2026 – 2027
ANR339 | SPOR BİLİMLERİNDE VERİ SENTEZİ
HAFTA – 06

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Biyomekanik Araştırma Grubu

https://biomech.hacettepe.edu.tr/

PERFORMANS VE TEST VERİLERİNİN DEĞERLENDİRİLMESİ

MS EXCEL UYGULAMALARI

	A	B	C	D	E	F	G
1	KATILIMCI	İSİM	CİNSİYET	YAŞ	BRANŞ	SPOR YAŞI	DOMİNANT
2	P01	Nihat	E	27	FUTBOL	20	SAĞ
3	P02	Lara	K	21	VOLEYBOL	10	SAĞ
4	P03	Sevde	K	21	VOLEYBOL	10	SAĞ
5	P04	Batu	K	19	FUTBOL	7	SOL
6	P05	Evrim	K	21	VOLEYBOL	12	SAĞ
7	P06	Yiğit	E	23	VOLEYBOL	12	SAĞ
8	P07	Ayça	K	22	VOLEYBOL	12	SAĞ
9	P08	Caner	E	23	BASKETBOL	13	SOL
10	P09	Hicran	K	23	HENTBOL	12	SOL
11	P10	Berat	E	23	FUTBOL	7	SAĞ
12	P11	Oğuzhan	E	25	ATLETİZM	15	SAĞ
13	P12	Başak	K	21	VOLEYBOL	14	SAĞ
14	P13	Eren	E	27	BASKETBOL	11	SAĞ
15	P14	Damla	K	27	BASKETBOL	15	SOL
16	P15	Rabia	K	24	ATLETİZM	17	SAĞ
17	P16	Ömer	E	21	HENTBOL	7	SAĞ
18	P17	Latife	K	25	ATLETİZM	13	SAĞ
19	P18	Kubilay	E	21	HENTBOL	12	SAĞ
20	P19	Ecem	K	21	BASKETBOL	16	SOL
21	P20	Onur	E	27	FUTBOL	13	SAĞ

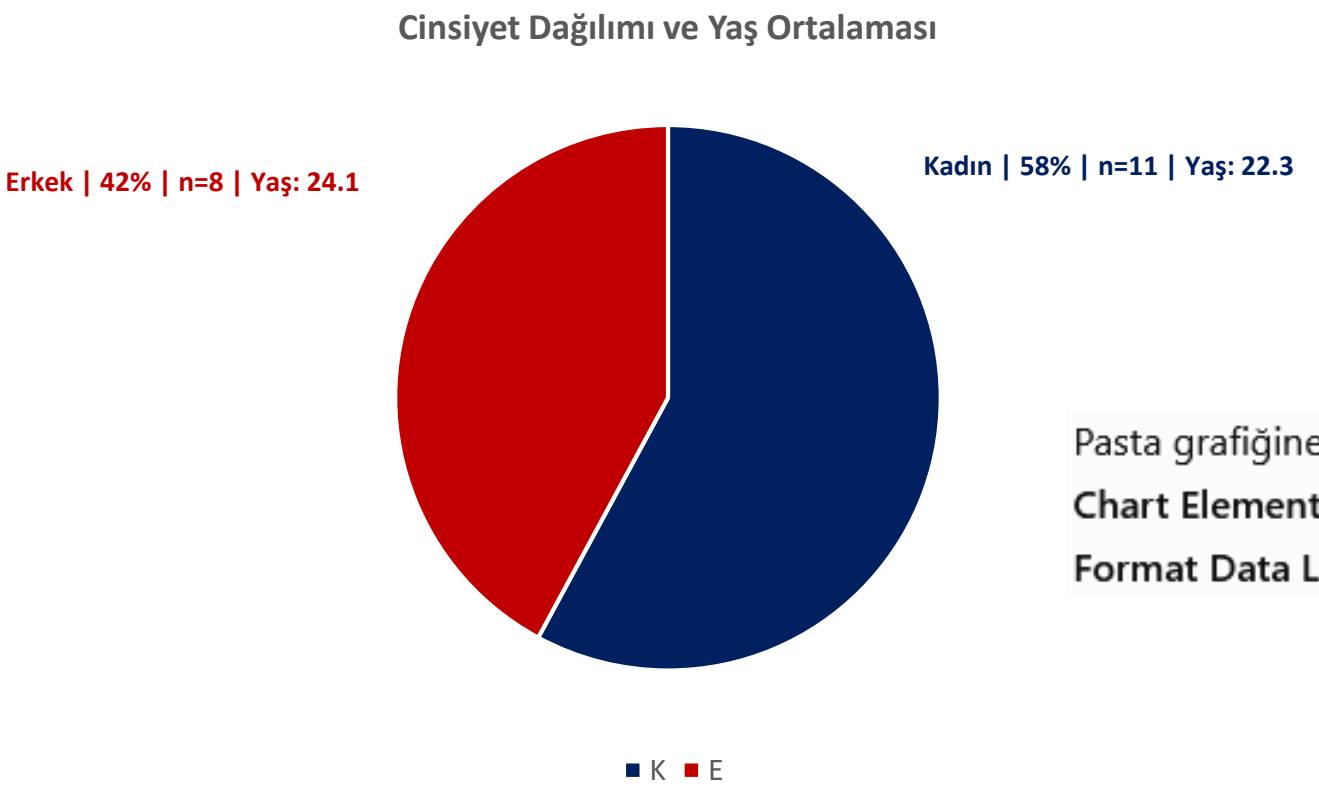
PERFORMANS VE TEST VERİLERİNİN DEĞERLENDİRİLMESİ

KATILIMCI	İSİM	CİNSİYET	YAŞ	BRANŞ	SPOR YAŞI	DOMİNANT
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P18	Kubilay	E	21	HENTBOL	12	SAĞ
P19	Ecem	K	21	BASKETBOL	16	SOL
P20	Onur	E	27	FUTBOL	13	SAĞ

01_SPORCU | 02_SPORCU_ANALİZ | 03_ANTROPOMETRİ | 03_ANTROPOMETRİ_ANALİZ | 04_KUVVET | 05_FİZYOLOJİ ...

PERFORMANS VE TEST VERİLERİNİN DEĞERLENDİRİLMESİ

PIE / DOUGHNUT CHART



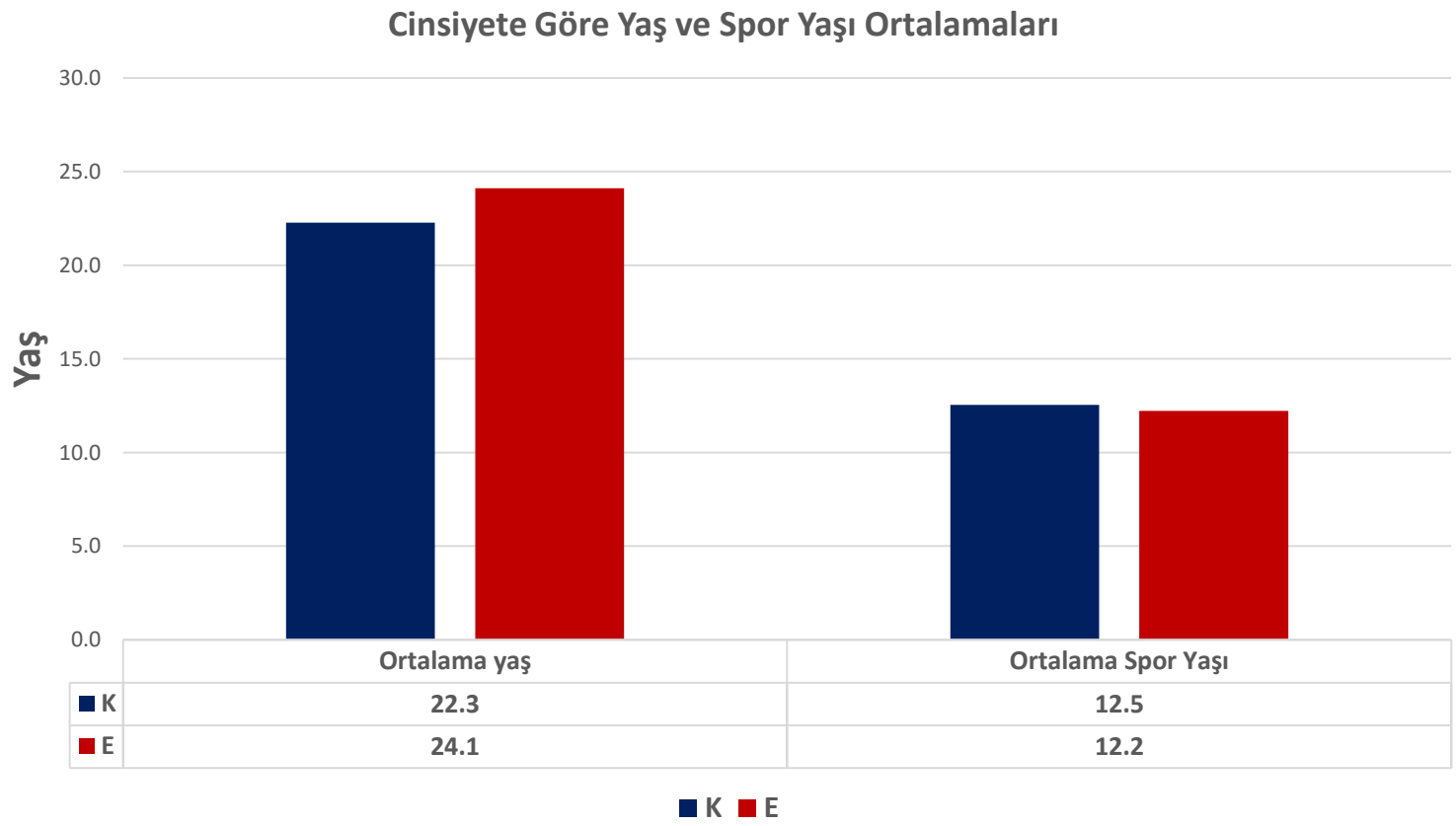
Pasta grafiğine tıkla.

Chart Elements (+) → **Data Labels** → **More Options** seç.

Format Data Labels panelinde **Value From Cells** seçeneğini işaretle.

PERFORMANS VE TEST VERİLERİNİN DEĞERLENDİRİLMESİ

BAR CHART



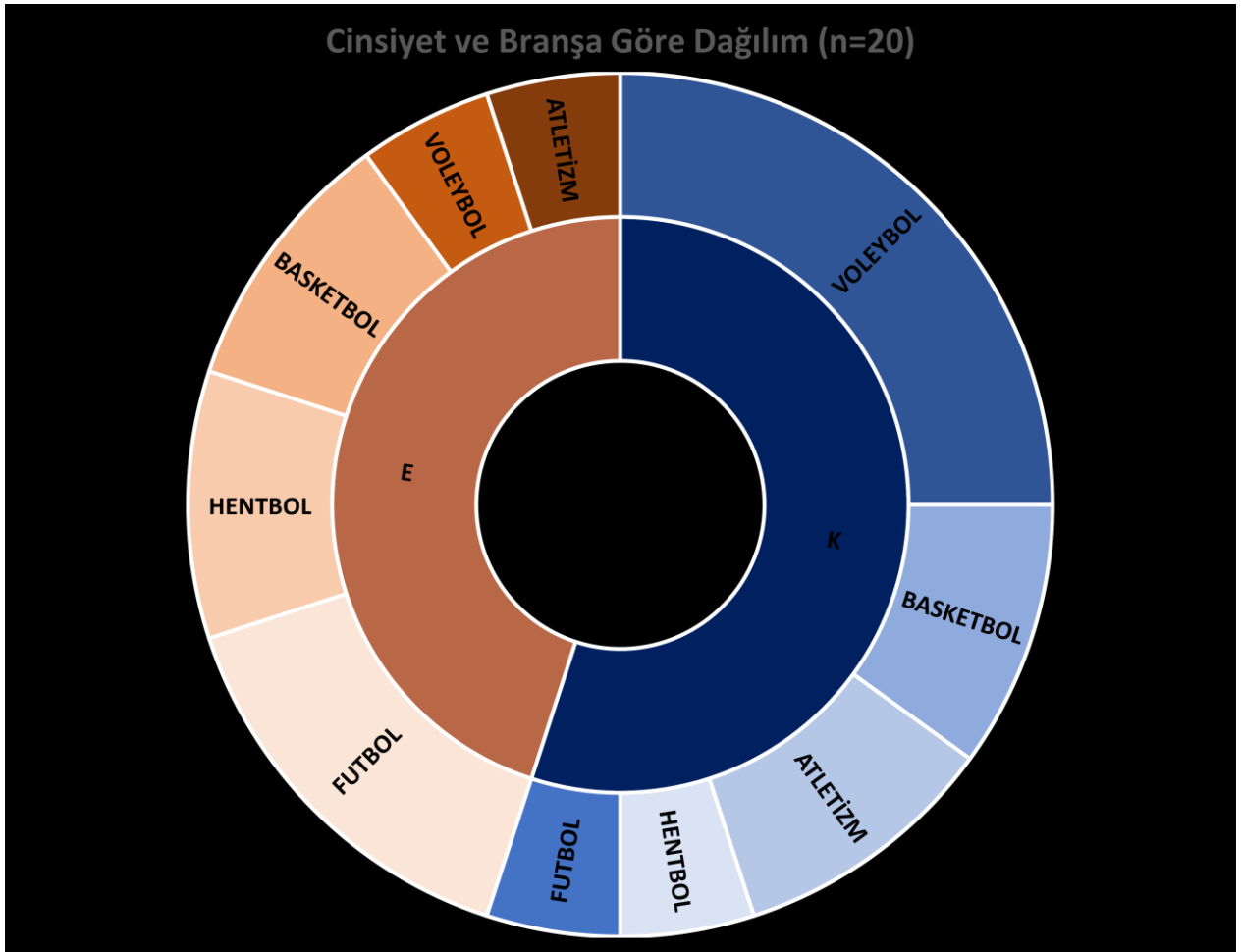
PERFORMANS VE TEST VERİLERİNİN DEĞERLENDİRİLMESİ

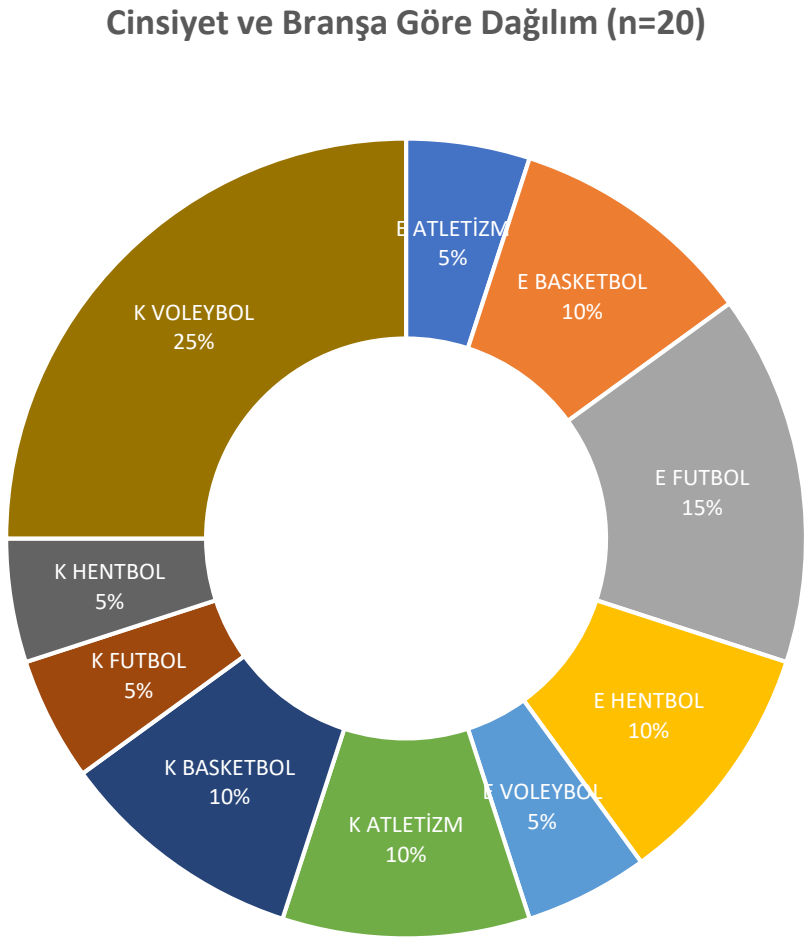
Hesaplama	İngilizce Excel formülü
Kadın sayısı (B2)	`=COUNTIF('01_SPORCULAR'!$C$2:$C$21,A2)`
Toplam kişi (B4)	`=SUM(B2:B3)`
Kadın yüzdesi (C2)	`=IFERROR(B2/$B$4,0)`
Kadınların ortalama yaşı (G2)	`=IFERROR(AVERAGEIF('01_SPORCULAR'!$C$2:$C$21,E2,'01_SPORCULAR'!$D$2:$D$21),"")`
Branşa ve cinsiyete göre kişi sayısı (B8)	`=COUNTIFS('01_SPORCULAR'!$E$2:$E$21,$A8,'01_SPORCULAR'!$C$2:$C$21,B$7)`
Branş toplamı (D8)	`=SUM(B8:C8)`
Sağ dominant sayısı (F8)	`=COUNTIF('01_SPORCULAR'!$G$2:$G$21,E8)`
Dominant taraf yüzdesi (G8)	`=IFERROR(F8/$F$10,0)`

Dikkat: İngilizce Excel'de formül argümanlarını genellikle virgülle (`,`) ayırırız. Ancak Windows bölgesel ayarlarına bağlı olarak noktalı virgül (`;`) gerekebilir.

PERFORMANS VE TEST VERİLERİNİN DEĞERLENDİRİLMESİ

SUNBURST CHART / DOUGHNUT CHART





PERFORMANS VE TEST VERİLERİNİN DEĞERLENDİRİLMESİ

Cinsiyet dağılımı ve yüzdeleri

Kadın sayısı
=COUNTIF('01_SPORCU'!C2:C21,A2)

Cinsiyetlere göre ortalama yaş
=AVERAGEIF('01_SPORCU'!$C$2:$C$21,A2,'01_SPORCU'!$D$2:$D$21)

Ortalama spor yaşı
=AVERAGEIF('01_SPORCU'!$C$2:$C$21,A2,'01_SPORCU'!$F$2:$F$21)

Pie chart etiketi
=IF(A2="K","Kadın","Erkek")&" | "&TEXT(C2,"0%")&" | n="&B2&" | Yaş: "&TEXT(D2,"0.0")

PERFORMANS VE TEST VERİLERİNİN DEĞERLENDİRİLMESİ

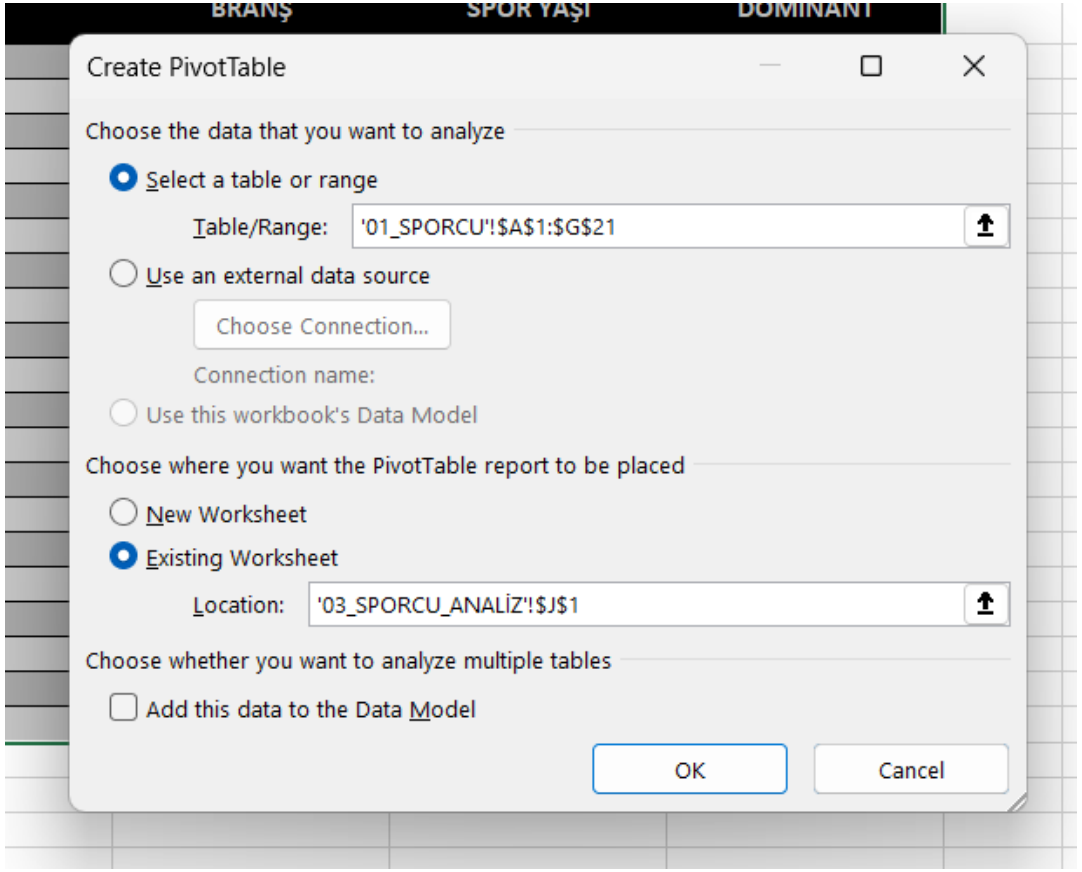
PIVOT TABLE

Insert → PivotTable → From Table/Range

Veri aralığı: 01_SPORCU!$A$1:$G$21

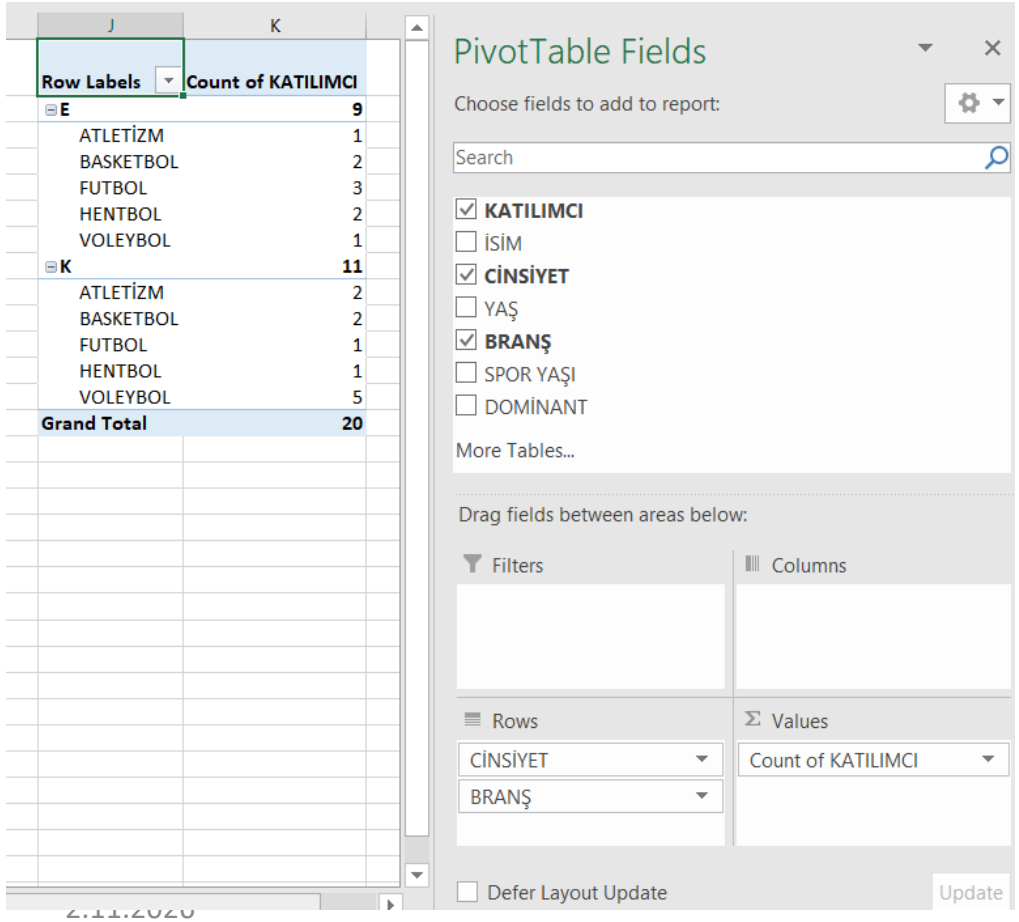
Existing Worksheet

Location: '03_SPORCU_ANALİZ'!$J$1



PERFORMANS VE TEST VERİLERİNİN DEĞERLENDİRİLMESİ

PIVOT TABLE



PivotTable'ın içinde herhangi bir hücreye tıkla.

1. Design → Report Layout → Show in Tabular Form
2. Design → Report Layout → Repeat All Item Labels
3. Design → Subtotals → Do Not Show Subtotals
4. Design → Grand Totals → Off for Rows and Columns

PERFORMANS VE TEST VERİLERİNİN DEĞERLENDİRİLMESİ

SOMATOTİP ÖLÇÜMLERİ

KATILIMCI	BOY (cm)	KÜTLE (kg)	BEL ÇEVRE (cm)	KALÇA ÇEVRE (cm)	YAĞ ORANI (%)		TRICEPS (mm)	SUBSCAPULA (mm)	SUPRASPINALE (mm)	MEDIAL CALF (mm)	HUMERUS BIKONDILER (cm)	FEMUR BIKONDILER (cm)	UST KOL ÇEVRE (cm)	CALF ÇEVRE (cm)
P01	176.00	65.00	69.70	86.20	15.20		9.9	8.4	9.6	7.2	6.6	9.2	32.3	36.3
P02	175.00	60.00	71.90	92.80	14.10		9.4	10.6	6.3	10.3	6.2	8.6	29.2	34.5
P03	170.00	69.00	79.20	93.90	19.40		15.1	15.8	12.4	13.9	6.0	8.9	29.5	34.5
P04	184.00	84.00	88.20	106.40	12.40		6.1	8.9	5.3	8.7	6.6	9.6	34.1	40.7
P05	176.00	70.00	69.00	89.70	18.30		13.2	12.5	12.1	15.7	6.2	8.8	30.3	35.9
P06	181.00	95.00	85.30	102.30	18.70		15.0	11.7	9.9	10.6	7.1	10.1	36.4	41.7
P07	169.00	54.00	74.10	93.30	18.30		15.0	11.4	10.6	13.1	5.8	8.4	27.9	32.9
P08	182.00	87.00	80.20	101.00	9.80		4.0	4.6	5.7	4.0	7.0	9.7	37.0	39.9
P09	167.00	69.00	78.90	101.40	16.00		12.6	9.8	11.3	9.4	6.0	8.3	28.2	35.0
P10	169.00	73.00	83.90	98.60	15.10		11.4	9.9	8.1	7.8	6.4	9.2	32.6	35.2
P11	168.00	56.00	76.10	92.10	25.10		19.9	17.2	17.3	21.1	6.1	8.6	28.2	32.3
P12	162.00	66.00	82.00	92.80	17.20		13.1	13.0	10.3	14.6	5.7	8.3	27.2	32.8
P13	181.00	59.00	80.30	93.60	22.60		17.7	16.3	13.4	17.8	6.9	9.5	32.1	35.5
P14	168.00	69.00	88.00	102.10	11.60		7.7	7.0	4.7	5.7	6.0	8.6	30.1	34.4
P15	173.00	82.00	81.40	96.00	21.00		18.7	17.1	15.3	18.4	6.5	9.0	31.6	37.3
P16	157.00	85.00	78.90	93.10	9.50		4.0	6.1	5.2	6.1	6.1	8.4	31.6	35.1
P17	177.00	78.00	75.40	91.20	18.60		16.6	12.7	13.0	12.3	6.5	9.1	30.9	37.2
P18	165.00	55.00	92.00	110.30	9.10		4.0	4.0	4.2	4.0	6.2	8.5	29.1	33.4
P19	183.00	81.00	75.00	97.40	15.30		9.4	9.3	8.4	9.4	6.8	9.4	32.8	39.8
P20	162.00	88.00	80.90	98.70	18.70		13.7	13.3	9.6	11.2	6.3	8.8	32.8	36.2

PERFORMANS VE TEST VERİLERİNİN DEĞERLENDİRİLMESİ

SOMATOTİP ÖLÇÜMLERİ

ENDOMORFİ HESABI

$$S = (TR + SS + SP)\frac{170.18}{BOY}$$

$$Endo = -0.7182 + 0.1451S\ - 0.00068S^2 + 0.0000014S^3$$

MEZOMORFİ HESABI

$$Meso = 0.858HB + 0.601FB + 0.188\left(AG - \frac{TR}{10}\right) + 0.161\left(CG - \frac{CA}{10}\right) - 0.131H + 4.5$$

PERFORMANS VE TEST VERİLERİNİN DEĞERLENDİRİLMESİ

SOMATOTİP ÖLÇÜMLERİ

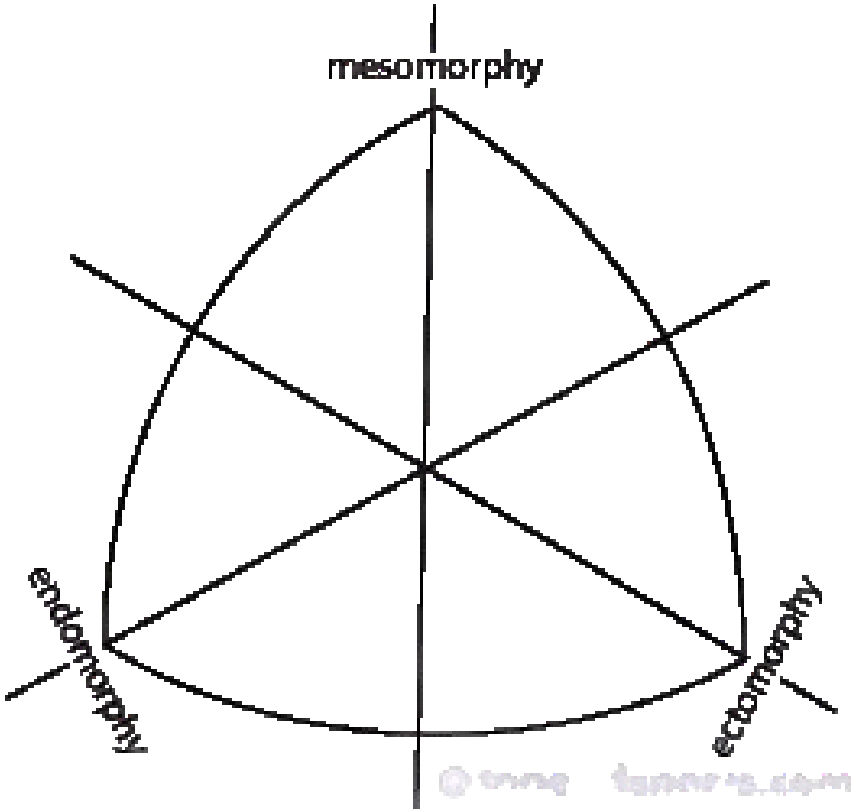
EKTOMORFİ HESABI

$$HWR = \frac{BOY\ (CM)}{\sqrt[3]{KÜTLE\ (KG)}}$$

$$Ecto = \begin{cases} 0.732HWR - 28.58 & HWR \geq 40.75 \\ 0.463HWR - 17.63 & 38.25 < HWR < 40.75 \\ 0.1 & HWR \leq 38.25 \end{cases}$$

PERFORMANS VE TEST VERİLERİNİN DEĞERLENDİRİLMESİ

SOMATOTİP ÖLÇÜMLERİ

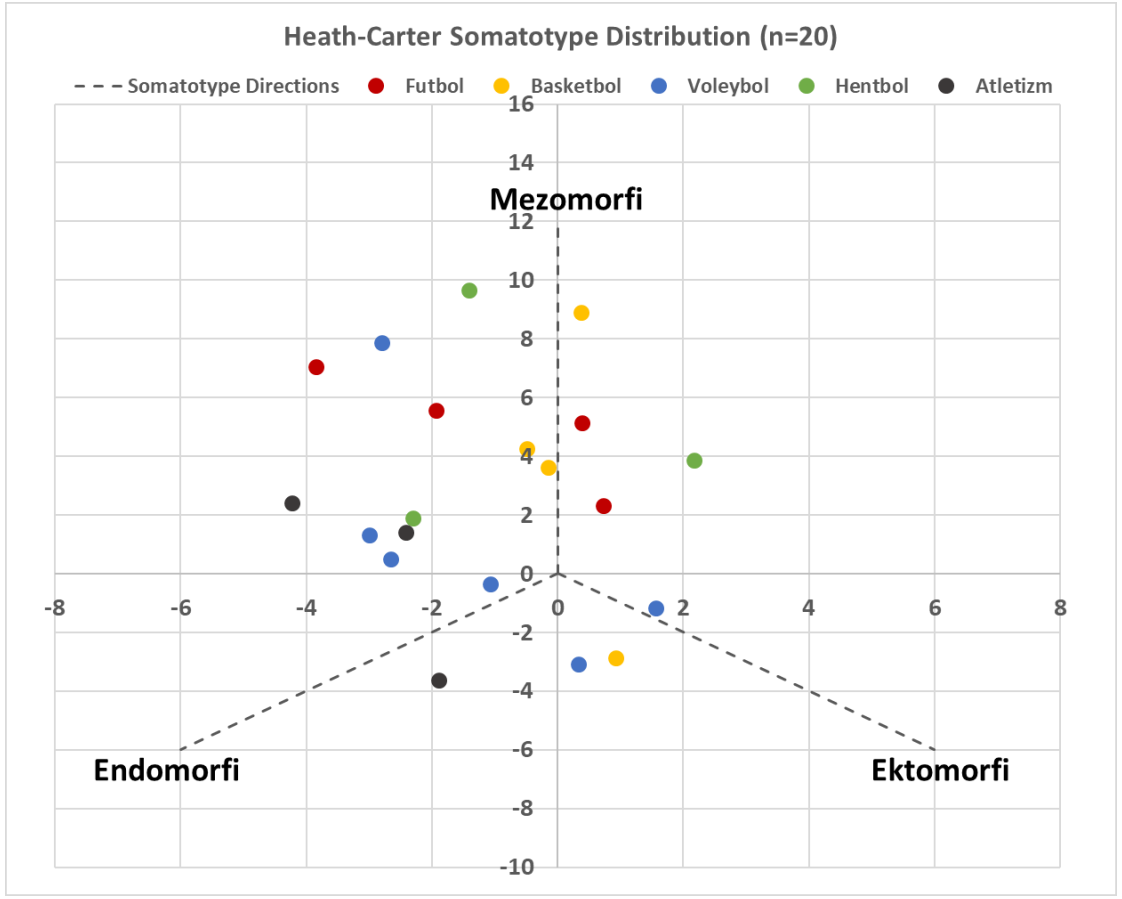


$$X = Ektomorfi\ -\ Endomorfi$$

$$Y = 2(Mezomorfi) - (Enfomorfi + Ektomorfi)$$

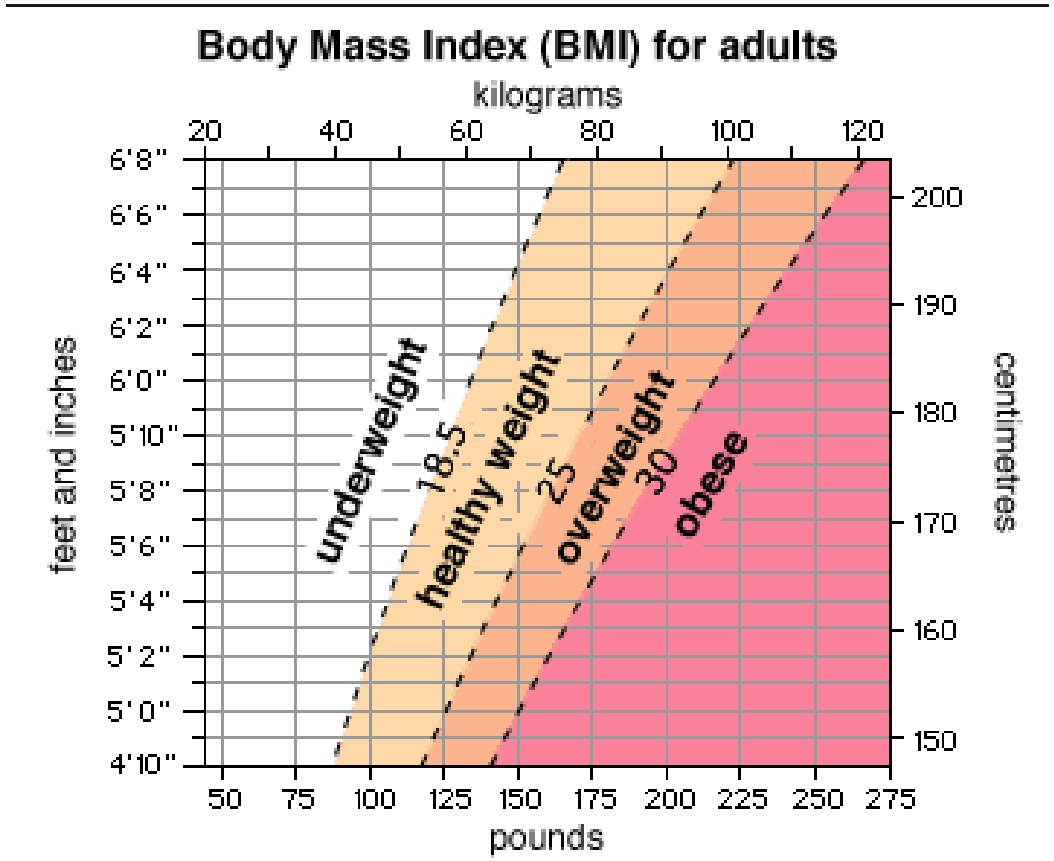
PERFORMANS VE TEST VERİLERİNİN DEĞERLENDİRİLMESİ

SOMATOKART



PERFORMANS VE TEST VERİLERİNİN DEĞERLENDİRİLMESİ

BEDEN KİTLE ENDEKSİ (BODY MASS INDEX)



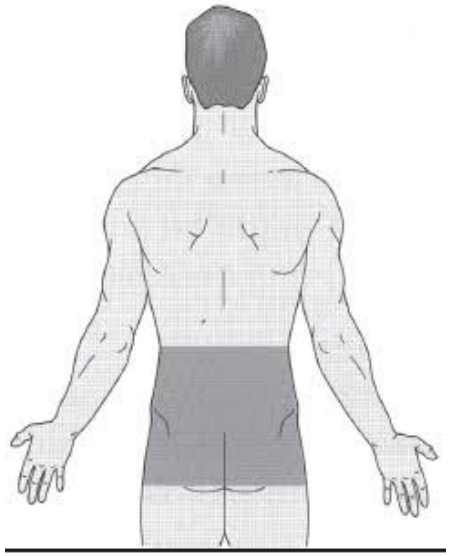
Source: National Institutes of Health/National Heart, Lung, and Blood Institute

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$$BMI = \frac{KÜTLE\ (KG)}{BOY\ (M)^2}$$

PERFORMANS VE TEST VERİLERİNİN DEĞERLENDİRİLMESİ

BEL-KALÇA ORANI (WAIST-HIP RATIO)



Waist-to-Hip Ratio
The waist-to-hip ratio (WHR) indicates visceral fat, which carries a greater risk of heart disease. To calculate, measure the waist at the level of the navel and hips at the greatest circumference. Measure to the nearest 0.25 inch or 0.5 centimeter, then divide the waist measurement by the hip measurement. WHR values above 0.85 to 0.9 for men and 0.75 to 0.8 for women exceed safe limits.

Table 8-12

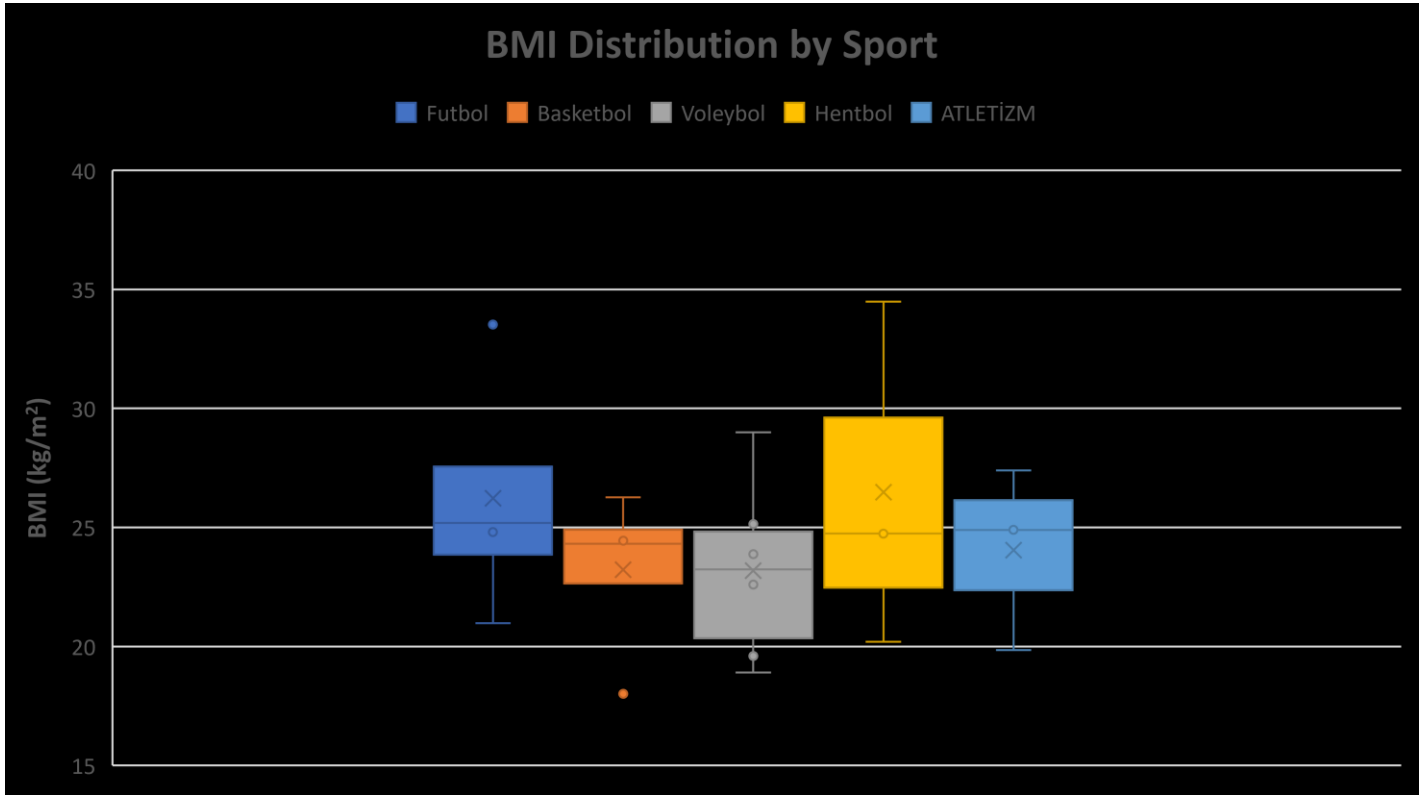
Criteria for Waist Circumference in Adults

	Waist Circumference	
Risk Category	Females	Males
Very low	<27.5 in (<70 cm)	<31.5 in (<80 cm)
Low	27.5–35.0 in (70–89 cm)	31.5–39.0 in (80–99 cm)
High	35.5–43.0 in (90–109 cm)	39.5–47.0 in (100–120 cm)
Very high	>43.5 in (>110 cm)	>47.0 in (>120 cm)

$$WHR = \frac{BEL\ (CM)}{KALÇA\ (CM)}$$

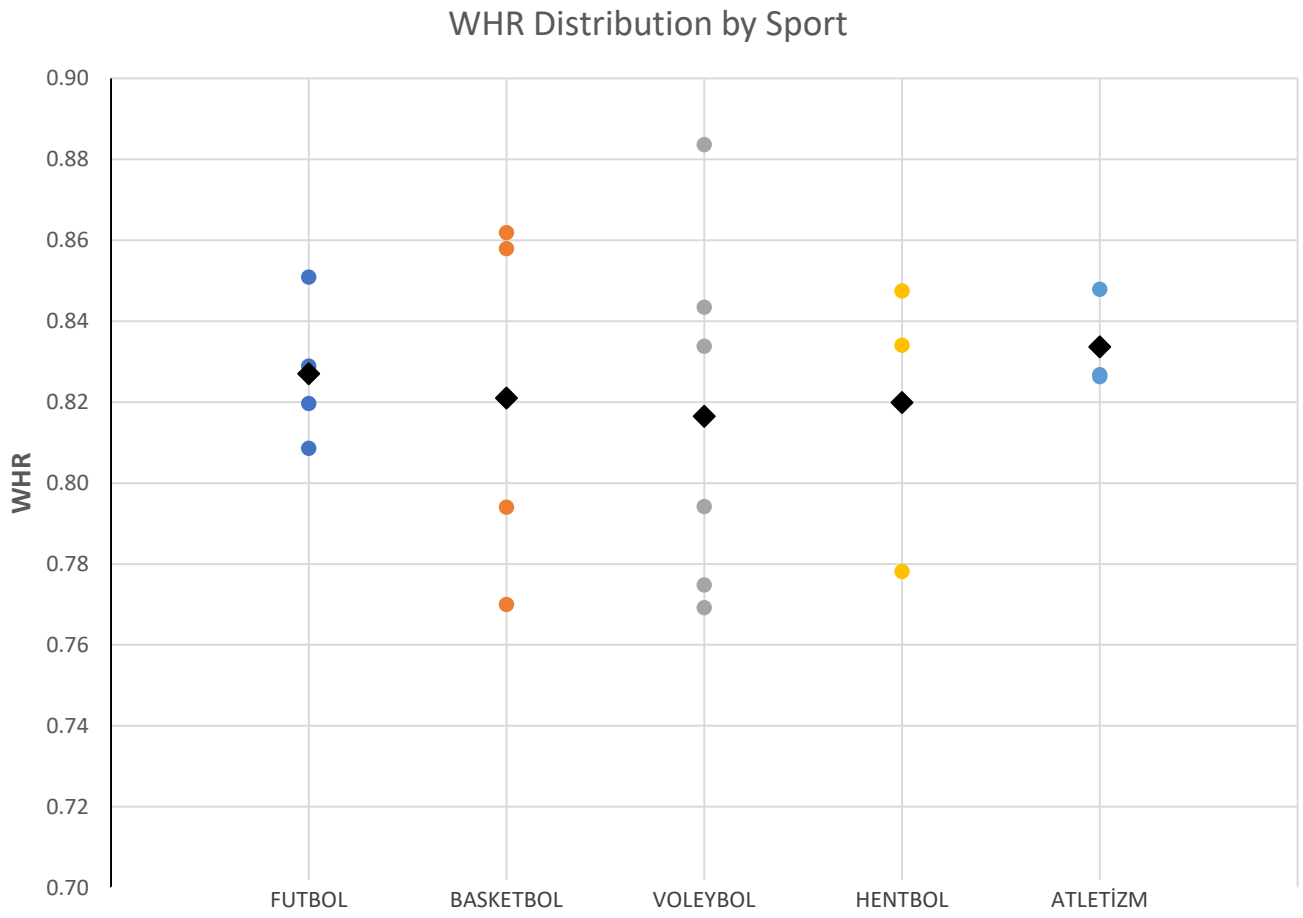
PERFORMANS VE TEST VERİLERİNİN DEĞERLENDİRİLMESİ

BRANŞA GÖRE BMI DAĞILIMI



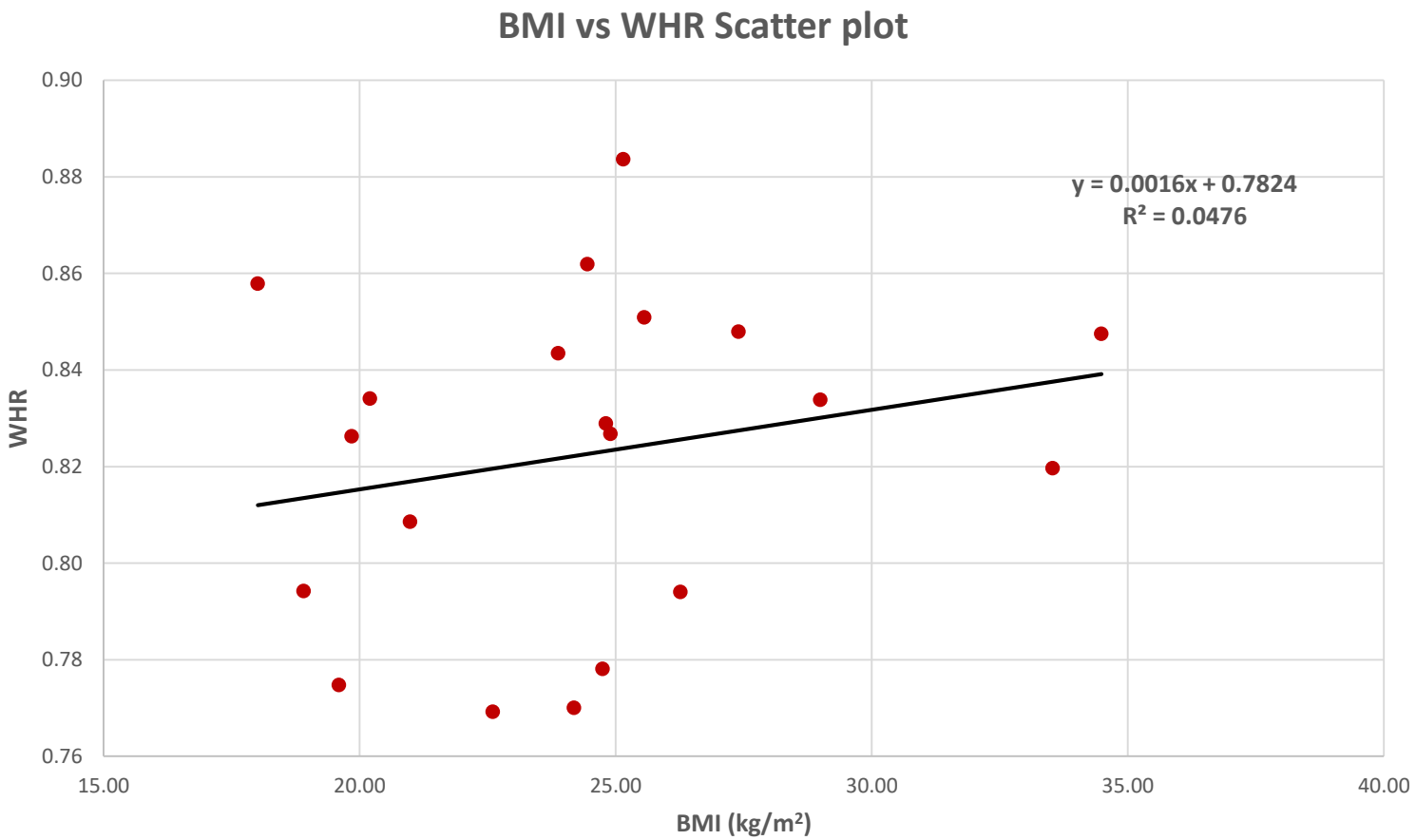
PERFORMANS VE TEST VERİLERİNİN DEĞERLENDİRİLMESİ

BRANŞA GÖRE WHR DAĞILIMI



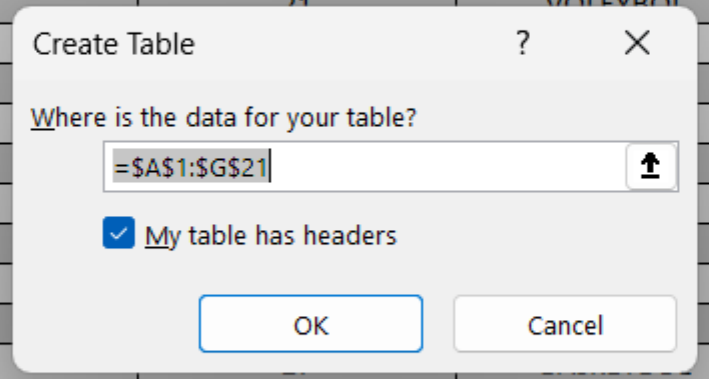
PERFORMANS VE TEST VERİLERİNİN DEĞERLENDİRİLMESİ

BMI İLE WHR ARASINDA İLİŞKİ VAR MI?



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	P07	Ayça	K			12	SAĞ
	P08	Caner	E			13	SOL
	P09	Hicran	K			12	SOL
	P10	Berat	E			7	SAĞ
	P11	Oğuzhan	E			15	SAĞ
	P12	Başak	K			14	SAĞ
	P13	Eren	E			11	SAĞ
	P14	Damla	K			15	SOL
	P15	Rabia	K	24	ATLETİZM	17	SAĞ
	P16	Ömer	E	21	HENTBOL	7	SAĞ
	P17	Latife	K	25	ATLETİZM	13	SAĞ



VERİLERİMİZİ TABLO OLARAK MI TANIMLASAK?