A SUGGESTED JUNIOR HIGH CROSS-COUNTRY PROGRAM

by 6791

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B. S., Kansas State University, 1969

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

Approved by:

Major Professor

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CHAPTER 1

Introduction

During the last five years there has been a revival in the development of an old activity--running. Books have been written on the subject by many notable authorities including Dr. Ken Cooper, director of the United States Air Force Physical Fitness program, and Garth Gilmour, with assistance from Arthur Lydiard, National Track Coach of New Zealand. All of these men emphasize the need for exercise. They express the belief that today's standard of living is not conducive to good health. New Zealand, Australia, Canada and the United States all have high standards of living. They also have the highest rates of heart disease in the world. In London three years ago, tests were made on bus drivers and conductors which showed that coronary trouble was twice as prevalent among the drivers. While the conductors were on their feet and active, the drivers were sitting down.[1] The results of this study show what can happen to the average person's health.

However, as bad as it may seem, the trend is turning. In Eugene, Oregon jogging clubs have a total of 3000 joggers. In New Zealand, the Auckland Joggers Club alone has that many running. People are running all over the world at all times of the day. They are running for their health and recreation.

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1. Garth Gilmour, Run for Your Life, p. 12.

The young person as well as the old should be running. Gilmour states, "Medical men have proved that the cardio-respiratory system will begin to deteriorate at age 13 if the person doesn't exercise."[2] This statement alone is enough to justify running for the young boys. The President of the United States has established a Council on Physical Fitness in order to raise the level of fitness in the youth of our country. People in general are becoming more interested in physical fitness and are trying to stimulate interest in others.

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2. Garth Gilmour, Run for Your Life, p. 12.

CHAPTER 2

Purpose

For the young boy, junior high is a good time to start running. His body is growing and he will be reaching puberty soon. A program of running will exercise and condition the body organs for years to come. What to run, how to run, and the reasons for running are the purposes for writing this report. Cooper explains various exercises in his book, Aerobics, but he emphasizes that running tops them all for general body exercise. Cross-country running can provide for maximum physical fitness of the individual. Dr. Norris Jefferson, President of the New Zealand Federation of Sports Medicine states, "I am convinced that if the running system of exercise for the human body does nothing else but increase our resistance to illness and disease it has helped to attain to a very worthy goal."[3] But cross-country running can do more than increase resistance to illness. It can become one of the most enjoyable experiences the runner will ever have. Many runners continue running after their competitive years. To them it is recreation, not work. This is one of the desired outcomes of the program.

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3. Garth Gilmour, Run for Your Life, p. 1.

CHAPTER 3

Method of Study

In preparing this report literature pertaining to the subject was collected. The Kansas State University library, the personal library of Deloss Dodds, track coach at Kansas State University and comments and opinions of high school and junior high school cross-country coaches in the State of Kansas were used as resources. All data collected was then studied and analyzed for its use in the report. The suggested workouts are of the expressed opinion of the author. These workouts are based on physiological principles stated in the report.

Many track and cross-country coaches do not understand the relatively simple physiological principles involved in training. It is most unfortunate that these people do not spend the time gaining the knowledge to understand these principles. With a better understanding, many coaches and athletes would attain more enjoyment and success both on and off the track.

CHAPTER 4

Review of Literature

As with all athletic endeavors, a program of cross-country will help to stimulate the boy to become a better individual physically and mentally. Newton says cross-country and running in general is a "way of life."[4] He suggests, "I think we let the world mold us. Everyone is afraid to be active. We're afraid to go across the street to help someone in trouble. It is a world where everyone kind of daydreams. But brother you can't daydream in athletics. You must be active and you've got to put your thoughts into muscle and you've got to do something." Athletics is the first point in a boy's life where he is in a position to do the best he possibly can. Counsilman states, "Character and personality are the result of two factors: (1) inherent qualities and (2) the stresses placed upon the individual and the adaptation that he makes to those stresses. Athletics give him the chance to meet those stresses. The coach and parent will be there as a guide."[5] Some will fail, but to learn to get up and try again until you do succeed is what it's all about. If a boy can learn this, the program has been successful whether the boy won or not. There is one point that should be made. Success at this stage should be measured in individual improvement and not in the number of ribbons an athlete has on the wall.

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4. Joe Newton, The Long Green Line, p. 1.
5. James Counsilman, The Science of Swimming, p. 319.

Counsilman says, "Trophies, medals, and national age groups are poor objectives. .... every age-grouper can learn, however, that to get the most from his potential he must apply himself and work hard, intelligently, and consistently; the transfer of this principle to everything he does and will do later depends on the effectiveness of the program in which he is involved."[6] Counsilman's comment is concerned with age-group swimmers but can be applied to any child in any sport. Running will develop the boy physically, sharpen his mind toward work, frustration and success, and with experience in these areas help the boy in later years.

The program will introduce the boy to an excellent form of recreation. Garth Gilmour in Run for Your Life states that there is no more rewarding way of exercising than by distance running.[7] Indeed, running exercises a person more than any other activity known to man. It works all parts of the body both inside and out. With the increasing amount of leisure time available, running and jogging are becoming more and more popular. The trend should continue.

The program allows more students to participate in an extra-curricular activity. Many junior high schools have football in the fall and no other sports available. Cross country will fill this void.

The program must prepare the boy for future running whether it be in high school, college or organized clubs. What areas

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6. James Counsilman, The Science of Swimming, p. 319.
7. Garth Gilmour, Run for Your Life, p. 73.

should be developed? At this age the boy is probably growing faster than any other time in his life. His overall body coordination will be poor, so here is one characteristic that should be improved.

For another, Garth Gilmour states, "The day you begin to bust yourself and put strain on your body, you begin to wear your condition down. This is noticeable with athletes who do a great deal of speed training (all out sprinting over a short distance) without first conditioning for stamina. They wear their condition down as fast as they build it up. They may reach peak level of performance fairly quickly but they can't hold it like the stamina man. They reach a peak once and then tend to decline. They become mentally sick of exercise because their kind of exercise constantly hurts. To prevent this hurt it's important to condition the body extremely well and carefully if you want it to keep on performing consistently over a long period."[8]

Gilmour says that an individual must build up his stamina or endurance. A person with a great deal of endurance will become better, easier than a person without it. Therefore, our program should increase the runners' general endurance and stamina. We are not interested in peaking a boy for maximum performance. If a boy is going to run later he'll have plenty of chances to peak out.

Besides these physical conditions, the proper running form

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8. Garth Gilmour, Run for Your Life, p. 83.

that will minimize effort will be taught. Running can become so effortless that it seems like no work at all.

But what of the boy who doesn't go on? Will all this hurt him in the future? Arthur Lydiard, National Track Coach in New Zealand, punished himself by running around 200 miles to see what would happen to his body. He quit for several years then started again and after several months was back in old form. He states, "The benefits of the development of muscles and internal organs through long-distance running lasts for years afterwards and can be retrained by only a light program of exercising."[9] Cooper found the same thing to be true in his program of aerobics.[10] A boy running in the program can benefit for the rest of his life by just exercising to keep himself fit. What greater reward is there!

The program should be fun and enjoyable for the boy. This is one of the most important aspects of the program. A program that puts so much emotional pressure on everyone concerned that there are crying scenes, angry words between parents and children, coach and children, and coach and parents is obviously a program with misplaced emphasis. Running should be enjoyable. The lower the pressure on the boy the better. A smiling happy coach will relax the squad and provide an atmosphere in which all will have the fun and enjoyment that is necessary.

Wes Dutton, cross-country coach at Trailridge Junior High in Shawnee, Kansas and currently one of America's best distance

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9. Arthur Lydiard and Garth Gilmour, Run to the Top, p. 53.
10. Dr. Ken Cooper, Aerobics, p. 45.

runners, states his philosophy this way: "My program tries to provide all interested students, regardless of ability, an opportunity to participate in competitive athletics, and to gain physical fitness through a well-organized program. I believe this should be a 'low-pressure' atmosphere with emphasis placed on individual improvement and enjoyment rather than on individual competition and team achievement."

A low-pressure atmosphere and emphasis on individual improvement are both essential. Enjoyment and fun are imperative. If these things are present the base for an excellent program will be laid.

To summarize, the program should help develop the boy's coordination and physical endurance, and should help mold confidence in himself, his character and his personality.

CHAPTER 5

Definition of Terms

Coaches are always hearing words such as aerobic, anaerobic, and oxygen debt. They will say they understand them but they don't. They may know a definition but not how to apply this meaning to actual circumstances. This is unfortunate to both the coach and runner, for the principles are very easy to understand.

Aerobic running is working in a state where inhaled oxygen is transported by the blood, and it is the principal material for breaking down of sugars for energy. The by-products from this reaction are carbon dioxide and water which can easily be disposed of by the blood. Running aerobically is running in a "steady state"; the body is not using any more oxygen than is being absorbed.

Anaerobic running is working in a state where phosphates stored in the muscle break this sugar down for energy. Oxygen is not used because there is none available. The person is doing too much work for the amount of oxygen he is inhaling. The by-products from this reaction are certain acids including lactic acid. The blood cannot transport this away as readily as carbon dioxide, so it continues to build up at the site of work. Lactic acid has one main drawback. When enough of it has accumulated in the area, it paralyzes the muscle by slowing down

the impulse from the nerves to the muscles. Oxygen is needed to get rid of lactic acid. Since there is no oxygen, a debt is being made. If the person continues to work anaerobically the debt gets larger. When he quits working, the body immediately starts taking in oxygen to break down the lactic acid. The amount of oxygen it takes to break down all the lactic acid and reach a point where oxygen is breaking down the sugars is called the oxygen debt.

When does a person start creating an oxygen debt?

Nett says, "If in the carrying out of a certain task in a given time unit a body needs a certain quantity of oxygen, the oxygen requirement reaches its maximum from the very start of the task."[11]

The requirement is maximum at the start but what about actual absorption? When does it reach a maximum?

Nett says, "The maximum requirement does not apply to the actual absorption of oxygen. As breathing and heart action only gradually grow stronger and accustom themselves to the given working conditions, oxygen absorption begins only gradually with the commencement of the work and attains maximum oxygen requirement only after some time. Thus the body suffers an oxygen debt which must be made up for after the completion of the task in the period of recovery."[12]

Therefore, when a person starts an activity (running) he immediately starts an oxygen debt. The greater the task the

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11. Fred Wilt, Run Run Run, p. 214.
12. Ibid.

greater the oxygen debt will become. Hill has found that the oxygen debt of an athletically trained person is somewhere around 15-20 liters.[13] During an athlete's task he can build up acids in the blood and muscle; when he finishes it will take 15-20 liters to burn them up. A normal person has an oxygen debt capacity of 4-6 liters. After this the body will stop work to allow time for oxygen to get rid of the wastes. Persons running short distances will not develop a debt large enough to become unbearable. However, after 220 yards, oxygen debt will begin to show. Karpovich has calculated that a person can run forty-three seconds without breathing.[14] Runners will breathe during a race, but the faster the pace the less amount of oxygen is taken in, thus insuring an oxygen debt.

Nett says, "The greater the effort, the less effective becomes the exportation of the oxygen breathed in. In strenuous performances only a quarter to a fifth of the oxygen brought in is passed on into the blood in the given unit of time and hence to the working muscles. Thus the main factor in the limitation of oxygen absorption capacity is simply the size of the blood-stream, the maximum output per minute of the heart. Sustained effort (distance runs) are therefore achieved predominantly by performance of the heart."[15]

In middle distances from 440 yards to a mile, the ability to withstand an oxygen debt is most important since the runner

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13. Fred Wilt, Run Run Run, p. 215.
14. Ibid., p. 214
15. Ibid.

is using more oxygen than he can take in. In long distance running it is different. At first the runner produces an oxygen debt. He is, however, forced to organize his speed so that looking ahead, his expenditure of effort is no more than he can bring oxygen into his muscles via his bloodstream (steady state). Thus oxygen supply and energy output are balanced. Only in the final sprint does the long distance runner make use again of the last portions of the maximum possible oxygen debt. Therefore, the long distance runner does not really need anaerobic running. It is more important to be able to take in and absorb oxygen than stand a large oxygen debt.

In summary, the faster a person runs, the more energy he uses, thus making a need for more oxygen. When a person runs at a steady state he is using oxygen at the same rate he is absorbing it into the bloodstream. This is running aerobically. When a person runs at a fast pace he is using more oxygen than he is absorbing thus creating an oxygen debt. This is running anaerobically.

CHAPTER 6

Discussion

Types of workouts

What should a junior high boy do for workouts? Newton suggests the following for the first day of summer workouts before the boy's first year at high school.[16] These boys have never run before in an organized program.

> Jog 1 mile: 3 miles @ 1/2 effort (not 1/2 speed);
> 15x110's @ 7/8 speed; jog 1 mile.

This is a total of six hard miles for the first workout. Wilt suggests the following workout to be used at any time for any distance the boy is training for:[17]

> Jog 3/4 mile: 3x60 yds. with 15-50 sec interval each:
> 3x120 accelerators sprints. Walk 1 min int.
> 2x220 Jog 220 after each then walk 5 min.
> 3x120 accelerators sprints. Walk 1 min int.
> 3x60 yds. Walk 15-30 sec after each
> Jog 440 in 3-4 min.

Here are two successful coaches and their ideas as to what a person of this age group should be running.

Before stating a plan for workouts let's look at what one is doing physiologically. The coach is trying to develop two things in the runners. He wants them to leave his program with a greater capacity for general stamina and endurance and added muscle co-ordination and muscular strength. Several different types of

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16. Joe Newton, The Long Green Line, p. 105.
17. Fred Wilt, Run Run Run, p. 234.

running workouts have been developed over the years by both coaches and doctors which have an effect on different parts of the body. Briefly these are:

OVERDISTANCE or LONG DISTANCE RUNNING

Running continuously at a distance over racing length at a slower than race pace. An example would be an easy six mile run with no particular time. Theoretically if a 100 yard dash man ran a 220, this would be overdistance. However the idea is to run continuously for a long distance or period of time, remaining in a "steady state." This type of workout acts on the cardio-vascular system. It increases the size of the heart, increases stroke-volume or amount of blood pumped to the body, increases the elasticity of blood vessels, increases the efficiency of this system and increases the amount of capillaries in body organs--especially the skeletal muscles. Thus, this increase makes it possible for more oxygen to be delivered to the muscles and allows for more carbon dioxide and other wastes to be carried away at a faster rate. In general, it is probably the best exercise a person can do for his body.

INTERVAL TRAINING

Interval training has been a confusing technique. Coaches and runners alike have confused the actual meaning of interval training with other types of training. Interval training is defined as running, jogging or resting, then running again. Interval training depends on five factors: 1) distance run; 2) time of run; 3) number of repetitions run; 4) time of interval; 5) and to a lesser degree what a runner does during the interval

(i.e. jogging or walking). Depending on what a runner does with these five factors, the runner can either work on the cardiovascular system or the muscular system. Therefore, we will split it up into three groups: 1) interval training; 2) repetition or tempo; and 3) sprint work.

True interval work will increase the size of the heart and improve circulation. It involves the running of a distance (usually 220-600) at a relatively slow pace (40-44 seconds for 220), taking an adequate interval and then running again. The interval is usually based on the heart rate and after running, it should be somewhere around 180. The interval should be the time it takes the heart to drop to 120-125, and then the person runs again. During this interval the heart is adapting to the increase in work by enlarging in order to carry out the oxygen demand the runner has put on the body.

REPETITION

The difference between this and interval training is the time and distance of the run. The distance run is anywhere from 220-1000 yards with the speed somewhere around three-fourths to seven-eighths effort. There is now a different effect on the body. Because of the increase in speed the runner is doing more work, thus he needs more oxygen. This increase in oxygen cannot be delivered by the heart and lungs, so he creates an oxygen debt which must be repaid after he finishes. The amount of the oxygen debt which a person can stand is one of the things repetition running will improve. The interval activity will usually

be walking because of the increased amount of work expended. Once again the runner will not run until his pulse rate is near 120-125.

In general, repetition running will help increase muscle metabolism or the ability to do work without oxygen.

SPRINT TRAINING

Sprint training is running as fast as one can for a short distance (40-100 yards). The interval between sprints is long, allowing for complete rest. This work will first increase the strength of the muscle, and then increase the coordination between muscles and nerves, thus allowing for the most efficient form of running.

FARTLEG

This training was developed in Sweden by Gosta Hulmer. It literally means "speed play." Here the runner will run over natural surfaces such as the woods, plains, golf courses, etc. While running the runner will intermittently take short bursts of speed, slow down for awhile, and then speed up. This is all on his own or at a predetermined distance. It is a tough type of training but can be enjoyable.

STRENGTH TRAINING

Strength training involves the use of weights for various exercises in order to develop an increase in the cross-section of muscle or in the ability of the muscle to endure a task.

Setting up of workouts

These are the types of workouts available to the coach and anything he does will fall into one of these areas. Which ones does he use and when? Lydiard says, "The training of middle and long distance runners is like a jig-saw puzzle. The coach has to know each part such as long distance running, interval training, speed runs, sprint training, speed play, but must fit them into the proper place. To put the puzzle together is the great art of coaching."[18]

Let's look at the objectives the coach should set up. The runner should leave the program with a greater capacity for general endurance, stamina, muscular coordination and strength. The coach should not care whether they can run 40x220's or not. Therefore, he should do those workouts which will build general endurance and coordination and strength.

German sports medicine advisor Professor Nocker says, "A real dose of general endurance work is a decisive factor in further building up special endurance. The more thoroughly and carefully the foundation of general endurance is constructed, the higher the structure of special endurance which can be erected upon it."[19]

Toni Nett says, "Continuous training can be compared to the part played by a slow warm up. Nowadays no one believes that a great performance can be demanded of the organism without a long

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18. Fred Wilt, Run Run Run, p. 231.
19. Ibid., p. 176.

warm-up. It should be just as self-evident that general endurance must first be developed before we can proceed to concentrate on building up special endurance."[20]

General endurance is the ability to carry out prolonged work involving the action of many muscle groups and placing great demands on the cardiovascular and breathing system. It enables each well-prepared athlete to cope with extended work of large or moderate intensity.

Special endurance is that endurance peculiar to certain aspects of sport. An example is a pole vaulter vaulting for several hours or a tennis player hitting a tennis ball for hours. This endurance results only from repetition of the actions involved in this form of sport.

The running coach wants general endurance. At this age level the runner should build as broad a base as possible. Coach Lydiard believes in this stage of training so much that each year he has his runners go through four months of marathon training in which the runners cover 100 miles a week and sometimes as much as 150 miles a week.[21]

There is a general consensus of opinion that general endurance is the first and most important ingredient in the development of the runner. How is general endurance built? Figure A is an attempt to show the various components of training and their effect upon the body. As the chart shows overdistance and interval training accomplish this by increasing the heart size

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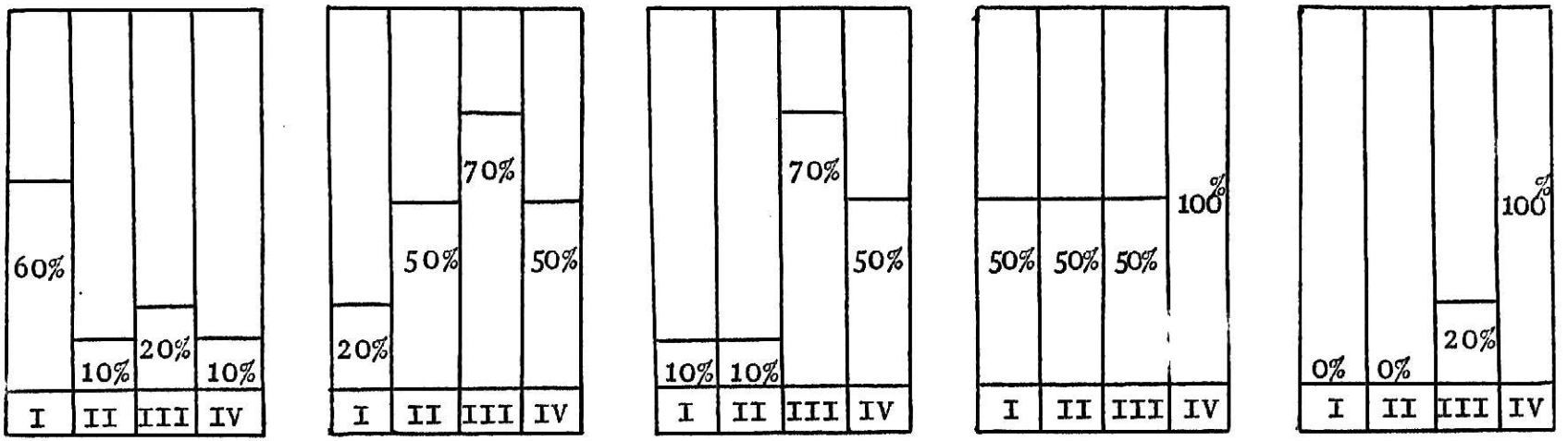
20. Fred Wilt, Run Run Run, p. 177.
21. Arthur Lydiard and Garth Gilmour, Run to the Top, p. 79.

The following graph represents the various components of running training and their effects upon the conditioning process.

I = STRENGTH II = SPEED III = LOCAL MUSCULAR STRENGTH IV = GENERAL STAMINA



Nett in Run Run Run

Figure A

and developing new functional capillaries. Overdistance is the continuous running of long distances. It does not build the heart as fast as interval training but it has been shown that the development will last longer. Professor Nocker says, "All methods will help achieve the goal. (Long distance, Fartleg, and interval training). The interval training is time saving with a high stimulus, but, has the disadvantage that the achieved condition may not be long lasting. The time consuming long distance running achieves the same results but the effect is stable, a solid foundation to build on for the other method."[22]

Lydiard expressed his opinion, "Some coaches prefer to reach condition endurance through interval training in a short time, instead of slowly, through marathon running. This is wrong. We can create an interesting marathon training, and most important the athlete will achieve a stable form."[23]

Increased heart and capillaries is desirable but there is no particular hurry. Overdistance will bring about the same consequences as interval training with a better finished product. It will also accomplish this with a minimum of psychological stress. The objective at junior high is for the boy to enjoy running and continue afterwards if he so desires. There is no desire to "get everything out of him" just to introduce him to running and prepare for the future. Newton shows how much his boys run in their workouts (mostly interval and repetition) and how they sacrifice. His justification is unknown. Most of his

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22. Fred Wilt, Run Run Run, p. 270.
23. Ibid.

runners never run in college. They are "burned out," if that term is usable. The runners at the top of world listings are not 19 to 20 years of age but between 25 and 30. A seventeen year old boy has at least ten years before he'll probably reach his peak. Stick with overdistance in junior high and wait until later to start special training.

The other objective was muscular coordination and muscular strength. Figure A shows that running fast will accomplish both of these. Strength training will also increase muscular strength. Sprint training is not the same as interval or repetition. Complete recovery is allowed after the race. All boys like to run fast and most like to race against each other. This enjoyable type of competition will not only help spirits remain high but also will develop much needed coordination. Many boys of this age will be very uncoordinated in their movements and any activity they do will improve their efficiency of movement. The more efficient, the less energy involved and the longer and faster a boy can run.

Strength training should be accomplished the same as running. The boys should be doing exercises which develop endurance first and total strength later. Light weight with many repetitions will bring this about.

To summarize, we are trying to build general endurance and muscular coordination and strength. The best way to develop endurance is by long continuous runs. The best way to develop muscular coordination and muscular strength is by sprint training and strength training. Using this knowledge a week's

workout could be devised as follows:

Example of Early Season Workout

Monday

Jog 1/2 mile warmup
Calisthenics and stretching
2-3 miles easy pace
4-6 x 50 yd @ 7/8 effort 7-10 int.
Jog 1/2 mile warm down

Tuesday

Jog 1/2 mile warmup
Calisthenics and stretching
4-6 miles Run-Walk
Weights

Wednesday

Jog 1/2 mile warmup
Calisthenics and stretching
2 mile run @ 1/2 effort or
special day
4 x 110 striders

Thursday

Jog 1/2 mile warmup
Calisthenics and stretching
4-6 mile Run-Walk
Weights

Friday

Jog 1/2 mile warmup
Calisthenics and stretching
4 mile Fartleg course

Saturday and Sunday

Try and run 10-12 miles total

Later in the season more sprints would be beneficial. Striders are run in which the runner increases his speed as he

runs until he is running at full speed. An example would be to run first 40 yards easy, next 40 yards faster, and sprint last 30.

Look at the workouts at the first of this chapter. Newton's workout will have the boy running anaerobically at least in the last mile of the 3 mile run and during all of the workouts. Wilt's workout with the fast interval will do the same thing. However, after looking at the principles involved these are not the type of workouts needed at the junior high level.

The facts already shown have pointed out that the long distance runner needs aerobic running to build endurance. These workouts are largely anaerobic which builds muscle metabolism. This is why these types of workouts are not advised.

Special Workouts

Obviously, kids running long, slow distances every day will become bored in no time at all unless they love to run. Therefore, perhaps once a week, the coach should inject something into the workout to spark up interest. Some ideas are presented here.

In drag racing, cars are started with one getting a time handicap based on past performance. In bowling, a team will spot another team so many pins to allow closer competition. Why not handicap a race in track? At certain points in the training program you will want the boys to run hard. In a handicap race of say, one mile, the boys in the rear will push to catch up, the boys in front will run hard knowing they have a chance to be victorious. The only big problem is determining the handicap.

Coach Newton has done this. He has devised a formula for handicap races. The formula is as follows:[24]

1. Find the yards per second for the fastest boy on the team.
2. Find the yards per second for the individual.
3. Subtract the two and find the difference.
4. Find the total number of seconds run for one mile by the fastest boy.
5. Multiply the difference in yards per second by the seconds run by the fastest boy.

This will give the total handicap in terms of yards.

To find yards/second divide the total number of yards run by the total number of seconds it took to run it. Chart A, shown in the appendix, shows the time for the mile (Column A), total number of seconds (Column B), and yards per second (Column C). A race like this one will add enthusiasm and probably produce a close finish! Afterwards a run of several miles would finish the workout. In most cases the boys will probably run in a group discussing how each one will best the other in the next race.

Relay races with the victors getting a reward of an early shower will result in sounds of happiness. Here, too, the team should be evenly divided and the distance run not too long. This may be a good way to end practice and still get in those sprints.

Possibly the best way to break the monotony is not to run at all, at least in the sense that has been discussed. Once

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24. Joe Newton, The Long Green Line, p. 58.

again the objectives are to have fun, build endurance and coordination. Take time out to let the boys enjoy other sports. Basketball and volleyball are two of the best sports for developing coordination. A number of the runners could be basketball players. A little free-lance scrimmage won't hurt anybody. Another activity that will stimulate more running without the boy realizing it is catching a football. Have the boys line up and throw them the deep pass. The boys will have to sprint at least 30-50 yards. After an hour of this they will be tired and so will the quarterback!

One of the ways to make running long distances interesting is to have as many courses in the country as possible. Never run the same course all the time. Glenn Ogden, distance runner at the University of Missouri, related this story to the author:

"I ran in the Texas Relays in Austin, Texas, three years in a row. Friday and Saturday morning I would go out for a nice easy five to six mile run before the meet. My first year I ran through south Austin. My junior year I ran through west Austin and east Austin, and my senior year throughout the campus. Because of running, I saw the whole town of Austin, and in a view that very few see."

In the same way young boys may see the countryside in a view they've taken for granted. They may even see things which will help them to understand biological principles of ecology. In this way running may help the boy in other areas of school. Run as many courses as possible with perhaps a special course that one may want to time them on. Never run on the track,

especially if it's asphalt. Always run on a grass course. Dirt roads are also good. Running through a small creek is good for a change of pace.

Another activity which might raise eyebrows is swimming. Swimming is an excellent form of exercise, second only to running in conditioning the entire body. Cooper readily suggests the use of swimming for physical fitness if running is not suitable to the individual. Lavery states, "Two of the most popular reasons put forth against swimming are: 1. it lengthens the muscles, and 2. it makes the muscles soft and flabby. First, the length of the muscle is determined by the muscle origin and insertion. This is a fact and cannot be changed. Second, soft and flabby muscles are not found in our nationally and internationally rated swimmers. Instead they are tough, well-muscled athletes."[25]

What about the advantages of swimming? Swimming develops the cardiovascular and respiratory systems, (general endurance). Therefore the runner will lose nothing in shape by swimming. But the biggest aspect that will come up will be psychological. Imagine a September day in Kansas with the temperature around 90°-95°, no wind, high humidity. Imagine the expression on the runner's face when he finds out that instead of running he gets to swim.

Anytime one has an injured runner, he should be swimming not only for conditioning but for therapeutic reasons. The trainers at Indiana University have noticed that sprains and bruises

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25. Dr. James Lavery, "Swimming for Track & Field Athletes," Track Technique, No. 7, p. 197.

incurred by the swimmers respond much more quickly than do those injuries incurred by runners using a whirlpool treatment.

Swimming can be used effectively in the program. How the coach uses it depends on him but he shouldn't disregard it completely.

These are just a few ideas for taking the monotony out of running. However, the coach with kind and encouraging words will help the situation as fast as any other technique.

Meets and Competition

One will probably discover that it will be difficult to get a program started and keep it going without some sort of competition. Kids want to compete. The number and size of meets should be of main concern. Problems may occur in locating schools to compete against. If a school is just starting a program perhaps no school within miles has a program similar to it. Then one will have to resort to an intramural type of competition.

Otherwise, five to seven meets per year should suffice. Most of these should be duals or triangulars. At these meets there should be B-team, C-team or grade level competition. There should be as many races as possible to give everybody a chance to participate. The fewer schools at these meets, the more success the boys will have, thus building up their confidence and encouraging them more. At the end of the year, one big meet with many schools would be good. Here the boy will get the thrill of the "big time." He will experience nervousness, butterflies, etc. An exposure to this kind of feeling is good

if it is low-keyed and not pushed. Here the parent of coach should not pressure the boy to "win or else." Counsilman suggests, "The desire to achieve the most from himself should come as much as possible from within the individual."[26] This is what the program is trying to develop, to get the boy to do his best. Experience at meeting this type of situation is one thing the program is eventually after.

The distance of the race itself will vary with ages. Ninth graders will have no trouble running two miles. Grades seven and eight may run two but probably a mile or a mile and a half would be better. Perhaps during the year a race over a mile and a quarter would be beneficial. It is important to make sure the course is properly marked.

In New Zealand and Australia, cross-country clubs sponsor races for junior (under 19) and colt (under 14).[27] These races proceed from the club championship to center or district champion to national championship. High schools also run duals against schools in their district. They also run a division under 14 years of age. After school, many New Zealanders continue running mainly for their health and social life. Such would be the desired outcome of the junior high cross country program.

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26. James Counsilman, The Science of Swimming, p. 318.
27. Fred Wilt, Run Run Run, p. 130.

Promoting a Program

Many coaches have gimmicks to help keep kids motivated. Such things as T-shirts for running so many miles and top ten lists are invaluable aids. It is still felt that the number one gimmick is the coach himself. His personality and rapport with the kids will usually be enough to keep kids motivated once they start running. However many coaches do not have this combination of traits. Therefore, the following ideas are presented to make running fun and enjoyable.

The idea for T-shirts has been with us for a long time. When to hand them out and for various types of effort is up to the individual coach. The T-shirt is usually purchased by the coach in quantity, then as the boy attains the goal he has the privilege of purchasing the shirt, usually around $1.50 to $2.00. One will discover that most boys will not only purchase the shirt but will wear it to school. This is good publicity. It may be one of the high points of the year for a runner. The following shirts are recommended:

a. Have the top ten or twelve boys on your team or teams wear different color shirts designating them as the top boys, therefore presenting a goal for the others to attain.

b. If your program has an ample supply of money, let your last class keep their practice jerseys. This will require purchasing new equipment every year. It may also be against your school regulations so you should check the policy if there is one.

c. Have shirts which declare the holder to be a member of a certain club. An example would be anybody on the team running under twelve minutes for two miles could be in the eleven minute club. You could have ten minute clubs and twelve minute clubs also. With the younger kids it might be wise to have a six minute mile club, etc. The shirts should be in one of the school colors.

d. Mileage shirts are becoming increasingly popular. In Kansas, Shawnee Mission South High School has kids wearing 5000 mile shirts meaning that the individual has run over 5000 miles.

Mileage clubs are another instance for the rewarding of the runners. Again, the coach is the final authority as to what mileage and under what conditions the miles run constitutes the reward.

In the Shawnee Mission northwest district, Coach Van Rose of Northwest High School came up with a clever idea. All his younger boys wear T-shirts which say simply; Shawnee Mission Run for fun club. This is a great idea. Once again the idea of pressure has been reduced. The boys can do just as the shirts say, "run for fun." This is one of the ultimate goals of the program

Something that the coach can do which will increase the boys attitude toward running is to make sure every boy gets timed, not only for the race but sprints, too, every quarter if possible. Too many coaches forget about those last runners after the top five finish a race. Make sure all others are timed. One

of the worst things that can happen is to inform a boy you failed to time him. He may on purpose fail to run sometime.

Something that might create interest among the boys is to show them how fast in miles per hour a race was run. It is very easy to do and after awhile the boys may be doing it themselves. Every boy knows what it is like to drive 60 miles per hour in a car. In this way his own relative speed can be calculated and at the same time a little math is learned.

A list of the all-time fastest runners in all grades is recommended. Also a list of the runners after they leave junior high may not only help your program but also may change your attitude toward some of your boys. You have to remember that many boys will never develop until they've passed beyond your hands. However, with the base that has been given them, when they do develop, they will be ready for the big time.

Perhaps one of the biggest promoters is never mentioned. That is providing excellent practice equipment. Too many schools hand out anything to wear. If you have the money, buy the best material and best looking equipment. It will be more durable and last longer.

Everybody likes to see his name and picture in the newspaper so try to get it in. This is a must. Get results and pictures into local papers and the school paper and make sure pictures get into the yearbook. These boys deserve it as much as anybody. Finally, be organized. This will promote good publicity as much as anything.

CHAPTER 7

Summary

In summary, a Junior High cross-country program could be beneficial to all runners including those who will continue running in high school and college and those who will not.

It has been shown that of the different types of workouts available to the coach those which will best develop the desired objectives of general endurance and muscular coordination and strength are overdistance and F: tleg for the former and sprint training and strength training (weight lifting) for the latter. These workouts stimulate the body in such a fashion as to create improvement to the areas needed.

It was suggested that the running for special workouts at certain intervals be included to help break the monotony of workouts. These included a handicap race, swimming and participation in other sports.

Competition was limited during the season to five to seven meets. These meets were suggested to be duals or traingulars with a big meet at the end of the year. The use of T-shirts with reference to a certain goal was given as a means of promoting the program. Such things as use of local newspapers, school papers, and school yearbooks were also cited.

In conclusion, further study could be made into the psychological aspects of such a program. Athletics present an

enormous amount of stress on the individual. The program presented here emphasizes a low-pressure, relaxing attitude. Whether this is needed or not would be a good area of study.

APPENDIX

Chart A

Handicap Chart for 1 Mile Race

Min.	Sec.	YPS	Min.	Sec.	YPS
4:31	271	6.494	5:14	315	5.605
4:32	272	6.470	5:15	316	5.587
4:33	273	6.446	5:16	317	5.569
4:34	274	6.423	5:17	318	5.552
4:35	275	6.400	5:18	319	5.534
4:36	276	6.376	5:19	319	5.516
4:37	277	6.353	5:20	320	5.500
4:38	278	6.330	5:21	321	5.482
4:39	279	6.308	5:22	322	5.467
4:40	280	6.285	5:23	323	5.448
4:41	281	6.263	5:24	324	5.432
4:42	282	6.241	5:25	325	5.415
4:43	283	6.219	5:26	326	5.397
4:44	284	6.197	5:27	327	5.382
4:45	285	6.175	5:28	328	5.365
4:46	286	6.153	5:29	329	5.349
4:47	287	6.132	5:30	330	5.333
4:48	288	6.111	5:31	331	5.317
4:49	289	6.089	5:32	332	5.301
4:50	290	6.068	5:33	333	5.285
4:51	291	6:047	5:34	334	5.269
4:52	292	6.027	5:35	335	5.253
4:53	293	6.006	5:36	336	5.238
4:54	294	5.986	5:37	337	5.222
4:55	295	5.966	5:38	338	5.207
4:56	296	5.945	5:39	339	5.191
4:57	297	5.929	5:40	340	5.176
4:58	298	5.906	5:41	341	5.161
4:59	299	5.886	5:42	342	5.146
5:00	300	5.866	5:43	343	5.131
5:01	301	5.847	5:44	344	5.116
5:02	302	5.827	5:45	345	5.101
5:03	303	5.808	5:46	346	5.086
5:04	304	5.789	5:47	347	5.072
5:05	305	5.770	5:48	348	5.057
5:06	306	5.751	5:49	349	5.043
5:07	307	5.732	5:50	350	5.028
5:08	308	5.714	5:51	351	5.014
5:09	309	5.707	5:52	352	5.000
5:10	310	5.677	5:53	353	4.986
5:11	311	5.658	5:54	354	4.971
5:12	312	5.641	5:55	355	4.957
5:13	313	5.623	5:56	356	4.943

Chart A (continued)

Handicap Chart for 1 Mile Race

Min.	Sec.	YPS	Min.	Sec.	YPS
5:57	357	4.943	6:44	404	4.353
5:58	358	4:916	6:45	405	4.341
5:59	359	4.902	6:46	406	4.339
6:00	360	4.889	6:47	407	4.328
6:01	361	4.875	6:48	408	4.317
6:02	362	4.862	6:49	409	4.306
6:03	363	4.848	6:50	410	4.295
6:04	364	4.835	6:51	411	4.283
6:05	365	4.822	6:52	412	4.271
6:06	366	4.809	6:53	413	4.261
6:07	367	4.796	6:54	414	4.250
6:08	368	4.783	6:55	415	4.246
6:09	369	4.770	6:56	416	4.228
6:10	370	4.757	6:57	417	4.217
6:11	371	4.744	6:58	418	4.208
6:12	372	4.731	6:59	419	4.199
6:13	373	4.718	7:00	420	4.190
6:14	374	4.706	7:01	421	4.181
6:15	375	4.693	7:02	422	4.171
6:16	376	4.681	7:03	423	4.162
6:17	377	4.668	7:04	424	4:153
6:18	378	4.656	7:05	425	4.144
6:19	379	4.644	7:06	426	4.134
6:20	380	4.632	7:07	427	4.125
6:21	381	4.619	7:08	428	4.116
6:22	382	4.607	7:09	429	4.107
6:23	383	4.595	7:10	430	4.097
6:24	384	4.583	7:11	431	4.087
6:25	385	4.571	7:12	432	4.078
6:26	386	4.560	7:13	433	4.069
6:27	387	4.548	7:14	434	4.059
6:28	388	4.536	7:15	435	4.051
6:29	389	4.524	7:16	436	4.042
6:30	390	4.513	7:17	437	4.032
6:31	391	4.501	7:18	438	4.024
6:32	392	4.489	7:19	439	4.011
6:33	393	4.478	7:20	440	4.000
6:34	394	4.467	7:21	441	3.991
6:35	395	4.455	7:22	442	3.982
6:36	396	4.444	7:23	443	3.972
6:37	397	4.435	7:24	444	3.963
6:38	398	4.423	7:25	445	3.954
6:39	399	4.411	7:26	446	3.945
6:40	400	4.400	7:27	447	3.935
6:41	401	4.388	7:28	448	3.926
6:42	402	4.376	7:29	449	3.918
6:43	403	4.364	7:30	450	3.910

Chart B

MPH Chart

4:30 - 13.2	5:15	6:00 - 10.0	6:45
4:31	5:16	6:01	6:46
4:32	5:17	6:02	6:47
4:33	5:18	6:03	6:48
4:34	5:19	6:04	6:49
4:35 - 13.05	5:20 - 11.3	6:05	6:50 - 8.7
4:36	5:21	6:06	6:51
4:37	5:22	6:07	6:52
4:38	5:23	6:08	6:53
4:39	5:24	6:09	6:54
4:40 - 12.9	5:25	6:10 - 9.8	6:55
4:41	5:26	6:11	6:56
4:42	5:27	6:12	6:57
4:43	5:28	6:13	6:58
4:44	5:29	6:14	6:59
4:45 - 12.7	5:30 - 10.8	6:15	7:00 - 8.5
4:46	5:31	6:16	7:01
4:47	5:32	6:17	7:02
4:48	5:33	6:18	7:03
4:49	5:34	6:19	7:04
4:50 - 12.5	5:35	6:20 - 9.6	7:05
4:51	5:36	6:21	7:06
4:52	5:37	6:22	7:07
4:53	5:38	6:23	7:08
4:54	5:39	6:24	7:09
4:55 - 12.2	5:40 - 10.6	6:25	7:10 - 8.4
4:56	5:41	6:26	7:11
4:57	5:42	6:27	7:12
4:58	5:43	6:28	7:13
4:59	5:44	6:29	7:14
5:00 - 12.0	5:45	6:30 - 9.2	7:15
5:01	5:46	6:31	7:16
5:02	5:47	6:32	7:17
5:03	5:48	6:33	7:18
5:04	5:49	6:34	7:19
5:05 - 11.8	5:50 - 10.3	6:35	7:20 - 8.2
5:06	5:51	6:36	7:21
5:07	5:52	6:37	7:22
5:08	5:53	6:38	7:23
5:09	5:54	6:39	7:24
5:10 - 11.6	5:55	6:40 - 9.0	7:25
5:11	5:56	6:41	7:26
5:12	5:57	6:42	7:27
5:13	5:58	6:43	7:28
5:14	5:59	6:44	7:29
			7:30 - 8.0

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A SUGGESTED JUNIOR HIGH CROSS-COUNTRY PROGRAM

by

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B. S., Kansas State University, 1969

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

In organizing a junior high cross-country program, goals and objectives must be set up and followed. The program will be of no value to anyone if the coach does not first decide this. Some worthwhile objectives are:

a) To help make the boy a better individual physically and mentally;

b) To introduce him to an excellent form of recreation;

c) To allow more students a chance to participate in extracurricular activities;

d) To prepare the boy for future competitive running if he so decides;

e) To provide an activity that is fun and enjoyable for all.

If these objectives can be met, the successful program will follow.

The program should meet the needs for both the boy who will run competitively in the future and the boy who will not. The latter will receive physiological benefits of running that can easily be retained with simple exercise.

Also, the program must prepare the boy for future running. The program should develop several areas of the body for the individual. One should develop a greater capacity for general endurance and stamina and muscular coordination and strength.

There are several different types of workouts available to the coach which can develop these aspects. They are overdistance, Fartleg training, interval training, repetition training, sprint training and strength training.

Overdistance is running long continuous runs at a slow pace. This develops endurance by enlarging the heart and circulatory system.

Fartleg is running with intermittent bursts of speed. It also develops endurance.

Interval training is running then resting then running again. This develops endurance and also muscle metabolism.

Repetition training is the same as interval training, except the run is longer and faster. It develops muscle metabolism plus strength and coordination of the muscle.

Sprint training is running full speed then taking a complete recovery and running again. This develops strength and speed of muscle.

For developing the desired objectives, overdistances and sprint training are the best workouts available to the coach. Interval training does not produce as stable and broad effect on the body as overdistance.

At certain intervals, special workouts may relieve the monotony of running daily. Swimming, volleyball and basketball are all excellent activities that will also help develop coordination of movement. Other ideas include a handicap race in which the slower runner received a handicap based on a yards per second formula. The formula is as follows:

1. Find the yards per second for the fastest boy.
2. Find the yards per second for the individual.
3. Subtract the two and find the difference.
4. Find the total number of seconds run for 1 mile by fastest boy.

5. Multiply the difference in yards per second by the seconds run by the fastest boy. This will give you the handicaps in terms of yards.

Competition at this level should be limited to five to seven meets. Most of these meets should be duals and triangulars with one large meet at the end of the year. At each meet enough races should be run to allow every runner a chance to run.

The distance run for seventh and eighth graders should be a mile to a mile and a half. Ninth graders can run two miles with ease.

Once the program has started, promoting it becomes a job for the coach. The best promoter is the runner himself. If he is happy then he will tell others.

Also, the using of T-shirts which represent a certain goal is an excellent idea. The coach should also make use of the local newspaper, school paper and school yearbooks for added publicity