Johann Georg Tromlitz, in his 1791 treatise The Virtuoso Flute-Player,ⁱⁱ offers this valuable advice for the working flutist:

When the weather is very hot, and one perspires freely, one commonly loses one's embouchure in the course of playing, since the flute slips away from the place on the chin where it is supposed to rest, on account of the perspiration which prevents it from making firm contact, and impedes the progress of the piece. Quantz suggests a remedy: in such cases one should touch one's powdered hair or wig, and wipe the powder that sticks to the fingers onto that part of the chin so as to stop up the pores, and one will be able to play on without interference. But this is not correct; the powder does not stop up the pores, and the perspiration keeps on flowing, and now it mingles with the powder to form a viscous and slippery dough, far more injurious to the secure placement of the flute than perspiration alone. When I meet with this problem I wipe the perspiration away and continue to play. Meanwhile the most intelligent course is not to play any long, difficult and non-stop pieces during such hot weather.

Now, on to Posture and Breathing

With any wind instrument, it makes sense to have full and unimpeded use of your lung capacity. This is especially true considering the nonstop nature of most traditional Irish music. With the flute, you need to be able to inhale deeply and very quickly in order to not interrupt the flow of the music.

Having an upright spine enables you to fully use your diaphragm, to breathe deeply, and to relax your entire air passage. Don't stoop over when playing. Some people find that it helps their playing posture to imagine that they have a string pulling up from the top of their head toward the ceiling or sky. You can also imagine this string pulling up from your chest or sternum. Imagine being as tall as possible.

Though it is impractical and uncomfortable to keep the flute absolutely parallel with the floor, it should not slant down too far. It is best to keep the flute in line with the lips so that the horizontal line of the aperture between your lips is parallel to the axis of the flute. Otherwise the embouchure can suffer. A slight tilt of the head is natural.

The following information on breathing and embouchure comes from various people, experiences, and resources I have encountered over the years, including in particular Walfrid Kujala's excellent book *The Flutist's Progress*.ⁱⁱⁱ

NORMAL BREATHING: SHALLOW AND AUTOMATIC

There is no more normal an activity than breathing. We are always breathing, but we rarely attend to it.

Normal breathing is fairly shallow. At rest, we inhale and exhale about a pint of air. In between the exhale and the next inhale we pause for a brief period of repose, roughly equal in the length to the inhale and exhale phases. It's a regular cycle: inhale, exhale, rest; inhale, exhale, rest.

FLUTE AND WHISTLE BREATHING: DEEP AND CONTROLLED

In flute and whistle playing, an entirely different kind of breathing is required. We must learn to quickly take in a much greater quantity of air, sometimes as much as *eight* pints, in a half a second or less. We must also learn to release the air in a very slow and controlled manner. The pace of flute and whistle breathing is irregular, being determined by the phrasing, dynamics, and register of the music. And, *especially* in Irish music, there is no rest period between one exhalation and the next inhalation.

When playing the flute or whistle, you should inhale through your mouth rather than your nose. You can take in air much more quickly this way. It is not necessary to open your mouth very far.