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11<sup>th</sup> March, 2013.

Fruit Juice Australia Short Paper on Juice and Nutrition

#### **Abstract:**

Juice is a beverage enjoyed around the world that has been shown to provide a wide variety of vitamins, minerals and trace elements to the diet. Consumption of fruits and vegetables, including 100% juice consumed in moderation, is implicated in maintaining health. This benefit is recognised by governments globally, and by organisations such as the World Health Organisation (WHO). Benefits of these basic nutrients are well understood. Positive health benefits of chemical components known as phytochemicals from fruit and vegetables are not yet completely elucidated. Health benefits associated with consumption of phytochemicals include alleviation of chronic disease initiated by inflammation, and metabolic conditions. The combination of nutrients synergistically provide various benefits including antioxidant effects and benefit in gene regulation. These areas are currently being examined by researchers globally, as well as investigation into any negative implications for health.

#### **Report:**

With knowledge of benefits to population health, encouraging adequate consumption of fruit and vegetables has become a priority for health authorities globally. After review of global trends towards control of diseases related to nutrition, The World Health Organization (WHO) co-sponsored a program to encourage consumption of fruits and vegetables termed the 'global 5+ a day program'.

The 5+ a day program promotes the inclusion of at least five servings a day of fruit and vegetables as essential components of a healthy diet. Government initiatives in United States, United Kingdom, Germany, France, Canada Australia and New Zealand have adopted this message which had historically encouraged. In revision of guidelines of each of these countries fruits, vegetables and 100% fruit juice have been deemed to be an integral part of nutrition as a component of their programs.

Fruit juice is representative of most substances found in the edible portion of the whole fruit. Typically, fruit is rich in vitamin B, vitamin C, potassium, magnesium, calcium and contains a variety of trace elements. Subject to national regulation, juices may also be fortified with added nutrients such as calcium, vitamin D and phytosterols that may not be inherent in the fruit itself.

In recent years, other fruit components, called phytochemicals, have been found to have the beneficial health activity and are believed to play an important role in maintaining the body healthy balance (Galleano, 2012). Phytochemicals including groups referred to as flavonoids and polyphenols (Haminiuk, 2012), including anthocyanins, carotenoids or limonoids that are present in all fruits and fruit juices are implicated in creating benefit.

In the last ten years, the mechanisms responsible for the health benefits of fruit juices have been considerably investigated (Galleano, 2012). It was hypothesised that the antioxidant properties of fruit juices were responsible for some of their health benefits. However, it is now thought that the biological activities cannot be solely explained by antioxidant effects. It is now believed that one of the main modes of action of juice phytochemicals is to slow down steps of a process called chronic inflammation. These beneficial effects occur through the up or down modification of specific enzymes.

It has been shown that phytochemicals act through the modulation of signal cascades in the human body, most often starting at the genetic level. Based on these interactions, signals are transferred into the cells leading to activation or deactivation of metabolic pathways. Despite the positive research into phytochemicals, understanding of health effects is currently incomplete although it had been shown that



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juices appear to be beneficial in targeting diseases related to oxidative stress (Haminiuk et al, 2012) including chronic inflammation, cancer, heart (George et al, 2012) and bone diseases, problems related to cognition and aging, and possibly insulin resistance (Galleano, 2012).

Two areas in which juice has been associated with negative health effects include dental health and overweight. Evidence remains inconclusive as multiple factors are implicated in management of these factors. Overweight and obesity is associated with high energy and low nutrient diet. Juice in moderation is a nutrient dense food that can benefit all diets (O'Neil et al 2012). Whilst sugar and acidity in beverages have been shown to be detrimental if good dental hygiene is not adopted, studies have revealed that juice polyphenols may have a beneficial effect on dental health. With these factors considered, fruit juices, consumed in moderation as part of a balanced diet offer both health and disease risk reduction properties which are complimentary to whole diet composition.

#### **Conclusion:**

Consumption of fruit and vegetables, including 100% juice, has been adopted by many governments of the world as a step toward improved nutrition and positive health outcomes. Fruit juices contain nutrients, minerals, trace elements, vitamins and phytochemicals that have been shown to have many benefits to human health. The benefit of antioxidant activity, gene regulation and other synergistic effects associated with consumption of fruit, and fruit juice, are not yet completely understood. Juice has consequently been adopted as a useful component to enhance nutrient density of a diet and in promotion of global public health.

#### **References:**

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