



Mi Universidad

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Problema 1

Persona	Consumo de pt.	Masa muscular
1	80	60
2	100	65
3	90	62
4	85	61
5	110	67
6	95	63

$$r = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum (x_i - \bar{x})^2 \sum (y_i - \bar{y})^2}}$$

\bar{x} = Consumo de Proteina

\bar{y} = Masa Muscular

$$\bar{x} = \frac{80 + 100 + 90 + 85 + 110 + 95}{6} = \frac{560}{6} = 93.33$$

$$\bar{y} = \frac{60 + 65 + 62 + 61 + 67 + 63}{6} = \frac{378}{6} = 63$$

$$(x_i - \bar{x}) = -13.33, 6.67, -3.33, -8.33, 16.67, 1.67$$

$$(y_i - \bar{y}) = -3, 2, -1, -2, 4, 0$$

$$= 39.99, 13.29, 3.33, 16.66, 66.6$$

$$39.99 + 13.29 + 3.33 + 16.66 + 66.68 + 0 = 110$$

$$x_i - \bar{x} = 13.33^2, 6.67^2, -3.33^2, -8.33^2, 16.67^2, 1.67^2$$

$$= 177.68, 44.48, 11.08, 69.38, 277.88, 2.78$$

$$177.68 + 44.48 + 11.08 + 69.38 + 277.88 + 2.78 = 583.28$$

$$583.28 \times 31 = 19831.52$$

$$\sqrt{19831.52} = 140.8244297 = 140.82$$

$$140 \div 140.82 = 0.994176963 = 0.99 \text{ || } = 99.4176963 = Y$$

Relacion positiva. A más consumo de proteínas mayor cantidad de masa muscular.

Problema 2

Persona	Consumo de agua	Pérdida de peso
1	2.0	0.5
2	2.5	0.7
3	1.8	0.4
4	3.0	0.9
5	2.2	0.6
6	2.4	0.8

$$\bar{x} = \frac{2.0 + 2.5 + 1.8 + 3.0 + 2.2 + 2.7}{6} = \frac{14.2}{6} = 2.36$$

$$\bar{y} = \frac{0.5 + 0.7 + 0.4 + 0.9 + 0.6 + 0.8}{6} = \frac{3.9}{6} = 0.65$$

$$(x_i - \bar{x}) = -0.36, 0.14, -0.56, 0.64, 0.16, 0.37$$

$$(y_i - \bar{y}) = -0.15, 0.05, -0.15, 0.25, -0.05, 0.15$$

$$(x_i - \bar{x})^2 = -0.36, 0.14, 0.56, 0.64, -0.16, 0.37$$

$$= 0.05, 0.007, 0.14, 0.16, 0.008, 0.05$$

$$0.05 + 0.007 + 0.14 + 0.16 + 0.008 + 0.05 = 0.41$$

$$(x_i - \bar{x})^2 = 0.36^2, 0.14^2, -0.56^2, 0.6^2, -0.16^2, 0.34^2$$

$$= 0.12, 0.01, 0.31, 0.40, 0.02, 0.11$$

$$0.12 + 0.01 + 0.31 + 0.40 + 0.02 + 0.11 = 0.97$$

$$0.02 + 0.002 + 0.06 + 0.06 + 0.002 + 0.02 = 0.16$$

$$0.97 \times 0.16 = 1.13$$

$$\sqrt{1.13} = 1.063014581 = 1.06$$

$$6.41 \div 1.06 = 0.386792 = 0.38$$

$$38.6792\%$$

Relación positiva

A mayor consumo de agua, mayor pérdida de peso

Problema 3

Genero Vegetales Proteinas Carbohidratos

Masculino 12 18 10

Femenino 15 12 13

Hombres que prefieren vegetales

$$E1 = \frac{(40)(27)}{80} = \frac{1080}{80} = 13.5$$

Hombres que prefieren proteinas

$$E2 = \frac{(40)(30)}{80} = \frac{1200}{80} = 15$$

Mujeres que prefieren vegetales

$$E3 = \frac{(40)(30)}{80} = \frac{1200}{80} = 15$$

Mujeres que prefieren proteinas

$$E4 = \frac{(40)(30)}{80} = \frac{1200}{80} = 15$$

Mujeres que prefieren H.C.

$$E5 = \frac{(40)(23)}{80} = \frac{920}{80} = 11.5$$

$O_i - E_i$ $(O_i - E_i)^2$

$$M.V = 12 - 13.5 = -1.5$$

$$2.25$$

$$M.P = 18 - 15 = 3$$

$$9$$

$$M.C = 10 - 11.5 = -1.5$$

$$2.25$$

$$f.V = 15 - 13.5 = 1.5$$

$$2.25$$

$$f.P = 12 - 15 = -3$$

$$9$$

$$f.C = 13 - 11.5 = 1.5$$

$$2.25$$

$$M.V = 2.25 \div 13.5 = 0.16$$

$$M.P = 9 \div 15 = 0.6$$

$$M.C = 2.25 \div 11.5 = 0.19$$

$$f.V = 2.25 \div 13.5 = 0.16$$

$$f.P = 9 \div 15 = 0.6$$

$$f.C = 2.25 \div 11.5 = 0.19$$

$$0.16 + 0.6 + 0.19 + 0.16 + 0.6 + 0.19 = 1.9$$

$$\chi^2 = 1.9 //$$

$$1.9 \div 3.84 = 0.4947$$

La relación es menor fuerte.

4.-

ACTIVIDAD FÍSICA	BAJA FRECUENCIA	MEDIANA FRECUENCIA	ALTA FRECUENCIA
SEDENTARIO	20	15	5
MODERADO	10	25	15
ACTIVO	5	20	25

	f↓	f _{MED}	f↑	TOTAL			TOTAL
SED.	20	15	5	40	10	17.14	37.59
MOD	10	25	15	50	12.5	21.42	49.9
ACT	5	20	25	50	12.5	21.42	49.9
TOTAL	35	60	45	140	TOTAL 35	59.98	139.9

$$k = (3-1)(3-1) = 4 \times 7.2\%$$

Ho LA ACTIVIDAD Y LA FRECUENCIA SON INDEPENDIENTES

H1 LA ACTIVIDAD FÍSICA Y LA FRECUENCIA SON DEPENDIENTES

$$f_e = \frac{40(35)}{140} = 10$$

$$f = \frac{50(25)}{140} = 12.5$$

$$f_e = \frac{40(60)}{140} = 17.14$$

$$f = \frac{50(60)}{140} = 21.42$$

$$f_e = \frac{40(45)}{140} = 12.857$$

$$f = \frac{50(45)}{140} = 16.07$$

$$\chi^2 = \frac{(20-10)^2}{10} + \frac{(15-17.14)^2}{17.14} + \frac{(5-12.857)^2}{12.857} +$$

$$\frac{(10-12.5)^2}{12.5} + \frac{(25-21.42)^2}{21.42} + \frac{(15-16.07)^2}{16.07} +$$

$$\frac{(5-12.5)^2}{12.5} + \frac{(20-21.42)^2}{21.42} + \frac{(25-16.07)^2}{16.07} =$$

$$\chi^2 = 10 + 0.267 + 4.80 + 0.5 + 0.598 + 0.07$$

$$4.5 + 0.09 + 4.9 = 25.725$$

∴ H_0 SE RECHAZA Y H_1 SE ACEPTA