

# LAMPIRAN

Lampiran 1

Daftar Nama Sampel Kekuatan Otot Lengan

| No     | Nama                 | Hasil |     | Terbaik |
|--------|----------------------|-------|-----|---------|
|        |                      | 1     | 2   |         |
| 1      | Irfandi Yulio        | 29    | 32  | 32      |
| 2      | Risky Wahyuga        | 32    | 28  | 32      |
| 3      | Farjan               | 16    | 21  | 21      |
| 4      | Pahriz Nugra Pratama | 38    | 33  | 38      |
| 5      | M. Khusaeri          | 31    | 31  | 31      |
| 6      | Irfan                | 35    | 30  | 35      |
| 7      | Soeprpto             | 45    | 42  | 45      |
| 8      | M. Chuaizam          | 51    | 47  | 51      |
| 9      | Sigid Kamseno        | 48    | 48  | 48      |
| 10     | Indri                | 23    | 20  | 23      |
| 11     | Fairuz               | 15    | 17  | 17      |
| 12     | Adyt                 | 30    | 35  | 35      |
| 13     | Tera                 | 34    | 40  | 40      |
| 14     | Bryan                | 38    | 40  | 40      |
| 15     | Meirantika Hn.F      | 19    | 20  | 20      |
| Jumlah |                      | 484   | 484 | 508     |

Lampiran 2

Daftar Hasil Tes Speed Anticipation Reaction

| No     | Nama                 | Hasil (dalam detik) |
|--------|----------------------|---------------------|
| 1      | Irfandi Yulio        | 1.53                |
| 2      | Risky Wahyuga        | 1.40                |
| 3      | Farjan               | 1.35                |
| 4      | Pahriz Nugra Pratama | 1.21                |
| 5      | M. Khusaeri          | 1.40                |
| 6      | Irfan                | 1.51                |
| 7      | Soeprpto             | 1.62                |
| 8      | M. Chuaizam          | 1.54                |
| 9      | Sigid Kamseno        | 1.65                |
| 10     | Indri                | 1.31                |
| 11     | Fairuz               | 1.25                |
| 12     | Adyt                 | 1.44                |
| 13     | Tera                 | 1.50                |
| 14     | Bryan                | 1.40                |
| 15     | Meirantika Hn.F      | 1.20                |
| Jumlah |                      | 21.31               |

Lampiran 3

Daftar Hasil Keterampilan Menembak Running Target

|    | Nama                 | Prestasi atlet |
|----|----------------------|----------------|
| 1  | Irfandi Yulio        | 280            |
| 2  | Risky Wahyuga        | 275            |
| 3  | Farjan               | 275            |
| 4  | Pahriz Nugra Pratama | 266            |
| 5  | M. Khusaeri          | 274            |
| 6  | Irfan                | 275            |
| 7  | Soeprapto            | 272            |
| 8  | M. Chuaizam          | 282            |
| 9  | Sigid Kamseno        | 282            |
| 10 | Indri                | 183            |
| 11 | Fairuz               | 169            |
| 12 | Adyt                 | 249            |
| 13 | Tera                 | 277            |
| 14 | Bryan                | 266            |
| 15 | Meirantika Hn.F      | 173            |
|    | Jumlah               | 3798           |

#### Lampiran 4

Daftar Hasil Tes kekuatan otot lengan ( $X_1$ ), kecepatan reaksi ( $X_2$ ) dan Keterampilan Menembak Running Target (Y)

| No     | Nama                 | X1  | X2   | Y    |
|--------|----------------------|-----|------|------|
| 1      | Irfandi Yulio        | 32  | 1.53 | 280  |
| 2      | Risky Wahyuga        | 32  | 1.40 | 275  |
| 3      | Farjan               | 21  | 1.35 | 275  |
| 4      | Pahriz Nugra Pratama | 38  | 1.21 | 266  |
| 5      | M. Khusaeri          | 31  | 1.40 | 274  |
| 6      | Irfan                | 35  | 1.51 | 275  |
| 7      | Soeprapto            | 45  | 1.62 | 272  |
| 8      | M. Chuaizam          | 51  | 1.54 | 282  |
| 9      | Sigid Kamseno        | 48  | 1.65 | 282  |
| 10     | Indri                | 23  | 1.31 | 183  |
| 11     | Fairuz               | 17  | 1.25 | 169  |
| 12     | Adyt                 | 35  | 1.44 | 249  |
| 13     | Tera                 | 40  | 1.50 | 277  |
| 14     | Bryan                | 40  | 1.40 | 266  |
| 15     | Meirantika Hn.F      | 20  | 1.20 | 173  |
| Jumlah |                      | 508 | 21   | 3798 |

## Lampiran 5

Langkah-langkah perhitungan distribusi frekuensi

### A. Variabel kekuatan otot Lengan ( $X_1$ )

$$\begin{aligned}\text{Rentang} &= \text{Data Terbesar} - \text{Data Terkecil} \\ &= 51 - 17 \\ &= 34\end{aligned}$$

$$\begin{aligned}\text{Banyak Kelas} &= 1 + (3,3) \log n \\ &= 1 + (3,3) \log 15 \\ &= 4,88\end{aligned}$$

$$\begin{aligned}\text{Panjang Kelas} &= \text{Rentang} : \text{Banyak Kelas} \\ &= 34 : 4,88 \\ &= 6,97\end{aligned}$$

### B. Variabel Kecepatan Reaksi ( $X_2$ )

$$\begin{aligned}\text{Rentang} &= \text{Data Terbesar} - \text{Data Terkecil} \\ &= 1,65 - 1,20 \\ &= 0,45\end{aligned}$$

$$\begin{aligned}\text{Banyak Kelas} &= 1 + (3,3) \log n \\ &= 1 + (3,3) \log 15 \\ &= 4,88\end{aligned}$$

$$\begin{aligned}\text{Panjang Kelas} &= \text{Rentang} : \text{Banyak Kelas} \\ &= 0,45 : 4,88 \\ &= 0,09 \sim 0,1\end{aligned}$$

### C. Keterampilan Menembak Running Target (Y)

$$\begin{aligned}\text{Rentang} &= \text{Data Terbesar} - \text{Data Terkecil} \\ &= 282 - 169 \\ &= 113\end{aligned}$$

$$\begin{aligned}\text{Banyak Kelas} &= 1 + (3,3) \log n \\ &= 1 + (3,3) \log 15 \\ &= 4,88\end{aligned}$$

$$\begin{aligned}\text{Panjang Kelas} &= \text{Rentang} : \text{Banyak Kelas} \\ &= 113 : 4,88 \\ &= 23,15\end{aligned}$$

Lampiran 6

Daftar Hasil Tes kekuatan otot lengan ( $X_1$ ), kecepatan reaksi ( $X_2$ ) dan Keterampilan Menembak Running Target ( $Y$ )

| No            | $X_1$      | $X_2$     | Y           | $X_1^2$      | $X_2^2$   | $Y^2$         | $X_1 \cdot Y$ | $X_2 \cdot Y$ | $X_1 \cdot X_2$ |
|---------------|------------|-----------|-------------|--------------|-----------|---------------|---------------|---------------|-----------------|
| 1             | 32         | 1.53      | 280         | 1024         | 2.3409    | 78400         | 8960          | 428.4         | 48.96           |
| 2             | 32         | 1.40      | 275         | 1024         | 1.9600    | 75625         | 8800          | 385           | 44.8            |
| 3             | 21         | 1.35      | 275         | 441          | 1.8225    | 75625         | 5775          | 371.25        | 28.35           |
| 4             | 38         | 1.21      | 266         | 1444         | 1.4641    | 70756         | 10108         | 321.86        | 45.98           |
| 5             | 31         | 1.40      | 274         | 961          | 1.9600    | 75076         | 8494          | 383.6         | 43.4            |
| 6             | 35         | 1.51      | 275         | 1225         | 2.2801    | 75625         | 9625          | 415.25        | 52.85           |
| 7             | 45         | 1.62      | 272         | 2025         | 2.6244    | 73984         | 12240         | 440.64        | 72.9            |
| 8             | 51         | 1.54      | 282         | 2601         | 2.3716    | 79524         | 14382         | 434.28        | 78.54           |
| 9             | 48         | 1.65      | 282         | 2304         | 2.7225    | 79524         | 13536         | 465.3         | 79.2            |
| 10            | 23         | 1.31      | 183         | 529          | 1.7161    | 33489         | 4209          | 239.73        | 30.13           |
| 11            | 17         | 1.25      | 169         | 289          | 1.5625    | 28561         | 2873          | 211.25        | 21.25           |
| 12            | 35         | 1.44      | 249         | 1225         | 2.0736    | 62001         | 8715          | 358.56        | 50.4            |
| 13            | 40         | 1.50      | 277         | 1600         | 2.2500    | 76729         | 11080         | 415.5         | 60              |
| 14            | 40         | 1.40      | 266         | 1600         | 1.9600    | 70756         | 10640         | 372.4         | 56              |
| 15            | 20         | 1.20      | 173         | 400          | 1.4400    | 29929         | 3460          | 207.6         | 24              |
| <b>Jumlah</b> | <b>508</b> | <b>21</b> | <b>3798</b> | <b>18692</b> | <b>31</b> | <b>985604</b> | <b>132897</b> | <b>5451</b>   | <b>737</b>      |



## Lampiran 7

Menghitung Rata-rata dan simpangan baku Hasil Tes kekuatan otot lengan ( $X_1$ ), kecepatan reaksi ( $X_2$ ) dan Keterampilan Menembak Running Target ( $Y$ )

### A. Hasil Tes kekuatan otot lengan ( $X_1$ )

Diketahui :  $\sum X_1 = 508$  ,  $\sum X_1^2 = 18692$  ,  $n = 15$

$$\text{Rata-rata : } \frac{\sum X_1}{n} = \frac{508}{15} = 33,867$$

$$\begin{aligned} \text{Simpangan Baku : } & \sqrt{\frac{n \sum X_1^2 - (\sum X_1)^2}{n(n-1)}} = \sqrt{\frac{15 (18692) - (508)^2}{15(15-1)}} \\ & = 10,309 \end{aligned}$$

### B. Hasil Tes kecepatan reaksi ( $X_2$ )

Diketahui :  $\sum X_2 = 21$  ,  $\sum X_2^2 = 31$  ,  $n = 15$

$$\text{Rata-rata : } \frac{\sum X_2}{n} = \frac{21}{15} = 1,42$$

$$\begin{aligned} \text{Simpangan Baku : } & \sqrt{\frac{n \sum X_2^2 - (\sum X_2)^2}{n(n-1)}} = \sqrt{\frac{15 (31) - (21)^2}{15(15-1)}} \\ & = 0,139 \end{aligned}$$

### C. Hasil Tes dan Keterampilan Menembak Running Target ( $Y$ )

Diketahui :  $\sum Y = 3798$  ,  $\sum Y^2 = 985604$  ,  $n = 15$

$$\text{Rata-rata : } \frac{\sum Y}{n} = \frac{3798}{15} = 253,2$$

$$\begin{aligned} \text{Simpangan Baku : } & \sqrt{\frac{n \sum Y^2 - (\sum Y)^2}{n(n-1)}} = \sqrt{\frac{15 (985604) - (3798)^2}{15(15-1)}} \\ & = 41,361 \end{aligned}$$

Lampiran 8

Mencari Persamaan Regresi

**A. Regresi  $X_1$  terhadap  $Y$**

**Diketahui :**

$$\sum X_1 = 508, \quad \sum X_1^2 = 18692, \quad \sum X_1 \cdot Y = 132897$$

$$\sum Y = 3798, \quad \sum Y^2 = 985604$$

$$b = \frac{n \sum X_1 \cdot Y - \sum X_1 \sum Y}{n \sum X_1^2 - (\sum X_1)^2} = \frac{15(132897) - (508)(3798)}{15(18692) - (508)^2} = \frac{64071}{22316} = 2,871$$

$$a = \frac{\sum Y - b \sum X_1}{n} = \frac{3798 - (2,871)(508)}{15} = 155,97$$

Dengan menggunakan software SPSS, didapatkan hasil perhitungan yang sama :

| Model |            | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig. |
|-------|------------|-----------------------------|------------|---------------------------|-------|------|
|       |            | B                           | Std. Error | Beta                      |       |      |
| 1     | (Constant) | 155.966                     | 27.441     |                           | 5.684 | .000 |
|       | X1         | 2.871                       | .777       | .716                      | 3.693 | .003 |

a. Dependent Variable: Y

Persamaan regresi  $X_1$  terhadap  $Y$  adalah

$$\hat{Y} = a + bX$$

$$= 155,97 + 2,871 X_1$$

## B. Regresi $X_2$ terhadap Y

$$\begin{aligned} \sum X_2 &= 21, & \sum X_2^2 &= 31, & \sum X_2 \cdot Y &= 5451 \\ \sum Y &= 3798, & \sum Y^2 &= 985604 \end{aligned}$$

$$\begin{aligned} b &= \frac{n \sum X_2 \cdot Y - \sum X_2 \sum Y}{n \sum X_2^2 - (\sum X_2)^2} = \frac{15(5451) - (21)(3798)}{15(31) - (21)^2} = \frac{823,92}{4,1084} \\ &= 200,545 \end{aligned}$$

$$a = \frac{\sum Y - b \sum X_2}{n} = \frac{3798 - (200,55)(21)}{15} = -31,708$$

Dengan menggunakan software SPSS, didapatkan hasil perhitungan yang sama :

| Model |            | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig. |
|-------|------------|-----------------------------|------------|---------------------------|-------|------|
|       |            | B                           | Std. Error | Beta                      |       |      |
| 1     | (Constant) | -31.708                     | 86.013     |                           | -.369 | .718 |
|       | X2         | 200.545                     | 60.272     | .678                      | 3.327 | .005 |

a. Dependent Variable: Y

Persamaan regresi  $X_2$  terhadap Y adalah...

$$\begin{aligned} \hat{Y} &= a + bX \\ &= -31,708 + 200,545 X_2 \end{aligned}$$

**C. Regresi  $X_1, X_2$  terhadap  $Y$**

**Diketahui :**  $n = 15$

$$\sum X_1 = 508, \quad \sum X_1^2 = 18692,$$

$$\sum X_2 = 21, \quad \sum X_2^2 = 31, \quad \sum X_1 \cdot X_2 = 737$$

$$\sum Y = 3798, \quad \sum Y^2 = 985604$$

$$\sum X_1 \cdot Y = 132897$$

$$\sum X_2 \cdot Y = 5451$$

**Misalkan :**

$$\mathbf{X'X} = \begin{pmatrix} n & \sum X_1 & \sum X_2 \\ \sum X_1 & \sum X_1^2 & \sum X_1 \cdot X_2 \\ \sum X_2 & \sum X_1 \cdot X_2 & \sum X_2^2 \end{pmatrix} = \begin{pmatrix} 15 & 508 & 21 \\ 508 & 18692 & 737 \\ 21 & 737 & 31 \end{pmatrix}$$

$$(\mathbf{X'X})^{-1} = \begin{pmatrix} 10.40525 & 0.067103 & -8.87692 \\ 0.067103 & 0.001516 & -0.08338 \\ -8.87692 & -0.08338 & 8.236062 \end{pmatrix} =$$

$$\mathbf{X'Y} = \begin{pmatrix} \sum Y_i \\ \sum X_1 Y_i \\ \sum X_2 Y_i \end{pmatrix} = \begin{pmatrix} 3798 \\ 132897 \\ 5451 \end{pmatrix}$$

$$(\mathbf{X'X})^{-1} \mathbf{X'Y} = \begin{pmatrix} b_0 \\ b_1 \\ b_2 \end{pmatrix} = \begin{pmatrix} 52.23 \\ 1.89 \\ 96.24 \end{pmatrix}$$

Dengan menggunakan software SPSS, didapatkan hasil perhitungan yang sama :

| Coefficients <sup>a</sup> |                             |                           |   |      |
|---------------------------|-----------------------------|---------------------------|---|------|
| Model                     | Unstandardized Coefficients | Standardized Coefficients | t | Sig. |

|   |            | B      | Std. Error | Beta |       |      |
|---|------------|--------|------------|------|-------|------|
| 1 | (Constant) | 52.233 | 95.700     |      | .546  | .595 |
|   | X1         | 1.897  | 1.155      | .473 | 1.642 | .127 |
|   | X2         | 96.244 | 85.142     | .325 | 1.130 | .280 |

a. Dependent Variable: Y

Jadi, Persamaan regresi kekuatan otot lengan ( $X_1$ ), kecepatan reaksi ( $X_2$ ) terhadap Keterampilan Menembak Running Target (Y) adalah

$$\hat{Y} = b_0 + b_1X_1 + b_2X_2$$

$$\hat{Y} = 52,233 + 1,897 X_1 + 96,244 X_2$$

Lampiran 9

Mencari Koefisien Korelasi dan Uji keberartian koefisien korelasi

**Diketahui :**  $n = 15$

$$\sum X_1 = 508, \quad \sum X_1^2 = 18692,$$

$$\sum X_2 = 21, \quad \sum X_2^2 = 31, \quad \sum X_1 \cdot X_2 = 737$$

$$\sum Y = 3798, \quad \sum Y^2 = 985604$$

$$\sum X_1 \cdot Y = 132897$$

$$\sum X_2 \cdot Y = 5451$$

**1. Koefisien korelasi  $r_{y_1}$**

$$r = \frac{(n \sum X_1 \cdot Y) - \sum X_1 \sum Y}{\sqrt{[(n \sum X_1^2) - (\sum X_1)^2][n \sum Y^2 - (\sum Y)^2]}}$$

$$r = \frac{[(15)(132897)] - [(508)(3798)]}{\sqrt{[(15)(18692) - (508)^2][15(985604) - (3798)^2]}}$$

$$r = \frac{64071}{89539}$$

$$r = 0,716$$

Dengan menggunakan SPSS, di dapat hasil korelasi yang sama :

|    |                     | Correlations |        |
|----|---------------------|--------------|--------|
|    |                     | X1           | Y      |
| X1 | Pearson Correlation | 1            | .716** |
|    | Sig. (2-tailed)     |              | .003   |
|    | N                   | 15           | 15     |
| Y  | Pearson Correlation | .716**       | 1      |
|    | Sig. (2-tailed)     | .003         |        |
|    | N                   | 15           | 15     |

**Correlations**

|    |                     | X1     | Y      |
|----|---------------------|--------|--------|
| X1 | Pearson Correlation | 1      | .716** |
|    | Sig. (2-tailed)     |        | .003   |
|    | N                   | 15     | 15     |
| Y  | Pearson Correlation | .716** | 1      |
|    | Sig. (2-tailed)     | .003   |        |
|    | N                   | 15     | 15     |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**2. Uji keberartian koefisien korelasi**

$$t = \frac{15\sqrt{0,716 - 2}}{\sqrt{1 - (0,716)^2}}$$

$$t = \frac{2,58}{0,69}$$

$$t. \textit{hitung} = 3,69$$

$$t_{(0,05;13)} = 2,16$$

**Karena  $t. \textit{hitung} > t. \textit{tabel}$  , maka tolak  $H_0$  , sehingga koefisien korelasi 0,716 signifikan.**

**3. Koefisien korelasi  $r_y$**

$$r = \frac{(n \sum X_2 \cdot Y) - \sum X_2 \sum Y}{\sqrt{[(n \sum X_2^2) - (\sum X_2)^2][n \sum Y^2 - (\sum Y)^2]}}$$



$$r = \frac{[(15)(5451)] - [(21)(3798)]}{\sqrt{[(15)(31) - (21)^2][(15)(985604) - (3798)^2]}}$$

$$r = \frac{823,92}{1214,9}$$

$$r = 0,678$$

Dengan menggunakan SPSS, di dapat hasil korelasi yang sama :

|    |                     | Y      | X2     |
|----|---------------------|--------|--------|
| Y  | Pearson Correlation | 1      | .678** |
|    | Sig. (2-tailed)     |        | .005   |
|    | N                   | 15     | 15     |
| X2 | Pearson Correlation | .678** | 1      |
|    | Sig. (2-tailed)     | .005   |        |
|    | N                   | 15     | 15     |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

#### 4. Uji keberartian koefisien korelasi

$$t = \frac{15\sqrt{0,678 - 2}}{\sqrt{1 - (0,678)^2}}$$

$$t = \frac{2,445}{0,735}$$

$$t = 3,33$$

$$t_{(0,05;13)} = 2,16$$

Karena  $t_{hitung} > t_{tabel}$  , maka tolak  $H_0$  , sehingga koefisien korelasi 0,678 signifikan.

**5. Mencari  $ry_{1,2}$  (Koefisien Korelasi Ganda)**

$$\begin{aligned}\sum x_1y &= \sum X_1 \cdot Y - \frac{\sum X_1 \sum Y}{n} \\ &= 132897 - \frac{(508)(3798)}{15} \\ &= 4271,4\end{aligned}$$

$$\begin{aligned}\sum x_2y &= \sum X_2 \cdot Y - \frac{\sum X_2 \sum Y}{n} \\ &= 5451 - \frac{(21)(3798)}{15} \\ &= 54,928\end{aligned}$$

$$\begin{aligned}\sum y^2 &= \sum Y^2 - \frac{(\sum Y)^2}{n} \\ &= 985604 - \frac{(3798)^2}{15} \\ &= 23950,4\end{aligned}$$

$$\begin{aligned}\text{Jumlah Kuadrat (JK) Regresi} &= b_1 \sum x_1y + b_2 \sum x_2y \\ &= (1,897)(4271,4) + (96,244)(54,928) \\ &= 13389,34\end{aligned}$$

$$R = \sqrt{\frac{JK.Reg}{\sum y^2}} = \sqrt{\frac{13389,34}{23950,4}} = 0,748$$

Berdasarkan nilai yang di dapatkan sama dengan SPSS, nilai  $R = 0,748$

**Model Summary**

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .748 <sup>a</sup> | .559     | .485              | 29.66787                   |

Model Summary

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .748 <sup>a</sup> | .559     | .485              | 29.66787                   |

a. Predictors: (Constant), X1, X2

## 6. Uji keberartian koefisien korelasi Ganda

$$F. Hitung = \frac{r^2/k}{(1 - r^2)/(n - k - 1)}$$

$$F. Hitung = \frac{0,748^2/2}{(1 - 0,748^2)/(15 - 2 - 1)}$$

$$F. Hitung = \frac{0,28}{0,037} = 7,6068$$

$$F. tabel = F(0,05;2;12) = 3,88$$

Dengan menggunakan SPSS

ANOVA<sup>b</sup>

| Model |            | Sum of Squares | df | Mean Square | F     | Sig.              |
|-------|------------|----------------|----|-------------|-------|-------------------|
| 1     | Regression | 13388.211      | 2  | 6694.106    | 7.605 | .007 <sup>a</sup> |
|       | Residual   | 10562.189      | 12 | 880.182     |       |                   |
|       | Total      | 23950.400      | 14 |             |       |                   |

a. Predictors: (Constant), X2, X1

b. Dependent Variable: Y

Karena F hitung > F.tabel maka H0 ditolak, dengan demikian R= 0,748 signifikan. Jadi, terdapat hubungan antara kekuatan otot lengan (X<sub>1</sub>), kecepatan reaksi (X<sub>2</sub>) dan Keterampilan Menembak *Running Target* (Y).

Lampiran 10

Dokumentasi Pengambilan Data Kekuatan Otot Lengan ( $X_1$ )



Lampiran 11

Dokumentasi Pengambilan Data Kecepatan Reaksi ( $X_2$ )



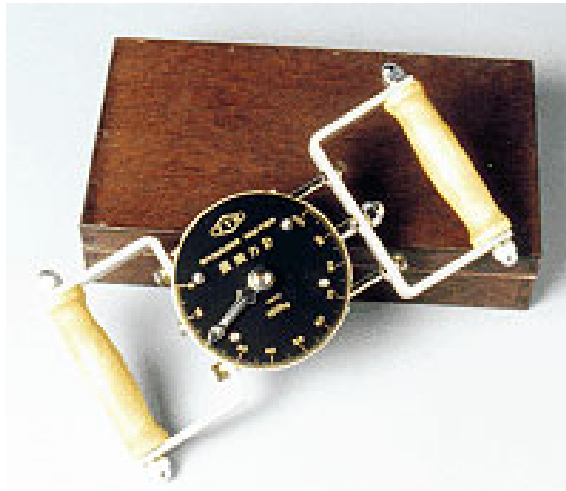
Lampiran 12

Dokumentasi Pengambilan Data Keterampilan Menembak *Running Target* (Y)



Lampiran 13

Dokumentasi Alat yang digunakan saat penelitian



Alat Pengambilan Kekuatan Otot Lengan "Pu Dynamometer"



Alat Pengambilan Kecepatan Reaksi "Speed Anticipation Reaction"

