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A COMPARISON OF BODY WEIGHT GAIN OF A GROUP  
IN A WEIGHT TRAINING PROGRAM COMPARED TO A GROUP  
IN A PHYSICAL EDUCATION CLASS WITHOUT A WEIGHT TRAINING PROGRAM

by

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## CHAPTER I

### INTRODUCTION

This program of physical development was established with a two fold purpose: (1) To point out to administrators and physical educators that a well organized program of physical weight training is useful and meaningful to high school students, and (2) That this program is in keeping with the aims of physical educators in that it fulfills the ideals of a good physical education program.

1. To develop the organic systems of the body to the end that each individual may live at the highest possible level.

2. To provide opportunities for controlled participation in physical activities that will result in educational experiences.

3. To develop skills in activities and favorable attitudes toward play that will carry over and function during leisure time.<sup>1</sup>

The role of physical educators must be one of helping others realize the importance and place of physical activity in their lives. It must be one of helping them develop physical skills, attitudes, and knowledge so that they can enjoy physical activity and obtain a personal satisfaction and education from participation.

---

<sup>1</sup> Sharmon, Jackson R., Introduction to Physical Education, p. 57.

## STATEMENT OF THE PROBLEM

The purpose of this study was to determine the effects that a rigid weight training program would have on the body weight of adolescent men.

## LIMITATIONS OF THE STUDY

The study group was strictly voluntary and those who joined were interested participants. A period of one school semester, the equivalent of 18 consecutive weeks was determined to be the time period of the study.

The weighing and height determining procedures were followed exactly each time. The height and weight were taken on the same machine each time and it was accurate to  $1/8$  of a pound. The same individual did the weighing and height taking each time.

The participants were all weighed on the same day and were weighed once a month, give or take one day.

Still human error could account for some fluctuations.

Some of the participants were more dedicated workers than others and participated to a greater degree of efficiency.

There were a few instances where the continuity of the workouts were changed.

It is assumed that the questionnaire used was reliable and valid for the purpose of this study, and that all tabulations and recordings made by this investigator were accurate.

## REVIEW OF RELATED LITERATURE

Elvan George, Ralph Evens, Weight Training for Football.  
Cliffs, N. J., Prentice Hall, Inc., 1959.

Many of the ideas for construction of and purchasing of equipment came from this publication. Also, a great deal of time was given to reading their program of weight training and much of their philosophy was adopted.

Samuel Homola, Muscle Training for Athletes. Parker Publishing Company, Inc., West Nyack, New York, 1968.

Many of the procedures followed in teaching the proper techniques of weight lifting were taken from this book. Numerous pictures from their reference were used to give visual instruction to participants.

Bob Hoffman, Better Athletes Through Weight Training. Strength and Health Publishing Co., York, Pennsylvania, 1959.

The reasoning behind isotonic exercise versus any other was taken from this publication. Its philosophy and understanding of weight training was of considerable assistance in putting this program together.

Larry Thristrup, Conditioning Exercise Routines.

This paper on conditioning exercise routines was the basis for the off day training. The days the students were not lifting, this system was used to develop flexibility and conditioning.

## CHAPTER II

### METHODS OF PROCEDURE

#### Selection of Study Subjects

The idea of the study course was circulated by word of mouth. Everyone interested in participating was allowed to join the class. There were no limitations on size, age, or body type, but all had to be in high school between the 9th and 12th grade level. Each participant met with and was counseled individually by the instructor. The only criteria for joining the study group was interest.

#### Selection of the Control Group

The control group was a random choice group taken from three separate physical education classes. There were no stipulations as to size, age, or body type. All were in high school between the 9th and the 12th grade.

## CHAPTER III

### METHOD OF STUDY

#### Instruction Manual

An instruction manual was provided outlining the course, giving a daily and weekly planning break down, a diagram of the floor plan and the weight training stations, and a detailed outline of the conditioning exercise program.

This manual also contained the individual statistics for the weight program and an individual weight and measurement statistical sheet.

In the introduction to the manual reasons were given for this program, what it could mean to the participants, and how it could affect their everyday lives.

Aims of the physical development program and aims of a physical education program as well, were given.

The manual was used as a class guide and class grade book, and furnished all the statistics for the study.

The final page in the manual was a self analysis grade sheet and provided the instructor with insight into each individual as well as a grading system for each.

Appendix A shows a sample of the Program Instruction Manual.

#### The Weight Training Program

Weight training was divided into ten stations. The entire training session took twenty minutes to complete.

Training groups of three for each station were used. Each group started at a different station and rotated on the sound of a whistle at two minute intervals.

A testing procedure was used to determine the amount of weight each individual should use at each station. The weights used varied from station to station.

The criteria used to find the person's proper lifting weight was to have the person be able to complete six repetitions, but be unable to do seven repetitions. The optimum range for weight training was to be able to complete six repetitions and not more than nine repetitions. When an individual was able to repeat the lift nine times he was instructed to add as much weight as necessary to bring his total repetitions back to six.

One set was used at each station. That is, each person moved the weight through a range of motion, the optimum number of times between six and nine repetitions, and did so only one set at a time.

Group instructions were given for each station, where the proper techniques for that station were discussed at length and proper form was demonstrated to the group. After group lessons each individual was offered help at the different stations.

There was no warm up procedure offered or followed.

Weight training days were according to the instruction manual.

#### Conditioning and Agility Program

A program of flexibility exercises and routines was used to maintain the lifters flexibility. Included in this routine were stretching exercises that moved every major muscle group in the body through a range of motion.



Along with these flexibility routines were a group of exercises designed to produce a cardiovascular overload in the individual. By producing this overload of the heart, the stroke volume increased and the rapidity of the heart beat decreased. With this slower heart beat and higher stroke volume the participants were able to circulate a greater volume of blood through the arteries and veins to the muscles.

This free flow of blood in the arteries and veins helps one to become more efficient in removing waste products and replenishing energy stores. Thus fatigue is reduced in the muscles.

This routine of exercises has thirty-one steps or exercises and takes twenty-five minutes to complete. The pace and number of repetitions is variable and is adjusted according to time.

This routine was felt to be necessary to augment and support the heavy resistance exercises of weight training.

## CHAPTER IV

### DISCUSSION

Following is a table showing weight measurement for the study group. The first recordings were in January and the last in May. The five measurements were recorded at the same time of the month and all on the same day of the month.

TABLE I

WEIGHT RECORDING CHART FOR STUDY GROUP  
SHOWING MEASUREMENTS BEFORE AND AFTER TRAINING  
1970

Name	1/19	2/19	3/19	4/19	5/19	Minimum	Maximum	Loss	Gain
Arnold	180	185	190	194	196	180	196		16
Atchison	146	146	147	148	147	146	148		2
Augustine	135	137 $\frac{1}{2}$	138	139	143	135	143		8
Bemis	120	124	126	129	127	120	129		9
Berger	180	180	183	200	200	180	200		20
Billingsley	132	137	140 $\frac{1}{2}$	143	140 $\frac{1}{2}$	132	143		11
Boggs	143	148	150	150	150	143	150		7
Draper	143 $\frac{1}{2}$	143 3/4	145	145	143	143	145		2
Goetz	164	164 $\frac{1}{2}$	169	169	170 $\frac{1}{2}$	164	170 $\frac{1}{2}$		6 $\frac{1}{2}$
Groff	136	140	140	140	141	136	141		5
Gross	164	164	175	171	175	164	175		11
Hammerschmidt	176	176	183	185	185	176	185		9
Harman	132	136	137 $\frac{1}{4}$	136	136	132	137 $\frac{1}{4}$		5 $\frac{1}{4}$
Hayes	185	185	191	199	194	185	199		14

TABLE I (continued)

Name	1/19	2/19	3/19	4/19	5/19	Minimum	Maximum	Loss	Gain
Jacobs	110 $\frac{1}{4}$	110 $\frac{1}{4}$	112	111	111	110 $\frac{1}{4}$	112		1 $\frac{1}{4}$
Japp	166	168	170	174	173	166	174		8
Johnson	115	114	116	119	120	114	120		6
Joy	164	164	165	162 $\frac{1}{2}$	159	159	165	6	
Keegan	160	160	160	165 $\frac{1}{2}$	166 $\frac{1}{2}$	160	166 $\frac{1}{2}$		6 $\frac{1}{2}$
Kisner	107	110	111	112	114	107	114		7
Knoll	153	155	157	162 $\frac{3}{4}$	159 $\frac{1}{2}$	153	162 $\frac{3}{4}$		9 $\frac{3}{4}$
Kuhn	180	182 $\frac{1}{2}$	182 $\frac{1}{2}$	183 $\frac{1}{2}$	185	180	185		5
Lewis	155	156 $\frac{1}{2}$	156 $\frac{1}{2}$		159	155	159		4
Lietz	140	145	151	150	150	140	151		11
Link	148	151	151	159 $\frac{1}{2}$	160	148	160		12
Marler	145	148	151	155	153 $\frac{1}{2}$	145	155		10
McHenry	169 $\frac{1}{4}$	171	175 $\frac{1}{2}$	182	179	169 $\frac{1}{4}$	182		12 $\frac{3}{4}$
McFarland	167	167	171 $\frac{1}{2}$	174	174	167	174		7
O'Gara	200	200	195	192 $\frac{1}{2}$	192 $\frac{1}{2}$	192 $\frac{1}{2}$	200	7 $\frac{1}{2}$	
Pack	142	142 $\frac{1}{2}$	143	146	145 $\frac{1}{2}$	142	146		4
Rhedy	136	138	141	145	145	136	145		9

TABLE I (continued)

Name	1/19	2/19	3/19	4/19	5/19	Minimum	Maximum	Loss	Gain
Schroeder	140	140	142	141 $\frac{1}{2}$	143	140	143		3
Schukman, Kevin	160	161 $\frac{1}{2}$	164	164 $\frac{1}{4}$	165 $\frac{1}{2}$	160	165 $\frac{1}{2}$		5 $\frac{1}{2}$
Schukman, Mark	157	157 $\frac{1}{2}$	159	160 $\frac{1}{2}$	160	157	160 $\frac{1}{2}$		3 $\frac{1}{2}$
Scott, Mike	165	165	169	169	170	165	170		5
Scott, Pat	187	187	187	186 $\frac{1}{2}$	187	186 $\frac{1}{2}$	187		$\frac{1}{2}$
Stremel, Dean	158	161	164	165	171	158	171		13
Sullivan	145	145	145	146	147	145	147		2
Wall, David	163	163	169	174	167 $\frac{1}{2}$	163	174		11
Wall, Tim	202	204	208	211	208	202	211		9
Walters	128	131	131 $\frac{1}{2}$	132	131	128	132		4
Goodwin	150	150	150	150	152 $\frac{1}{2}$	150	152 $\frac{1}{2}$		2 $\frac{1}{2}$
Brungardt	137	142 $\frac{1}{2}$	145	147	146	137	147		10
Werth	127	127	127	128	129 $\frac{1}{2}$	127	129 $\frac{1}{2}$		2 $\frac{1}{2}$

## RESULTS OF THE FINDINGS OF WEIGHT RECORDING CHART FOR THE STUDY GROUP

In the study group there were forty-four members. Of this group forty-one participants showed a weight gain, the average of which was 7.27 pounds. The largest gain registered was 20 pounds, and ranged all the way down to one-half pound gained. One participant stayed at the same weight, and two actually lost weight.

It is important to note, however, that the two who lost weight could easily afford to do so. Their bodies were large and somewhat over weight at the beginning.

A recap showing these weight changes from the beginning of the study to the end, follows.

A complete statistical chart for each participant can be seen in Appendix B. The statistical chart shows height and weight recordings and measurements in inches of the neck, chest, chest expansion, biceps, biceps flexed, forearm, calf and waist.

Also in Appendix B is a graph picturing each participant's weight recordings.

TABLE II  
RECAP OF WEIGHT RECORDING CHART FOR STUDY GROUP

Name	Weight Loss	Weight Gain
Arnold		16
Atchison		2
Augestine		8
Bemis		9
Berger		20
Billingsley		11
Boggs		7
Draper		2
Goetz		$6\frac{1}{2}$
Groff		5
Gross		11
Hammerschmidt		9
Harman		$5\frac{1}{4}$
Hayes		14
Jacobs		$1\frac{1}{4}$
Japp		8
Johnson		6
Joy	6	
Keegan		$6\frac{1}{2}$
Kisner		7
Knoll		$9\frac{3}{4}$
Kuhn		5

TABLE II (continued)

Name	Weight Loss	Weight Gain
Lewis		4
Lietz		11
Link		12
Marler		10
McHenry		12 3/4
McFarland		7
O'Gara	7½	
Pack		4
Rhoedy		9
Schroeder		3
Schukman, Kevin		5½
Schukman, Mark		3½
Scott, Mike		5
Scott, Pat		0
Stremel, Dean		13
Sullivan		2
Wall, David		11
Wall, Tim		9
Walters		4
Goodwin		2½
Brungardt		10
Werth		2½



TABLE II (continued)

Loss Average	6.75	Total Gaining	41
Gain Average	7.80	Total Same	1
Overall Average	7.27	Total Loss	2

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The following Table III is a weight recording chart for the control group showing weight measurements before and after training.

TABLE III

WEIGHT RECORDING CHART FOR CONTROL GROUP  
SHOWING WEIGHT MEASUREMENTS BEFORE AND AFTER TRAINING  
1970

Name	1/19	2/19	3/19	4/19	5/19	Minimum	Maximum	Loss	Gain
Bielman	130	131 $\frac{1}{2}$	130	129	129	131 $\frac{1}{2}$	131 $\frac{1}{2}$	2 $\frac{1}{2}$	
Bieker	146	149	148	149	146	149	149		3
Brull	134	134	137 $\frac{1}{2}$	138 $\frac{1}{2}$	134	138 $\frac{1}{2}$	138 $\frac{1}{2}$		4 $\frac{1}{2}$
Brown	136	136	136 $\frac{1}{4}$	134 $\frac{1}{2}$	134 $\frac{1}{2}$	136 $\frac{1}{4}$	136 $\frac{1}{4}$	1 3/4	
Bustos	109	111	112	114	109	114	114		5
Davidson	134 $\frac{1}{2}$	135	134 $\frac{1}{2}$	133 $\frac{1}{2}$	133 $\frac{1}{2}$	135	135	1 $\frac{1}{2}$	
Dinges	128	130	130 $\frac{1}{2}$	131	128	131	131		3
Dorzweller	122	123 $\frac{1}{4}$	123 $\frac{1}{4}$	122	122	123 $\frac{1}{4}$	123 $\frac{1}{4}$	1 $\frac{1}{4}$	
Eickbush	145	148	151	150	145	151	151		6
Garner	134	137	137	138 $\frac{1}{2}$	134	138 $\frac{1}{2}$	138 $\frac{1}{2}$		4 $\frac{1}{2}$
Gilmore	155	153	156	158	153	158	158		5
Sirirat	100	101 $\frac{1}{2}$	101 $\frac{1}{2}$	103	100	103	103		3
Green	126	129	132 $\frac{1}{2}$	130	126	132 $\frac{1}{2}$	132 $\frac{1}{2}$		6 $\frac{1}{2}$
Groff	138	140	140	141	138	141	141		3
Haas	170	168 $\frac{1}{2}$	166 $\frac{1}{2}$	167 $\frac{1}{2}$	166 $\frac{1}{2}$	170	170	3 $\frac{1}{2}$	

TABLE III (continued)

Name	1/19	2/19	3/19	4/19	5/19	Minimum	Maximum	Loss	Gain
Younger	159	161	160 $\frac{1}{2}$	157 $\frac{1}{2}$	161	157 $\frac{1}{2}$	161	1 $\frac{1}{2}$	
Hewett	162	163	166	165	166	162	166		4
Hiebert	137	142	142	141	142	137	142		5
Kisner	127	129	130	128 $\frac{1}{2}$	130	127	130		3
Klavs, Charles	113	117	115	113 $\frac{1}{2}$	117	113	117		4
Klavs, Darrell	125 $\frac{3}{4}$	127	127 $\frac{1}{2}$	128	128	125 $\frac{3}{4}$	128		2 $\frac{1}{4}$
Johnson	137	137	142	147	147	137	147		10
Knopp	143	147	146 $\frac{1}{2}$	149	149	143	149		6
Kuhn, Ron	130	136	139	136	139	130	139		9
Legleiter	138	141	143	145	145	138	145		7
Leker, Don	114	115	116	118	118	114	118		4
Leiker, Dean	155	158	161	158	161	155	161		6
Longpine	157	160	160	169 $\frac{1}{2}$	169 $\frac{1}{2}$	157	169 $\frac{1}{2}$		12 $\frac{1}{2}$
Mall	141	143	143	142 $\frac{1}{2}$	143	141	143		2
Marlett	111	115	116	116	116	111	116		5
Maska	149	151	148	151	151	148	151		3
Ostrom	117	120	125	125	125	117	125		8

TABLE III (continued)

Name	1/19	2/19	3/19	4/19	5/19	Minimum	Maximum	Loss	Gain
Pfannenstiel, Glen	131	133	134	135	131	135			4
Pfannenstiel, Gordon	147	146	148 $\frac{1}{2}$	148 $\frac{1}{2}$	146	148 $\frac{1}{2}$			2 $\frac{1}{2}$
Pfannenstiel, Greg	122 $\frac{1}{2}$	122 $\frac{1}{2}$	124	123 $\frac{1}{2}$	122 $\frac{1}{2}$	124			1 $\frac{1}{2}$
Quigley	92 $\frac{1}{2}$	95 $\frac{1}{2}$	95	97 $\frac{1}{2}$	92 $\frac{1}{2}$	97 $\frac{1}{2}$			5
Rohr, Conrad	118 $\frac{1}{2}$	120 $\frac{1}{2}$	120	121	118 $\frac{1}{2}$	121			2 $\frac{1}{2}$
Rohr, Frank	138 $\frac{1}{2}$	141 $\frac{1}{2}$	139	137 3/4	137 3/4	141 $\frac{1}{2}$		3 3/4	
Ruder	120	121	129 $\frac{1}{2}$	123	120	129 $\frac{1}{2}$			9 $\frac{1}{2}$
Sarmiento	170	171 $\frac{1}{2}$	173 $\frac{1}{4}$	176	170	176			6
Shoupp	139	147	147 $\frac{1}{4}$	151	139	151			12
Stabb, Gary	103	105 $\frac{1}{2}$	106	105 $\frac{1}{2}$	103	106			3
Williams	106	106	104 $\frac{1}{2}$	105	104 $\frac{1}{2}$	106		1 $\frac{1}{2}$	
Haselhorst	142	145	144	140 $\frac{1}{2}$	140 $\frac{1}{2}$	145		4 $\frac{1}{2}$	

## RESULTS OF THE FINDINGS OF WEIGHT RECORDING CHART FOR THE CONTROL GROUP

The control group was made up of forty-four participants. This group had thirty-five participants gain weight. Their average gain was 4.59 pounds. None of these participants remained at the same weight, and nine participants lost weight. The largest weight gain registered in this group was  $12\frac{1}{2}$  pounds and ranged down to a gain of  $1\frac{1}{2}$  pounds.

The body type of the weight losers could not be described as large and overweight and losses could not be easily afforded. The largest loss was  $4\frac{1}{2}$  pounds and the average loss for this group of nine was 2.55 pounds.

A recap showing these weight changes from the beginning of the study to the end, follows.

A complete statistical chart for each participant can be seen in Appendix C.

Also in Appendix C is a graph picturing each participant's weight recordings.

TABLE IV  
RECAP OF WEIGHT RECORDING CHART FOR CONTROL GROUP

Name	Weight Loss	Weight Gain
Bielman	$2\frac{1}{2}$	
Bieker		3
Brull		$4\frac{1}{2}$
Brown	$1\frac{3}{4}$	
Bustos		5
Davidson	$1\frac{1}{2}$	
Dinges		3
Dorzweiler	$1\frac{1}{2}$	
Eickbush		5
Garner		$4\frac{1}{2}$
Gilmore		5
Poysak		3
Green		$6\frac{1}{2}$
Groff		3
Haas	$3\frac{1}{2}$	
Younger	$1\frac{1}{2}$	
Hewett		4
Heibert		5
Kisner		3
Klavs, Charles		4
Klavs, Darrell		$2\frac{1}{4}$
Johnson		10

TABLE IV (continued)

Name	Weight Loss	Weight Gain
Knopp		6
Kuhn, Ron		9
Legleiter		7
Leiker, Don		4
Leiker, Dean		6
Longpine		12½
Mall		2
Marlett		5
Maska		3
Ostrom		8
Pfannenstiel, Glen		4
Pfannenstiel, Gordon		2½
Pfannenstiel, Greg		1½
Quigley		5
Rohr, Conrad		2½
Rohr, Frank	3 ¾	
Ruder		9½
Sarmeinto		6
Shoupp		12
Stabb, Gary		3
Williams	1½	
Haselhorst	4½	

TABLE IV (continued)

Loss Average	2.55	Total Gaining	35
Gain Average	5.11	Total Same	0
Overall Average	4.59 gain	Total Loss	9

---

---



## CHAPTER V

### ACTIVITY SURVEY FOR CONTROL GROUP

In order to make a better evaluation of the physical activity of the control group a survey was taken of the participants.

It was deemed important to know the extent of exercise and the amount of physical labor done by the group during this study period. Ten questions dealing with exercise, physical activity, and physical labor were asked. The answers to these questions were recorded and tabled for a clear response and possible explanation of why some of the control group were able to gain weight so fast.

The control group was divided at this time to present a good picture. This division was based on those that gained weight during the study and those that lost weight during this period.

Appendix D shows an example of the questionnaire used.

Table V shows the results of the questionnaire survey for the control group who gained weight.

TABLE V

An Activity Survey of those in the control group who gained weight in the period of study. Total -- #35.

1. What kind of physical condition are you in?	<u>No.</u>	<u>%</u>
Excellent	3	9
Good	19	54
Fair	13	37
Poor	0	0
2. Do you follow a program of exercise?		
Regularly	9	26
Often	4	11
Sometimes	17	49
Not at all	5	14
3. Do you exercise?		
Daily	11	31
Bi-Weekly	7	20
Weekly	7	20
Not at all	10	29
4. How physically active are you?		
Exhaustingly	5	14
Very	24	69
Little	6	17
Not at all	0	0

5. Do you follow a program with the exergenie?	<u>No.</u>	<u>2</u>
Exhaustingly	0	0
Very hard	3	9
Easy	0	0
Not at all	32	91
6. Do you follow a program of weight training?		
Exhaustingly	1	3
Very hard	4	11
Easy	8	23
Not at all	22	63
7. Do you have a job and is it physically:		
Exhausting	4	11
Hard	8	23
Average	11	31
Not at all	12	34
8. Do you do chores at home and are they physically:		
Exhausting	5	14
Hard	7	20
Average	18	52
Not at all	5	14
9. Do you have a class in Physical Education and is it:		
Exhausting	2	6
Hard	3	9
Average	24	69
Not at all	6	17

10. Do you participate in a spring sport and is it physically:

	<u>No.</u>	<u>%</u>
Exhausting	2	6
Hard	5	14
Average	6	17
Not at all	22	63

RESULTS OF CONTROL GROUP WEIGHT GAINING  
MEMBERS ACTIVITY SURVEY

Of those that gained weight 9% said they were in excellent shape. Fifty-four percent indicated their physical condition as good and 37% said that they were in fair shape, while 0% thought they were in poor condition.

In answer to the question, do you follow a program of exercise, 26% answered that they followed an exercise program regularly, while 11% said they did so often and 49% indicated that they sometimes followed a program of exercise and 14% did not follow one at all.

When asked do you exercise daily 31% said they did, 20% said they did so bi-weekly, and 20% said they exercised weekly while 29% did not exercise at all.

In reply to the question, how physically active are you, 14% said that they were exhaustingly active while 69% replied very active and 17% thought they were only a little physically active and 0% said they were not at all physically active.

In an effort to find out how, if at all, these people exercised we asked how many of you follow a program of exercise with the exergenie and to what extent do you exercise. Zero percent said they followed their program exhaustingly and 9% said they worked very hard while 0% worked easy and 91% did not work at all.

Along these same lines we asked how many follow a weight training program. Three percent said they worked exhaustingly with weights, 11% said they worked very hard, and 23% thought they worked easy and 63% did not work at all.

To determine how active these people were away from their school activities we asked about their job and whether it was a physically active job. Eleven percent thought of their job as physically exhausting while 23% thought of their particular job as hard and 31% indicated their job as average and 34% answered they did not have a job.

In response to do you do chores at home and are they physical chores, 14% answered that their chores were exhausting, 20% thought of them as hard and 52% said they were just average while 14% said they did none.

All of this control group was in a Physical Education class and we wanted them to rate their class as to whether it was physically hard on them and to what degree. Six percent answered that it was exhausting, 9% said it was hard, 69% thought of it as average, and 17% said that it was not all physical.

Our last question dealt with participation in a spring sport - track, baseball, tennis, golf, etc. - and we asked whether they felt that their sport was physically exhausting or easy and to what degree. Six percent said their sport was exhausting to them while 14% answered that it was hard and 63% answered that they were not out for a spring sport.

Table VI, the results of the activity survey of those who lost weight in the period of study, follows.

TABLE VI

An Activity Survey of those in the control group who lost weight in the period of study.

	<u>No.</u>	<u>%</u>
1. What kind of physical condition are you in?		
Excellent	1	11
Good	6	67
Fair	2	22
Poor	0	0
2. Do you follow a program of exercise?		
Regularly	2	22
Often	1	11
Sometimes	4	44
Not at all	2	22
3. Do you exercise?		
Daily	4	44
Bi-Weekly	1	11
Weekly	2	22
Not at all	2	22
4. How physically active are you?		
Exhaustingly	2	22
Very	6	67
Little	1	11
Not at all	0	0

5. Do you follow a program with the exergenie?	<u>No.</u>	<u>%</u>
Exhaustingly	0	0
Very hard	2	22
Easy	1	11
Not at all	6	67
6. Do you follow a program of weight training?		
Exhaustingly	0	0
Very hard	0	0
Easy	5	56
Not at all	4	44
7. Do you have a job and is your job physically:		
Exhausting	0	0
Hard	2	22
Average	5	56
Not at all	2	22
8. Do you do chores at home and are they physically:		
Exhausting	0	0
Hard	3	33
Average	5	56
Not at all	1	11
9. Do you have a class in Physical Education and is it physically:		
Exhausting	1	11
Hard	0	0
Average	5	56
Not at all	2	22



10. Do you participate in a spring sport and is it physically:

	<u>No.</u>	<u>%</u>
Exhausting	1	11
Hard	0	0
Average	1	11
Not at all	7	78

## RESULTS OF THE CONTROL GROUP WEIGHT LOSING MEMBERS ACTIVITY SURVEY

For those that were in the control group and lost weight we asked the same questions. Of those that lost weight 67% indicated their physical condition as good and 22% said they were in fair shape while 0% thought they were in poor condition.

In answer to the question, do you follow a program of exercise, 22% answered that they followed an exercise program regularly, while 11% said they did so often and 44% indicated that they sometimes followed a program of exercise and 22% did not follow one at all.

When asked do you exercise daily 44% said they did, 11% said they did so bi-weekly and 22% said they exercised weekly while 22% did not exercise at all.

In reply to the question, how physically active are you, 22% said that they were exhaustingly active while 67% replied very active and 11% thought they were only a little physically active and said they were not at all physically active.

In an effort to find out how, if at all, these people exercised we asked how many of you follow a program of exercise with the exergenie and to what extent do you exercise. Zero percent said they followed their program exhaustively and 22% said they worked at theirs very hard while 11% worked easy and 67% did not work at all.

Along these same lines we asked how many follow a weight training program. Zero percent said they worked exhaustingly with weights, 0% said they worked very hard and 56% thought they worked easy and 44% did not work with weights at all.

To determine how active these people were away from their school activities we asked about their job and whether it was a physically active job. Zero percent thought of their job as physically exhausting while 22% thought of their particular job as hard and 56% indicated their job as average and 22% indicated they did not have a job.

In response to do you do chores at home and are they physical chores, 0% answered that their chores were exhausting, 33% thought of them as hard and 56% said they were just average while 11% said they did none.

All of this control group was in a Physical Education class and we wanted them to rate their class as to whether it was physically hard on them and to what degree. Eleven percent answered that it was exhausting, 0% said it was hard, 56% thought of it as average and 22% said that it was not all physical.

Our last question dealt with participation in a spring sport, track, baseball, tennis, golf, etc., and we asked whether they felt that their sport was physically exhausting or easy and to what degree. Eleven percent said their sport was exhausting to them while 0% answered that it was hard and 11% thought it was just average and 78% answered that they were not out for a spring sport.

## SUMMARY OF RESULTS

Of the 44 members of the study group tested, 41 gained weight, 1 remained the same and 2 lost weight. The average weight gained was 7.27 pounds per man. Using only those who gained weight the average gain per man was 7.80 pounds.

In the control group of the 44 members tested, 35 gained weight, none of the members stayed the same and 9 lost weight. The over-all average gain was 4.59 pounds and using only those who gained as a measure, they recorded a 5.11 pound gain.

Of significant importance is the fact that of the 35 weight gaining members of the control group, 63% said they were in good or excellent shape and 26% followed a regular program of exercise. Fifty-one percent exercised twice a week or more and 83% said they were very active physically.

Of special importance is the fact that 9% followed a program of exergerie very hard and 37% followed some program of weight training in varying degrees from easy to exhaustingly hard. Also of significance, 37% of the control group were involved in a spring sport to varying degrees from average to exhausting.

All of these facts would help to show significant gains among the control group members.

## CHAPTER VI

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### Summary

Eighty-eight people took part in this study. Forty-four were in the study group, which was all voluntary, and forty-four were in the control group, which was a random selection from required Physical Education classes.

An effort was made to determine to what extent a weight training program would affect the body weight of the participants.

In the study group, 41 participants showed a weight gain, the average of which was 7.27 pounds. The largest gain registered was 20 pounds, and they ranged all the way down to 2 pounds gained. One participant stayed at the same weight, and two actually lost weight.

It is important to note, however, that the two who lost weight could easily afford to do so. Their bodies were large and somewhat over weight at the beginning.

In comparison, the control group had only 35 participants gain weight. Their average gain was 4.59 pounds. None of these stayed the same, and 9 participants lost weight. The largest weight gain registered in this group was  $12\frac{1}{2}$  pounds and ranged down to a gain of  $1\frac{1}{2}$  pounds.

The body type of these weight losers could not be described as large and overweight, and the losses could not be easily afforded. The biggest loss was  $4\frac{1}{2}$  pounds, and the average loss for this group of 9 was 2.55 pounds.

In the study group the two who lost averaged 6.75 pounds, lost with losses of 6 and  $7\frac{1}{2}$  pounds respectfully.

### Conclusions

It is felt that there was a significant weight gain among the study group with fully 30 participants outgaining the over-all average of the control group. The losses registered in the study group were warranted by body size and type.

It may also be noted that the number of losers in the control group was significant, and that body size and type did not indicate a need for loss of weight.

Weight training can make a contribution to weight gain and loss, and it can play a big role in development of an overall physical education program.

### Recommendations

A good look at the objectives of a physical education program will show that a well rounded program should include physical weight training and conditioning. It will also show that this is in keeping with the aims of good physical education programs.

Healthy individuals will gain at an accelerated rate when weight training under controlled supervision is provided.

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## APPENDIX A



INSTRUCTION MANUAL  
PHYSICAL DEVELOPMENT  
PROGRAM

HAYS HIGH SCHOOL

HAYS

KANSAS

JOHN E. SALAVANTIS

INSTRUCTOR

SPRING, 1970

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## INTRODUCTION

This program of physical development has been developed to increase your physical size and measurements and to help you realize your ideals of the well-built physical male. It will increase your desire to be seen by others and to participate in areas where you may have previously been a spectator. We hope that through this program of rugged discipline and hard work that you will develop good habits that will carry over to the classroom and to your everyday lives.

As Americans we are living in a society where automation has greatly decreased physical labor, and where leisure time is not a luxury. Americans are in danger of becoming a nation of spectators and sitters, a soft core hiding behind a smooth veneer of outstanding athletes and professional competitors.

The place to begin changing these habits is in our schools. But it is questionable whether most school physical education programs are programs of physical education or whether they are just programs of physical activity.

The aims of a physical education program should be:

1. To develop the organic systems of the body to the end that each individual may live at the highest possible level.
2. To provide opportunities for controlled participation in physical activities that will result in educational experiences.
3. To develop skills in activities and favorable attitudes toward play that will carry over and function during leisure time.

If we meet these aims in our schools, then the worthy use of our leisure time will be a direct result. No longer will we need be

spectators, instead we can become participants. The feelings of boredom, of frustration, of killing time, and of "What can I do to occupy myself?" will not be a part of our lives. Rather we will experience the joy and excitement of participation, learning and growing.

PHYSICAL DEVELOPMENT  
WEEKLY PLANNING BREAKDOWN

Beginning Date

- 1-19-70 Weigh in, take measurements and hand out manual
- 1-20-70 Orientation to weight training program
- 1-21-70 Demonstration of each weight station
- 1-22-70 Orientation to agility and conditioning program
- 1-23-70 Demonstration and explanation of each exercise in agility program

First Six Weeks

1-26-70 to 2-27-70

Weight Training	Monday-Wednesday-Friday
Conditioning and Agility	Tuesday-Thursday

Second Six Weeks

3-2-70 to 4-10-70

Weight Training	Tuesday-Thursday
Conditioning and Agility	Monday-Wednesday
Fun	Friday

Third Six Weeks Is Divided Into Two Sections

First Section

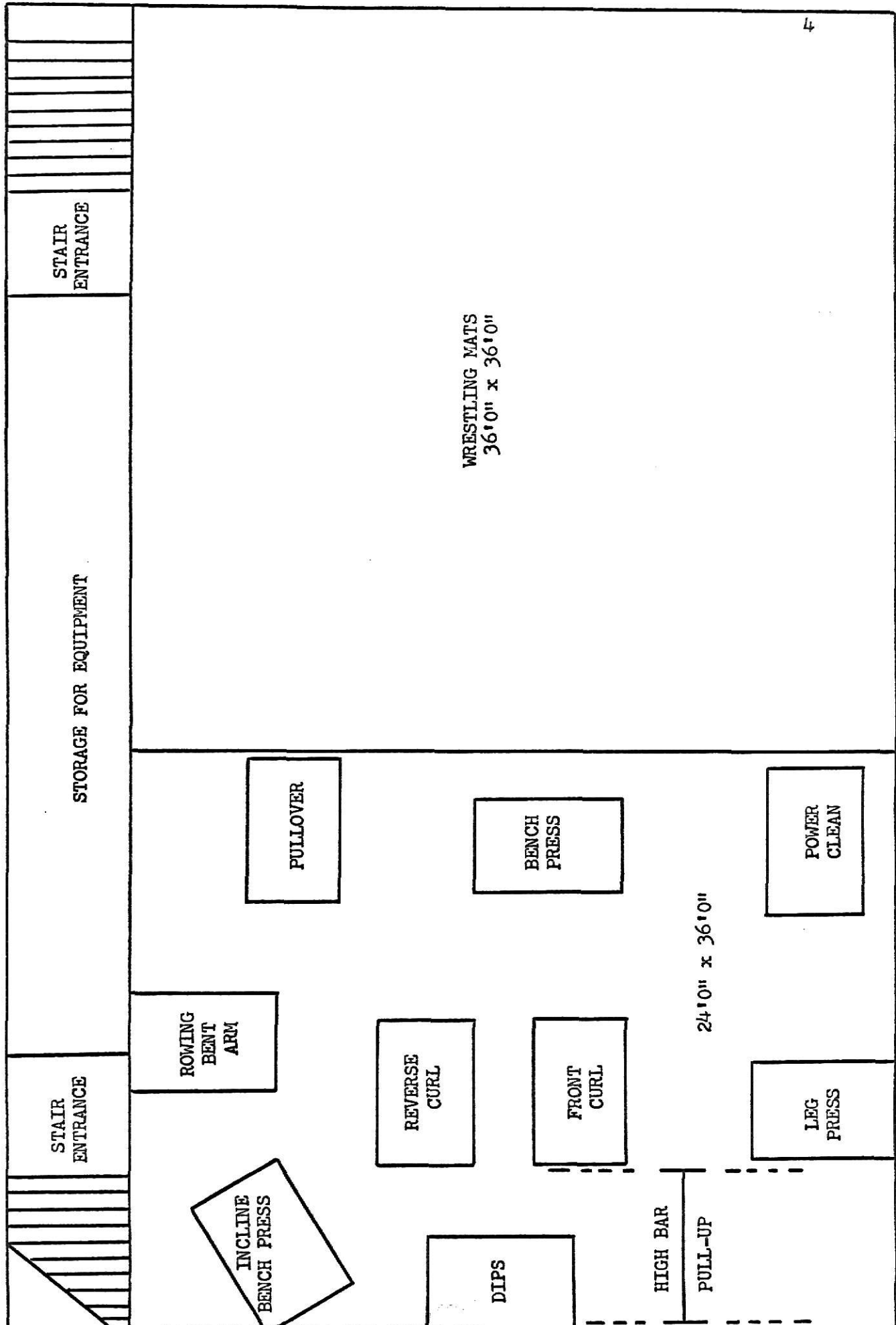
4-17-70 to 5-8-70

Weight Training	Monday-Wednesday-Friday
Conditioning and Agility	Tuesday-Thursday (Weather permitting outdoors)

Second Section

5-11-70 to 5-30-70

Weight Training	Tuesday-Thursday
Conditioning and Agility	Monday-Wednesday
Fun	Friday



## WEIGHT TRAINING

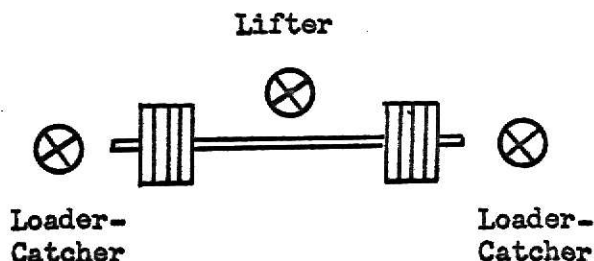
The weight training circuit will take twenty minutes to complete. There will be three people per group and they will have exactly two minutes at each exercise station.

We will work six repetitions with maximum weight. When we can complete nine repetitions with that amount of weight we will add as much weight as necessary to return to the maximum of six repetitions.

Our program is set up in ten stations. At station one we use the "Bent Arm Rowing" lift, at station two is a "Straight Arm Pullover from a Neck Bridge". At three is the "Bench Press," then on to the "Power Clean" lift. Next we have the "Leg Press", followed by the "Pull Up", with shoulder harness, then "Dips", also with shoulder harness. We then move to the "Incline Bench Press", followed by the "Front Curl", and last the "Reverse Curl".

With three people working in a group they must work together and in a hurry if they are going to complete each exercise station on time.

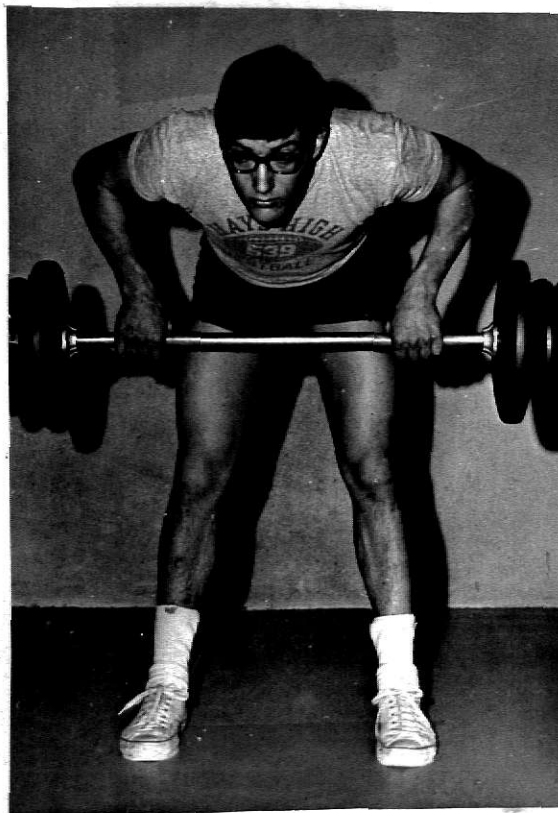
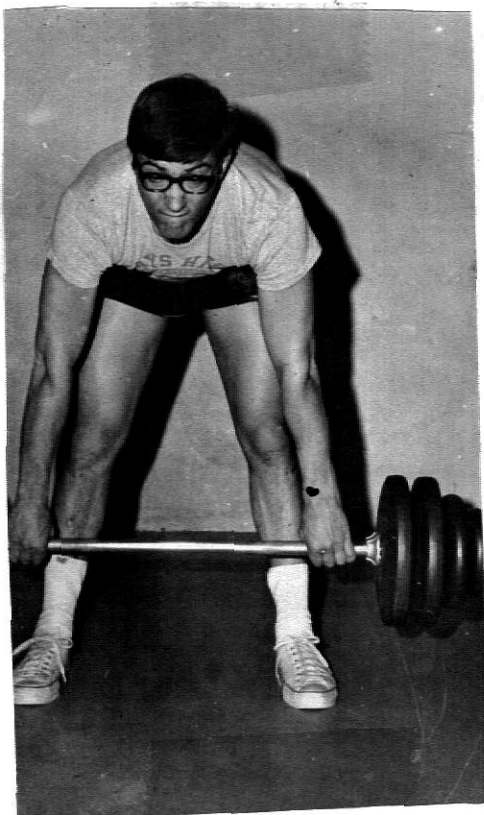
Each individual must know the exact amount of weight he is using. The lifter steps to the bar at the station and directs his two partners, the spotters, on how much weight is needed. They immediately complete the task of weighting the bar correctly. During the lift they will provide a margin of safety by spotting for the lifter.



# Bent Arm Rowing Station 1

Lifter step to the bar and tell spotters amount of weight needed. Then with feet a little wider than shoulders and slightly under the bar, and bending from the waist, place your forehead in the hands of a spotter who has moved to the front. Without bending the knees move the bar from the floor to the chest and with a slight rowing motion forward back to the floor, repeat six times. Switch people and repeat exercise, adjusting the weight for each person.

Try to keep your legs from bending and keep a straight back, horizontal with the floor. Touch the bar to your chest each time and do not drop the weight to the floor.



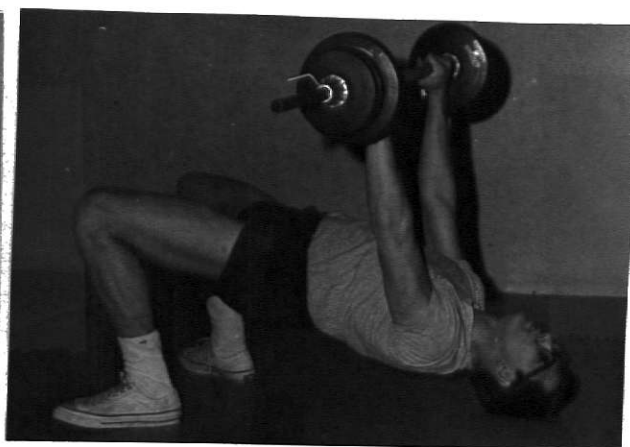
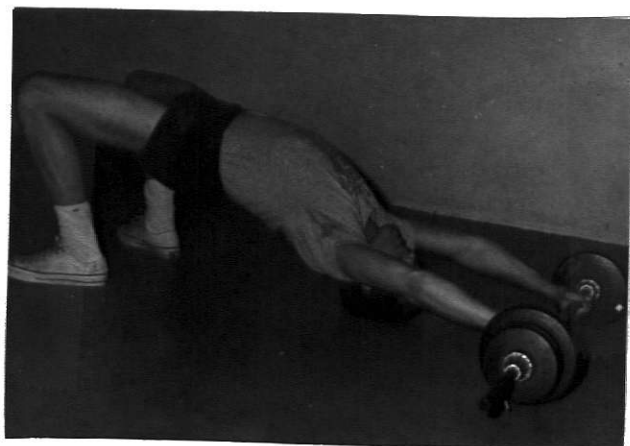


Straight Arm Pullover  
Neck Bridge  
Station 2

Lifter lies on his back and extends his arms over his head palms up. After adjusting the weights the spotters take hold of each side of the bar. After the lifter has bridged to a neck position he motions for the bar which the spotters move into his reach. Spotters now move to a kneeling position a little to the front of the lifter's head. Their hands follow the bar but do not touch it.

The lifter moves the bar with straight arms to a position directly above his head and then back to the original position without dropping the bar. Repeat and switch people.

Spotters be attentive and follow the bar closely ready to assist if needed.



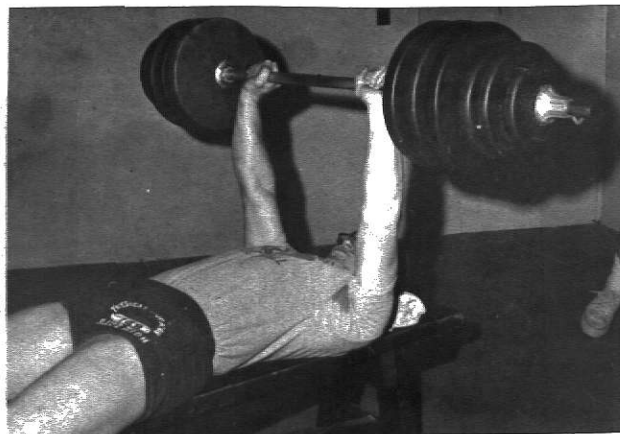
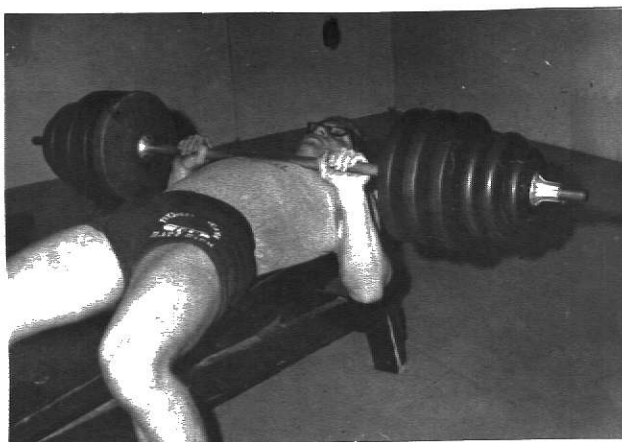
### Bench Press Station 3

Spotters step to sides of bar and adjust weights according to lifter's instructions.

Lifter lies on his back on bench feet firmly planted on floor and extends his arms above his head palms up ready to accept the weights. When he nods spotters will lift bar together and move up to place bar in hands of lifter. Spotters do not let go of bar until lifter oks it, then follow the movement but do not touch the bar.

Lifter bring the bar down to the chest and push it back to the original position. By arching your back and pushing with your feet you will gain momentum to move the weights. Repeat six times then spotters take over and lift the bar away and place it back on the floor. Switch people and begin again.

Spotters be positive collars are locked tight and do not release the bar until lifter ok's it.



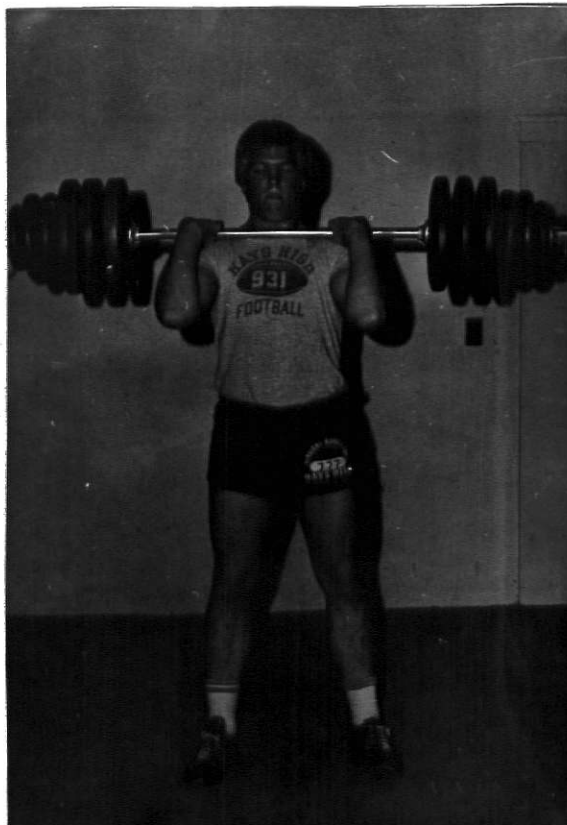
#### Power Clean Station 4

Spotters move to end of bar adjust weights.

Lifter step up to bar feet shoulder width and slightly under the bar. Using an over hand grip get a tight hold on the bar. Your back should be straight and your knees flexed. Spotters should now move to a position even with the lifter and facing forward ready to assist the lifter.

By straightening your legs and pulling with your arms and back move the weight from the floor to your chest in one motion. As you reach the waist position flex under the bar, thrust the elbows forward and break the wrists back. Then by reversing the process, pull the elbows back, break the wrists down, and replace the weight on the floor, as it hits the floor repeat the lift.

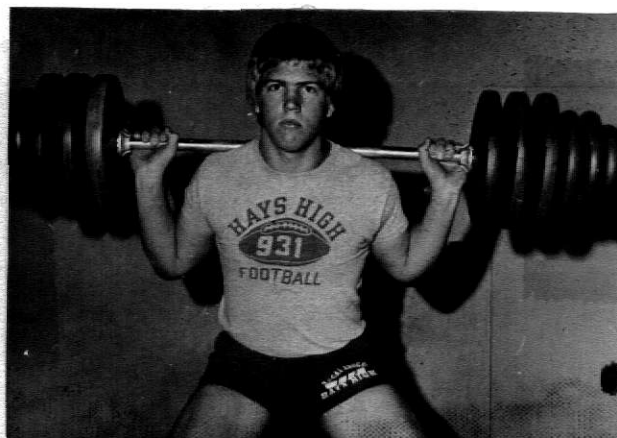
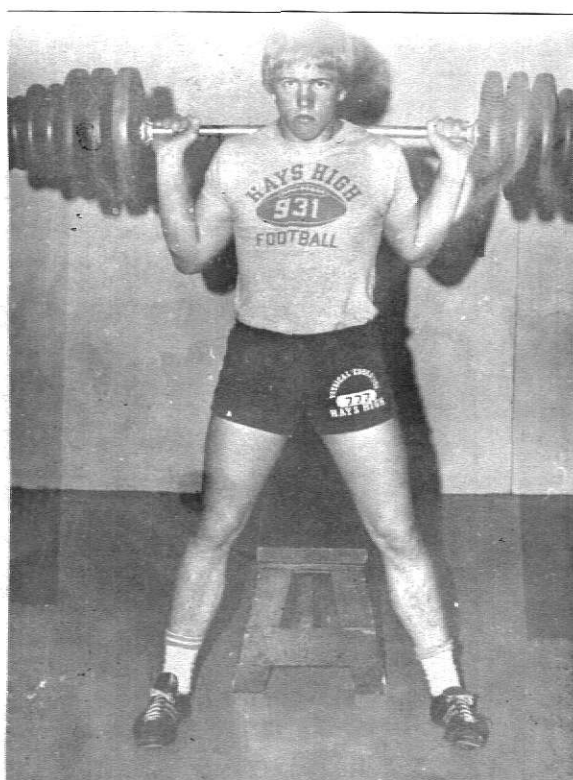
Keep your head up and back straight throughout the lift. Switch people and repeat checking the collars each time.



# Leg Press Station 5

The bar is placed on the shoulders of the lifter by his two spotters. He then does a  $3/4$  squat and presses back up to his original position. He repeats this movement 6 times.

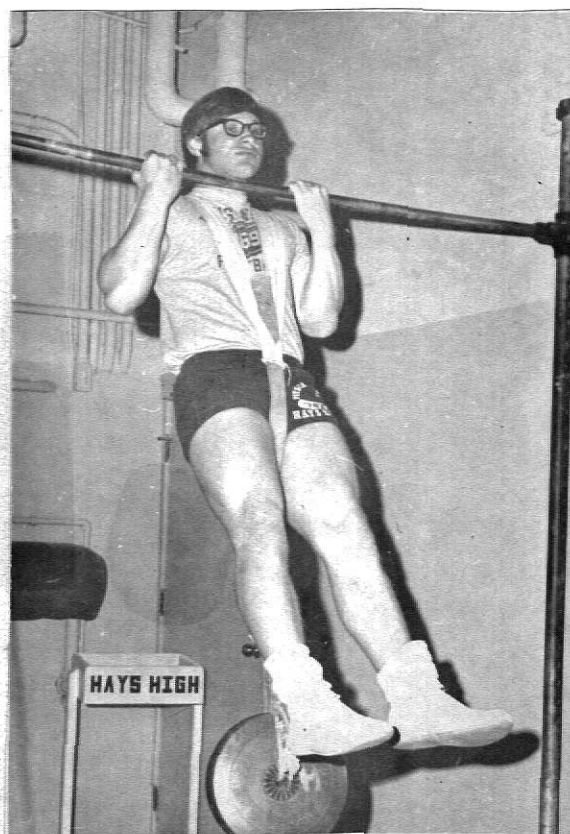
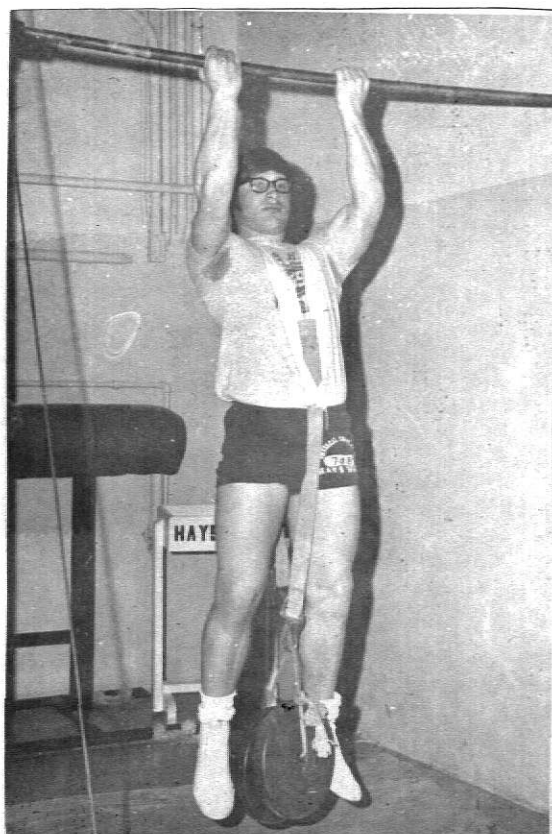
Be sure collars are tightly locked in place before exercising.



## Pull Ups

## Station 6

Spotters assist lifter into shoulder harness and adjust it properly. Spotters then hook the amount of weight indicated by the lifter. Spotters then assist lifter into position and keep him from swinging. Lifter uses an underhand grip on the high bar. Pull yourself up and chin over the bar then full extension of arms back to the original position. Repeat 6 times and switch people.



## Dips

### Station 7

Dips are done on the end of the parallel bars and a harness is used for the weights.

Spotters assist person into harness and hook weights before helping him to a straight arm position on the bars.

Lifter dip until the elbow and upper arm are parallel with the floor, then push up to the original position. Repeat six times. Then spotters help lifter down being careful not to let the weight swing. Switch people and repeat.



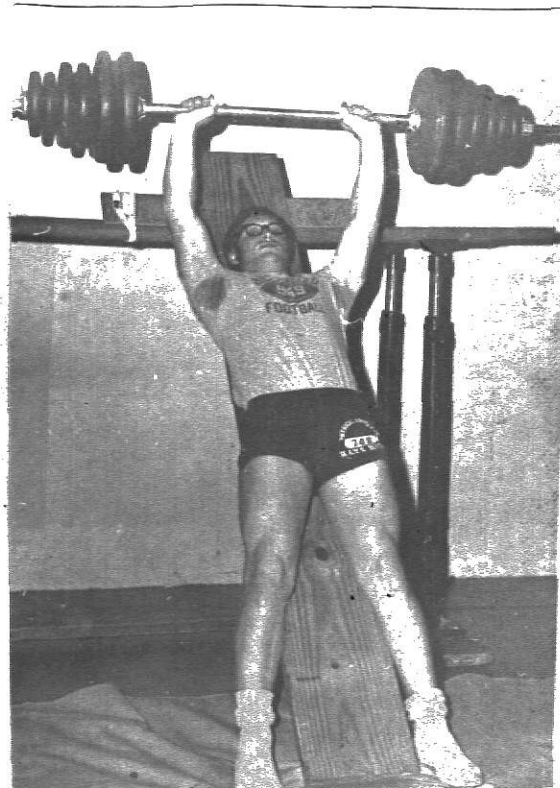
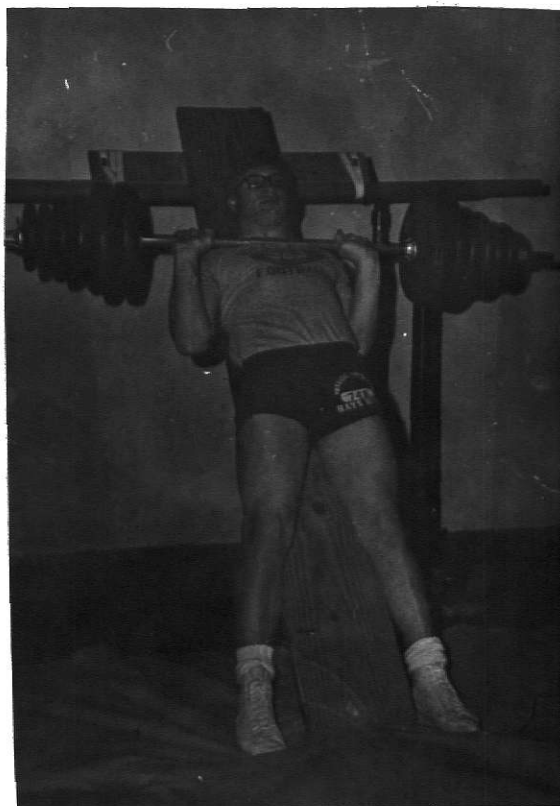
# Incline Bench Press    Station 8

Weights are located on floor in front of incline board. Spotters adjust weights and stand at either end of the bar facing the incline board.

Lifter nods to spotter who lifts the bar chest high and moves to upper end of board. Lifter lies on his back, head high on the board, arms bent in front of his face, palms up. Spotters place bar in his hands and help him to an arms extended position still holding the bar for him. When he is ready, release the bar and follow its motions closely.

Lifter moves bar to the chest and back to an extended arms position, keeping his back flat against the board and his feet firmly on the floor. Repeat and switch people.

Spotters, when removing bar, hold it up right when taking it until lifter has cleared the board; then put it on the floor in front of the board again. Adjust weights for next lifter.



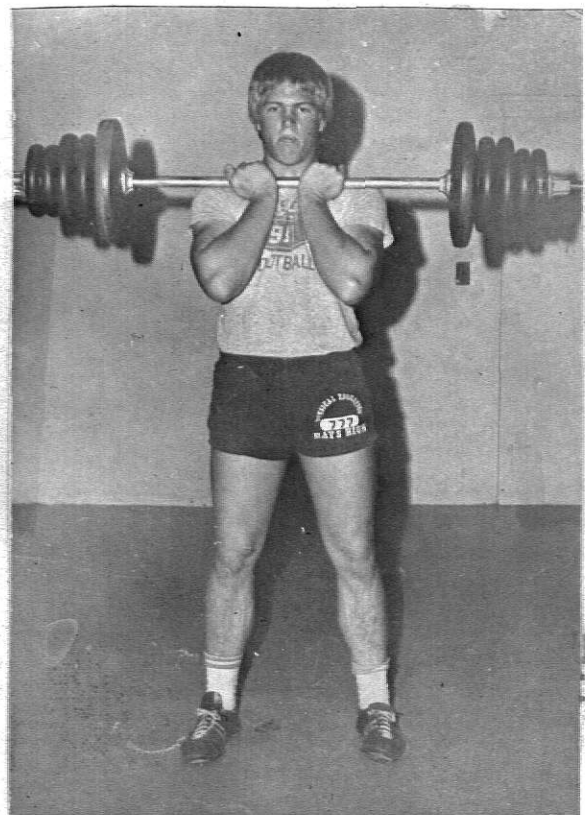
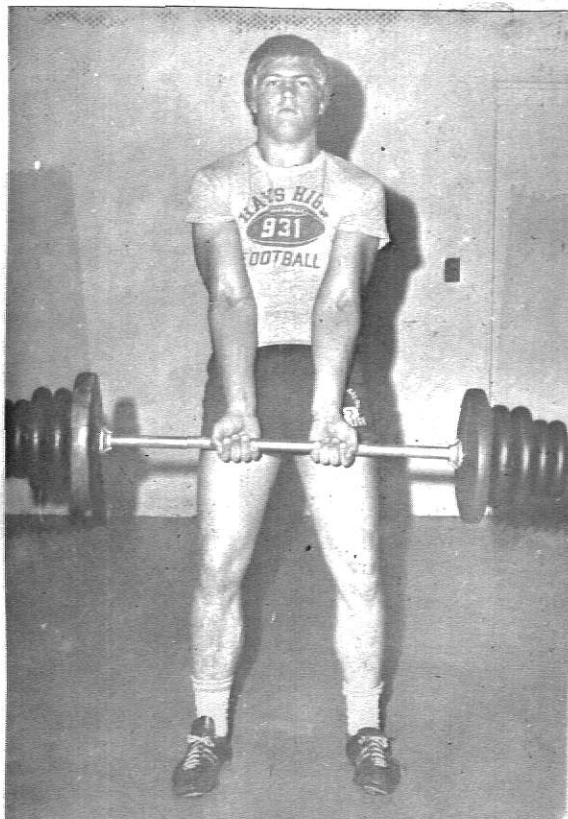


## Front Curl

### Station 9

Spotters stand at either end of the bar and slightly behind lifter.

Lifter feet shoulder width and just under the bar, use an underhand grip and move the bar to the waist. Then curl the arms until bar touches chest and back without dropping it to the waist position. Do not rock or try to gain momentum to move the weight; use only your arms. Replace weight on floor and switch people.



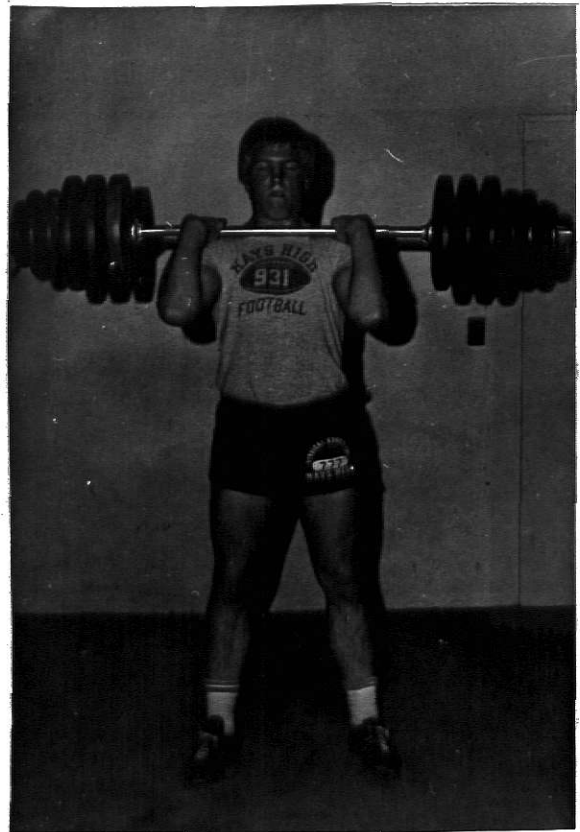
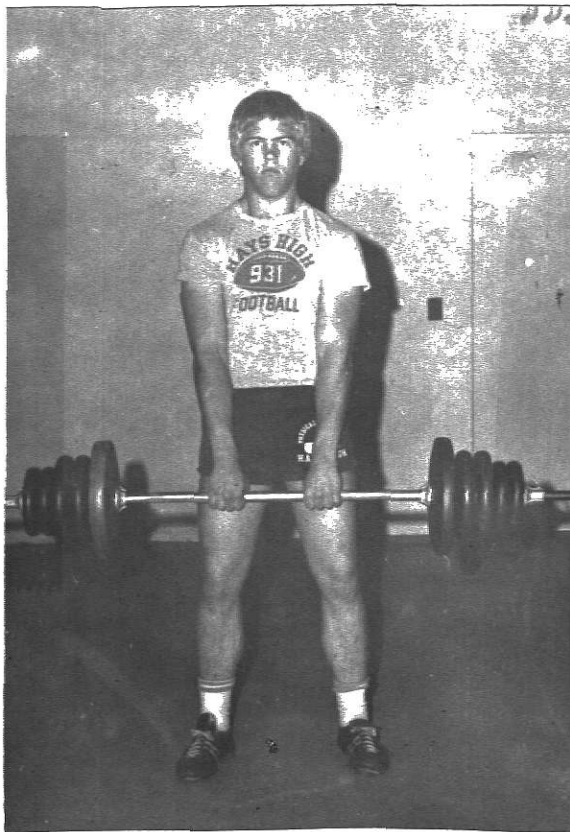


## Reverse Curl

### Station 10

Spotters do the same as in the front curl.

Lifter does everything the same as the front curl but now uses a reverse grip. The lift is executed the same as in the front curl. Repeat the exercise six times and switch people.



## Conditioning Exercise Routines

### Physical Development Class

#### Hays High School

This routine of continuous exercise takes twenty-five minutes to complete. It will exercise vigorously every major muscle group in the body.

These exercises and routines can be included in a program at any level. The variables that you would have in your program based on the age level would be: speed of movement (or cadence that you would have the exercises performed in), number of repetitions, and the time period in which you have them performed.

We begin the exercise program with a warm up. Swing the arms vigorously back and forth, then frontwards and backwards.

1. "Toe toucher"- touch the toes down in between the legs at the count 1-2-3-4.
2. "Goleft and right"- reach down as far as you can with the left hand down the left side, up on 2, down on the opposite side on 3, and back up on 4.
3. "Cardiovascular overloadwork"- easy jog, knees and upper leg parallel with the floor. Faster pace, sprint, jog and repeat.
4. "Hamstring muscle stretch"- step to the left on 1 back up on 2, out to the right on 3, and back up on 4. This will stretch the ham string area and is ideal for developing strength there.
5. "Cardiovascular overload work"- down flat on your belly imitate the breast stroke, coming all the way to the front and slapping the thighs on the down motion. Do as hard as you can. Push up's go as fast as you can 1, 2 1, 2 1, 2. Breast stroke repeat.

6. "Isometric contraction"- lie on belly hands outstretched over head palms down, exert a maximum isometric contraction 3 times for bouts of 6-10 seconds each.
7. "Isometric contraction"- lie on belly arms outstretched at shoulder level palms down. Press down raising the stomach and chest off the floor. Exercise 3 times bouts of 6-10 seconds.
8. "Cardiovascular overload work"- all out swimming breast stroke, push ups fast as you can.
9. "Charger exercise"- sprinters starting position bring knees up to the chest one at a time counting 1-2 1-2 1-2 1-2 and alternating right and left leg.
10. "Leg raisers"- lie on your belly resting your head in folded arms, kick the left leg high, back up over head, don't bend knee then the right leg. Cadence call of up-down up-down.
11. "Cardiovascular overload work"- down on belly and swim all out, now push ups as fast as you can.
12. "Leg raisers from side"- roll over on your right side kick left leg high up over head, knees straight, roll over to other side and repeat to a cadence of up-down, up-down. We will start with five repetitions each leg and work up to twenty.
13. "Cardiovascular overload work"- down and swim, push ups. charger exercise. pushups.
14. "Feet walk up"- from a push up position walk the feet up to the hands and back down repeat 3 times. This loosens the backs of the legs and develops flexibility.
15. "Cardiovascular overload work"- up and jog, faster pace, sprint, jog down and swim.
16. "Abdominal exercise"- on hands and knees suck in the stomach and arch back at same time cadence of up-down, up-down.
17. "Leg raisers from up position"- on hands and knees alternating legs, kick left leg high up over head then the right, keep leg straight, up-down, up-down.
18. "Cardiovascular overload work"- charger exercise alternating legs 1-2, 1-2, 1-2.
19. "Isometric contractions"- lie on your back hands by hips palms down. Press down as hard as you can, repeat # times of from 6-10 seconds each.

20. "Isometric contractions"- lie on your back elbows up at shoulder level press down as hard as you can repeat 3 times and from 6-10 seconds.
21. "Breathing exercise"- lie on back place hands on abdomen, draw in the abdominal muscles to the cadence of in-out, in-out.
22. "Sit ups"- sit up position bring knees and head up at same time, hands behind head, up-down, up-down.
23. "Budge exercise"- lie on back hands folded across the chest, press down with head and heels, lifting everything off the floor except the head and heels. Repeat 3 times and from 6-10 seconds each.
24. Lie on your back with knees flexed, draw in the abdominal muscles and at the same time contract the pelvis, up-down, up-down.
25. Lie on your back hands extended at shoulder length bring the left leg up and over to the right hand, then up and back down. Reverse it for the other leg and arm, up-over, up-down, up-over, up-down.
26. Hands and feet on mat, lift the buttachs muscles as high as possible, up-down, up-down.
27. Stay up on hands and feet, raise the left leg up and back down, then the right leg up and back down, cadence is up-left-down, up-right-down.
28. Sit up and while in a sitting position reach down and take hold of the heels without bending the knees.
29. From sitting position make a fist and place hands just ahead of the bend in the waist, lift the seat high off the mat to a cadence of up-down, up-down.
30. Sit ups from back position bring legs and head up at same time, touch left knee to right elbow, then right knee and left elbow. Repeat exercise at slow cadence for 1 minute about 30 repetitions per minute.
31. "Cardiovascular overload work"- down and swim push up charging exercise up and jog faster pace, sprint, jog for final 30 seconds.

Finish





## SELF-ANALYSIS SHEET

Grade yourself by circling the appropriate level of accomplishment.

	Above Average	Average	Good	Fair	Poor
1. Attendance	5	4	3	2	1
2. Attitude	5	4	3	2	1
3. Total School Performance	5	4	3	2	1
4. Grades	5	4	3	2	1
5. Interest	5	4	3	2	1
6. Initiative	5	4	3	2	1
7. Leadership	5	4	3	2	1
8. Performance	5	4	3	2	1
9. Growth	5	4	3	2	1
10. Ability	5	4	3	2	1
11. Success	5	4	3	2	1

## APPENDIX B



TABLE VII

STATISTICAL CHART OF STUDY GROUPS  
(SHOWING HEIGHT IN INCHES, WEIGHT IN POUNDS,  
AND MEASUREMENTS IN INCHES)

NAME	HEIGHT	WEIGHT	NECK SIZE	CHEST	CHEST EXPANDED	BICEP	BICEP FLEXED	FOREARM	THIGH	CALF	WAIST	DATE
#1	72	180	17	42	43 3/4	12 3/4	14	12	23 1/4	16 1/4	34 1/2	1-19-70
	72	185	17	42	45	13	14 1/4	12	21 1/2	15 1/4	34 1/2	2-
	72	190	17	42 1/2	44 1/2	12 3/4	14 1/4	11 3/4	23 1/4	15 1/2	35 1/2	3-
	72	194	17 1/2	43	45	13	14 3/4	12	23 3/4	16	36	4-
	72	196	17 1/2	42 1/2	44 1/2	13 1/2	15 1/4	12	24 1/4	16 1/4	35 3/4	5-
#2	71	146	15	34 1/2	37 1/2	10	11	9 1/2	19 1/2	15	29	1-19-70
	71	146	14 1/4	35	37 1/2	10	11	9 3/4	20 1/2	14 1/2	30	2-
	71	147	14	34	37	10	11	9 3/4	19 3/4	13 3/4	30	3-
	71	148	14	34 3/4	37 3/4	10 1/4	11 1/4	10	20	13 3/4	30 1/2	4-
	71	147	14 1/4	35	38	10 1/4	11 1/2	10	20 1/2	13 1/2	29 1/2	5-
#3	70	135	14	33 1/2	35 1/2	10	11 1/4	10	18	13 1/4	28	1-19-70
	70 1/4	137 1/2	14 1/4	34	36 1/4	10 1/2	11 3/4	10 3/4	18 1/2	13 1/4	28 1/2	2-
	70 1/2	138	14 1/2	34 1/2	36 1/2	10 1/2	11 3/4	10 3/4	18 3/4	13 1/4	28	3-
	70 1/2	139	14 1/2	34 1/2	36 1/2	10 1/2	12 1/2	11	18 3/4	13 1/4	29	4-
	70 1/2	143	14 1/2	35	37 1/2	11	14 3/4	11 1/4	18 3/4	13 1/2	29	5-
#4	65	120	13 1/8	33	33 1/2	11 1/8	12 1/2	10 1/4	18 1/2	14	28	1-19-70
	65	124	13	31	32 3/4	10 3/4	11 1/2	9 3/4	19 1/4	14 3/4	27	2-
	65 1/4	126	13 1/2	32 1/2	35 1/2	10 3/4	12 1/2	10	19 1/2	13 1/4	28	3-
	66	129	13	32 1/2	35 1/2	11 1/2	12 3/4	10 1/2	20	13 1/2	28 1/2	4-
	66	127	13 1/2	32	35 3/4	11	12 3/4	10 1/2	19 3/4	13 3/4	27 1/2	5-

TABLE VII (continued)

NAME	HEIGHT	WEIGHT	NECK SIZE	CHEST	CHEST EXPANDED	BICEP	BICEP FLEXED	FOREARM	THIGH	CALF	WAIST	DATE
#5	74	180	14 $\frac{1}{2}$	38	40	11 $\frac{1}{2}$	12 $\frac{1}{4}$	10 $\frac{1}{4}$	22 $\frac{1}{2}$	14 3/4	33	1-19-70
	74	180	14 $\frac{1}{2}$	38	40	11 $\frac{1}{2}$	12 $\frac{1}{4}$	10 $\frac{1}{4}$	22 $\frac{1}{2}$	14 3/4	33	2-
	74	183	14 $\frac{1}{2}$	38	40	11 $\frac{1}{2}$	12 $\frac{1}{2}$	10 $\frac{1}{2}$	22	14	33	3-
	74	200	14 3/4	38 3/4	41 $\frac{1}{4}$	11 3/4	12 3/4	10 3/4	22 $\frac{1}{2}$	15	33	4-
	74	200	14 3/4	38 3/4	41 $\frac{1}{4}$	11 3/4	12 3/4	10 3/4	23	15	34	5-
#6	68 $\frac{1}{2}$	132	14 $\frac{1}{2}$	36	40	10 $\frac{1}{2}$	12	10 $\frac{1}{2}$	19 $\frac{1}{2}$	14 $\frac{1}{4}$	29	1-19-70
	68 $\frac{1}{2}$	137	13 3/4	34	37 3/4	10 $\frac{1}{2}$	11 $\frac{1}{2}$	10	19 3/4	13 $\frac{1}{4}$	28	2-
	68 $\frac{1}{2}$	140 $\frac{1}{2}$	14	35	39	11	11 3/4	10 $\frac{1}{2}$	20	13 $\frac{1}{4}$	28 $\frac{1}{2}$	3-
	68 $\frac{1}{2}$	143	14 $\frac{1}{2}$	36	40	10 $\frac{1}{2}$	12	10	19 $\frac{1}{2}$	13 $\frac{1}{2}$	28	4-
	68 $\frac{1}{2}$	140 $\frac{1}{2}$	14 $\frac{1}{2}$	36	40 $\frac{1}{4}$	10 3/4	12 $\frac{1}{4}$	10	20	14	28 $\frac{1}{2}$	5-
#7	67	143	14	34	37	10 $\frac{1}{2}$	12	10 $\frac{1}{2}$	20 $\frac{1}{2}$	15 $\frac{1}{2}$	27	1-19-70
	67	148	14 $\frac{1}{2}$	34	37 $\frac{1}{2}$	11	12 $\frac{1}{2}$	10 $\frac{1}{2}$	20 $\frac{1}{2}$	14 $\frac{1}{2}$	29 $\frac{1}{2}$	2-
	67	150	14 $\frac{1}{2}$	34 $\frac{1}{2}$	37 $\frac{1}{2}$	11	12 $\frac{1}{2}$	11	20	14 $\frac{1}{2}$	29 $\frac{1}{2}$	3-
	67 $\frac{1}{2}$	150	14 $\frac{1}{4}$	35	38 $\frac{1}{4}$	11	12 $\frac{1}{4}$	11	22	14 $\frac{1}{2}$	29	4-
	67 $\frac{1}{2}$	150	14 $\frac{1}{4}$	35	38 $\frac{1}{4}$	11	12 $\frac{1}{4}$	11	22	14 $\frac{1}{2}$	29	5-
#8	70	143 $\frac{1}{2}$	14 $\frac{1}{4}$	35	36 3/4	10 $\frac{1}{2}$	11 $\frac{1}{2}$	10 $\frac{1}{2}$	19 $\frac{1}{2}$	14 $\frac{1}{4}$	30	1-19-70
	70	143 3/4	13 3/4	35	35 $\frac{1}{4}$	10	11 $\frac{1}{2}$	10 $\frac{1}{4}$	19 $\frac{1}{4}$	14 $\frac{1}{4}$	30 $\frac{1}{2}$	2-
	70	143	14	36	37	10	11	10	20	14 $\frac{1}{2}$	29 $\frac{1}{2}$	3-
	70	145	13 $\frac{1}{2}$	35	36 $\frac{1}{4}$	10 $\frac{1}{4}$	11 $\frac{1}{4}$	10	19 $\frac{1}{4}$	14	30 $\frac{1}{4}$	4-
	70	143	14	36	37	10	11	10	20	14 $\frac{1}{2}$	29 $\frac{1}{2}$	5-
#9	67	164	13 3/4	36	37	12	12 $\frac{1}{2}$	10	23	15 $\frac{1}{2}$	34	1-19-70
	67	164 $\frac{1}{2}$	13 3/4	36 $\frac{1}{4}$	37	12	12 $\frac{1}{2}$	10	23 $\frac{1}{2}$	15 $\frac{1}{2}$	34 $\frac{1}{4}$	2-
	67	169	13	36 $\frac{1}{2}$	38	11 3/4	12	10 $\frac{1}{2}$	23 $\frac{1}{2}$	15 $\frac{1}{2}$	34 $\frac{1}{2}$	3-
	67	169	13 3/4	37	39	12	12 $\frac{1}{2}$	10 $\frac{1}{2}$	24	15 $\frac{1}{2}$	35	4-
	67	170 $\frac{1}{2}$	14	37	39	13	13 $\frac{1}{4}$	11	25	15 $\frac{1}{2}$	35	5-

TABLE VII (continued)

NAME	HEIGHT	WEIGHT	NECK SIZE	CHEST	CHEST EXPANDED	BICEP	BICEP FLEXED	FOREARM	THIGH	CALF	WAIST	DATE
#10	69	136	14 $\frac{1}{2}$	36	38	9 $\frac{3}{4}$	11 $\frac{1}{2}$	9 $\frac{1}{4}$	19 $\frac{1}{2}$	13 $\frac{1}{2}$	29 $\frac{1}{2}$	1-19-70
	69	140	14 $\frac{1}{2}$	36 $\frac{1}{2}$	38 $\frac{1}{2}$	10 $\frac{1}{2}$	11 $\frac{3}{4}$	10	20 $\frac{1}{2}$	13 $\frac{1}{4}$	29	2-
	69	140	14 $\frac{1}{2}$	36 $\frac{1}{2}$	38 $\frac{1}{2}$	10 $\frac{3}{4}$	12	10 $\frac{1}{2}$	20 $\frac{1}{2}$	13 $\frac{1}{4}$	29 $\frac{1}{4}$	3-
	69	141	14 $\frac{1}{4}$	36 $\frac{1}{2}$	38 $\frac{1}{2}$	10 $\frac{3}{4}$	12	10	20 $\frac{1}{4}$	13 $\frac{1}{4}$	29 $\frac{1}{2}$	4-
	69	141	14 $\frac{1}{4}$	36 $\frac{1}{2}$	38 $\frac{1}{2}$	10 $\frac{3}{4}$	12	10	20 $\frac{1}{4}$	13 $\frac{1}{4}$	29 $\frac{1}{2}$	5-
#11	69	164	16	39	41	13	14	11 $\frac{1}{2}$	19 $\frac{1}{2}$	15	33	1-19-70
	69	164	16	39	41 $\frac{1}{2}$	12 $\frac{3}{4}$	14	11 $\frac{1}{2}$	21 $\frac{3}{4}$	14 $\frac{1}{4}$	33	2-
	69	175	16	39 $\frac{1}{2}$	41 $\frac{1}{4}$	12 $\frac{3}{4}$	14	12	22 $\frac{3}{4}$	14 $\frac{1}{2}$	33 $\frac{1}{2}$	3-
	69	171	16	40 $\frac{1}{4}$	43 $\frac{1}{4}$	13 $\frac{1}{2}$	14 $\frac{1}{2}$	12 $\frac{1}{4}$	23 $\frac{1}{2}$	14 $\frac{1}{2}$	34	4-
	69	175	16	40	42 $\frac{1}{4}$	13 $\frac{1}{2}$	14 $\frac{3}{4}$	12 $\frac{1}{4}$	23 $\frac{3}{4}$	15	34	5-
#12	58 $\frac{1}{2}$	176	17	38	43 $\frac{1}{2}$	13	15	12 $\frac{1}{4}$	24	16 $\frac{1}{4}$	32	1-19-70
	58 $\frac{1}{2}$	176	17	39 $\frac{1}{2}$	42	13	15	12 $\frac{1}{2}$	24	16	32	2-
	58 $\frac{1}{2}$	183	16 $\frac{1}{2}$	38 $\frac{3}{4}$	44	13 $\frac{3}{4}$	15	12 $\frac{1}{2}$	24 $\frac{1}{2}$	16	33 $\frac{1}{2}$	3-
	58 $\frac{1}{2}$	185	17	40 $\frac{3}{4}$	43 $\frac{1}{2}$	14 $\frac{1}{4}$	15 $\frac{1}{2}$	13	25	16 $\frac{1}{2}$	33 $\frac{1}{2}$	4-
	58 $\frac{1}{2}$	185	17	39 $\frac{1}{2}$	43 $\frac{1}{2}$	14	16	13	25	16 $\frac{1}{2}$	33	5-
#13	68	132	14 $\frac{1}{2}$	34	36	11 $\frac{1}{4}$	12	9 $\frac{3}{4}$	19	14	28 $\frac{1}{2}$	1-19-70
	68	136	14	33	36 $\frac{3}{4}$	11	11 $\frac{3}{4}$	9 $\frac{3}{4}$	19 $\frac{3}{4}$	13	28 $\frac{1}{4}$	2-
	68	137 $\frac{1}{4}$	14 $\frac{1}{4}$	35	36 $\frac{1}{2}$	10 $\frac{3}{4}$	12	10	18 $\frac{3}{4}$	12 $\frac{3}{4}$	28 $\frac{1}{2}$	3-
	68 $\frac{1}{2}$	136	14 $\frac{1}{2}$	34 $\frac{1}{4}$	36 $\frac{1}{4}$	11	12 $\frac{1}{4}$	10 $\frac{1}{4}$	19	12 $\frac{3}{4}$	28 $\frac{1}{2}$	4-
	68 $\frac{1}{2}$	136	14 $\frac{1}{2}$	34 $\frac{1}{2}$	37	11	12 $\frac{1}{2}$	10	20 $\frac{1}{2}$	13	28 $\frac{3}{4}$	5-
#14	70 $\frac{1}{2}$	185	15 $\frac{1}{2}$	39 $\frac{1}{4}$	41 $\frac{1}{2}$	12 $\frac{1}{2}$	14	11	22 $\frac{1}{2}$	16 $\frac{1}{4}$	36	1-19-70
	70 $\frac{1}{2}$	185	15 $\frac{1}{2}$	39 $\frac{1}{4}$	41	12 $\frac{1}{2}$	14	11 $\frac{1}{2}$	24	15 $\frac{1}{4}$	35	2-
	70 $\frac{1}{2}$	191	15	37 $\frac{1}{2}$	39 $\frac{1}{2}$	12 $\frac{1}{2}$	13 $\frac{1}{2}$	11 $\frac{1}{2}$	24	15 $\frac{1}{2}$	35 $\frac{1}{2}$	3-
	71 $\frac{1}{8}$	199	16	40 $\frac{1}{4}$	42 $\frac{3}{4}$	13 $\frac{1}{4}$	14 $\frac{1}{2}$	11 $\frac{3}{4}$	25 $\frac{1}{4}$	16	37	4-
	71 $\frac{1}{2}$	194	16	40 $\frac{1}{4}$	42 $\frac{1}{4}$	12 $\frac{1}{2}$	14 $\frac{1}{2}$	11 $\frac{1}{2}$	25	16	36	5-

TABLE VII (continued)

NAME	HEIGHT	WEIGHT	NECK SIZE	CHEST	CHEST EXPANDED	BICEP	BICEP FLEXED	FOREARM	THIGH	CALF	WAIST	DATE
#15	64	110 $\frac{1}{4}$	13 $\frac{1}{2}$	31 $\frac{1}{2}$	34	9 $\frac{1}{2}$	10	9 $\frac{1}{4}$	17 $\frac{1}{4}$	12 $\frac{1}{2}$	26	1-19-70
	64	110 $\frac{1}{4}$	13 $\frac{1}{2}$	31 $\frac{1}{2}$	34	9 $\frac{1}{2}$	10	9 $\frac{1}{4}$	17 $\frac{1}{4}$	12 $\frac{1}{2}$	26	2-
	64	112	13	32	34	9 $\frac{1}{2}$	10 $\frac{1}{4}$	9 $\frac{1}{2}$	16 3/4	12 3/4	27 3/4	3-
	64 $\frac{1}{2}$	111	13 $\frac{1}{2}$	32	34 $\frac{1}{4}$	9 $\frac{1}{4}$	10 $\frac{1}{2}$	9 3/4	18	12 3/4	28	4-
	64 $\frac{1}{2}$	111	13 $\frac{1}{2}$	32	34 $\frac{1}{4}$	9 $\frac{1}{4}$	10 $\frac{1}{2}$	9 3/4	18	12 3/4	28	5-
#16	72	166	16	36	39	11 $\frac{1}{4}$	13 $\frac{1}{2}$	11 $\frac{1}{2}$	19	15 $\frac{1}{2}$	32	1-19-70
	72	168	15 3/4	35	40	12	14	11 3/4	21 3/4	14 3/4	32	2-
	72	170	15 3/4	37	40	12	14	11 3/4	21 $\frac{1}{2}$	15 $\frac{1}{4}$	32 3/4	3-
	72	174	16	37 $\frac{1}{2}$	41	12 3/4	14 3/4	12	22 3/4	15 $\frac{1}{4}$	32 $\frac{1}{4}$	4-
	72	173	16	38 $\frac{1}{4}$	42	12 $\frac{1}{2}$	14 3/4	12	23	15 $\frac{1}{4}$	32	5-
#17	63 $\frac{1}{4}$	115	13	32	33	10	11	10	20	13	28	1-19-70
	63 $\frac{1}{4}$	114	12 3/4	32 $\frac{1}{2}$	33 3/4	10 1/8	11 $\frac{1}{4}$	10	20	13	27	2-
	63 $\frac{1}{4}$	116	12 3/4	32 $\frac{1}{2}$	33 3/4	10 $\frac{1}{4}$	11 $\frac{1}{4}$	10 $\frac{1}{4}$	20 $\frac{1}{4}$	13	28	3-
	63 $\frac{1}{4}$	119	13	32 $\frac{1}{2}$	33 3/4	10 $\frac{1}{2}$	11 $\frac{1}{4}$	10 $\frac{1}{4}$	20 $\frac{1}{4}$	13 $\frac{1}{4}$	28 $\frac{1}{4}$	4-
	63 $\frac{1}{4}$	120	13	32 $\frac{1}{2}$	33 3/4	10 3/4	11 $\frac{1}{2}$	10 $\frac{1}{2}$	20 $\frac{1}{4}$	13 $\frac{1}{4}$	28 $\frac{1}{2}$	5-
#18	69 5/8	164	15 $\frac{1}{2}$	37	39 $\frac{1}{2}$	12	13 $\frac{1}{4}$	11 $\frac{1}{4}$	20 $\frac{1}{2}$	15 $\frac{1}{2}$	31	1-19-70
	69 5/8	164	15 $\frac{1}{2}$	36 3/4	40	12 $\frac{1}{2}$	13 3/4	11 $\frac{1}{2}$	21 $\frac{1}{2}$	15	30	2-
	69 5/8	165	14 3/4	35 $\frac{1}{2}$	37 3/4	12 $\frac{1}{2}$	13	11 3/4	21 $\frac{1}{2}$	15	29 $\frac{1}{2}$	3-
	69 5/8	162 $\frac{1}{2}$	15	36 $\frac{1}{2}$	38 $\frac{1}{2}$	12 $\frac{1}{2}$	13 $\frac{1}{2}$	11 3/4	21 $\frac{1}{2}$	15	30	4-
	69 $\frac{1}{2}$	159	14 3/4	35 $\frac{1}{2}$	38 $\frac{1}{4}$	12 $\frac{1}{4}$	13 3/4	11 $\frac{1}{2}$	21 $\frac{1}{2}$	15 $\frac{1}{2}$	29 3/4	5-
#19	70 $\frac{1}{4}$	160	15	37	39	12	13	10 $\frac{1}{2}$	21 $\frac{1}{2}$	15 $\frac{1}{2}$	30	1-19-70
	70 $\frac{1}{4}$	160	15	37	39	12	13	10 $\frac{1}{2}$	21 $\frac{1}{2}$	15 $\frac{1}{2}$	30	2-
	70 $\frac{1}{4}$	160	15	37 $\frac{1}{2}$	38 $\frac{1}{2}$	11 3/4	13 $\frac{1}{2}$	10 $\frac{1}{2}$	21 $\frac{1}{2}$	14 3/4	30	3-
	70 $\frac{1}{4}$	165 $\frac{1}{2}$	15 $\frac{1}{2}$	37 $\frac{1}{2}$	39	12 $\frac{1}{2}$	13 3/4	11	22 $\frac{1}{2}$	15	30 $\frac{1}{2}$	4-
	70 $\frac{1}{4}$	166 $\frac{1}{2}$	15 $\frac{1}{2}$	37 3/4	39 $\frac{1}{4}$	12 $\frac{1}{2}$	14	11	22	15	31 $\frac{1}{2}$	5-

TABLE VII (continued)

NAME	HEIGHT	WEIGHT	NECK SIZE	CHEST	CHEST EXPANDED	BICEP	BICEP FLEXED	FOREARM	THIGH	CALF	WAIST	DATE
#20	61	107	12 3/4	31 1/2	34 1/4	9 1/2	10 1/2	9 3/4	19	14	26 1/4	1-19-70
	61	110	13 3/4	32	34	10	11	9 3/4	19	13 3/4	25 1/2	2-
	61	111	12 1/2	32	33 1/2	9 1/4	10 1/4	9 1/2	19	13 1/4	25 1/2	3-
	62	112	12 3/4	31 1/2	33 1/2	9 3/4	10 1/2	9 3/4	19	13 1/4	25	4-
	62	114	13	32	34	9 1/2	11	9 1/2	18	13 1/2	25 1/2	5-
#21	67 1/2	153	16	37 1/2	38 1/2	12	13 1/4	11 1/2	21	15	30	1-19-70
	67 1/2	155	16	38	40 1/2	11 3/4	13 1/2	11 1/2	20 1/2	14 1/4	30	2-
	67 1/2	157	15 3/4	37 1/2	39 1/2	12	13 1/2	11 1/8	21 1/2	14 1/4	29 3/4	3-
	67 1/2	162 3/4	16	37 3/4	39 1/2	13	13 1/2	12	22 1/4	14 3/4	30	4-
	67 1/2	159 1/2	15 1/2	37	41	12 1/2	14	12	22 1/2	14 1/2	30	5-
	73 1/2	180	15 1/4	37	39 3/4	12	14	11 1/2	21 1/4	14 1/2	32 3/4	1-19-70
	73 1/2	180	15 1/4	37	39 3/4	12	14	11 1/2	21 1/4	14 1/2	32 3/4	2-
#22	73 1/2	182 1/2	15 1/2	38	38 3/4	12 1/2	14	11 1/2	21 3/4	15	32 3/4	3-
	73 1/2	183 1/2	16 1/4	40	40 1/2	13	14 1/4	12	22	14 3/4	33	4-
	73 1/2	185	15 3/4	39 1/4	39 3/4	13	14 1/2	11 3/4	22	14 1/2	33	5-
	72 1/2	155	15	36	36 1/4	11 1/4	12 1/2	11 1/4	21	16	28 1/2	1-19-70
	72 1/2	156 1/2	15 1/4	36 1/2	38	11 3/4	12 1/2	11	21 1/2	15 1/4	30 1/2	2-
#23	72 1/2	156 1/2	15 1/4	36 1/2	38	11 3/4	12 1/2	11	21 1/2	15 1/4	30 1/2	3-
	72 1/2	159	15	36	38	11 3/4	12 3/4	11 1/2	21 1/2	15 1/4	28 1/2	4-
	72 1/2	159	15	36	38	11 3/4	12 3/4	11 1/2	21 1/2	15 1/4	28 1/2	5-
	63 1/2	150	14	35 1/2	37 1/2	12 1/4	13	10 1/2	20 1/2	15	35 1/2	1-19-70
	63 1/2	145	14	35 1/2	37 1/2	12 1/4	13	10 1/2	20 1/2	15	35 1/2	2-
#24	63 1/2	151	13	34	37	12 1/2	13	10 3/4	21 1/4	14 3/4	35	3-
	64	150	13 1/4	35	37	12	12 1/2	10 1/4	21 1/4	14 3/4	35	4-
	64	150	13 1/4	35	37	12	12 1/2	10 1/4	22	14 3/4	35 1/4	5-

TABLE VII (continued)

NAME	HEIGHT	WEIGHT	NECK SIZE	CHEST	CHEST EXPANDED	BICEPS	BICEP FLEXED	FOREARM	THIGH	CALF	WAIST	DATE
#25	71	148	15	35 $\frac{1}{2}$	37	11	12 $\frac{1}{2}$	10	20 $\frac{1}{2}$	14	29	1-19-70
	71	151	15	36 $\frac{1}{2}$	37 $\frac{1}{2}$	11 $\frac{1}{2}$	13	10 $\frac{1}{2}$	20	13 3/4	30 $\frac{1}{2}$	2-
	71	151	15	36 $\frac{1}{2}$	37 $\frac{1}{2}$	11 $\frac{1}{2}$	13	10 $\frac{1}{2}$	20	13 3/4	30 $\frac{1}{2}$	3-
	71	159 $\frac{1}{2}$	15 $\frac{1}{2}$	37 $\frac{1}{2}$	39	12	13 $\frac{1}{4}$	11	21 3/4	14	31	4-
	71	160	15	37	39 $\frac{1}{2}$	11 $\frac{1}{2}$	13 $\frac{1}{2}$	10 3/4	21	14	31 $\frac{1}{2}$	5-
#26	76 $\frac{1}{2}$	200	15	42 $\frac{1}{2}$	44 $\frac{1}{4}$	12	13 $\frac{1}{4}$	10 $\frac{1}{2}$	22	16	37	1-19-70
	76 $\frac{1}{2}$	200	15	42 $\frac{1}{2}$	44 $\frac{1}{4}$	12	13 $\frac{1}{4}$	10 $\frac{1}{2}$	22	16	37	2-
	76 $\frac{1}{2}$	195	14 3/4	39 $\frac{1}{2}$	42	12	13	10 $\frac{1}{2}$	21 $\frac{1}{2}$	15	35 3/4	3-
	76 $\frac{1}{2}$	192 $\frac{1}{2}$	15	40 $\frac{1}{4}$	43	12	13 $\frac{1}{2}$	10 $\frac{1}{2}$	22 $\frac{1}{4}$	15 $\frac{1}{2}$	36	4-
	76 $\frac{1}{2}$	192 $\frac{1}{2}$	15	40 $\frac{1}{4}$	43	12	13 $\frac{1}{2}$	10 $\frac{1}{2}$	22 $\frac{1}{4}$	15 $\frac{1}{2}$	36	5-
#27	71	145	14 $\frac{1}{2}$	33	35 $\frac{1}{4}$	10 $\frac{1}{4}$	11 3/4	10 $\frac{1}{2}$	18 3/4	14 $\frac{1}{2}$	28	1-19-70
	71	148	14 3/4	35	36	11 $\frac{1}{4}$	12 $\frac{1}{4}$	10 $\frac{1}{2}$	20	14 $\frac{1}{4}$	27 3/4	2-
	72	157	14 $\frac{1}{4}$	34	35 $\frac{1}{2}$	10 3/4	12	10 $\frac{1}{4}$	20 $\frac{1}{4}$	14 $\frac{1}{4}$	28	3-
	72	155	14 $\frac{1}{2}$	33 $\frac{1}{2}$	35 $\frac{1}{2}$	11 $\frac{1}{2}$	12	10 3/4	20	14	28	4-
	72 $\frac{1}{4}$	153 $\frac{1}{2}$	15	33 $\frac{1}{2}$	36	11 $\frac{1}{2}$	12 $\frac{1}{2}$	10 $\frac{1}{2}$	21	14 $\frac{1}{2}$	28	5-
#28	72	169 $\frac{1}{4}$	14 3/4	36 3/4	38 $\frac{1}{2}$	10 $\frac{1}{2}$	12 $\frac{1}{4}$	10 $\frac{1}{4}$	21	15 $\frac{1}{2}$	31	1-19-70
	72	171	15	37	39	11	13	10	22 3/4	15	32	2-
	72	175 $\frac{1}{2}$	14 3/4	37	39 $\frac{1}{2}$	11 $\frac{1}{2}$	13	10 $\frac{1}{2}$	22 $\frac{1}{2}$	15 $\frac{1}{2}$	32 $\frac{1}{2}$	3-
	72 $\frac{1}{2}$	182	15 $\frac{1}{2}$	37 3/4	40 3/4	11 $\frac{1}{2}$	13 $\frac{1}{4}$	11	24	15 $\frac{1}{2}$	33	4-
	72 3/4	179	15	36 $\frac{1}{2}$	39	12 3/4	13 3/4	10 3/4	23	15 3/4	32 $\frac{1}{2}$	5-
#29	70	167	14 $\frac{1}{2}$	36	39	11	12	10	19 $\frac{1}{2}$	15 $\frac{1}{2}$	34	1-19-70
	70	167	14 $\frac{1}{2}$	36 $\frac{1}{4}$	38	11 $\frac{1}{2}$	12 $\frac{1}{4}$	10 $\frac{1}{2}$	21 $\frac{1}{2}$	15	34 $\frac{1}{4}$	2-
	70	171 $\frac{1}{2}$	14 $\frac{1}{2}$	37	38 $\frac{1}{2}$	11 $\frac{1}{2}$	12 $\frac{1}{4}$	11	22 $\frac{1}{2}$	15	34 3/4	3-
	70 $\frac{1}{2}$	174	14 $\frac{1}{2}$	36 3/4	38	11 3/4	12 $\frac{1}{2}$	11	22	14 3/4	34 $\frac{1}{2}$	4-
	70 $\frac{1}{2}$	174	14 $\frac{1}{2}$	37 $\frac{1}{2}$	39	11 $\frac{1}{2}$	13	10 $\frac{1}{2}$	22 $\frac{1}{2}$	15 $\frac{1}{2}$	35	5-

TABLE VII (continued)

NAME	HEIGHT	WEIGHT	NECK SIZE	CHEST	CHEST EXPANDED	BICEP	BICEP FLEXED	FOREARM	THIGH	CALF	WAIST	DATE
#30	68 1/8	142	14	34 1/2	37	11	12 1/2	10	20	14 1/2	30	1-19-70
	68 1/8	142 1/2	14	34	36	11	12	10 1/4	21 1/4	14	29 3/4	2-
	68 1/8	143	14	34	37 1/2	11 1/2	12 1/2	10	20	14	30 1/2	3-
	68 1/8	146	14	34	36 3/4	11 1/2	12 1/2	10 1/2	20	14	31	4-
	68 1/2	145 1/2	14	34 1/2	38	11 1/4	12 1/2	10 1/4	21	14	30 3/4	5-
#31	68	136	13 1/2	33	34 1/2	10 1/2	11	10	20	15	29	1-19-70
	68	138	13 1/2	32 1/2	34 1/4	10 1/2	11 1/4	9 1/2	20 1/2	14 1/2	28	2-
	68	141	14	33 1/2	34 1/2	11	12 1/4	10	20 1/2	14	30	3-
	69	145	14	34	35	11	11 1/2	10 1/2	21	14 1/2	30	4-
	69	145	14 1/2	34	35 1/2	11	12	10	21	14 3/4	30	5-
#32	68 1/4	140	14	35 1/2	36 1/2	10 1/2	12	10 3/4	20	13 3/4	28	1-19-70
	68 1/4	140	14	35 1/2	36 1/2	10 1/2	12	10	20	13 3/4	28	2-
	68 1/4	142	13 1/2	33 1/2	34 3/4	10 1/2	11 3/4	10 1/4	20	13 1/4	29 1/4	3-
	68 1/2	141 1/2	13 3/4	34 1/2	35 1/4	10 1/2	12	10 1/2	21	13 1/4	29	4-
	68 1/2	143	14 1/4	35	36	10 3/4	12 1/4	11	21	13 1/2	29 1/4	5-
#33	68 1/4	160	15	37	38 1/2	12 1/4	13 1/2	11	20 1/2	15 1/2	30 1/2	1-19-70
	68 1/4	161 1/2	15	37	39	12 1/2	13 3/4	11 1/4	22 1/2	15	30 1/2	2-
	68 1/4	164 3/4	14 1/2	36 3/4	38 1/4	12 1/4	14	11	22	15 1/4	30 1/4	3-
	68 1/4	164 1/2	15	38	39 1/2	12 1/4	13 3/4	11 1/2	22 1/2	15 1/4	30 1/2	4-
	68 1/4	165 1/2	15	38 1/4	40	12 1/2	14	11 1/2	22 1/2	15 1/4	30	5-
#34	67 3/4	157	15	37 1/2	39 1/2	12 1/4	13 1/2	11 3/4	22	15 1/2	30 1/2	1-19-70
	67 3/4	157 1/2	15	37	38	12 1/2	14	11 1/4	22	15	30	2-
	67 3/4	159	14 3/4	36 3/4	37 1/2	12	13 1/2	11 1/4	21 3/4	15	30 1/2	3-
	67 3/4	160 1/2	14 3/4	37 1/2	38	12	13 1/2	11 3/4	22 1/4	15 1/2	30 3/4	4-
	68	160	15	37 1/2	38 3/4	12 1/2	13 3/4	11 1/2	22 1/2	15	31	5-

TABLE VII (continued)

NAME	HEIGHT	WEIGHT	NECK SIZE	CHEST	CHEST EXPANDED	BICEP	BICEP FLEXED	FOREARM	THIGH	CALF	WAIST	DATE
#35	69	165	15	40	41	12	14	11	21 $\frac{1}{2}$	15	33	1-19-70
	69	165	15	40	41	12	14	11	21 $\frac{1}{2}$	15	33	2-
	69	169	15	38	39 $\frac{1}{2}$	11	14	11	22 $\frac{1}{2}$	14	3 $\frac{3}{4}$	3-
	69	169	15 $\frac{1}{4}$	39 $\frac{1}{2}$	40 $\frac{1}{4}$	12	14	11 $\frac{1}{4}$	21 $\frac{1}{2}$	14 $\frac{1}{4}$	33 $\frac{1}{2}$	4-
	69	170	15	40	40 $\frac{1}{2}$	12 $\frac{1}{2}$	14	11 $\frac{1}{4}$	22	14	3 $\frac{3}{4}$	5-
#36	70	187	15	41	42 $\frac{1}{2}$	12 $\frac{1}{2}$	13	11 $\frac{1}{2}$	22	15	37	1-19-70
	70	187	15	41	42 $\frac{1}{2}$	12 $\frac{1}{2}$	13	11 $\frac{1}{2}$	22	15	37	2-
	70	187	15	41	42 $\frac{1}{2}$	12 $\frac{1}{2}$	13	11 $\frac{1}{2}$	22	15	37	3-
	70	186 $\frac{1}{2}$	15 $\frac{1}{2}$	42	44 $\frac{1}{4}$	13 $\frac{1}{2}$	14 $\frac{1}{4}$	11	22 $\frac{1}{2}$	15 $\frac{1}{2}$	37	4-
	70	187	15	42	44	13	14 $\frac{1}{2}$	12	22 $\frac{1}{2}$	15	3 $\frac{3}{4}$	5-
#37	72	158	15 $\frac{1}{2}$	37 $\frac{1}{2}$	39	11	12	10	20	14 $\frac{1}{2}$	30 $\frac{1}{2}$	1-19-70
	72	161	16	38	39	11	12	10	21	14	3 $\frac{3}{4}$	2-
	72 $\frac{1}{2}$	164	15 $\frac{1}{4}$	37	39 $\frac{1}{2}$	11 $\frac{1}{4}$	12 $\frac{1}{2}$	10 $\frac{1}{4}$	20	15	30	3-
	72 $\frac{1}{2}$	165	15	38 $\frac{1}{2}$	40	11	13 $\frac{1}{4}$	11 $\frac{1}{4}$	22 $\frac{1}{4}$	15 $\frac{1}{4}$	30 $\frac{1}{2}$	4-
	72 $\frac{1}{2}$	171	15 $\frac{1}{2}$	39	40 $\frac{1}{2}$	12	13 $\frac{1}{2}$	11 $\frac{1}{4}$	22	15	32	5-
#38	69	145	15	35	38	11	12 $\frac{1}{2}$	10 $\frac{1}{2}$	20	14 $\frac{1}{2}$	30	1-19-70
	69	145	15	35	38	11	12 $\frac{1}{2}$	10 $\frac{1}{2}$	20	14 $\frac{1}{2}$	30	2-
	69	145	15 $\frac{1}{2}$	34 $\frac{1}{2}$	36	10 $\frac{1}{4}$	12 $\frac{1}{4}$	10 $\frac{1}{2}$	20 $\frac{1}{4}$	14 $\frac{1}{4}$	30	3-
	70	146	13	36	37	11	13	10	21	15	30	4-
	70	147	14	37	39	11	13	10	22	15	30	5-
#39	72	163	15 $\frac{1}{4}$	37 $\frac{1}{2}$	41	11 $\frac{1}{2}$	13	10 $\frac{1}{2}$	21	16	29	1-19-70
	72	163	15 $\frac{1}{4}$	37 $\frac{1}{2}$	41	11 $\frac{1}{2}$	13	10 $\frac{1}{2}$	21	16	29	2-
	72	169	15	36 $\frac{1}{2}$	40	11	13 $\frac{1}{4}$	11	20	15	30	3-
	72	174	15 $\frac{1}{2}$	39	42 $\frac{1}{4}$	12 $\frac{1}{2}$	13	11	21 $\frac{1}{4}$	15 $\frac{1}{4}$	32 $\frac{1}{2}$	4-
	72	167 $\frac{1}{2}$	15 $\frac{1}{2}$	39	42	12 $\frac{1}{4}$	13	11	21 $\frac{1}{4}$	15 $\frac{1}{4}$	31	5-



TABLE VII (continued)

NAME	HEIGHT	WEIGHT	NECK SIZE	CHEST	CHEST EXPANDED	BICEP	BICEP FLEXED	FOREARM	THIGH	CALF	WAIST	DATE
#40	73	202	17	40	43½	13	15	12	23	16½	35	1-19-70
	73	204	17	40	45	13½	15½	12	24	16½	36	2-
	73	208	16½	40½	42½	14	15½	12½	25	17½	35½	3-
	73½	211	17½	40½	44½	14	16 1/8	12 3/4	25½	17	36½	4-
	73½	208	17	41½	44½	14	16	13½	25½	17	35½	5-
#41	63	128	13½	36	38	10½	11½	9 3/4	21	15½	32	1-19-70
	63	131	13½	34½	37½	10½	11	9½	20 3/4	14½	31½	2-
	63½	131½	13½	33 3/4	37½	10½	11	9½	19 3/4	14½	31	3-
	63½	132	13	32 3/4	35½	10 3/4	11½	10	19½	14½	32½	4-
	64	131	13½	35	37	11	12	10	20½	14½	32½	5-
#42	72	150	14½	35 3/4	36 3/4	11	12	10½	20	14 3/4	29	1-19-70
	72	150	14½	35 3/4	36 3/4	11	12	10½	20	14 3/4	29	2-
	72	150	14½	35 3/4	36 3/4	11	12	10½	20	14 3/4	29	3-
	72	150	15	36	37	11½	12½	10½	20½	15	30½	4-
	72	152½	15	36	37½	11½	12½	10 3/4	20½	15	30	5-
#43	67	137	15	35½	38½	11 3/4	13	11½	19½	15	28½	1-19-70
	67	142½	14 3/4	37½	39	11½	12½	11	20½	15	28½	2-
	67	145	14½	36½	39½	11½	12 3/4	11½	20½	15½	28½	3-
	67	147	14½	35½	40½	12½	13	11½	21	15½	29½	4-
	67	146	14	36	39	11 3/4	13 3/4	11 3/4	20½	15½	28½	5-
#44	63½	127	14	34	35	10½	12	10	19½	13½	27	1-19-70
	63½	127	14	34	35	10½	12	10	19½	13½	27½	2-
	63½	127	14	34	35	10½	12	10	19½	13½	27½	3-
	63½	128	14½	34	35½	11½	12 3/4	10½	21	13½	28	4-
	64	129½	14½	33½	35½	11 3/4	12½	10½	20½	13½	28½	5-

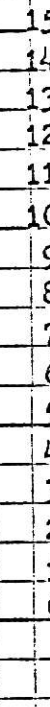
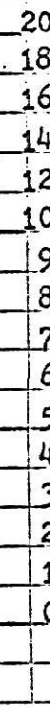
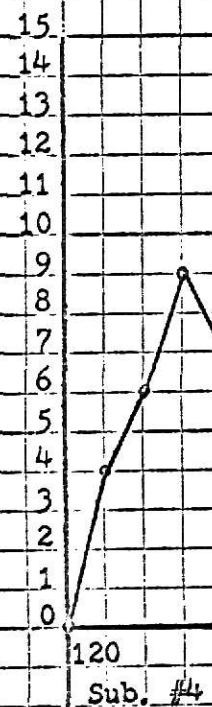
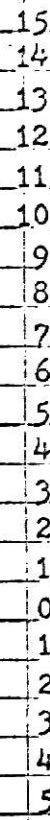
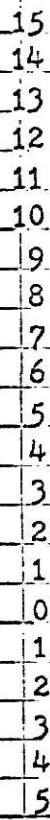
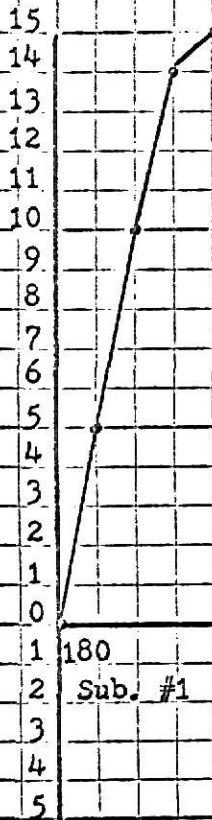
# **ILLEGIBLE DOCUMENT**

**THE FOLLOWING  
DOCUMENT(S) IS OF  
POOR LEGIBILITY IN  
THE ORIGINAL**

**THIS IS THE BEST  
COPY AVAILABLE**

TABLE VIII - STUDY GROUP

71

Scale in  
pounds and  
months

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13  
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7  
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4  
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143

Sub. #7

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143½

Sub. #8

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164

Sub. #9

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136

Sub. #10

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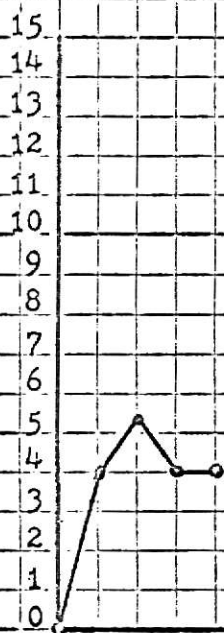
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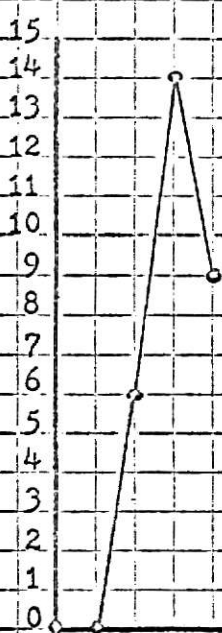
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176

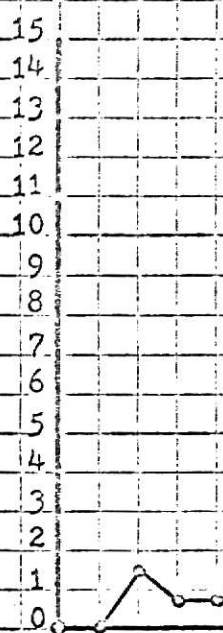
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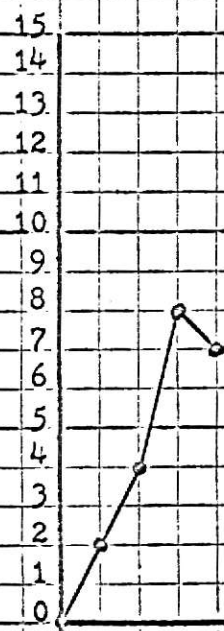
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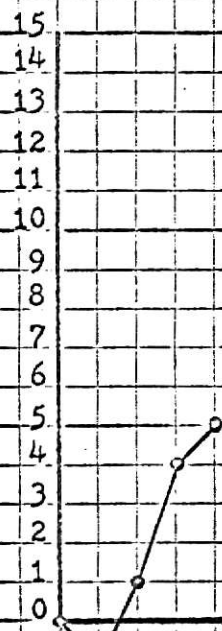
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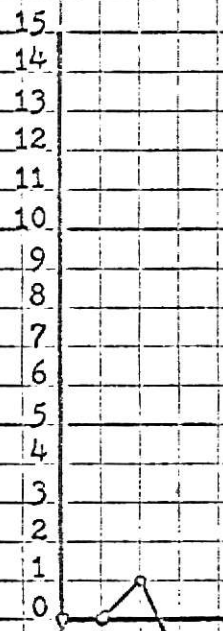
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Sub. #15



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Sub. #16



115  
Sub. #17



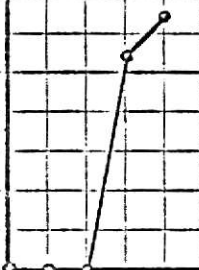
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Sub. #18



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160

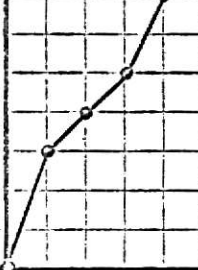
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107

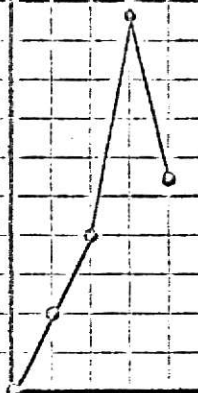
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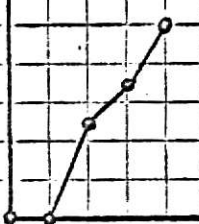
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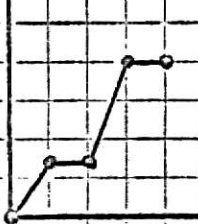
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155

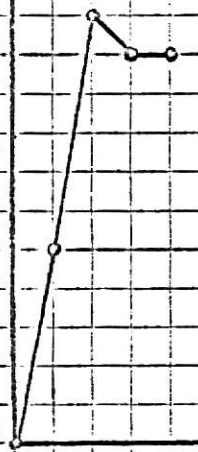
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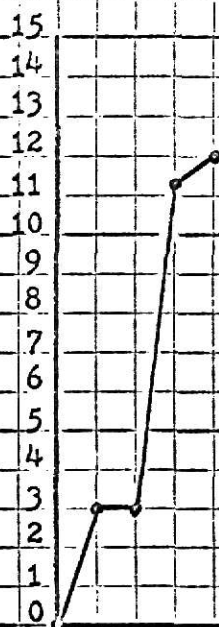


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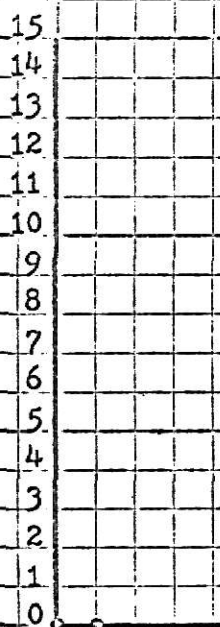
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Sub. #24

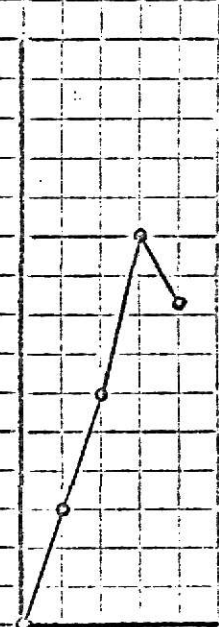




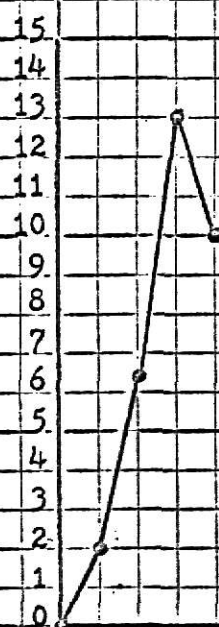
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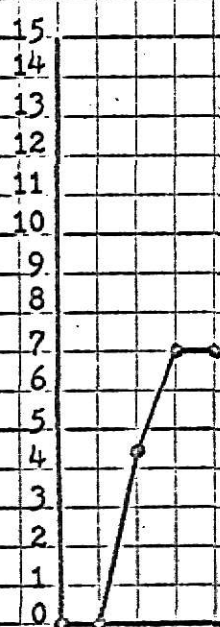
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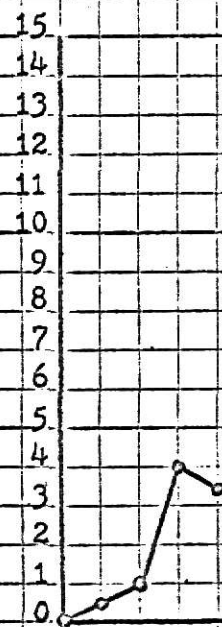
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169.5  
Sub. #28



167  
Sub. #29



142  
Sub. #30

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136  
Sub. #31



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140  
Sub. #32



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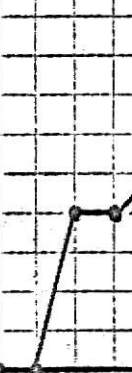
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Sub. #34



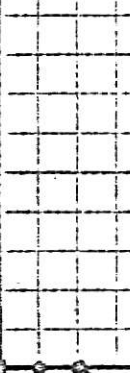
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165  
Sub. #35



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0

187  
Sub. #36





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8  
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3  
2  
1  
0

158

Sub. #37

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14  
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4  
3  
2  
1  
0

145

Sub. #38

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3  
2  
1  
0

163

Sub. #39

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14  
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2  
1  
0

202

Sub. #40

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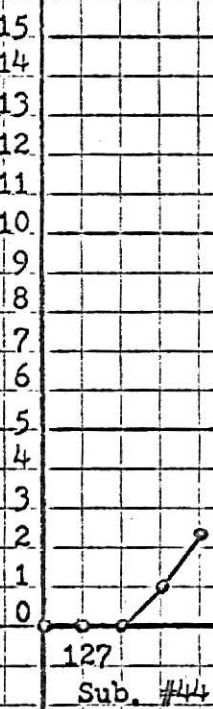
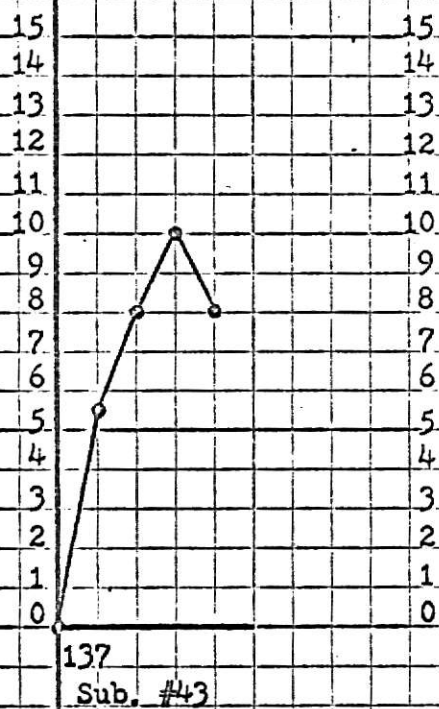
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Sub. #41

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1  
0

150

Sub. #42



## APPENDIX C

TABLE IX

## STATISTICAL CHART OF THE CONTROL GROUP

NAME	HEIGHT	WEIGHT	NECK SIZE	CHEST	CHEST EXPANDED	BICEP	BICEP FLEXED	FOREARM	THIGH	CALF	WAIST	DATE
#1	66	130	14 $\frac{1}{4}$	32	34	9 3/4	11 $\frac{1}{2}$	10 $\frac{1}{2}$	20 $\frac{1}{4}$	13 $\frac{1}{2}$	25 $\frac{1}{2}$	2-19-70
	66	131 $\frac{1}{2}$	14 3/4	34	36 $\frac{1}{2}$	11	12	10 $\frac{1}{2}$	20 $\frac{1}{2}$	13 3/4	26 $\frac{1}{2}$	3-17-70
	66 $\frac{1}{4}$	130	14 3/4	33	36	10 $\frac{1}{2}$	12	10 $\frac{1}{2}$	20 3/4	13 3/4	27 $\frac{1}{2}$	4-20-70
	66 $\frac{1}{4}$	129	14 3/4	33	36	10 $\frac{1}{2}$	12	10 $\frac{1}{2}$	20 3/4	13 3/4	27 $\frac{1}{2}$	5-19-70
#2	71	136	13 $\frac{1}{2}$	32 $\frac{1}{2}$	34	10	10 $\frac{1}{2}$	9 $\frac{1}{2}$	19 $\frac{1}{4}$	14	27 $\frac{1}{2}$	2-19-70
	71	136	14	33 $\frac{1}{4}$	33 3/4	10 $\frac{1}{4}$	12 $\frac{1}{4}$	9 3/4	20	14	28	3-17-70
	71	136 $\frac{1}{4}$	14	32 $\frac{1}{4}$	34	10	11	9 3/4	20	13 3/4	27	4-20-70
	71	134 $\frac{1}{2}$	14	32 $\frac{1}{4}$	34	10	11	9 3/4	20	13 3/4	26	5-19-70
#3	67 $\frac{1}{2}$	134 $\frac{1}{2}$	14	32 $\frac{1}{2}$	35	9 $\frac{1}{2}$	10	9	19 3/4	13 3/4	27 $\frac{1}{2}$	2-19-70
	67 $\frac{1}{2}$	135	14	34	35 $\frac{1}{4}$	10	11 $\frac{1}{2}$	9 $\frac{1}{2}$	20 $\frac{1}{4}$	14	27 3/4	3-17-70
	67 $\frac{1}{2}$	134 $\frac{1}{2}$	14	33 $\frac{1}{2}$	35 $\frac{1}{4}$	9 3/4	11 $\frac{1}{2}$	9 $\frac{1}{2}$	20 $\frac{1}{4}$	13 3/4	27 3/4	4-20-70
	67 3/4	133 3/4	14	33 $\frac{1}{2}$	35 $\frac{1}{4}$	9 3/4	11 $\frac{1}{2}$	9 $\frac{1}{2}$	20 $\frac{1}{2}$	13 3/4	27 3/4	5-19-70
#4	63 $\frac{1}{2}$	122	13 $\frac{1}{2}$	32	34 3/4	10	10 3/4	9 3/4	19	14	26	2-19-70
	63 $\frac{1}{2}$	123 $\frac{1}{4}$	13 $\frac{1}{2}$	32 $\frac{1}{2}$	35	10	11	10	18 $\frac{1}{4}$	13 $\frac{1}{2}$	26	3-17-70
	63 $\frac{1}{2}$	123 $\frac{1}{2}$	13 $\frac{1}{2}$	32	34	10	10 $\frac{1}{2}$	10	19 $\frac{1}{4}$	13 $\frac{1}{4}$	26 3/4	4-20-70
	63 $\frac{1}{2}$	123 $\frac{1}{2}$	13 $\frac{1}{2}$	32	34	10	10 $\frac{1}{2}$	10	19 $\frac{1}{2}$	13 $\frac{1}{4}$	26 3/4	5-19-70
#5	72 $\frac{1}{4}$	146	14	33	35	10	11 $\frac{1}{4}$	10	19 $\frac{1}{4}$	13 $\frac{1}{2}$	29	2-19-70
	72 $\frac{1}{4}$	149	13 $\frac{1}{2}$	32 $\frac{1}{2}$	34	10	11 3/4	10 $\frac{1}{4}$	19 $\frac{1}{2}$	14	28	3-17-70
	72 $\frac{1}{2}$	148	13 $\frac{1}{2}$	33 $\frac{1}{2}$	36	10	11 $\frac{1}{4}$	10	19 3/4	13	29 3/4	4-20-70
	73	149	13 $\frac{1}{2}$	33 $\frac{1}{2}$	36	10	11 $\frac{1}{4}$	10 $\frac{1}{4}$	20	13 $\frac{1}{2}$	29 3/4	5-19-70
#6	70 $\frac{1}{4}$	134	13 $\frac{1}{2}$	31	34	9 $\frac{1}{2}$	10	10	17 $\frac{1}{4}$	14 $\frac{1}{2}$	26 3/4	2-19-70
	70 $\frac{1}{4}$	134	14	32	34 $\frac{1}{2}$	9 3/4	11	10 $\frac{1}{4}$	19	14 $\frac{1}{2}$	27 $\frac{1}{2}$	3-17-70
	71	137 $\frac{1}{2}$	14	32 $\frac{1}{2}$	35 $\frac{1}{2}$	10	11	10 $\frac{1}{4}$	18 3/4	14 $\frac{1}{2}$	28 $\frac{1}{4}$	4-20-70
	71 $\frac{1}{2}$	138 $\frac{1}{2}$	14	32 3/4	35 $\frac{1}{2}$	10	11	10 $\frac{1}{4}$	19	14 $\frac{1}{2}$	28 $\frac{1}{2}$	5-19-70

TABLE IX (continued)

NAME	HEIGHT	WEIGHT	NECK SIZE	CHEST	CHEST EXPANDED	BICEP	BICEP FLEXED	FOREARM	THIGH	CALF	WAIST	DATE
#7	63 $\frac{1}{2}$	109	12 $\frac{1}{2}$	31	32 $\frac{1}{2}$	9	10 $\frac{1}{2}$	8 3/4	17 3/4	13 $\frac{1}{4}$	28	2-19-70
	63 $\frac{1}{2}$	111	12 $\frac{1}{4}$	31	32	10	11	9 3/4	18 $\frac{1}{4}$	13 $\frac{1}{2}$	28	3-17-70
	63 $\frac{1}{2}$	112	13 $\frac{1}{4}$	31	32	9 3/4	10 3/4	9 $\frac{1}{2}$	18 $\frac{1}{2}$	14	28 $\frac{1}{2}$	4-20-70
	63 3/4	114	12 $\frac{1}{2}$	32	33 $\frac{1}{4}$	9 3/4	10 3/4	9 $\frac{1}{2}$	18 $\frac{1}{2}$	14	29	5-19-70
#8	68	128	13 $\frac{1}{2}$	33	36	9 3/4	10 $\frac{1}{4}$	10	18	14	28	2-19-70
	68	130	13 $\frac{1}{4}$	32 $\frac{1}{2}$	35	10	10 $\frac{1}{2}$	10	18 $\frac{1}{2}$	13 3/4	28	3-17-70
	68	130 $\frac{1}{2}$	13 $\frac{1}{2}$	32 $\frac{1}{2}$	35 $\frac{1}{2}$	10 $\frac{1}{4}$	11 $\frac{1}{4}$	10	19	14	27 $\frac{1}{2}$	4-20-70
	68	131	13 1/5	32 3/7	35 3/4	10 $\frac{1}{2}$	11 $\frac{1}{2}$	10	19	14	27 $\frac{1}{2}$	5-19-70
#9	71	155	14	35	37	11	11 3/4	10 $\frac{1}{4}$	20	14 $\frac{1}{2}$	29	2-19-70
	71	153	14 $\frac{1}{4}$	35	37	11 $\frac{1}{2}$	12 $\frac{1}{4}$	10 3/4	19 $\frac{1}{2}$	14 $\frac{1}{4}$	29 $\frac{1}{4}$	3-17-70
	71	156	14 $\frac{1}{2}$	36 $\frac{1}{4}$	37	12	13 $\frac{1}{2}$	11	22	14 $\frac{1}{4}$	29 $\frac{1}{2}$	4-20-70
	71	158	14 $\frac{1}{2}$	36 $\frac{1}{2}$	37	12	13 $\frac{1}{2}$	11	22	14 $\frac{1}{4}$	29 $\frac{1}{2}$	5-19-70
#10	72	170	15	35	36	11	12	11 $\frac{1}{4}$	22	14 3/4	31 $\frac{1}{4}$	2-19-70
	72	168 $\frac{1}{2}$	15	35 $\frac{1}{4}$	37 $\frac{1}{4}$	11 $\frac{1}{4}$	12 $\frac{1}{4}$	11 $\frac{1}{4}$	22	15 $\frac{1}{4}$	30 $\frac{1}{2}$	3-17-70
	72	166 $\frac{1}{2}$	15	35 $\frac{1}{2}$	37 $\frac{1}{2}$	11	12 $\frac{1}{2}$	11 $\frac{1}{4}$	21 3/4	15 $\frac{1}{4}$	31	4-20-70
	72 $\frac{1}{2}$	167 $\frac{1}{2}$	15	35 $\frac{1}{2}$	37 $\frac{1}{2}$	11	12 $\frac{1}{2}$	11 $\frac{1}{4}$	21 3/4	15 $\frac{1}{4}$	31 3/4	5-19-70
#11	65 $\frac{1}{2}$	149	14	36	38	11	13	11	21	14 $\frac{1}{2}$	29	2-19-70
	65 $\frac{1}{2}$	151	14 $\frac{1}{4}$	34 $\frac{1}{2}$	36 $\frac{1}{2}$	11	12 $\frac{1}{2}$	11	20	14 $\frac{1}{2}$	28	3-17-70
	65 3/4	148	14 $\frac{1}{2}$	36 $\frac{1}{2}$	38 $\frac{1}{2}$	11	12	10 $\frac{1}{2}$	21	14 $\frac{1}{4}$	29	4-20-70
	66	151	14 $\frac{1}{2}$	36 $\frac{1}{2}$	38 $\frac{1}{2}$	11	12	10 $\frac{1}{2}$	21	14 $\frac{1}{2}$	29	5-19-70
#12	69 $\frac{1}{2}$	145	13	34	36	10 $\frac{1}{2}$	11 $\frac{1}{2}$	10 $\frac{1}{4}$	20 $\frac{1}{4}$	15	28	2-19-70
	69 $\frac{1}{2}$	148	13	34	35 $\frac{1}{4}$	10 $\frac{1}{2}$	11 3/4	10 $\frac{1}{2}$	19 3/4	15 $\frac{1}{4}$	28	3-17-70
	69 $\frac{1}{2}$	151	14	35 $\frac{1}{2}$	38	11 $\frac{1}{2}$	12	11	21	14 $\frac{1}{2}$	29 $\frac{1}{2}$	4-20-70
	70	150	14 $\frac{1}{4}$	35 $\frac{1}{2}$	38	11 $\frac{1}{2}$	12 $\frac{1}{4}$	11	21	14 1/5	29 3/4	5-19-70

TABLE IX (continued)

NAME	HEIGHT	WEIGHT	NECK SIZE	CHEST	CHEST EXPANDED	BICEP	BICEP FLEXED	FOREARM	THIGH	CALF	WAIST	DATE
#13	69 $\frac{1}{4}$	134	13	34	36	10	11	9 $\frac{3}{4}$	19	14	28	2-19-70
	69 $\frac{1}{4}$	137	13	34 $\frac{1}{4}$	35 $\frac{1}{2}$	10	11 $\frac{1}{4}$	9 $\frac{3}{4}$	18 $\frac{1}{4}$	14	27 $\frac{1}{2}$	3-17-70
	69 $\frac{3}{4}$	137	13 $\frac{1}{4}$	35	36 $\frac{1}{2}$	10	11 $\frac{1}{2}$	10	20	13 $\frac{1}{2}$	28	4-20-70
	70	138 $\frac{1}{2}$	13 $\frac{3}{4}$	35	36 $\frac{3}{4}$	10	11 $\frac{3}{4}$	10	20	13 $\frac{3}{4}$	28	5-19-70
#14	63	100	12 $\frac{1}{2}$	30 $\frac{3}{4}$	31	9 $\frac{1}{2}$	10	8 $\frac{3}{4}$	16 $\frac{1}{4}$	12 $\frac{1}{4}$	24	2-19-70
	63	101 $\frac{1}{2}$	12 $\frac{3}{4}$	31	32	9 $\frac{3}{4}$	11	9 $\frac{1}{4}$	17 $\frac{1}{2}$	12 $\frac{3}{4}$	24	3-17-70
	63 $\frac{1}{4}$	101 $\frac{1}{2}$	12 $\frac{3}{4}$	31	31 $\frac{3}{4}$	9 $\frac{3}{4}$	10 $\frac{1}{2}$	9	18 $\frac{1}{4}$	12 $\frac{3}{4}$	24 $\frac{1}{2}$	4-20-70
	63 $\frac{1}{2}$	103	12 $\frac{3}{4}$	31	31 $\frac{3}{4}$	9 $\frac{3}{4}$	10 $\frac{3}{4}$	9	18 $\frac{1}{4}$	12 $\frac{3}{4}$	24 $\frac{1}{2}$	5-20-70
#15	67	126	14	33 $\frac{3}{4}$	34	10	11 $\frac{3}{4}$	9 $\frac{1}{2}$	19 $\frac{1}{2}$	14 $\frac{1}{4}$	26 $\frac{1}{2}$	2-19-70
	67	129	13 $\frac{1}{2}$	33	34 $\frac{1}{2}$	11 $\frac{1}{4}$	12	10	20 $\frac{1}{4}$	14	27	3-17-70
	67	132 $\frac{1}{2}$	14	34 $\frac{1}{2}$	35 $\frac{1}{2}$	11	12 $\frac{1}{2}$	10	20 $\frac{1}{2}$	14	27 $\frac{1}{2}$	4-20-70
	67	130	13 $\frac{3}{4}$	34 $\frac{1}{4}$	35 $\frac{3}{4}$	11	12 $\frac{3}{4}$	10	20 $\frac{3}{4}$	14	27 $\frac{3}{4}$	5-19-70
#16	68 $\frac{1}{2}$	138	14	34	37 $\frac{1}{2}$	9 $\frac{1}{2}$	11	9 $\frac{1}{2}$	20	13 $\frac{1}{2}$	29	2-19-70
	68 $\frac{1}{2}$	140	14	35 $\frac{3}{4}$	36 $\frac{1}{4}$	10 $\frac{1}{4}$	11 $\frac{1}{4}$	9 $\frac{3}{4}$	20	13 $\frac{1}{2}$	28 $\frac{3}{4}$	3-17-70
	68 $\frac{1}{2}$	140	14 $\frac{1}{5}$	34 $\frac{3}{4}$	36 $\frac{1}{2}$	10 $\frac{1}{4}$	11 $\frac{1}{2}$	10	20 $\frac{1}{2}$	13 $\frac{1}{2}$	29	4-20-70
	69	141	14 $\frac{1}{4}$	34 $\frac{3}{4}$	36 $\frac{3}{4}$	10 $\frac{1}{4}$	11 $\frac{1}{2}$	10	20	13 $\frac{1}{2}$	29	5-19-70
#17	69 $\frac{3}{4}$	159	15	36	39 $\frac{1}{2}$	11 $\frac{1}{2}$	12 $\frac{1}{2}$	11 $\frac{1}{4}$	22	15	30 $\frac{1}{4}$	2-19-70
	69 $\frac{3}{4}$	161	15	36	39 $\frac{1}{2}$	11 $\frac{1}{2}$	13	11 $\frac{1}{4}$	21 $\frac{3}{4}$	15 $\frac{3}{4}$	29 $\frac{3}{4}$	3-17-70
	69 $\frac{3}{4}$	160 $\frac{1}{2}$	15 $\frac{1}{4}$	37	39 $\frac{1}{4}$	11 $\frac{1}{4}$	12 $\frac{3}{4}$	11 $\frac{1}{2}$	22	15 $\frac{3}{4}$	30	4-20-70
	70 $\frac{1}{2}$	157 $\frac{1}{2}$	15 $\frac{1}{4}$	37	39 $\frac{1}{4}$	11 $\frac{1}{2}$	12 $\frac{3}{4}$	11 $\frac{1}{2}$	22	15 $\frac{3}{4}$	30	5-19-70
#18	68 $\frac{1}{4}$	142	14	33	35	10 $\frac{1}{2}$	11 $\frac{1}{2}$	10 $\frac{1}{2}$	20	14 $\frac{1}{4}$	27	2-19-70
	68 $\frac{1}{4}$	145	14	34 $\frac{1}{2}$	36 $\frac{1}{4}$	11	11 $\frac{1}{2}$	10	20 $\frac{1}{4}$	14 $\frac{1}{2}$	28 $\frac{1}{4}$	3-17-70
	68 $\frac{3}{4}$	144	14	34	36 $\frac{1}{2}$	11	11 $\frac{3}{8}$	10 $\frac{1}{4}$	21	14 $\frac{3}{4}$	29	4-20-70
	68 $\frac{3}{4}$	140 $\frac{1}{2}$	14	34	36 $\frac{1}{2}$	11	11 $\frac{3}{4}$	10 $\frac{1}{4}$	21	14 $\frac{3}{4}$	29	5-19-70



TABLE IX (Continued)

NAME	HEIGHT	WEIGHT	NECK SIZE	CHEST	CHEST EXPANDED	BICEP	BICEP FLEXED	FOREARM	THIGH	CALF	WAIST	DATE
#19	70	162	15	37½	39	11½	12½	10½	21 3/4	15	31	2-19-70
	70	163	14 3/4	36	37	11¼	12	11	21 3/4	15	32	3-17-70
	70	166	15	36	38½	11½	12½	10½	22½	15½	32½	4-20-70
	70	165	15	36	38¼	11½	12½	10½	22½	15½	32½	5-19-70
#20	70	137	13½	32	34	10½	10 3/4	10	19	14½	29	2-19-70
	70	142	13½	33¼	35	10 3/4	11½	10	19½	14½	31½	3-17-70
	70	142	13½	33½	36	11	11½	10	20 3/4	13½	31	4-20-70
	70	141	13½	33 3/4	36¼	16 3/4	11¼	10	20 3/4	13½	31	5-19-70
	65	113	13½	31	33½	9	10½	9¼	18½	13	25	2-19-70
#21	65	117	13½	31 3/4	34¼	10	10 3/4	9 3/4	19	13½	25	3-17-70
	65	115	13 3/4	31 3/4	34	9 3/4	10 3/4	9½	19	13	24 3/4	4-20-70
	65½	113½	13½	31 3/4	34	9½	10½	9½	19	13	24 3/4	5-19-70
	70	125 3/4	13½	32½	34	9 3/4	10½	9½	17½	13½	28½	2-19-70
	70	127	12 3/4	33	35	10	11	9½	18½	13½	28½	3-17-70
#22	70	127½	12 3/4	33¼	35	10	11	9½	18½	13½	28½	4-20-70
	70	128	12 3/4	33¼	35	10	11	9½	18½	13½	28½	5-19-70
	62	137	14½	35½	38	10½	13	10¼	19½	14	31	2-19-70
	62	137	14¼	35	37½	10¼	12½	10	18 3/4	14	30	3-17-70
#23	62½	142	15	36½	38½	11	13	10¼	20½	14	31½	4-20-70
	63	147	15¼	36 3/4	38 3/4	11¼	13	10¼	20½	14	32	5-19-70
	68½	143	14	33½	36	10½	12	10½	19	15	29	2-19-70
#24	68½	147	13 3/4	33	34 3/4	11	12½	10½	19½	15	28 3/4	3-17-70
	68½	146	14¼	34½	36½	11	12	11	20¼	15	29	4-20-70
	68½	149	14½	34 3/4	36½	11	12	11	20¼	15	29	5-19-70

TABLE IX (continued)

NAME	HEIGHT	WEIGHT	NECK SIZE	CHEST	CHEST EXPANDED	BICEP	BICEP FLEXED	FOREARM	THIGH	CALF	WAIST	DATE
#25	69	3/4	147	33 1/2	35 1/2	10	11	10	19	15	28 1/2	2-19-70
	69	3/4	146	33 1/2	34	10 1/2	11 1/4	10 1/4	20 1/4	14 3/4	29 1/2	3-17-70
	69	3/4	148 1/2	33 1/2	34 3/4	10 3/4	11 1/2	10 1/2	20 1/4	14 1/2	29 1/2	4-20-70
	69	3/4	148 3/4	33 1/2	34 3/4	10 3/4	11 1/2	10 1/2	20 1/2	14 1/2	29 1/2	5-19-70
#26	69	3/4	138 1/2	33 3/4	37	10	11 1/2	9 1/2	19 1/2	13 3/4	27	2-19-70
	69	3/4	141 1/2	34 1/2	36 1/2	10 1/2	11 1/2	10 1/4	20 3/4	14	28	3-17-70
	70		139	34 1/2	37	10 1/4	11	10	20	13 3/4	27 3/4	4-20-70
	70 1/4	3/4	137 3/4	34 1/4	37	10	10 3/4	10	20	13 3/4	27 3/4	5-19-70
#27	63	3/4	120	31 1/2	31 1/4	10	10 3/4	10	19	13 1/2	27	2-19-70
	63	3/4	121	33 1/2	34 1/4	10 1/2	11	10 1/2	19 1/2	13 3/4	28	3-17-70
	64 1/4		129 1/2	33 3/4	35 1/4	10 1/2	11 1/4	10	19 3/4	13 3/4	28 1/2	4-20-70
	64 1/2		123	32 3/4	35 1/2	10 1/4	11	10	19 1/2	13 3/4	28 1/4	5-19-70
#28	68 1/4		130	33	34 1/2	10	11 1/2	10	19	13 1/2	28	2-19-70
	68 3/4		136	32 3/4	33 3/4	10 1/4	11 1/2	10	19 1/4	13 3/4	28	3-17-70
	69		139	33 1/4	34	10	11 1/4	10	20	14	29	4-20-70
	69 1/2		136	33	34	10	11 1/4	10	20	14	29	5-19-70
#29	68		111	32 1/2	33 1/2	9	10	8 1/2	17	13 1/4	27 1/2	2-19-70
	68		115	32 3/4	33 3/4	9 1/4	10 1/2	9	18	13	27 3/4	3-17-70
	68 1/4		116	33 1/2	35	10	10 1/2	9	17 3/4	13	28	4-20-70
	68 3/4		116	33 1/2	35	10	11 1/2	9	17 3/4	13	28	5-19-70
#30	64 1/4		117	31 1/2	34	9	9 1/2	9	17 1/2	13	29 1/4	2-19-70
	64 3/4		120	31 1/4	33	9	10	9	17	13	28 1/2	3-17-70
	64 3/4		125	32	34	9	10	9 1/2	19	12 1/2	28 1/2	4-20-70
	65		125	31 3/4	34	9	10	9 1/2	19	12 1/2	28 1/2	5-19-70



TABLE IX (continued)

NAME	HEIGHT	WEIGHT	NECK SIZE	CHEST	CHEST EXPANDED	BICEP	BICEP FLEXED	FOREARM	THIGH	CALF	WAIST	DATE
#31	66 $\frac{1}{2}$	131	14	32 $\frac{1}{2}$	34	10	12 $\frac{1}{2}$	10	18	13	28 $\frac{1}{2}$	2-19-70
	66 $\frac{1}{2}$	133	14 $\frac{1}{2}$	32	33 $\frac{1}{2}$	10 $\frac{1}{2}$	12	10 $\frac{1}{4}$	18	13	29	3-17-70
	66 $\frac{1}{2}$	134	14 $\frac{1}{2}$	33	34 $\frac{1}{4}$	11	12	10 $\frac{1}{2}$	19	12	3/4 29	4-20-70
	66 $\frac{1}{2}$	135	14 $\frac{1}{2}$	33	34 $\frac{1}{4}$	11	12	10 $\frac{1}{2}$	19	15	3/4 29	5-19-70
#32	71 $\frac{1}{4}$	170	14 $\frac{1}{2}$	37	39	13	13 $\frac{1}{2}$	11 $\frac{1}{2}$	20	15	33 $\frac{1}{2}$	2-19-70
	71 $\frac{1}{4}$	171 $\frac{1}{2}$	14 $\frac{1}{2}$	38 $\frac{1}{2}$	39 3/4	12 3/4	13 $\frac{1}{2}$	11 $\frac{1}{4}$	21 $\frac{1}{2}$	15 $\frac{1}{4}$	33	3-17-70
	71 $\frac{1}{2}$	173 $\frac{1}{4}$	14 $\frac{1}{2}$	38 $\frac{1}{4}$	40	13	14	11 $\frac{1}{2}$	21 3/4	15 $\frac{1}{4}$	33	4-20-70
	72	176	14 $\frac{1}{2}$	38 $\frac{1}{2}$	40 $\frac{1}{4}$	13 $\frac{1}{4}$	14 $\frac{1}{4}$	11 $\frac{1}{2}$	21 3/4	15 $\frac{1}{2}$	33	5-19-70
#33	65 $\frac{1}{2}$	106	12 $\frac{1}{2}$	31	33 $\frac{1}{4}$	9	10 $\frac{1}{2}$	9 $\frac{1}{4}$	17	12	24 3/4	2-19-70
	65 $\frac{1}{2}$	106	12 3/4	32 $\frac{1}{4}$	34	9 $\frac{1}{2}$	10 3/4	9 $\frac{1}{4}$	16 3/4	12 $\frac{1}{2}$	24 $\frac{1}{2}$	3-17-70
	65 3/4	104 $\frac{1}{2}$	12 3/4	31 3/4	33 $\frac{1}{4}$	9	10 $\frac{1}{2}$	9 $\frac{1}{4}$	17	12 $\frac{1}{2}$	24	4-20-70
	66 $\frac{1}{4}$	105	12 $\frac{1}{2}$	31 3/4	33 $\frac{1}{2}$	9	10 $\frac{1}{2}$	9 $\frac{1}{4}$	17	12 $\frac{1}{2}$	24	5-19-70
#34	61 $\frac{1}{2}$	103	12 $\frac{1}{2}$	31	32 3/4	9	10 $\frac{1}{4}$	9	16 3/4	12 $\frac{1}{2}$	25 $\frac{1}{2}$	2-19-70
	61 3/4	105 $\frac{1}{2}$	12 3/4	31 $\frac{1}{2}$	32 $\frac{1}{2}$	9 $\frac{1}{2}$	10 $\frac{1}{4}$	9 $\frac{1}{4}$	17 3/4	12 3/4	25	3-17-70
	61 3/4	106	12 3/4	31 $\frac{1}{2}$	33 3/4	9 $\frac{1}{4}$	10 $\frac{1}{4}$	9 $\frac{1}{4}$	18	12 $\frac{1}{2}$	25	4-20-70
	62	105 $\frac{1}{2}$	12 3/4	31 $\frac{1}{2}$	33 3/4	9 $\frac{1}{4}$	10 $\frac{1}{4}$	9 $\frac{1}{4}$	18	12 $\frac{1}{2}$	25	5-19-70
#35	66 $\frac{1}{2}$	139	13 $\frac{1}{2}$	31	33 $\frac{1}{4}$	10 $\frac{1}{2}$	11 3/4	10 $\frac{1}{2}$	20 $\frac{1}{2}$	14 $\frac{1}{2}$	26 $\frac{1}{2}$	2-19-70
	66 $\frac{1}{2}$	147	14	33 $\frac{1}{4}$	34 3/4	11 $\frac{1}{4}$	12 $\frac{1}{2}$	11	21 $\frac{1}{4}$	15	29	3-17-70
	66 3/4	137 $\frac{1}{4}$	14	33 3/4	35	11 $\frac{1}{2}$	12 $\frac{1}{2}$	11 $\frac{1}{4}$	21 3/4	15 $\frac{1}{4}$	29 $\frac{1}{4}$	4-20-70
	66 3/4	151	14	33 3/4	35	11 $\frac{1}{2}$	12 $\frac{1}{2}$	11 $\frac{1}{4}$	22	15 $\frac{1}{2}$	29 3/4	5-19-70
#36	70 $\frac{1}{2}$	138	14	32	32 $\frac{1}{4}$	10 $\frac{1}{2}$	12	10 3/4	19 $\frac{1}{4}$	14 $\frac{1}{2}$	27	2-19-70
	70 $\frac{1}{2}$	141	13 3/4	31 $\frac{1}{2}$	32 $\frac{1}{2}$	10 $\frac{1}{2}$	11 $\frac{1}{2}$	11	18 $\frac{1}{2}$	14 $\frac{1}{4}$	27	3-17-70
	70 3/4	143	14 $\frac{1}{2}$	33 $\frac{1}{2}$	34 $\frac{1}{4}$	11	12 $\frac{1}{4}$	11	20	14 $\frac{1}{4}$	27 $\frac{1}{4}$	4-20-70
	71	145	14 $\frac{1}{2}$	33 $\frac{1}{2}$	34 $\frac{1}{2}$	11	12 $\frac{1}{4}$	11	20	14 $\frac{1}{2}$	27 $\frac{1}{2}$	5-19-70

TABLE IX (continued)

NAME	HEIGHT	WEIGHT	NECK SIZE	CHEST	CHEST EXPANDED	BICEP	BICEP FLEXED	FOREARM	THIGH	CALF	WAIST	DATE
#37	67	114	13	31	32½	9	10	9½	17½	12½	27	2-19-70
	67	115	12½	30	33	9	10	9½	17	12½	26	3-17-70
	67	116	13	30½	33	9	10	9½	18½	12½	25½	4-20-70
	67	118	13	30½	33	9	10	9½	18½	12½	25½	5-19-70
#38	69½	155	13½	34	36	11	12	10½	21½	14½	31½	2-19-70
	69½	158	14	35½	36	11	12½	11 3/4	21	14½	30	3-17-70
	69 3/4	161	14	35½	36	11	12½	11 3/4	22½	15	33	4-20-70
	69 3/4	158	14	35½	36	11	12	11 3/4	21	14½	32	5-19-70
#39	72½	157	14	35	37	10½	12	10	18½	14 3/4	31	2-19-70
	72½	160	14½	35	36 3/4	11	12½	10½	21½	14 3/4	31	3-17-70
	72½	160	14	37	38	11½	13	11½	21½	15	31	4-20-70
	72½	169½	14½	37	38½	11½	13	11½	21½	15	31	5-19-70
#40	70½	141	13½	34	35½	10½	11½	10	18½	14½	28	2-19-70
	70½	143	13½	33½	35½	11½	12½	10½	19½	14½	28½	3-17-70
	70½	143	13½	34½	36	10½	12½	10 3/4	19½	14½	30	4-20-70
	70½	142½	13½	34½	35 3/4	10½	12½	10 3/4	19½	14½	30	5-19-70
#41	71½	127	14	33½	34½	9 3/4	10 1/8	9½	17½	13½	29½	2-19-70
	71½	129	13½	33½	34 3/4	9½	10½	9½	19	12 3/4	29	3-17-70
	71½	130	14	34	35½	9½	10½	9½	19	13	29	4-20-70
	71½	128½	14	34	35½	9½	10½	9½	19	13	29	5-19-70
#42	65½	122½	12½	31½	33	10	10½	9	20	14	29	2-19-70
	65½	122½	13	33½	34½	10	10 3/4	9	19½	14	29½	3-17-70
	65½	124	13	33	34½	10	11	10½	20	14½	30	4-20-70
	65½	123½	13	33	34½	10	11	10½	20	14½	30	5-19-70

TABLE IX (continued)

NAME	HEIGHT	WEIGHT	NECK SIZE	CHEST	CHEST EXPANDED	BICEP	BICEP FLEXED	FOREARM	THIGH	CALF	WAIST	DATE
#43	$60\frac{1}{2}$	$92\frac{1}{2}$	12	29 $\frac{3}{4}$	30 $\frac{3}{4}$	9	$9\frac{1}{2}$	$8\frac{1}{2}$	16	$12\frac{1}{4}$	25	2-19-70
	$60\frac{1}{2}$	$95\frac{1}{2}$	12	$29\frac{1}{2}$	$31\frac{1}{4}$	9	10	9	16	$11\frac{1}{4}$	$25\frac{1}{2}$	3-17-70
	$60\frac{1}{2}$	95	12	$28\frac{1}{2}$	$30\frac{1}{2}$	9	$10\frac{1}{4}$	9	$16\frac{1}{4}$	$12\frac{3}{4}$	25	4-20-70
	$60\frac{1}{2}$	$97\frac{1}{2}$	12	$28\frac{1}{2}$	$30\frac{3}{4}$	$9\frac{1}{4}$	$10\frac{1}{4}$	9	$16\frac{3}{4}$	$12\frac{3}{4}$	25	5-19-70
#44	67	$118\frac{1}{4}$	13	$30\frac{1}{4}$	33	$9\frac{1}{2}$	10	8 $\frac{3}{4}$	18	$12\frac{1}{2}$	$25\frac{1}{4}$	2-19-70
	67	$120\frac{1}{2}$	13	31	33	10	11	$9\frac{1}{4}$	17 $\frac{3}{4}$	12	$26\frac{1}{4}$	3-17-70
	$67\frac{1}{4}$	120	13	32	$34\frac{1}{4}$	10	11	$9\frac{3}{4}$	$18\frac{1}{4}$	$12\frac{1}{4}$	$26\frac{3}{4}$	4-20-70
	$67\frac{1}{2}$	121	13	32	$34\frac{1}{4}$	10	11	$9\frac{3}{4}$	$18\frac{1}{4}$	$12\frac{1}{4}$	$26\frac{3}{4}$	5-19-70

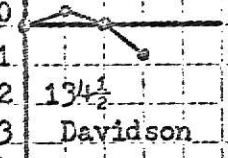
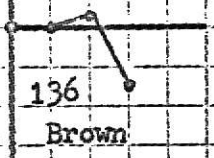
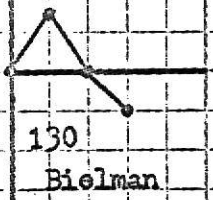
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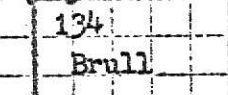
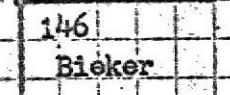
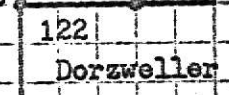
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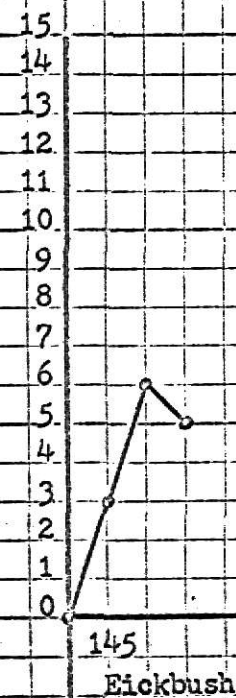
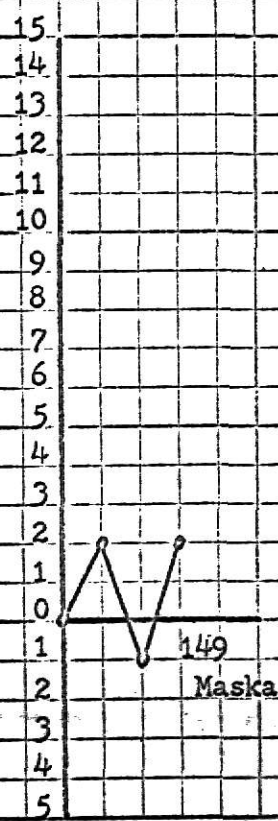
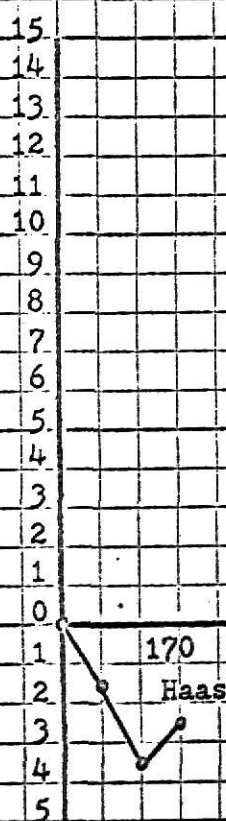
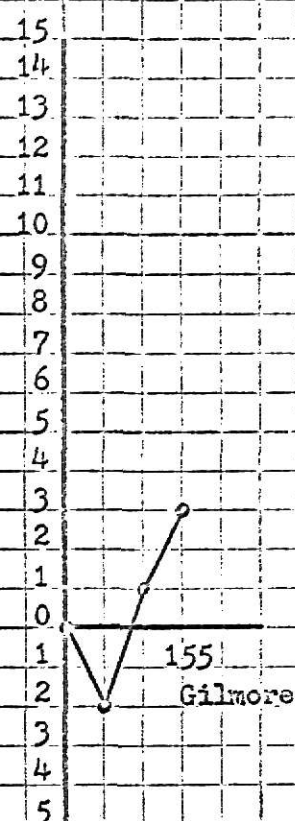
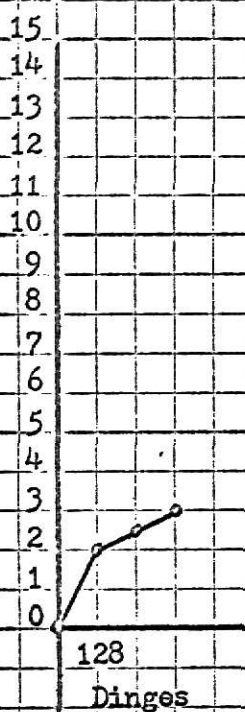
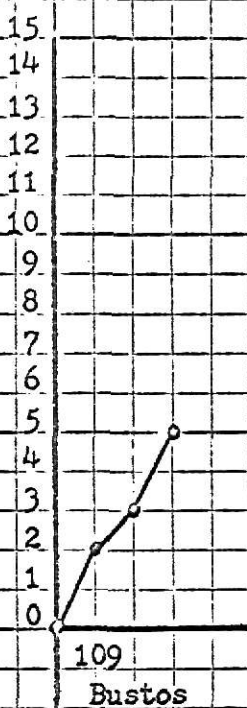


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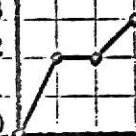
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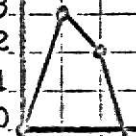
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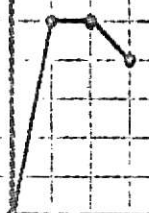
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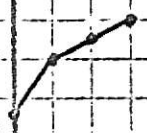
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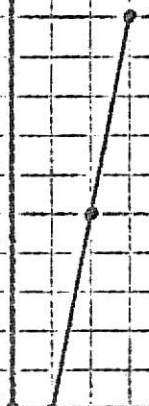
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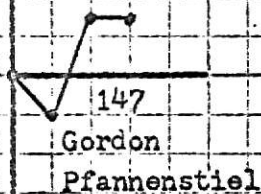
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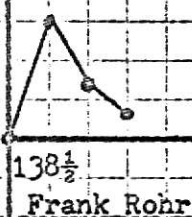
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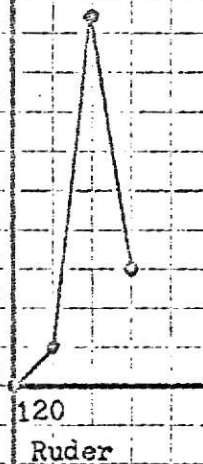
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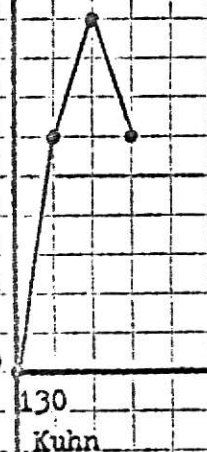
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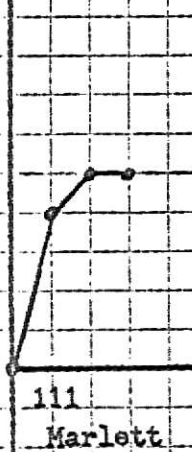
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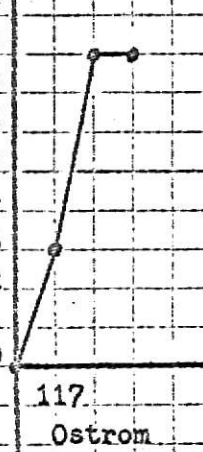
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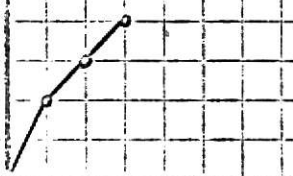
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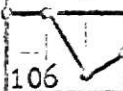
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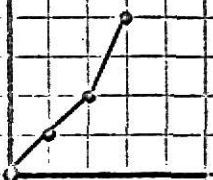
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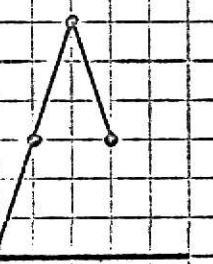
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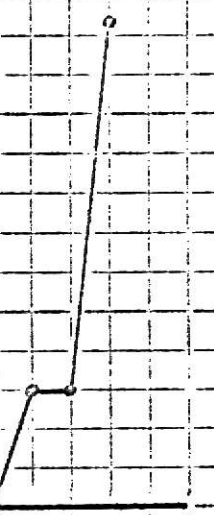
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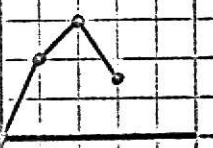
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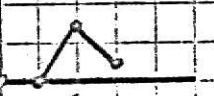
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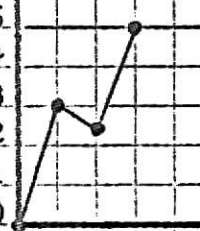
122 1/2  
Greg Pfannenstiel



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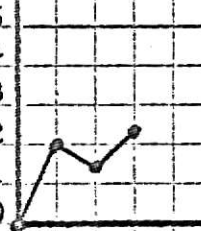
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$118\frac{1}{2}$

Conrad Rohr



## APPENDIX D

## Activity Survey P.E. 1970

Name \_\_\_\_\_  
Age \_\_\_\_\_

1. What kind of physical condition are you in:  
1. excellent 2. good 3. fair 4. poor
2. Do you follow a program of exercise:  
1. regularly 2. often 3. sometimes 4. not at all
3. Do you exercise:  
1. daily 2. bi weekly 3. weekly 4. not at all
4. How physically active are you:  
1. exhaustingly 2. very 3. little 4. not at all
5. Do you follow a program with exergiene:  
1. exhaustingly 2. very hard 3. easy 4. not at all
6. Do you follow a program of weight training:  
1. exhaustingly 2. very hard 3. easy 4. not at all
7. Do you have a job and is your job physically:  
1. exhausting 2. hard 3. average 4. not at all
8. Do you do chores at home and are they physically:  
1. exhausting 2. hard 3. average 4. not at all
9. Do you have a class in physical education and is it physically:  
1. exhausting 2. hard 3. average 4. not at all
10. Do you participate in a spring sport and is it physically:  
1. exhausting 2. hard 3. average 4. not at all

A COMPARISON OF BODY WEIGHT GAIN OF A GROUP  
IN A WEIGHT TRAINING PROGRAM COMPARED TO A GROUP  
IN A PHYSICAL EDUCATION CLASS WITHOUT A WEIGHT TRAINING PROGRAM

by

JOHN E. SALAVANTIS

B. A., Ottawa University, 1966

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AN ABSTRACT OF A MASTER'S REPORT

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Physical Education

KANSAS STATE UNIVERSITY  
Manhattan, Kansas

1971

The purpose of this study was to show significant advances can be made and meaningful experiences gained from a well organized program of physical education built around weight training and body conditioning.

1. That a program of this sort was in fact a good physical education program.
2. That it is in keeping with the aims of physical educators.
3. That it fulfills the ideals of a well rounded physical education program.
4. To develop the organic systems of the body to the end that each individual may live at the highest possible level.
5. To provide opportunities for controlled participation in physical activities that will result in educational experiences.
6. To develop skills in activities and favorable attitudes toward play that will carry over and function during leisure time.

The selection of the study group was based on interested participants asking to join. There was no limitation as to size or body type.

The selection of the control group was based on a random selection from a group of required physical education classes. There was no stipulation as to size or body type.

The findings of the study were as follows:

1. The study group showed significant weight gains with forty-one members gaining weight. The average gain for this group was 7.80 pounds.

2. That in a comparable group not using weight training that only 35 participants gained weight and that their average gain was 5.11 pounds.