

How to calculate individual sweat rate

When collecting data from a sweat trial an athlete can estimate their fluid per hour for exercise.

They should be performed multiple times to provide acute estimations of the needed fluids.

Data collected includes:

- body weight, in pounds before exercise
- body weight after exercise without wearing sweaty clothes
- fluid consumed (in ounces) during the workout
- urine output during exercise
- workout time



Athletes should exercise 1-2 hours without urinating during the workout so urine output does not need to be collected.

1. Determine body weight lost during exercise

Body weight before exercise – body weight after exercise = water weight lost in pounds

2. Determine the fluid equivalent in ounces of the total weight lost during exercise

For every pound of body weight lost during exercise it equals 16-24 ounces or 2-3 cups of fluids (1 cup equals 8 oz).

Multiply the pounds lost during exercise by water weight loss by 16-26 ounces.

Pounds of weight lost during exercise (water weight) x 16-24 ounces = number of ounces of additional fluid that should have been consumed during the exercise to maintain fluid balance

3. Determine the fluid needs of the athlete during an identical workout

Add the fluid consumed during the workout to the fluid lost during exercise to determine the fluid needs for the athlete.

Ounces of fluid consumed + ounces of additional fluids needed to establish fluid balance = total fluid needs

4. Determine the number of fluid ounces needed per hour of exercise

Divide the total fluid needs (#3) by the duration of the sweat trial, in hours. This calculation will give an athlete the estimation of their hourly fluid needs. Using this estimate athletes can plan their fluids for training sessions.

Total fluid needs , total workout time (hours) = fluid ounces for every hour of exercise

Example of a sweat trial

An athlete weighed 150 lbs before practice and after 2 hours of hockey practice he weighed 147 lbs. During practice he consumed 20 ounces of fluids. What are his fluid needs per hour?

1. Determine body weight lost during exercise

$150 - 147 \text{ pounds} = 3 \text{ lbs of water weight lost in 2 hours of practice}$

2. Determine the fluid equivalent in ounces of the total weight lost during exercise

$3 \times 16\text{-}24 \text{ ounces} = 48 - 72 \text{ ounces of additional fluid that should have been consumed to maintain fluid balance during practice}$

3. Determine the fluid needs of the athlete during an identical workout.

$20 \text{ ounces consumed during practice} + 48 - 72 \text{ ounces} = 68 - 92 \text{ ounces}$

4. Determine the number of fluid ounces needed per hour of exercise

$68 - 92 \text{ ounces} \div 2 \text{ hours of practice} = 34 - 46 \text{ ounces for every hour of practice}$

