



# Needham Wellesley Family Medicine PC

65 Walnut Street, Suite 420  
Wellesley Hills, MA 02481  
(781) 235-3444. FAX (781) 235-6888  
www.needhamwellesleyfamilymedicine.com

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Parul Desai, MD

*American Board of Family Medicine*

Leonard M. Finn, MD

*American Board of Family Medicine*

Bruce Tofias, MD

*American Board of Internal Medicine*

Andrew C. Young, DO

*American Board of Family Medicine*

*American Osteopathic Board of Family Physicians*

Hayley R. Geller, MSN, FNP—C

*American Academy of Nurse Practitioners*

## Smoothies, Shakes, and Fruit Juice

Pureeing healthy fruit separates sugar and fiber from the skin and pulp of the fruit. When we drink smoothies or fruit juice, the freed up sugar in the smoothie, juice, or shake raises our blood sugar to extreme levels. When our body sees the excess sugar levels, it stores these sugar calories and we gain weight. The high blood sugar levels also cause insulin levels to rise excessively and this results in low blood sugar levels which trigger weight gain and hunger. When we take the same energy in liquid instead of solid form, we consume more calories (Mourao). There is no time for the body to note hunger relief, satisfaction, or fullness and excess calories are consumed unnecessarily. The liquid form does not satisfy our appetite as much as the solid form would because it is digested so quickly (Mourao). Smoothies, juices, shakes, and other blended drinks are marketed aggressively, though they are very unhealthy.

**Mourao DM, Bressan J, Campbell WW, Mattes RD.** Effects of food form on appetite and energy intake in lean and obese young adults. *Int J Obes {Lond}* 2007;31:1688-95.