



White Grape Juice

The clear choice for infants & toddlers

White Grape Juice made with Niagara Grapes – clear benefits for the whole family.

White grape juice has been shown to be the best choice for “baby’s first juice” because it contains an even balance of carbohydrates and it does not contain sorbitol, thus making it the most well digested and absorbed clear juice for infants and toddlers. But a closer look among white grape juices and other clear juices shows that white grape juice made with Niagara grapes actually offers an abundance of natural antioxidants and potent antioxidant capacity to potentially benefit the whole family.

Here are some important facts:

Make first juice choices based on science, not anecdote

- The American Academy of Pediatrics recommends waiting until infants are six months old before introducing pasteurized 100% juices.
- For many years, apple juice was the most common choice for an introductory juice. But this was a choice based on tradition and availability rather than on scientific information. About 20 years ago, pediatric researchers began investigating the relative benefits of common clear juices.
- The theory that the carbohydrate composition and constituents of apple juice might make it difficult for infants to digest was proposed in the mid-1980’s. Hyams published a study titled “Apple juice: an unappreciated cause of chronic diarrhea”.¹ A subsequent study by the same group titled “Carbohydrate malabsorption following fruit juice ingestion in young children” was later published.² Soon afterward Lifshitz and colleagues published a landmark paper

titled “Role of carbohydrate malabsorption in chronic nonspecific diarrhea in children”.³

- By the mid-1990’s, medical literature strongly suggested that the carbohydrate composition, namely the imbalance of fructose and glucose plus the presence of sorbitol, made apple juice more difficult for some infants and toddlers to digest. In contrast, white grape juice, with its equal balance of fructose and glucose and no sorbitol, emerged as the best choice for an introductory juice since it was better absorbed by infants and toddlers up to five years of age.^{4,5}

White grape juice, unlike apple and pear juice, has an equal balance of fructose and glucose, and contains no sorbitol. This makes it the easiest of the popular clear juices for infants and toddlers to digest, and a great choice as an introductory juice.

Causes and consequences of carbohydrate malabsorption

- When glucose and fructose in juices are present in roughly equal proportions, they are easily absorbed by infants, thereby providing beneficial complementary nutrition. However, when quantities of fructose exceed glucose, the excess fructose can be poorly absorbed and eventually passes into the colon where it can create excess gas and other problems.^{6,7} Sorbitol is also difficult to absorb and compounds the absorption problems of excess fructose.⁸
- Both apple and pear juice have a fructose/glucose ratio of greater than 2:1. They also both contain sorbitol. In contrast, white grape juice contains a 1:1 glucose/fructose ratio and contains no sorbitol.
- Carbohydrate malabsorption is most often measured using breath hydrogen (BH₂) excretion. A level of more than 20 ppm of hydrogen in the breath sample is considered the threshold that indicates carbohydrate malabsorption. The greater the quantity of hydrogen, the more extreme the malabsorption and the greater the likelihood of problematic symptoms.
- In 1999, Cole and colleagues found that pear juice but not white grape juice caused increased fussiness—measured as a function of physical activity in a motion-sensitive infant metabolic chamber—in babies after feeding.⁹ They fed each child a serving of juice, then monitored breath hydrogen and physical activity for a period of four hours. They found a strong correlation between increased BH₂ levels and increased physical activity.

When babies are unable to absorb carbohydrates, a number of symptoms may present, including gas, bloating, difficulty sleeping after feeding, painful discomfort, crying and diarrhea.

Improved digestion with white grape juice

- Lifshitz and colleagues published a study titled “Carbohydrate absorption from fruit juice in young children” that looked, for the first time, at the relative ability of infants to digest white grape juice and apple juice.¹⁰ Using breath hydrogen analysis, they showed that white grape juice was more easily digested than apple juice in very young children.
- Lifshitz subsequently published “Carbohydrate absorption from one serving of fruit juice in young children: Age and carbohydrate composition effects”.¹¹ This important study looked at 104 children, ages 1-5 years, who drank one serving of apple, pear, white grape juice or purple grape juice. The study confirmed that infants and toddlers had more difficulty digesting juices with high fructose/glucose ratios and containing sorbitol (apple and pear). They also found that the differences were more significant in the younger children.

Results of improved digestibility with white grape juice vs. other clear juices like apple and pear have been attributed to the differences in carbohydrate profiles of the juices, citing the importance of an equal fructose/glucose balance and the deleterious effect of sorbitol.

Better tolerance after recovery from diarrhea when drinking white grape juice

- It is commonly observed that children whose GI tracts are compromised in some way (i.e. an infection causing diarrhea), are even more sensitive to juice choices than “normal” children.
- A study has shown that infants and toddlers tolerated white grape juice significantly better after a bout with diarrhea than either apple or pear juice.⁴ During recovery from diarrhea, those who drank one serving of white grape juice produced one third the stool output of those drinking apple, and a quarter of those drinking pear. Also, pear and apple groups experienced a recurrence of loose stools while the white grape juice group did not.

During the recovery period following diarrhea, white grape juice infants fared significantly better than those drinking apple juice, with less total stool output and fewer recurrences of diarrhea.

Infants with a history of colic often have a harder time digesting certain juices

- Duro and colleagues showed that young babies with a history of colic were more likely to re-experience colic symptoms after drinking apple juice than white grape juice.¹² The study looked at 30 children, ages 4-6 months, and found that those given 4 ounces of apple juice experienced more crying and restlessness and slept significantly less than those given white grape juice.

Colic-like symptoms are actually much like those of carbohydrate malabsorption—including acute lower stomach pain, gas and bloating.

Carbohydrate malabsorption may increase daily energy requirements in infants

- In a study of 32 infants, aged 5-6 months, Valios and colleagues found that those who malabsorbed the carbohydrates of juice expended more energy for the next three hours than infants who tolerated the juice they were fed.¹³ The authors also raised the possible correlation between malabsorption of carbohydrates and sub-par growth performance.

The relationship between carbohydrate malabsorption and below-average growth performance could be due to decreased energy absorption and increased energy expenditure.

Symptoms of IBS may be alleviated by switching from apple to white grape juice

- A study of 28 participants, ages 9 months to 18 years, found that 70% of the participants diagnosed with IBS-type symptoms who regularly drank more than 6 ounces of apple juice or pear nectar did not exhibit symptoms after consuming white grape juice instead for one year.¹⁴

Even older children with a history of GI disorders can be sensitive to the carbohydrate composition of juices. Small dietary changes, like switching to white grape juice, can offer significant improvements.

Current juice guidelines and digestibility concerns

- Clear juice can be an excellent complement to breast milk or formula in young children as early as 6 months of age. Decisions on how much juice to drink and when to introduce juice are best made in consultation between parents and pediatricians.
- The American Academy of Pediatrics (AAP) recommends limiting 100% juice consumption to 4–6 oz. per day for children one to six years old and 8–12 oz. per day for children 7–18 years old.¹⁵
- One of the reasons given by AAP is that carbohydrate malabsorption, with clinically undesirable consequences, may occur when the concentration of fructose exceeds that of glucose (as with apple and pear juices). AAP indicates that this malabsorption is not often seen with white grape juice.
- AAP does qualify this recommendation by stating that at 10 mL/kg of body weight, any juice is absorbed equally as well. For the majority of 12–24 month-olds this would equate to 3–5 oz. per day or less.
- It must be noted that average daily consumption of juices tends to hover at the high end of the recommended amounts (~ 6 oz. for under 5 years).^{16,17,18} A considerable number of children are therefore consuming more than the recommended amounts and may therefore experience undesirable effects if fed juices with excess fructose and sorbitol.¹⁷

At the lowest levels of consumption, the differences in digestibility of clear juices may not be discernible. However, for children—particularly toddlers—drinking more than 4 oz. per day, making the right juice choice is quite important.

Welch's 100% White Grape Juice:
The clear choice for the whole family

Welch's 100% White Grape Juice, made from Niagara grapes, delivers superior antioxidant power

- For many families, clear juices often become a household staple, present in the household and consumed by many family members, long after digestibility for young tummies may be an issue. Recent testing, performed by an independent laboratory, showed superior antioxidant capacity of Welch's 100% White Grape Juice, made with Niagara grapes, compared to over 50 other clear 100% juices tested – apple juices, other white grape juices, white cranberry juices and pear juices.¹⁹
- Like their purple cousins, the Concord grapes, Niagara grapes contain an abundance of potent antioxidants—natural plant compounds called flavonoids. Niagara grapes give Welch's 100% White Grape Juice an antioxidant boost vs. other clear juices.
- Growing evidence suggests that foods naturally rich in antioxidants may help reduce the risk of heart disease and certain cancers. An American Heart Association Science Advisory states that “the scientific evidence support recommending consumption of a diet high in food sources of antioxidants and other cardioprotective nutrients...to reduce the risk of heart disease”.²⁰

Antioxidant-rich Niagara grapes give Welch's 100% White Grape Juice more antioxidant power than other clear juices tested.

Welch's 100% White Grape Juice provides taste and nutrition for the whole family

- Young children love the taste of Welch's 100% White Grape Juice (with no added sugar). Older children and adults often prefer the crisp, clean, pure taste of Welch's 100% White Grape Juice to apple juice.
- A 6 oz. glass of 100% White Grape Juice is an easy and delicious way to satisfy one serving of fruit toward the recommended 5-9A Day goal. Welch's 100% White Grape Juice is exactly that – 100% Juice that is all white grape with no apple juice or flavors added.
- Selecting Welch's 100% White Grape Juice made with Welch's own Niagara grapes ensures higher natural antioxidant power vs. other clear juices.

Welch's 100% White Grape Juice is the gentle juice for infants and toddlers and its delicious taste and superior natural antioxidant power make it the clear choice among clear juices for the whole family.



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