

Staying drier in rain a matter of locomotion

BY ERIC SORENSEN
THE SEATTLE TIMES

SEATTLE — Once again, it's that time when Seattle gets nearly one-third of its annual rainfall in two months, raising the scientific question: If you have to go outside and you don't have an umbrella, will you stay drier walking or running?

Science for more than a half-century had found ways to complicate the matter until two North Carolina researchers settled the question with a highly sophisticated experiment: One walked in the rain, the other ran, and then they weighed their clothes.

The logical theory — run, spend less time in the rain, get less wet — would be true if rain landed only on the top of your head and shoulders.

But the problem gets slippery when you consider that you end up running into raindrops, wetting the considerable surface area of your

face, chest and leg fronts. So now you have to factor in how much surface area is exposed for how long, a function of kinematics, relative velocity, vector components and flux.

Lest your mind be shutting down about now, Doug Craigen, a physicist in Winnipeg, Canada, has provided a calculator on his Web site that will compute all of this: www.dctech.com/physics/features/physics-0600a.html.

Here's how one scenario works out:

A 6-foot-tall 44-year-old with male-pattern baldness and bad knees exits a car in a downpour. He has about 200 yards to cover between the parking lot and his office. According to Craigen's calculator, the following happens:

Walking at about one yard per second, his bald spot and other surfaces will be hit by 61.5 milliliters of water — about two ounces — in the three minutes and 20 seconds the walk takes.

Jogging at a 10-minute-mile pace, he catches only 40 milliliters of water. He's catching more water per second but comes out ahead by cutting the time he's in the rain.

It pays to run, Craigen said, but not as much as you would think:

"Between you and your destination, there's a certain amount of water, and no matter how fast you run, you're going to run into that water."

Trevor Wallis and Thomas Peterson, two runners and meteorologists at the National Climatic Data Center in Asheville, N.C., took a different approach. They measured out a 100-yard track at their office, waited for rain, donned cotton sweat suits and went outside. Wallis ran; Peterson walked.

They then weighed their attire to see who took on more water. Peterson's weighed 40 percent more.

"To be rigorous, we should have done it 100 times for the statistics," Wallis conceded, "but it was more of a joke than a serious investigation. We never expected the reaction we got. We are both pretty serious researchers."

The results were published in *Weather*, a peer-reviewed journal.