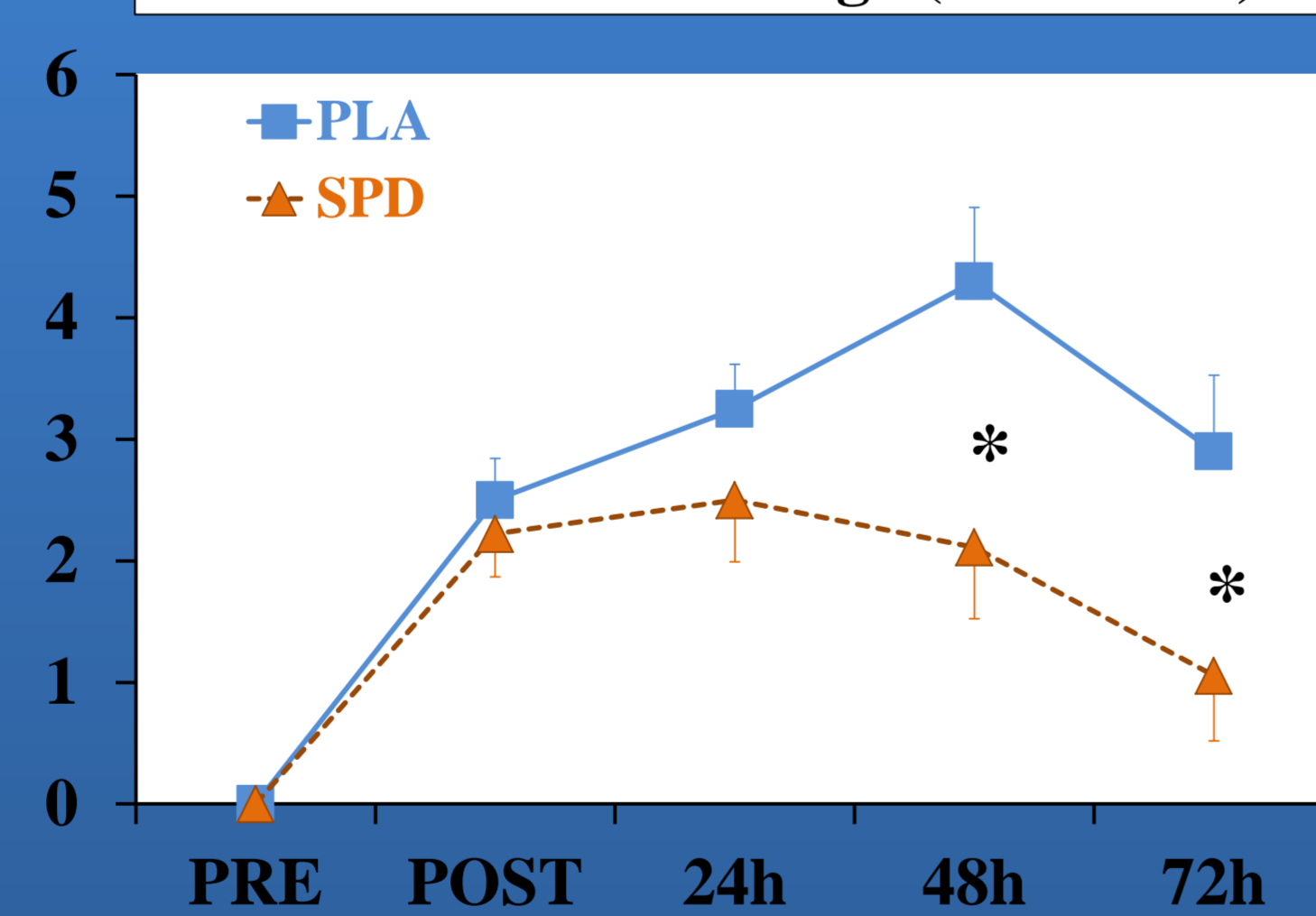


## Results

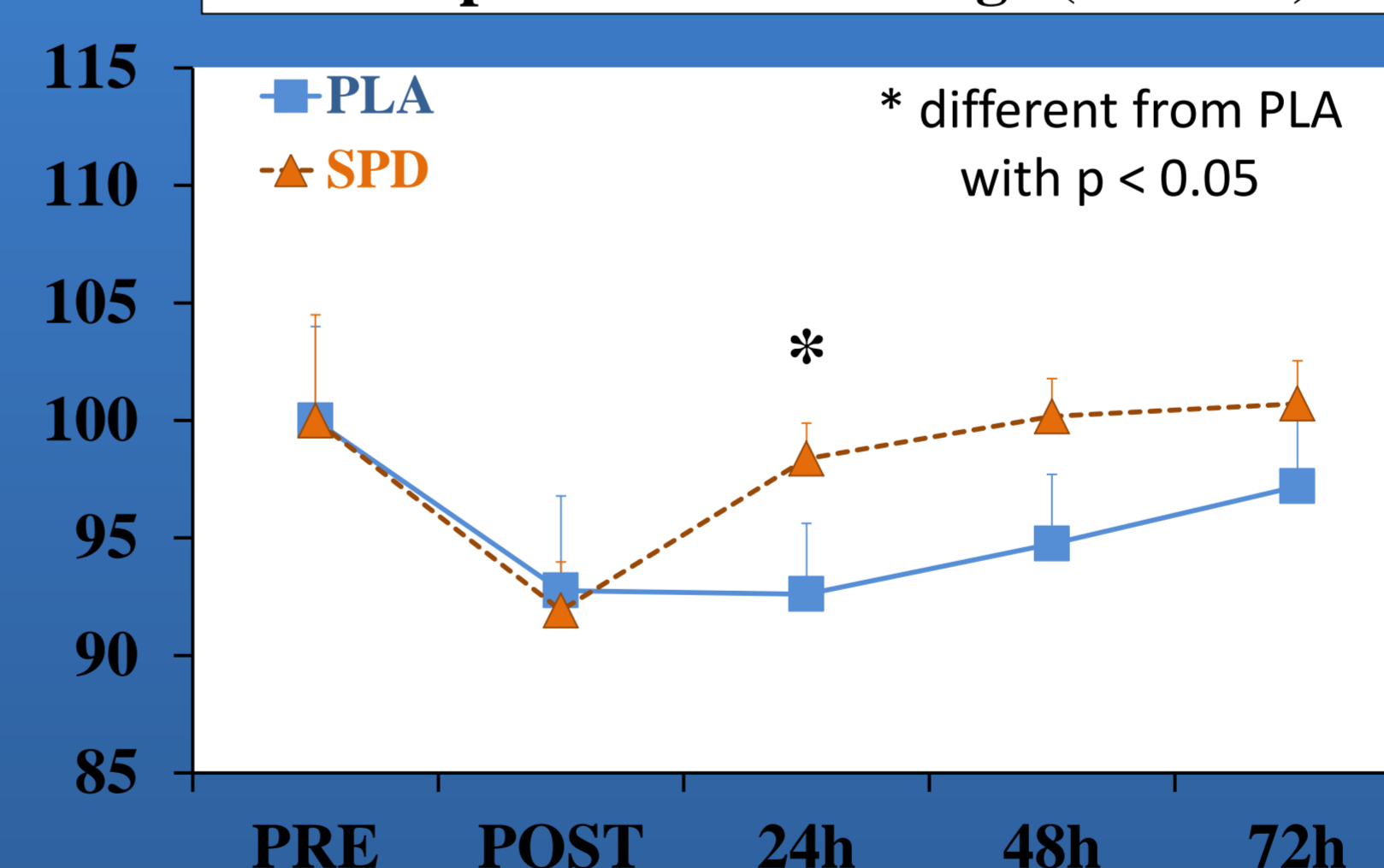
### Blood CK (U.L<sup>-1</sup> ± SE)



### Muscle soreness change (A.U. ± SE)



### CMJ performance change (% ± SE)



No significant difference :  
- Thigh circumference  
- Squat jump performance  
- 20-m sprint performance

## Discussion

- Difference between SJ and CMJ performance recovery suggests that the sports drink mainly improves recovery through action on muscle elastic components such as titin, which holds an essential role in storing and releasing energy during stretch-shortening cycle<sup>[2]</sup>.
- In conclusion, complex sports drink intake immediately after plyometric and eccentric training session may offer a recovery advantage regarding counter movement jump performance and perceived muscle soreness.

## References

- 1 J. Wilson et al. International Society of Sports Nutrition Position Stand:  $\beta$ -hydroxy- $\beta$ -methylbutyrate *Journal of International Society of Sports Nutrition* 2013
- 2 J. Monroy et al. What Is the Role of Titin in Active Muscle? *American College of Sports Medicine* 2012