

## DAFTAR PUSTAKA

1. American Association for Health, Physical Education and Recreation : Youth Fitness Test Manual, rev. ed. Washington, D.C.: AAHPER, 1965.
2. Anderson, K.L.: The Cardiovascular System in Exercise Physiology, H.B. Falls Ed., Academic Press, 1968; 79-91.
3. Andrews, J.: Essay on Physical Education and Sport, Cheltenham: Stanley Thornes Publishers Ltd., 1979.
4. Annarino, A.A.: Developmental Conditioning for Women and Men. Second Edition. The C.V. Mosby Company: Saint Louis, 1976.
5. Arma Abdoellah.: Peranan Kesegaran Jasmani dalam Pembangunan dan Olahraga. Yogyakarta: Panitia KKN STD, 1976.
6. Aryatmo Tjokronegoro, Budi Utomo, dan Bintari Rukmono.: Dasar-dasar Metodologi Riset Ilmu Kedokteran. Jakarta: Departemen Pendidikan dan Kebudayaan Konsorsium Ilmu Kedokteran, 1981.
7. Astrand, P.O.: Principles in Ergometry and Their Implication in Sport Med. 1984; (Vol. No. 1): 1-5.
8. Astrand, P.O. and Rodahl, K.: Textbook of Work Physiology. Tokyo: McGraw-Hill, Koga Kusha, Ltd., 1986; 332.
9. Baldwin, K., Winder, W., Terjung, R., and Holloszy, J.: Glycolytic capacity of red, white, and intermediate muscle: adaptive response to running. Med. Sci. Sports, 1972; 4:50.

10. Baley, J.A.: The Athlete's Guide Increasing Strength, Power and Agility. West Nyack N.Y.: Parker Publishing Company, Inc., 1977.
11. Barrow, H.M., and Mc Gee, R.: A Practical Approach to Measurement in Physical Education. 2d ed. Philadelphia: Lea and Febiger, 1971.
12. Baumgartner, T.A., and Jackson, A.S.: Measurement for Evaluation in Physical Education. Boston: Houghton Mifflin, 1975.
13. Berger, R.A.: Applied Exercise Physiology, Philadelphia: Lea & Febiger, 1982.
14. Bomba, Tudor O.: Theory and Methodology of Training. Edited by Derrick Jones, Iowa: Kendal/Hunt Publishing Company, 1986;236.
15. Borensztajn, J., Rone, M., Babirak, S., McGarr, J., and Oscai, L.: Effects of exercise on lipo-protein lipase activity in rat heart and skeletal muscle. Am.J.Physiol., 1975;229:394-397.
16. Bosco, J.S. and Gustafson, W.F.: Measurement and Evaluation in Physical Education, Fitness, and Sports. New Jersey: Prentice-Hall, Inc., Englewood Cliffs, 1983.
17. Bridell, G.E.: "A Comparison of Selected Static and Dynamic Stretching Exercises on the Flexibility of the Hip Joint." Completed Research in Health, Physical Education, and Recreation, 1970;12:209.
18. Brooks, G.A., and Fahey, T.D.: Exercise Physiology - Human Bioenergetics and Its Applications. New York: John Wiley & Sons, 1984.

19. Brumfield, M.D.: "A Comparison of the Relationship of Shoulder Flexibility and Other Selected Factors to Throwing Performance by College Women." Completed Research in Health, Physical Education, and Recreation, 1970;12:218.
20. Burke, E.J. and Franks, B.D.: Changes in  $\dot{V}O_{2\max}$  resulting from bicycle training at different intensities holding total mechanical work constant. Res. Quart., 1975;46:31.
21. Campbell, D.T., and Stanley, J.G.: Experimental and Quasi Experimental Designs for Research. Chicago: Rand McNally College Publishing Company, 1963.
22. Clarke, H.H. ed. : "Basic Understanding of Physical Fitness"Physical Fitness Research Digest, Series 1, No. 1. Washington, D.C.: President's Council on Physical Fitness and Sports, 1971;(July):1.
23. Clausen, J.P.: Effect of Physical Training on Cardiovascular Adjustments to Exercise in Man. Physiol. Rev., 1977;57(4):779-815.
24. Cochran, William G., and Cox, Gertrude M. : Experimental Designs. Second Edition. New York: John Wiley & Sons, 1957.
25. Committee on Exercises, American Heart Association.: Exercise Testing and Training of Apparently Healthy Individuals'A Handbook for Physicians.New York. 1972.

26. Cooper, K.H.: A Means of Assessing Maximal Oxygen Intake. *Journal of American Medical Association*. 1968; 203: 201-204.
27. Cooper, K.H.: *The New Aerobics*. New York: M. Evans Co., 1970.
28. Cooper, K.H.: *Running Without Fear*. New York: M. Evans and Company, Inc., 1985; 107.
29. Corbin, C.B., Dowell, L.J., Lindsey, R., and Tolson, H.: *Concepts in Physical Education*. Dubuque, Iowa: Wm. C Brown Company Publishers, 1974.
30. Costill, D.L., Daniels, J., Evans, W., Fink, W., Krahenbuhl, G., and Saltin, B.: Skeletal muscle enzymes and fiber composition in male and female track athletes. *J. Appl. Physiol.*, 1976; 40(2): 149-154.
31. Costill, D., Thomason, H., and Roberts, E.: Fractional utilization of the aerobic capacity during distance running. *Med. Sci. Sports*, 1973; 5(4): 248-252.
32. Costill, D.L., Coyle, E., and Fink, N.P.: Adaptations in Skeletal Muscles Following Training, *J. Appl. Physiol.*, 1979; 46(1): 96-99.
33. Dale, E., Gerlach, D.H., Martin, D.E., and Alexander, C.: Physical Fitness Profiles and Reproductive Physiology of Female. *Distance Runner, Physician Sport Med.*, 1974; 7(1): 83-95.
34. Daniels, J., Fitts, R., and Sheehan, G.: *Conditioning for Distance Running*. New York: John Wiley and Sons, 1978.

35. Dauer, V.P. and Pangrazi, R.P.: Dynamic Physical Education for Elementary School Children. Mineapolis, Minnesota: Burges Publishing Company, 1975.
36. Davis, J.A., and Convertini, V.A.: A comparison of heart rate methods for predicting endurance training intensity. *Med.Sci.Sports*, 1975;7(4):295-298.
37. Davis, J.A., Frank, M.H., Whipp, B.J., and Wasserman, K.: Anaerobic threshold alterations caused by endurance training in middle-aged men. *J.Appl.Physiol.*, 1979;46(6):1039-1046.
38. Davies, C.T.M., and Knibs, A.V. The Training Stimulus: The effects of intensity, duration and frequency of effect on maximum aerobic power output. *Int. Z. Angew. Physiol.*, 1971;29:299.
39. Departemen P dan K.: Laporan Komisi Pembaharuan Pendidikan Nasional. Jakarta: Dep. P dan K., 1980.
40. Dhanoetirto, H.: Tes naik turun bangku, sebuah tes kesangupan badan, disertasi Fakultas Kedokteran, Universitas Indonesia, Jakarta, 1970.
41. Dickinson, R.V.,: The Specificity of Flexxibility, *Research Quarterly*, 1968;39:792.
42. Dintiman, G.: What Research Tells The Coach about Sprinting. Washington, D.C., American Alliance for Health, Physical Education, and Recreation, 1974.
43. Direktorat Keolahragaan-Direktorat Jenderal Pendidikan Luar Sekolah, Pemuda dan Olahraga.: *Senam Kesegaran Jasmani*. Jakarta: Departemen P dan K, 1984.

44. Edgerton, V.R.: Neuromuscular adaptation to power and endurance work. *Can.J.Appl.Sports Sci.*, 1976;1:49-58.
45. Falls, H.B., Wallis, E.L., and Logan, G.A.: *Foundations of Conditioning*. New York: Academic Press, 1970.
46. Faria, I.: Cardiovascular response to exercise as influenced by training of various intensities. *Res.Quart.*, 1970;41:44-50.
47. Fleishman, E.A.: *The Structure and Measurement of Physical Fitness*. Prentice-Hall, Inc.: Englewood Cliffs, N.J., 1964.
48. Fox, E.L.: *Sport Physiology*. Philadelphia: Saunders College Publishing, 1979.
49. Fox, E., Bartels, R., Billings, C., O'Brien, R., Bason, R. and Mathews, D.: Frequency and duration of interval training programs and changes in aerobic power. *J. Appl.Physiol*, 1975;38(3):481-484.
50. Fox, E., McKenzie, D., and Cohan, K.: Specificity of training: metabolic and circulatory responses. *Med. Sci. Sports*, 1975;7(1):83.
51. Fox, E.L., Bartels, R., Billings, C., O'Brien, R., Bason, R., Mathews, D., and Webb, W.: Intensity and distance of interval training programs and changes in aerobic power. *Med.Sci.Sports*, 1973;5:18-22.
52. Fox, E.L., Bartels, R.L., Klinzing, J., and Ragg, K.: Metabolic responses to interval training programs of high and low power output. *Med.Sci.Sports*, 1977; 9(3):191-196.

53. Fox, E.L., and Mathews, D.K. : The Physiological Basis of Physical Education and Athletics. Philadelphia: Saunders College Publishing, 1981;313.
54. Fox, E.L., Klinzing, J., and Bartels, R.L.: Interval training : metabolic changes as related to relief interval heart rates of 120 and 140 beats per minute. Fed.Proc., 1977;36(3):449.
55. Fox, E.L., and Mathews, D.: Interval Training: Conditioning for Sports and General Fitness. Philadelphia: W.B. Saunders Co., 1974.
56. Gallon, Arthur J. : Coaching Ideas & Ideals (2d ed.). Boston : Houghton Mifflin Company, 1980;55-56.
57. Gettman, L.R., Pollock, M.L., Durstine, J.L., Ward, A., Ayres, J., and Linnerud, A.C.:Physiological responses of men to 1, 3, and 5 day per week training programs. Res.Quart., 1976;47(4):638-646.
58. Glover, E.G., : Physical Fitness Test Items for Boys and Girls in the First, Second, and Third Grades, Unpublished Master's Thesis. The Woman's College of University of North Carolina, Greensboro, N.C., 1962.
59. Golding, L.A., and Boss, R.R.: Scientific Foundations of Physical Fitness Programs. USA: Burgess Publishing Company, 1976;34.
60. Golding, L.A., Myers, C.R., and Sinning, W.E. (ed.): The Y's Way To Physical Fitness. Chicago: National Board of YMCA, 1982.

61. Gollnick, P., Armstrong, R., Saubert, C., Piehl, K., and Saltin, B.: Enzyme activity and fiber composition in skeletal muscle of untrained and trained men. *J. Appl. Physiol.*, 1972;33(3):312-319.
62. Gollnick, P., Armstrong, R., Saltin, B., Saubert, C., Sembrowich, W., and Shepherd, R.: Effect of training on enzyme activity and fiber composition of human skeletal muscle. *J. Appl. Physiol.*, 1973;34(1):107-111.
63. Goulden, Cyril M.: *Method of Statistical Analysis*. Seven Printing. Tokyo: Charles E. Tuttle Company, 1969.
64. Haley, P.R.: "A Comparative Analysis of Selected Motor Fitness Test Performance of Elementary Schools Boys," *Dissertation Abstracts International*, 1972;32:5018.
65. Hampton, G.W.: "The Effects of Three Physical Education Activities on Selected Physical Fitness Components" *Completed Research in Health, Physical Education and Recreation* 1971;13:149.
66. Harris, M.L.: *A Factor Analysis of Flexibility*, *Research Quarterly* 1969;40:62.
67. Harvey, V.P. and Scott, G.D., : *Reliability of Measure of Forward Flexibility and Its Relation to Physical Dimensions of College Women*, *Research Quarterly* 1967;33:28.
68. Hatch, C.: *Instructor's Manual*. Washington: Bill Mosen-Seattle, 1981;42.
69. Hebbelinck, Marcel.: *The concept of health related to physical Education*, 1984;21:9-17.



70. Hermansen, L., and Wachtlova, M.: Capillary density of skeletal muscle in well-trained and untrained men. *J. Appl. Physiol.*, 1971;30(6):860-863.
71. Hillcourt, William.,: *Your Guide to Fitness*. New York: Golden Press, 1968.
72. Hixon, R.C. et al. : Linear increases in aerobic power induced by a strenuous program of endurance exercise *J. Appl. Physiol.* 1977;48:274.
73. Hizbullah Soetarto.: *Aerobics dalam Pembinaan Kesegaran Jasmani*. Jakarta: Direktorat Jenderal Olahraga dan Pemuda Dep. P dan K , 1972.
74. Holloszy, J.: Biochemical adaptations to exercise: aerobic metabolism. In Wilmore, J. (ed.): *Exercise and Sports Sciences Reviews*. New York: Academic Press, 1973;45-71.
75. Holloszy, J.O., and F.W.Booth.: Biochemical Adaptation to Endurance Exercise in Skeletal Muscle, *Annual Review of Physiology*, 1976;38:273-295.
76. Holt, L.E., et al.: "Comparative Study of Three Stretching Techniques," *Perceptual and Motor Skills* 1970;31: 611.
77. Huss, W.D.V. and Heusner, W.W.: "Strength, Power, and Muscular Endurance." in *An Introduction to Measurement in Physical Education*. Vol. 4. Physical Fitness ed. Henry, J. Montoye, Phi Epsilon Kappa Fraternity: Indianapolis, 1970.

78. Isaac, Stephen., and Michael, W.B. : Handbook in Research and Evaluation. Second Edition. San Diego: EdITS publishers, 1982.
79. Ispen, J., and Feigl, P. : Bancroft's Introduction to Bio Statistics. 2nd edition. Harper & Row Publ. Inc., 1970.
80. Jelliffe, D.B.,: The assessment of the nutritional status of the community. W.H.O. Monogr. 1966;(Ser. 53).
81. Johnson, Barry L., and Nelson, Jack K.: Practical Measurement for Evaluation in Physical Education. 3d ed. Minneapolis: Burgess Publishing Co., 1979.
82. Karlsson, J., Nordesjo, L., Jorfeldt, L., and Saltin, B.: Muscle lactate, ATP, and CP levels during exercise after physical training in man. J.Appl.Physiol., 1972;33(2):199-203.
83. Karvonen, M.J.: Endurance Sports, Longevity, and Health. Ann. N.Y. Acad.Sci. 1977;301:653-655.
84. Katch, V., Weltman, A., Sady, S. and Freedson, P.: Validity of the relative per cent concept for equating training intensity. Eur.J.Appl.Physiol. 1978;39:219-227.
85. Kelly, Ellen D., Adapted and Corrective Physical Education. New York : The Ronald Press Company, 1965.
86. Katch, F.I., and McArdle, W.D.: Nutrition, Weight Control, and Exercise. Second Edition. Philadelphia: Lea & Febiger, 1983.
87. Kennedy, R.: Track and Field for College Men. Philadelphia : W.B. Saunders Co., 1970.

88. Kinderman, W., Simon, G. and Keul, J.: The significance of the aerobic-anaerobic transition for the determination of work load intensities during endurance training. *Eur.J.Appl.Physiol.*, 1979;42:25-34.
89. Kiessling, K., Piehl, K., and Lundquist, C.: Effect of physical training on ultrastructural features in human skeletal muscle. In Pernow, B., and Saltin, B. (eds): *Muscle Metabolism During Exercise*. New York: Plenum Press, 1971;97-101.
90. Kirkendal, Don R., Gruber, Joseph J., and Johnson, Robert E.: *Measurement and Evaluation for Physical Education*. Dubuque, Iowa: Wm.C.Brown Company Publisher, 1980.
91. Klassen, G., Andrew, G., and Becklake, M.: Effect of training on total and regional blood flow and metabolism in paddlers. *J.Appl.Physiol.*, 1970;28(4):397-406.
92. Klissouras, V.: Heritability of adaptive variation. *J. Appl.Physiol.*, 1971;31(3):338-344.
93. Knuttgen, G.H.: *Force, Work, Power and Exercise, Medicine and Science in Sports and Exercise*, 1978;10(3):227-228.
94. Knuttgen, H., Nordesjo, L., Ollander, B., and Saltin, B.: Physical conditioning through interval training with young male adults. *Med.Sci.Sports*, 1973;5:220-226,

95. Lesmes, G.R., Fox, E.L., Stevens, C., and Otto, R.: Metabolic responses of females to high intensity interval training of different frequencies. *Med.Sci. Sports*, 1978;10(4):229-232.
96. Mc Dougall, J.D. : The anaerobic threshold: its significance for the endurance athlete. *Can, J, Appl.Sport Sci.*1977;2:137-140.
97. McDougall, J.D., D.G.Sole, J.R.Moroz, G.C.D.Elder, J.R. Sutton and H.Howald.: Mitochondrial Volume Density in Human Skeletal Muscle Following Heavy Resistance Training. *Medicine in Science and Sports*, 1979; 11(2):164-166.
98. McArdle, W.D., Katch, F.I., and Katch, V.L.: *Exercise Physiology - Energy, Nutrition, and Human Performance.* USA: Lea & Febiger, 1981;85.
99. McCue, B.F.,: Flexibility of College Women, *Research Quarterly* 1953;24:316.
100. Man-i, M., K. Ito., and K. Kikuchi.,: *Histological Studies of Muscular Training.* *Res.Physical Education*, 1967; 11:153.
101. Massey, B.H. and Chaudel, N.L., : *Effects of Systematic, Heavy Resistance Exercise on Range of Joint Movement in Young Male Adults,* *Research Quarterly* 1959; 24:20.
102. Mendryk, S.W.: "The Rehabilitation and Reconditioning of Athletes Following an Injury or Illness." In Taylor A.W. Editor. *The Scientific Aspects of Sports Training.* USA: Charles C Thomas Publisher, 1975.

103. Meyers, E.J.: "Effect of Selected Exercise Variables on Ligament Stability and Flexibility of the Knee," *Research Quarterly* 1971;42:411.
104. Milesis, C., Pollock, M.L., Bah, M.D., Ayres, J.J., Ward, A., and Linnerud, A.C.: Effects of different durations of physical training on cardiorespiratory function, body composition, and serum lipids. *Res. Quart.* 1976;47(4):716-725.
105. Mirkin, Gabe., and Hoffman, Marshall.: *Kesehatan Olahraga*. Editor Sadoso Sumosardjuno. Jakarta: PT. Grafidian Jaya, 1984.
106. Montagu, M.F.A.: "Introduction to physical anthropometry." *Lacet* 1973;1:762-780.
107. Morehouse, L.E., and Miller, A.T. : *Physiology Exercise*. Saint Louis: The C.V. Mosby, 1976;236.
108. Morgan, T., Cobb, L., Short, F., Ross, R., and Gunn, D.: Effects of long-term exercise on human muscle mitochondria. In Pernow, B., and Saltin, B. (eds.): *Muscle Metabolism During Exercise*. New York: Plenum Press, 1971;87-95.
109. Morrison, Thomas F., et al.: *Human Physiology*. New York: Holt, Rinehart and Winston, Publisher, 1977;331.
110. Odgens, T.W.: "A Study of Relationships Between Flexibility Measures, Skill Performances, and Chronological Ages of Six to Thirteen Year Old Boys." *Completed Research in Health, Physical Education and Recreation* 1970;12:177.

111. O'Shea, John P.: Scientific Principles and Methods of Strength Fitness. Second Edition. London: Addison-Wesley Publishing Company, 1976.
112. Otto, R.M., Fox, E.L., and Stevens, C.J.: Metabolic responses of young women to training and maintenance/detraining. *Med.Sci.Sports*, 1978;10(1):52.
113. Pechar, G., McArdle, W., Katch, F., Magel, J., and De Luca, J.: Specificity of cardiorespiratory adaptation to bicycle and treadmill training. *J.Appl.Physiol.* 1974; 36(6):753-756.
114. Pedersen, P., and Jorgensen, K.: Maximal oxygen uptake in young women with training, inactivity, and retraining. *Med.Sci.Sports*, 1978;10(4):233-237.
115. Pollack, M.L., Broida, J., Kendrick, Z., Miller, H.S., Janeway, R., and Linnerud, A.C.: "Effect of Training Two Days per Week at Varied Intensities on Middle Aged Man." Abstracts of Research Section of AAHPER Convention AAHPER: Washington, 1972.
116. Pollock, M.: "The Quantification of Endurance Training programs." In *Exercise and Sport Sciences Reviews*. Vol. 1. Edited by J. Wilmore. New York: Academic Press, 1973;155-188.
117. Pollock, M., Dimmick, J., Miller, H., Kendrick, Z., and Linnerud, A.: Effects of mode of training on cardiovascular function and body composition of adult men. *Med.Sci.Sports*, 1975;7(2):139-145.

118. Pusat Kesegaran Jasmani dan Rekreasi.: Kesegaran Jasmani dalam Pembangunan Bangsa Indonesia. Jakarta: Dep. P dan K., 1978.
119. Pyke, Frank S.: Toward Better Coaching. The art and science of coaching. Canberra: Australian Government Publishing Service, 1980.
120. Roberts, J., and Alspaugh, J.: Specificity of training effects resulting from programs of treadmill running and bicycle ergometer riding. *Med.Sci.Sports*, 1972;4(1):6-10.
121. Roby, F., and Davis, R.: Jogging for Fitness and Weight Control. Philadelphia: W.B. Saunders Co., 1970.
122. Rowell, L.B.: Human Cardiovascular Adjustments to Exercise and Thermal Stress, *Physiol. Rev.* 1974;54(1):75-159.
123. Saltin, B., and Essen, B.: Muscle glycogen, lactate, ATP, and CP in intermittent exercise. In Pernow, B., and Saltin, B. (eds.): *Muscle Metabolism During Exercise*. New York: Plenum Press, 1971;419-424.
124. Saltin, B., and Karlsson, J.: Muscle glycogen utilization during work of different intensities. In Pernow, B. and Saltin, B. (eds.): *Muscle Metabolism During Exercise*. New York: Plenum Press, 1971;289-299.
125. Scholz, Alfred E., and Johnson, Robert E.: *Body Conditioning for College Men*. Philadelphia, London, Toronto: W.B. Saunders Company, 1969.

126. Singer, R.N.: Motor Learning and Human Performance. Second Edition. New York: Macmillan Publishing Co., Inc., 1975;374.
127. Skinner, James S., and Morgan, Don W.: Aspects of Anaerobic Performance. In Limits of Human Performance. American Academy of Physical Education Papers.1984; 18:31-44.
128. Smith, D.P., and Stransky, F.W.: The effect of training and detraining on the body composition and cardiovascular response of young women to exercise. J. Sports Med., 1976;16:112-120.
129. Soekarman, R.: "Berbagai macam Latihan Dasar untuk Meningkatkan Kemampuan Berprestasi." Simposium Olahraga. Surabaya: Kongres ke VI dan Seminar Ilmiah ke VII Ikatan Ahli Ilmu Faal Indonesia, 1986.
130. Soetrisno Hadi.: Dasar Metodologi Riset. Field Study, Masalah Konsistensi. Experimental Design and Analysis. Surabaya: Universitas Airlangga, 1976.
131. Soetrino Hadi.: Metodologi Research. Jilid I, Cetakan ke III. Yogyakarta: Yayasan Penerbit Fakultas Psikologi Universitas Gajah Mada, 1978.
132. Soetrisno Hadi.: Metodologi Research. Jilid IV. Cetakan Kedua. Yogyakarta: Yayasan Penerbit Fakultas Psikologi Universitas Gajah Mada, 1984.
133. Strauss, R.H.,: Sport Medicine and Physiology, W.B. Saunders Co., 1979;58-59.



134. Stromme, S.B., Ingjer, F., and Meen, H.D.: Assessment of maximal aerobic power inspecifically trained athletes. *J.Appl.Physiol.*, 1977;42(6):833-837.
135. Stull, A.G., and Cureton, T.K.: *Encyclopedia of Physical Education. Fitness and Sports: Training Invironment Nutrition and Fitness.* Salt Lake City: Brighton Publishing Company, 1980.
136. Sudjana.: *Disain dan Analisis Eksperimen.* Bandung : Tarsito, 1980.
137. Sudjatmo, S., dan Santoso, G. : *Penelitian dan Penilaian Senam Pagi Indonesia. Prasaran untuk Lokakarya Senam Pagi Indonesia di Cisarua, 1-4 Pebruari, 1977.*
138. Surakhmad, Winarno.: *Dasar dan Teknik Research - Pengantar Metode Ilmiah.* Bandung: Tarsito, 1978.
139. Suriasumantri, Jujun S.: *Pedoman Penulisan Ilmiah.* Jakarta: Fakultas Pascasarjana IKIP Jakarta, 1986.
140. Taylor, A.W., and Landry, Fernand.: *The Scientific Aspects of Sports Training.* USA: Charles C. Thomas Publishers, 1975.
141. Tibbits, G., Koziol, B.J., Roberts, N.K. Baldwin, K.M., and Barnard, R.J.: Adaptation of the rat myocardium to endurance training. *J.Appl.Physiol.*, 1978;44(1): 85-89.
142. Tipton, C.M., R.D. Matthes, and D.S. Sandage.: Measurement of Junction Strength and Ligament Elongation in Rats. *J.Appl.Physiol.*, 1974;37:758.

143. Verduci, Frank M.: Measurement in Physical Education. St. Louis, Toronto, London: The CV Mosby Company, 1980.
144. Weiner, J.S., and Lourie, J.A.: Human Biology. London: Oxford University Press, 1969.
145. Wilmore, J., Royce, J., Girandola, R., Katch, F., and Katch, V.: Body composition changes with a 10-week program of jogging. Med.Sci.Sports, 1970;2(3):113-117.
146. Wilt, F.: Training for competitive running. In Falls, H. (ed.): Exercise Physiology. New York, Academic Press, 1968;395-414.
147. Winder, W.W., Hagberg, J.M., Hickson, R.C., Ehsani, A.A., and McLane, J.A.: Time course of sympathoadrenal adaptation to endurance exercise training in man. J.Appl.Physiol., 1978;45(3):370-374.
148. Yasir, Yasmeyny.: "Segi Fisiologi dari Latihan Fisik dan Akibat-akibatnya." Surabaya: Majalah Ilmu Faal Indonesia. 1986;(Th. 1 No. 1): 23-54.

LAMPIRAN-LAMPIRAN

DAFTAR SMA NEGERI DI KOTAMADYA SURABAYA

Tahun 1986 dan Tahun 1987

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Nama Sekolah	Alamat
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SMA Negeri 1	Jalan Wijayakusuma
SMA Negeri 2	Jalan Wijayakusuma
SMA Negeri 3	Kawasan Kenjeran
SMA Negeri 4	Jalan Darmahusada
SMA Negeri 5	Jalan Wijayakusuma
SMA Negeri 6	Jalan Pemuda
SMA Negeri 7	Jalan Ngaglik
SMA Negeri 8	Jalan Belakang Penjara
SMA Negeri 9	Jalan Jimerto
SMA Negeri 10	Jalan Jemursari
SMA Negeri 11	Kompleks Perumnas Tandes
SMA Negeri 12	Benowo
SMA Negeri 13	Lakarsantri
SMA Negeri 14	Tenggilis Mejoyo, Rungkut
SMA Negeri 15	Dukuh Mananggal, Wonocolo
SMA Negeri 16	Panjangjiwo, Rungkut
SMA Negeri 17	Semolowaru
SMA Negeri 18	Kompleks IKIP Ketintang

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TABLE FOR DETERMINING NEEDED SIZE  $S$  OF A RANDOMLY CHOSEN SAMPLE FROM A GIVEN FINITE POPULATION OF  $N$  CASES SUCH THAT THE SAMPLE PROPORTION  $p$  WILL BE WITHIN  $\pm .05$  OF THE POPULATION PROPORTION  $P$  WITH A 95 PERCENT LEVEL OF CONFIDENCE<sup>1</sup>

$N$	$S$	$N$	$S$	$N$	$S$
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000	384

Note:  $N$  is population size;  $S$  is sample size.

1. Krejcie, R. V. and Morgan, D. W. Determining sample size for research activities, *Educational and Psychological Measurement*, 1970, 30, 607-610.

## B I O D A T A

### A. Identitas

1. Nama : \_\_\_\_\_ ( L )
2. Tempat/Tg.Lahir : \_\_\_\_\_ / \_\_\_\_\_
3. Alamat Rumah : \_\_\_\_\_
4. Sekolah : Kelas Satu SMA Negeri 4 Surabaya
5. Nomor Induk : \_\_\_\_\_

### B. Status Kesehatan

1. Antropometrik :
  - Tinggi badan = \_\_\_\_\_ cm Lebar bahu = \_\_\_\_\_ cm
  - Berat badan = \_\_\_\_\_ kg Lingkar dada = \_\_\_\_\_ cm
  - Tebal lemak kulit \_\_\_\_\_ Lingkar perut = \_\_\_\_\_ cm
  - a. Lengan = \_\_\_\_\_ mm Panjang tungkai = \_\_\_\_\_ cm
  - b. Bawah skapula = \_\_\_\_\_ mm Panjang lengan = \_\_\_\_\_ cm
  - c. Perut = \_\_\_\_\_ mm
2. Pernah menderita penyakit berat : Ya ( ) Tidak ( )
  - a. Nama penyakit yang diderita : \_\_\_\_\_
  - b. Dirawat di rumah ( )
  - c. Dirawat di rumah sakit ( )
  - d. Lamanya perawatan : \_\_\_\_\_ hari, \_\_\_\_\_ bulan

### C. Kegiatan Sehari-hari

1. Sekolah :
  - a. Berangkat ke sekolah atau pulang dari sekolah :

. berjalan kaki .....	SS	S	KK	J	TP
. bersepeda .....	SS	S	KK	J	TP
. bersepeda motor sendiri..	SS	S	KK	J	TP
. bersepeda motor diantar..	SS	S	KK	J	TP
. naik kendaraan umum/bemo.	SS	S	KK	J	TP
. naik kendaraan umum/bus..	SS	S	KK	J	TP
. _____	SS	S	KK	J	TP
  - b. Dari rumah ke sekolah jaraknya = \_\_\_\_\_ kilometer  
dan ditempuh dalam waktu = \_\_\_\_\_ jam \_\_\_\_\_ menit
2. Kegiatan di Rumah :
  - a. Waktu untuk belajar disediakan = \_\_\_\_\_ jam.
  - b. Waktu untuk membantu orang tua disediakan = \_\_\_\_\_ jam
  - c. Membantu orang tua dalam kegiatan :
    - . mengisi bak kamar mandi dengan air sumur ( )
    - . membersihkan ruangan dan halaman rumah ( )
    - . \_\_\_\_\_ ( )
3. Kegiatan di luar Rumah :
  - a. Melakukan olahraga : \_\_\_\_\_ = \_\_\_\_\_ jam
  - b. Menjadi anggota Perkumpulan Olahraga : \_\_\_\_\_  
Ya ( ) Tidak ( )
  - c. \_\_\_\_\_ ( )

Surabaya, \_\_\_\_\_ 1986.

HASIL TRY OUT SENAM KESEGERAN JASMANI

No.	Nama	: 1	: 2	: 3	: 4	: 5	: 6	: 7	: 8	: 9	: 10
1	138 NHP	156	156	162	174	168	174	180	174	180	186
2	139 EWA	150	156	156	168	162	168	174	168	168	174
3	140 AWO	144	150	156	162	156	162	168	162	168	174
4	141 ASO	156	162	168	180	174	180	186	180	180	186
5	142 THE	150	150	156	168	162	168	174	168	174	174
6	146 MSN	150	156	162	174	168	174	180	174	180	186
7	147 SRI	144	150	150	162	162	168	168	168	174	180
8	148 DMI	150	156	156	162	162	168	174	168	174	180
9	149 DKN	144	150	150	162	162	168	168	162	162	174
10	150 APO	156	162	168	174	168	174	174	168	174	180
11	151 DPS	144	150	156	162	156	162	168	162	168	174
12	152 SBO	150	156	162	168	162	168	174	168	174	180
13	153 RIR	162	168	174	180	174	180	180	174	180	186
14	154 TGR	156	162	162	174	168	174	174	168	174	180
15	155 AFY	150	144	150	162	156	162	168	162	168	174
16	157 CHS	144	150	150	168	162	162	168	168	168	174
17	158 DTI	144	150	156	162	156	162	168	162	168	174
18	159 MHA	150	162	162	168	168	168	174	168	180	180
19	160 SGW	150	156	162	168	162	168	174	168	174	180
20	161 TKH	144	156	156	162	156	162	168	162	168	174
21	163 ECO	162	168	168	180	174	180	180	174	180	186
22	165 APH	144	150	156	162	156	162	168	168	174	174
23	166 MER	168	174	180	186	180	186	186	180	186	186
24	167 TTI	150	144	156	162	156	162	168	162	168	174
25	169 FWS	150	150	162	168	162	168	168	162	162	174
26	170 JON	168	174	174	186	180	186	186	180	180	186
27	171 ATR	156	162	168	174	168	174	180	174	174	186
28	172 GTS	144	150	150	162	156	162	168	168	168	174
29	173 BSP	162	168	174	180	174	180	180	174	186	186
30	174 RIP	144	150	156	162	156	162	168	162	168	174
31	175 AMH	150	156	162	168	162	162	168	162	162	174
32	177 IKP	156	162	162	174	168	174	174	168	174	180

HASIL TRY OUT CIRCUIT TRAINING

No.	Nama	: 1	: 2	: 3	: 4	: 5	: 6	: 7	: 8	: 9	: 10
1	138 RHP	150	156	156	168	168	174	174	174	180	180
2	139 EWA	150	150	162	168	162	162	168	168	174	180
3	140 AWO	150	150	162	168	162	162	174	168	168	174
4	141 ASO	150	162	162	174	174	180	180	174	174	180
5	142 THE	156	150	162	168	162	174	174	168	168	174
6	146 MSN	150	162	162	174	168	174	180	180	174	180
7	147 SRI	150	144	162	168	162	168	174	168	168	174
8	148 DMI	144	156	150	162	156	168	174	168	174	180
9	149 DKN	144	144	150	162	156	168	168	162	174	180
10	150 APO	156	168	168	168	168	174	174	162	174	180
11	151 DRS	150	150	162	168	156	162	174	162	168	174
12	152 SEO	144	156	156	168	152	168	174	168	174	174
13	153 RIR	162	162	174	174	168	180	174	168	174	186
14	154 TGR	150	162	156	174	168	168	174	168	174	180
15	155 APY	144	150	150	162	156	168	168	174	168	174
16	157 CWS	150	150	156	168	162	168	174	168	174	180
17	158 DTI	144	156	156	162	162	162	168	152	168	174
18	159 MHA	150	162	156	168	168	168	180	174	174	180
19	160 SGW	156	156	168	168	162	162	174	168	174	174
20	161 TKH	144	150	156	162	156	162	174	162	174	180
21	163 ECO	156	168	162	174	168	174	174	168	180	186
22	165 APH	150	150	162	168	162	162	168	168	174	180
23	166 MER	162	174	174	180	174	180	180	174	186	186
24	167 TTI	144	150	150	168	162	162	168	168	168	174
25	169 PWS	156	150	168	168	162	168	168	162	174	180
26	170 JON	168	168	174	180	174	180	186	174	180	186
27	171 ATR	150	162	162	174	168	168	180	174	174	180
28	172 GTS	144	156	150	168	162	168	174	168	168	174
29	173 BSP	162	162	174	174	174	180	180	174	180	186
30	174 RIP	150	150	162	168	156	168	174	162	168	174
31	175 AMH	144	156	156	168	162	168	168	162	168	174
32	177 IKP	156	162	168	174	168	174	168	174	174	180



HASIL PENGUKURAN ANTROPOMETRIS KELOMPOK 1

No.:	Nama :	um :	T.H.:	B.B.:	LL:	LS:	LP:	L.B.:	LBI :	LDE :	LP:	P.T.:	PL
1	1 ASO	16	162	42,5	3	3	3	38,5	79,5	72	70	94	75,5
2	2 MSB	17	166	44,5	2	3	4	39	77,5	71	63	97	74
3	3 MSA	16	156	43	3	3	3	37,5	81	76	64	98	71
4	4 SRI	17	160	54	4	3	3	40	83	79	69	98	77
5	5 BAT	16	162	45	5	3	2	39,5	78,5	73	68	99	72
6	7 KWS	16	165	49	2	3	2	38,5	82	76	66	102	74
7	10 BBN	15	165	54,5	4	6	2	38	80	74	70	100	76,5
8	11 DKO	16	173	51	3	3	2	39	82	75	67	107	80,5
9	12 FIN	15	173	56	6	4	2	41	85	79	75	106	84
10	13 TSO	16	162	45	3	6	3	38,5	78	72	66	102	74
11	14 RAI	16	152	41	2	3	2	36	79	73	64	96	70
12	15 LIO	16	162	42	2	4	2	38	76	71	60	100	71
13	16 FKN	16	160	41	2	4	2	37	77	73	66	95	70
14	17 IHS	16	165	58	5	10	4	43	89,5	83	76	99	71
15	18 AYR	17	164	45	4	4	2	38	79	73	62	105	69
16	19 APO	16	162	49	2	6	3	39	80	75	63	99	71,5
17	20 WDS	17	157	45	2	4	2	34	77	71	59	86,3	74,5
18	21 RTP	16	165	45	2	8	2	39	73	70	65	98,4	76
19	44 TSO	15	170	56	2	8	4	40,2	84	78	67	102	78,5
20	25 DPU	16	160	43	3	5	3	40,5	82	75	66	95	72
21	26 KCO	15	159,5	44	3	5	4	38	78	71	61	95	73,5
22	27 MNI	16	157	40	4	5	2	35,7	76	71	61	92,5	69,5
23	28 HMO	18	157,5	42	2	4	2	35,7	75	70	46	90	67,5
24	30 TSO	16	162	46	4	7	4	39,5	78	73	64	96	72,5
25	32 RHS	16	160	37	3	3	1	34,5	72	66	60	97	70,5
26	33 DPO	15	160	43	2	4	1	37,5	77	69	63	96	72
27	34 MCR	15	159	44,5	3	6	3	37,9	80	74	63	82	72,5
28	35 MAN	16	160	45	3	6	3	38,5	77	70	64	94	70
29	36 APO	17	160	45	2	6	2	40	81	76	64	99	72,7
30	37 WKM	16	170	50	5	8	2	36,5	84	76	67	102	73
31	39 SWO	16	162	54	5	8	3	40	84	78	71	93	73
32	40 ENO	16	164	46	3	4	2	39	80	74	65	96	72
33	42 AJO	16	170	49,5	3	6	2	41	84	75	66	103	79,5
34	43 NRI	16	170	55	4	6	3	36,5	85	78	70	104	80
35	45 HHS	16	163,3	51	4	6	3	38,6	81,5	75,5	63	100,8	75,6
36	46 JHU	17	162	44	4	6	5	38	78	72,5	59	96,3	71,6
37	48 ASO	16	156	39	3	4	2	36,1	77	70	58	92,7	72,1
38	49 HSS	16	167,8	46	3	7	3	37,8	80	75	59	101	77,8
39	51 ARJ	16	169	48	3	7	4	39,5	83,5	76	60	99	74,7
40	52 ASO	17	162	48	3	7	3	35,8	78,5	73	57	98	75
41	56 JPA	16	153	35	3	5	2	34,2	73	65	60	89	69,7
42	57 BBN	16	153	41	3	4	2	33,8	76	71	63	93	69,3
43	58 KRC	16	168	50	6	7	3	38,7	83	77,5	64	96,8	73,8
44	59 SWO	16	170	50	4	5	2	38,7	81,5	76	60	104,5	79,8
45	60 THO	16	162	42	4	4	2	36,6	79,5	72	59	93,7	71,7
46	61 ESS	15	154,4	45	3	6	3	36,3	84,5	77,5	61	91,2	69
47	62 JSD	16	153,8	42	7	6	5	35,8	78	73	63	92,8	72,2
48	63 BPO	15	164	48	3	6	3	38,5	80	74	61	98,8	75,8
49	64 PPO	16	163	50	5	10	3	38,9	80	76	66	97,8	74,5
50	65 AYE	16	160	43	4	6	3	35,9	79	73	60	94	71,7

HASIL PENGUKURAN ANTROPOMETRIS KELOMPOK II

No.:	Nama	Um	T.B.:	B.B.:	LL:	LS:	LP:	L.B.:	LDI	LDE	LP:	P.T.:	P.L	
1	66	DIY	16	167	55	6	9	4	42	85	77	68	99	75
2	67	BWO	15	165	46	6	8	5	38	81	74	59	100	75
3	68	ABP	16	168	58	4	6	6	40,5	87	81	68	103	75,5
4	70	BHA	17	164	50	6	8	4	36,5	77	72	58	101	71,5
5	71	ZAN	16	170	51	5	6	4	40	82	76	58	99	73
6	72	DPO	16	166	53	3	5	4	41	90	83	66	102	75
7	73	RAW	16	148	43	3	7	6	33	82,5	72,5	54	98	70
8	74	AJR	16	159,5	43	4	7	3	35,5	76,5	70	59	97	71
9	75	BSO	16	157	45	3	6	4	34	76	71	60	92	70
10	76	KSG	16	166	50	7	6	7	37	81	74	61	101	76
11	77	AFE	16	170	61	4	7	4	42	89	81	67	105	76
12	78	AHN	16	155	45	7	7	6	35,5	76	72	57	91	67,5
13	81	KYO	17	160	47	8	8	7	37,5	82	74	62	95	69
14	82	SDO	16	170	60	7	10	4	39,8	90	81	67	103	75
15	83	TSO	16	163	53	4	7	5	38,5	86	78	59	98	71
16	84	AKO	16	164	45	5	6	3	35,5	80	71	56	99	75
17	85	DYN	15	153	42	6	9	4	35	82	76	60	94	66
18	86	BWO	15	160,5	45,5	4	6	3	35,5	82	73	57	93	70
19	88	JAM	16	171	50	4	9	5	38	79	74	61	100	75
20	89	AIO	15	163	47	5	9	7	36,5	78	71	62	92	70
21	90	ASI	17	166,7	50	8	8	5	43	81,5	75	68	100	76
22	91	HYO	16	161	55	8	8	5	41	83	79	71	93	73
23	92	EBA	18	157	49	4	7	4	41	86	79	68	92	73
24	93	BAO	16	165,3	48	3	9	6	42	85	80	65	103	74
25	94	DSW	17	164	50	9	8	5	35	82,5	77,5	67	91	70
26	95	NHO	16	159	43	4	6	4	35,8	77	72	57	96,7	73,8
27	96	RAP	16	159	43,5	9	7	5	34,8	78	71	59	97	72,5
28	97	THT	16	150	36	4	6	3	35	79,5	67	61	90	67
29	98	DES	16	167,5	51	5	8	3	37	83	78	66	104	74
30	99	SCO	16	159,6	46	4	6	5	36,4	77	69	50	98,8	72,5
31	100	IWI	17	153,2	45	5	7	4	40	78	73	66	92	71
32	102	MIS	16	171,3	67	7	9	7	40	92,5	86	74	104	78
33	104	ABI	16	168,8	43	4	8	6	38,8	77	71,5	59	103,8	74,5
34	107	MRH	15	163,3	55	10	9	6	42	85	77	73	98	75
35	108	MYO	16	162	41	5	7	4	36	78	71	62	99	72
36	110	SRI	16	159	43	3	6	3	34,8	79	72	59	92	73
37	111	NWI	16	163,5	45	6	7	3	38,5	80	76	60	95	74,3
38	114	HPO	17	166,5	50	3	6	3	35,2	82	73	60	96	75
39	115	SWA	16	169,9	41	4	6	3	36,5	75	68	52	105	77
40	116	ASO	16	164	45	3	5	3	35,7	74	68	55	99	78
41	117	HIO	16	167,6	49	3	5	2	39,3	83	73	58	99	77
42	118	YYO	15	154,8	38,5	4	6	3	35	74	69	57	92	72
43	119	HCO	16	160	46	3	8	3	38	79	74	59	95	75
44	123	ARY	16	150	37	4	5	3	34	75	68	56	88	65
45	125	JMN	16	155	45	4	6	3	35,3	80	73	57	91	70
46	126	SRO	16	157,2	36,5	2	3	2	32,7	74	69	59	95	74
47	127	THN	16	162	43	3	6	3	35,8	77	72	59	95	75
48	128	MHP	16	157	42	3	4	2	36,5	77	70	60	91	71
49	130	BPO	16	164	53	3	5	3	40,6	86	78	62	97	77
50	133	YAS	16	165	50	4	5	2	36,5	80	73	59	97	73

HASIL LATIHAN KELOMPOK 1

Pre-Test --- C.T. --- Post-Test 1 --- B.K.J. --- Post-Test 2

No.	N a m a	Vertical J.			Shuttle Run			Trunk Flexion			Step Test		
		1	2	3	1	2	3	1	2	3	1	2	3
1	1 ASO	50	56	50	11,2	10,0	9,7	18,5	19,5	23,0	68	80	80
2	2 MSB	60	65	57	11,2	10,2	9,9	6,0	8,0	9,0	74	80	76
3	3 MSA	51	54	52	11,0	10,0	10,3	10,0	11,5	13,0	68	72	66
4	4 SRI	55	65	63	11,0	10,0	10,0	6,0	13,0	15,0	66	76	70
5	5 BAT	52	63	61	10,8	9,8	9,6	14,5	18,5	19,0	76	80	82
6	7 KWS	59	64	63	10,5	10,0	9,7	10,0	14,6	16,0	76	84	84
7	10 BWN	40	49	45	11,0	10,0	10,2	8,5	11,0	17,5	86	92	92
8	11 DKO	59	67	62	10,9	10,1	10,2	10,5	12,5	16,0	72	80	74
9	12 FIN	57	59	55	10,3	10,0	9,5	12,5	14,0	14,0	76	76	82
10	13 TSO	49	55	52	10,8	10,2	9,7	17,0	18,1	20,0	74	82	80
11	14 RAI	53	62	58	10,8	10,0	9,1	13,5	18,0	22,0	82	82	66
12	15 LIO	55	63	59	10,8	9,9	9,8	16,5	17,0	17,0	66	78	74
13	16 FKN	45	50	50	11,0	10,0	9,9	12,5	18,0	21,5	74	76	70
14	17 IHS	50	54	50	10,9	10,0	9,6	13,0	18,0	20,0	76	78	78
15	18 AYR	55	60	60	11,3	9,5	9,4	5,5	7,0	10,0	78	86	76
16	19 APO	53	58	54	10,3	10,0	9,9	15,5	18,8	22,0	68	74	78
17	20 WDS	58	65	62	9,9	9,5	9,5	8,5	11,0	19,0	80	86	78
18	21 RPP	46	52	49	10,7	10,6	10,9	12,0	12,5	13,5	66	76	74
19	44 TSO	57	63	60	11,0	10,1	9,6	9,5	11,0	13,5	76	82	74
20	25 DPU	64	68	66	10,2	9,2	9,5	17,0	18,5	19,5	72	88	86
21	26 KCO	38	46	45	11,0	10,2	10,4	9,0	9,5	9,5	64	74	68
22	27 MNI	48	56	50	10,3	9,8	10,0	10,0	11,0	12,0	76	80	76
23	28 HMO	47	54	47	11,0	10,8	10,0	11,0	15,0	15,0	68	80	72
24	30 TSO	45	50	48	11,0	10,5	10,2	13,5	14,5	14,5	68	78	72
25	32 RHS	45	53	45	10,5	10,0	10,2	10,5	11,5	12,0	82	84	76
26	33 DPO	58	62	60	9,9	9,5	9,6	12,0	16,0	17,0	80	80	78
27	34 MCR	45	51	50	10,5	10,0	10,1	15,5	17,0	20,0	78	80	80
28	35 MAN	59	64	56	9,9	9,9	9,3	20,0	22,0	23,0	68	74	70
29	36 APO	60	65	56	10,8	9,5	9,5	17,0	13,0	15,5	76	82	78
30	37 WKM	50	58	52	10,8	10,0	10,1	8,0	9,3	12,0	70	80	76
31	39 SWO	53	59	54	10,5	10,2	10,1	12,5	15,5	15,5	80	82	70
32	40 ENO	62	68	64	10,0	9,4	9,6	11,5	12,5	14,0	70	86	78
33	42 AJO	51	56	52	10,5	9,8	9,8	9,5	9,7	10,5	76	80	76
34	43 NRI	58	62	60	10,8	9,5	9,8	18,0	19,0	19,0	82	90	84
35	45 HHS	52	57	48	11,0	10,0	9,9	16,0	17,0	19,0	76	84	80
36	46 JHU	55	62	60	12,1	10,8	9,9	10,0	13,0	14,5	74	78	70
37	48 ASO	47	53	50	11,5	10,5	10,3	4,5	7,0	8,5	80	80	72
38	49 HSS	53	63	60	10,0	10,5	9,1	13,5	14,0	18,0	76	78	68
39	51 ARJ	55	62	58	10,2	9,5	9,7	14,5	16,5	18,0	74	84	80
40	52 ASO	44	53	46	10,8	10,0	9,9	7,5	8,5	15,0	70	82	80
41	56 JTA	41	51	46	10,8	10,2	10,5	14,0	15,0	15,5	80	88	86
42	57 BSN	53	57	53	10,6	10,6	10,0	6,0	8,0	13,0	68	80	76
43	58 RNO	51	56	53	10,6	10,1	10,2	21,5	24,0	25,5	76	92	82
44	59 AWO	60	65	59	10,6	10,8	9,8	9,5	9,5	11,0	66	82	74
45	60 THO	48	50	51	12,2	11,0	10,7	10,5	10,5	12,5	68	80	78
46	61 ESO	54	64	57	10,5	10,9	9,3	12,5	12,5	15,0	70	78	74
47	62 JRD	44	46	46	10,5	10,2	9,6	12,0	14,0	17,0	80	90	82
48	63 BPO	57	64	57	10,8	10,2	10,0	21,5	23,5	23,5	76	92	82
49	64 PPO	32	41	37	11,6	11,1	10,3	15,0	16,0	16,0	78	86	78
50	65 AYE	38	46	40	10,7	10,0	10,2	9,5	10,0	19,0	70	86	82

## HASIL LATIHAN KELOMPOK II

Pre-Test --- SKJ. --- Post-Test 1 --- C.T. --- Post-Test 2

No.	N a m a	Vertical J.			Shuttle Run			Trunk Flexion			Step-Test		
		1	2	3	1	2	3	1	2	3	1	2	3
1	66 DEY	53	50	56	10,7	11,0	10,5	17,5	19,5	21,0	76	70	78
2	67 BWO	53	51	54	10,7	11,0	10,6	15,5	16,5	17,5	72	70	76
3	68 ABP	55	53	59	10,4	11,3	10,6	13,5	14,5	17,5	73	71	75
4	70 BHA	57	50	62	10,4	11,5	10,2	10,5	13,0	14,0	60	62	74
5	71 ZAN	56	55	60	10,4	11,8	10,3	12,5	13,0	13,5	75	79	83
6	72 DPO	54	51	57	10,4	10,9	10,1	14,2	15,0	18,0	85	83	87
7	73 RAW	57	53	59	10,6	10,9	10,1	11,5	12,0	12,0	70	71	75
8	74 ACR	42	36	45	11,0	11,5	10,5	6,5	7,5	11,0	81	81	85
9	75 BSO	52	49	53	10,8	11,5	10,4	15,0	17,5	19,0	64	66	72
10	76 KSG	43	39	46	11,0	11,5	10,2	14,0	16,0	18,0	72	78	82
11	77 AFE	57	57	61	10,3	11,0	10,1	10,5	12,0	12,0	77	75	83
12	78 AHN	49	49	54	11,1	11,4	10,5	9,0	10,0	12,0	81	79	85
13	81 KTO	47	47	52	10,9	12,4	10,5	18,5	21,0	23,0	85	85	87
14	82 SDO	60	60	64	10,8	12,0	10,6	18,0	21,0	22,0	73	71	77
15	83 TSO	53	56	63	10,5	11,2	10,2	14,0	17,0	18,0	72	60	76
16	84 AKO	49	53	57	10,8	11,5	10,4	13,5	15,0	15,0	83	79	85
17	85 DTN	48	46	53	10,5	11,9	10,2	9,5	10,5	11,0	74	72	88
18	86 BWO	57	53	61	10,4	11,6	10,2	14,5	17,0	20,5	72	70	76
19	88 JAM	49	46	58	10,7	11,7	10,5	5,5	8,5	9,5	85	81	85
20	89 AIO	51	50	59	10,4	11,5	10,1	16,0	18,0	18,5	72	64	80
21	90 ASI	51	55	62	10,5	10,9	9,9	10,0	12,0	12,0	79	71	79
22	91 HYO	52	48	56	10,5	11,5	10,4	14,0	16,0	16,0	79	83	87
23	92 EBA	53	53	57	10,5	10,8	9,9	16,0	17,5	19,0	85	73	85
24	93 BAO	54	52	58	10,5	10,5	10,4	16,0	19,0	20,0	70	72	78
25	94 DSW	55	43	60	11,4	11,1	10,5	7,0	8,0	11,0	60	64	76
26	95 NHO	43	43	50	10,4	9,5	11,0	9,5	12,0	12,5	75	77	85
27	96 WAP	44	44	52	10,2	10,9	10,5	11,8	13,0	13,0	83	81	85
28	97 THT	47	45	54	10,5	10,6	10,4	13,5	14,0	15,0	77	83	85
29	98 DRS	47	43	53	11,5	11,5	11,0	8,5	9,5	9,5	77	77	79
30	99 SCO	51	47	55	10,7	11,5	10,5	10,0	10,5	10,5	77	77	87
31	100 IWI	48	50	55	11,9	9,7	10,5	16,5	18,5	19,0	72	74	82
32	102 MIS	51	49	55	10,1	10,9	10,4	12,0	13,0	15,0	77	79	85
33	104 ABI	59	57	63	11,1	11,0	10,5	13,5	15,5	17,0	70	74	80
34	107 MRH	48	39	50	10,7	11,0	10,5	10,0	12,5	12,5	62	72	84
35	108 MYO	48	49	54	10,7	10,5	10,0	12,5	17,0	18,0	68	76	88
36	110 SRI	44	46	52	11,5	11,0	10,5	14,5	16,5	18,5	77	75	81
37	111 NWI	47	48	56	10,7	11,0	10,5	6,5	8,5	13,0	73	79	87
38	114 HPO	58	56	61	10,6	11,3	10,4	12,5	14,5	16,5	75	81	87
39	115 SWA	56	48	59	11,0	11,3	10,7	13,0	14,0	15,5	79	81	87
40	116 ASO	45	45	50	10,6	11,0	10,2	12,0	12,5	13,5	66	76	86
41	117 HIO	57	63	70	10,4	10,6	9,8	13,0	15,5	15,5	75	75	81
42	118 YYO	54	52	56	10,6	10,9	10,4	10,5	15,0	15,0	75	73	75
43	119 HCO	56	54	61	10,2	11,2	10,0	5,5	6,5	7,5	77	77	79
44	123 ARY	47	41	49	10,4	11,0	10,1	14,0	17,0	17,5	70	72	74
45	125 JMM	53	53	58	10,5	11,0	10,2	14,5	16,5	19,0	70	72	86
46	126 SRO	44	44	44	10,8	11,0	10,5	7,0	9,0	10,0	64	72	74
47	127 THN	49	48	57	10,7	10,9	10,4	7,0	8,5	9,5	66	64	76
48	128 MHP	54	53	57	10,5	10,6	10,2	16,0	19,0	20,0	77	77	87
49	130 BPO	59	52	62	10,4	11,0	10,1	14,0	15,0	16,0	75	69	77
50	133 YAS	61	57	64	10,5	10,8	10,3	14,5	15,5	17,0	68	69	83

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