

Deflategate

Group #2

Could under inflated footballs be the result of the environmental conditions on the day of January 18th, 2015?

Claim

Due to environmental conditions, we can infer that the temperature outside was not significant enough to deflate the Patriots footballs to the pressure that they were measured at.

Evidence

Initial Temp in locker room when pressure of footballs were measured. 282.04 K

Temp of field during first half. 294.82 K

Initial pressure of Patriot's balls was 27.2 psi.

Initial pressure of Colt's balls was 27.7 psi.

Regulation pressure: 27.2 - 28.2 psi

After calculations using Gay-Lussac's Law the theoretical pressure after the drastic temperature change should be 26.02 psi

After measuring the Patriot's balls after the first half 8 out of the 11 were under 26.02 psi.

Evidence

<i>Patriot's Balls</i>	<i>Blakeman (Ref #1) (psi)</i>	<i>Prioleau (Ref #2) (psi)</i>
1	26.2	26.5
2	25.55	25.9
3	25.85	26.2
4	25.4	25.7
5	25.8	26.15
6	26.3	26.65
7	26.55	27
8	25.8	26.25
9	25.65	26.05
10	25.2	25.6
11	25.6	26.05

<i>Colt's Balls</i>	<i>Blakeman (Ref #1) (psi)</i>	<i>Prioleau (Ref #2) (psi)</i>
1	27.4	27.05
2	27.45	27
3	27.2	27.65
4	27.25	26.85

The tables show that after the first half, 8 out of the 11 Patriot's balls measured were under the lowest theoretical calculated 26.02 psi. The Colt's balls maintained a consistent pressure after the first half.

Reasoning

Knowing that Gay-Lussac's law made temperature and pressure proportional, the lowest theoretical pressure should have been 26.02 psi. Due to the 8 out of the 11 balls being under 26.02 psi belonging to the Patriots, we can infer that there was some sort of outside tampering to the pressure of the balls. Furthermore, the balls belonging to the Colts remained at a consistent pressure within regulation and went through the same conditions as the Patriot's balls.