



**Presentation on Young Coconut Water  
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**Effect of Tender Coconut Water  
as Rehydration Drink on Cardiopulmonary Fitness  
for Joggers.**

DDr. Antonio Martins, Mag. Henrich Chomist, Institut für Sportmedizin-Donaustadt, Austria

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### Introduction

It is well known that dehydration can be detrimental in the capacity of performance potential and quality of neuromuscular control for joggers and athletes. This implicates in the dangerousness of dehydration on sport-trauma. Since carbohydrate electrolyte beverage (CEB) contains relevant amounts of chemical cocktails like stabilizers, preservatives, flavouring and colouring together with the fact that every person in the industrial countries eat and drink 4,5 kg of chemical cocktail/year<sup>1</sup>, since nobody knows the consequences of this fact we decide to analyze the effect of a new sport drink, which has the option to be an natural isotonic drink, free from chemical cocktail as rehydration fluid for joggers/athletes.

### Methods

The effects of a new sports drink – Tender Coconut Water (TCW) – was analysed on elderly healthy joggers at the same age group (45 – 55 years old) with same body size  $78 \pm 4$  kg body weight and height  $1.71 \pm 3$  mts. All of them were male with regular physical activity (jogging) on a recreational basis. Method of evaluation of performance was the cardiopulmonary fitness test (CPFT) assessed with a maximal, symptom-limited exercise-tolerance test using the MedGraphics Cardio<sub>2</sub><sup>TM</sup> System, which combine ECG/VO<sub>2</sub> System simultaneously, real-time 12 lead ECG and directly measured VO<sub>2</sub> data in a single system. Test was done on an electrically braked bicycle ergometer; the testing protocol comprise a three minute linear increase in the workload by 20 Watt step by step (Ergoline bicycle ergometer). Respiratory gas exchange was measured by the breath-by-breath method which use a flow device with a bidirectional pressure pre Vent Pneumotac, with a range of  $\pm 18$  L / sec., accuracy:  $\pm 3$  % or 50 ml, resolution 8,64 ml/sec. Dead space < 20 ml as well O<sub>2</sub> and CO<sub>2</sub> analysis. the pre Vent Pneumotac analysis express the maximal oxygen uptake, defined as the highest value for or the plateau in oxygen uptake. The study was designed to evaluate the effectiveness of TCW in increasing significantly VO<sub>2max</sub> compared with commercial CEB. The study consists on one initial evaluation of cardiopulmonary fitness on 34 proband then double blind stratification in two groups of 17 each. Both groups undertake regularly their physical activity on a recreational basis. For each group the sports drink was kept in an unidentified bottle and for six month they drunk only his own drink, each drink TCW or CEB was determined at random. All experimental took six months, at this time a second cardiopulmonary fitness test was followed up.

### Results

The results showed a significant capacity of TCW in increasing VO<sub>2max</sub> compared with CEB group. Beside TCW showed great potential as an ideal sport drink by the absence of chemical cocktails, high hydration capacity with significant increase in cardiopulmonary fitness for joggers beside been an isotonic natural drink with positive effect on less stomach upsets, although it was easy to drink even at large amount compared to CEB.

### Discussion

Since TCW was declared by the United Nations Food and Agriculture Organization (FAO) as the sports drink of the 21<sup>st</sup> century<sup>2</sup> by its property of been "biologically pure juice, tasty and full of the salt, sugar and vitamins needed by athletes – both the Olympic kind and weekend warriors" according to FAO<sup>3</sup>. We conclude that the TCW is not only the "big rehydrating sports drink"<sup>4</sup> but also the big exercise performance strengthener. According to the new European community food industry policy which guided our scientific proposal in this paper we want to show in this meeting new roads for development on food quality. We developed with our own resource the methodology of processing TCW for a long shelf life with support from FAO.

### References

- <sup>1</sup> International Life Science Institute - Europe
- <sup>2</sup> United Nation Press Release SAG/84. Coconut Water as Energy Drink for Joggers and Athletes...
- <sup>3</sup> FAO:AG21, New Sports Drink: Coconut Water
- <sup>4</sup> Saat M.,Singh R.,Sirisinghe RG.,Nawawi M.Rehydration after Exercise with Fresh Young Coconut Water, Carbohydrate-Electrolyte Beverage and Plain Water. J Physiol Anthropol 21 (2):93-104, 2002