



Montana Physical Abilities Test (MPAT) Preparation Guide

The Montana Law Enforcement Academy has established certain physical fitness requirements for acceptance into and continued participation in the Law Enforcement Officer Basic Course. Many years of considerable discussion and debate has generated much confusion and in some instances, scorn, over physical fitness requirements.

It is through this publication that the Montana Law Enforcement Academy hopes to educate the law enforcement and public safety community as to the necessity of physical fitness requirements and why they are so essential to the successful participation in and ultimate completion of the Law Enforcement Officer Basic Course.

First and foremost, agencies and officers must recognize that in order to participate in and successfully complete many of the skill and performance based training modules, student officers must have minimal levels of physical abilities. These skills and performance based modules include but are not limited to defensive tactics, firearms, police vehicle operations course, deadly encounters, arrest simulations, and other simulation scenario participation. Failure on the part of a student officer to have minimal levels of physical abilities results in an inability to perform the skill based tasks and puts the student officer and the remainder of the class at an enhanced risk of failure and even injury.

The physical abilities test used by the Montana Law Enforcement Academy is the Montana Physical Abilities Test (MPAT). MPAT is a hybrid physical ability/job sample physical abilities assessment process designed to evaluate law enforcement officer candidates on essential physical capacities required to satisfactorily perform job duties that are simulated or performed in the training environment.

MPAT requires students to meet specific and measurable standards with respect to physical conditioning. MPAT requires student officers to complete this physical abilities test in the timeframe of 5:30.

Tasks replicated throughout the MPAT process include walking, climbing, carrying, running, vaulting, pulling, jumping, lifting, and pushing.

The Montana Law Enforcement Academy has promulgated Administrative Rule governing the administration of physical abilities testing.

Montana Administrative Rule 23.12.1414, titled, "PHYSICAL ABILITIES PERFORMANCE REQUIREMENTS FOR THE LAW ENFORCEMENT OFFICER BASIC COURSE" states:

(1) All students will be required to perform and pass a physical abilities test prior to acceptance into the law enforcement officer basic course.

(2) A document detailing fitness requirements, academy expectations, and student preparation procedures will be furnished to all students who register for the basic course.

(3) Student performance will be measured at times during and/or before the basic course. These testing times may consist of the following:

(a) an entry physical abilities test within 90 days of the start of the basic course;

(b) midterm physical abilities test; and

(c) final physical abilities test.

(5) Students who arrive at the academy with an injury or condition that prevents them from attempting any of the prescribed physical abilities tests will not be accepted into the basic course.

(6) At the prescribed physical abilities tests, the student must pass required levels of performance as prescribed by administrative policy. Students who fail to meet the required performance levels will be given opportunity for retest-within ten business days of the posted date of failure. Failure to pass the prescribed physical abilities test may result in expulsion or termination from the basic course.

Excelling in Physical Fitness

Preparing to Test and Participate

The physical fitness requirements of the Montana Law Enforcement Academy Law Enforcement Officer Basic program can be mastered with emphasis on three major areas. These include:

1. proper diet and nutrition;
2. proper fitness training; and
3. injury prevention.

Diet and Nutrition

There are more diets available and more people on diets than at any time in our history, yet our population is more overweight now than ever. Chances are you or someone you know is on some type of weight loss diet. Seventy percent of our population is considered overweight while thirty percent are considered obese.

What does this have to do with the physical abilities requirements of the Montana Law Enforcement Academy? Generally, being overweight lowers your chances of successfully completing the physical abilities test. Imagine running 1.5 miles or doing 35 sit-ups with 20 extra pounds strapped to your body. When you do a push-up you are lifting about 70% of your bodyweight. Obviously, the examples above illustrate the importance of being as “lean” as possible, but that seldom happens when we embark on a weight loss program using the latest fad diets; most of which will cause you to lose muscle and keep body fat.

Case and point is the now popular high protein/low carbohydrate diets that have become so trendy based upon the ability to reduce weight rapidly. The problem with this type of dieting is that it is in direct opposition with two basic nutritional facts:

1. excess protein is stored as fat, and
2. carbohydrates are the energy source of the human body.

Weight management can be broken down into a very simple formula. If you take in more calories than you burn, you will gain weight. If you burn more calories than you take in, you will lose weight. If you take in and burn the same amount of calories, your weight will stabilize. It's that simple. I use the term “weight management” because we can manage all of the parts of the formula. Caloric intake and how those calories are stored or burned are entirely within our direct control. For the sake of weight loss, let's take a closer look at how this formula could work.

There are approximately 3,500 calories in one pound of body fat. Experts generally agree that we should attempt to lose no more than two pounds per week, which equates to 7,000 calories. Now let's assume you take in 2,000 calories a day. We could cut 1,000 calories a day out of our

intake. If we continued to burn the same number of calories in our daily activity, we would lower our intake by 7,000 calories a week, equal to two pounds of body fat.

However, cutting out half of our caloric intake might be difficult. So let's try another approach. Let's start exercising and burning an additional 1,000 calories a day, and leave our caloric intake alone. Unfortunately, to burn an additional 1,000 calories a day, you would have to run for approximately 100 minutes a day, 7 days a week.

There is a third option. We could cut our caloric intake by 500 calories a day, which is only one quarter of our total intake, exercise for 30 minutes a day, change some of our daily habits to include more physical activity, which burns calories, and we've accomplished our goal!

Now that we've talked about how to change that body from a Winnebago into a Ferrari, let's consider what type of fuel our Ferrari needs. In order to perform at its optimum level, your body needs three things:

1. nutrition;
2. exercise; and
3. rest.

Nutrition is your body's fuel, and your body needs a variety of fuels for different reasons.

Water is probably the most crucial fuel our body needs. We use it to lubricate joints, protect the brain and spinal cord, digest food, and regulate our senses and body temperature. It is also the main component in our blood. Approximately 60% of our bodyweight is water. Generally we lose about 10 cups of water each day. Additionally, the fluid in sweat comes from our blood, therefore, when we sweat our blood volume decreases, and that fluid needs to be replaced. When we have a fluid loss of about 2% of our bodyweight we experience dehydration, which in turn causes fatigue and impaired performance. Even inactive people need eight to ten, 8 oz. glasses of water each day. People who exercise need additional water to replace what they use during exercise. Dehydration is a leading cause of fatigue in athletes.

Vitamins and minerals are required by our bodies for overall good health and to function properly. Old myths about taking vitamins for energy are just that, myths. Vitamins are used by the body for cell reproduction and helping breakdown our other fuels. Most of the vitamins and minerals we need can be found in a well balanced diet. However taking one multivitamin daily is not harmful. Notice I said "one". There is a toxicity level in vitamin intake, and taking more than the recommended daily allowance can be harmful.

Fats, believe it or not, are essential in a healthy diet. Unfortunately, most of our diets are too high in fat, especially the wrong kinds of fats. Fish oils, "omega-3 fatty acids" and some fats found in vegetables are generally considered essential, and actually reduce the risk of heart disease. Fat from animals, trans-fatty acids and hydrogenated oil should be avoided when possible. These types of fats increase your blood cholesterol and the risk for heart disease. Only about 30% of your calories should come from fat.

Protein is another nutrient that is often misunderstood and sometimes “overused”. Protein is used to repair muscle tissue damaged by exercising. It does not create power. Excess protein intake is stored as body fat, and can cause kidney and liver problems. People who exercise do need more protein than an inactive person. Unfortunately, some people go overboard in this area. Even for athletes, only about 20% of our calories should come from protein, less for inactive people. Many of the new trendy diets advocate higher protein intake and fewer carbohydrates. The problems you will encounter with these types of diets include:

1. losing muscle instead of fat;
2. a higher risk of heart disease; and
3. not being able to obtain energy required to be physically active.

I think we would all agree that most people want to lose fat, gain muscle, lower their risk of heart disease and have plenty of energy for physical activity. One last note regarding trendy diets; isn't it interesting that you don't hear about any athletes participating in “high protein-low carbohydrate” diets.

Carbohydrates fuel your body during physical activity. It is the “gasoline” our engines run on. However, our gasoline isn't stored in a gas tank. Most of it is stored in our muscles, as a product called muscle glycogen. When you exercise a muscle, you “burn” the glycogen (gasoline) in that muscle and it must be replaced. That's why about 60% of your calories should come from carbohydrates. There are many types of carbohydrates with many different “glycemic indexes”. Staying away from white carbohydrates, like sugar, white flour, etc., could in some instances be considered a sound nutritional habit. But regardless of some diet promotions, carbohydrates can't simply be termed good or bad. It is a little more complicated than that. For example let us compare two popular foods, doughnuts and bagels. A doughnut has approximately 12 grams of fat and 24 grams of carbohydrates, whereas a bagel has 2 grams of fat and 38 grams of carbohydrates.

If you are involved in a strenuous physical fitness routine, you need to make sure you have plenty of “gasoline” in your muscles before you exercise, and you need to “top off your tank” when you're done. You may have heard of runners “bonking” or “hitting the wall” while running. What they are saying, in their own way, is that they ran out of gasoline, i.e. muscle glycogen. Eating a high carbohydrate snack right after a workout is a good way to keep your body from running out of gas. Carbohydrates are essential for people who exercise. But like a lot of things in our diets, if we over indulge and take in too much it will end up in the form of excess fat on our waistline.

Keep in mind that the use of tobacco products and even caffeine can have detrimental effects of physical fitness conditioning. As the adverse effects of smoking and other tobacco use are well understood, you should also realize the immediate affects that tobacco can have on physical fitness conditioning. The use of tobacco products and the ingestion of nicotine can cause a person to become hyperglycemic. Remember from our previous discussion about our “glycemic index”, this particular condition is a result of having too much sugar in the blood stream. Nicotine will also result in an increase in blood pressure. Both of these effects can be detrimental to attaining

a peak performance in testing and participation in physical fitness. Nicotine's effects are short-lived, lasting only 40 minutes to a couple of hours.

Caffeine is a vasoconstrictor. In other words caffeine causes the blood vessels of the body to constrict thereby reducing blood flow to much needed muscles. Caffeine also is a cardiac stimulant and a mild diuretic. As a diuretic it increases urine production, hence robbing the rest of the body from the much needed water you will need to hydrate your body while you are engaged in physical fitness conditioning. The half-life of caffeine in your body is about 6 hours. That means that if you consume a big cup of coffee with 200 mg of caffeine in it, at 7:00 a.m., by 10:00 a.m. only about 50 mg has left our body thereby leaving about 150 mg of that caffeine still in your system. When we do rid our bodies of caffeine, the end result can be fatigue and depression, once again two effects that can be detrimental in peak performance for testing and participation in physical fitness.

We recommend that you avoid tobacco use and caffeine consumption for at least 6 hours prior to participating in any physical abilities testing.

Proper Fitness Training

Preparing for MPAT

This guide is a resource for those individuals preparing for the Montana Physical Ability Test (MPAT). Individuals should consult with a medical or health professional before beginning any new exercise, nutrition, or supplementation program or if any personal health questions arise after reviewing the contents of this guide.

Major Areas of Fitness

1. Flexibility
2. Cardiopulmonary Endurance
3. Muscular Strength
4. Muscular Endurance

A proper physical fitness program can be and should be specific for the job of a law enforcement officer. The program should include all of the major areas of physical fitness as noted and be a total body program. Although physical fitness improvements may be best accomplished at a gym equipped with an array of weights and fitness machines, this guide includes exercises that require little or no equipment.

Hydration

Proper hydration is critical to proper physical fitness. You should drink water before, during and after exercise. Fluids need ample time to saturate the cells of the human body; therefore you should begin hydrating the day before intense activity.

Warm-up and Flexibility

A warm-up serves several functions, including:

1. Increased blood flow to working muscles and joints;
2. decreased likelihood of injury;
3. decrease in pre-event tension;
4. possible improved performance; and
5. improved flexibility.

A proper warm-up includes a few minutes of the same type of activity at a very light exertion level. For example, if a person is warming up in preparation to go running, the person should run in place or for a short distance at a very easy pace.

The next step is to stretch with the intent to improve flexibility and continue the warm-up process. Stretching includes two phases. The first phase is the easy stretch. You should hold the stretch for 10 seconds in a range of motion that produces only mild stretch. The second phase described as the developmental stretch requires a person to move slightly farther to the point where there is more resistance on the muscle. Second phase stretches should be held for another 10 seconds.

When stretching, you should follow these basic rules:

1. Stretch slowly;
2. no bouncing;
3. no pain; stretching should feel good;
4. breathe slowly to help relax; and
5. each stretching sequence should be repeated 2 or 3 times.

Knee to Chest

Area affected: Glutes, Low Back, Hamstrings, Quadriceps

1. Lay flat on your back with your knees bent.
2. To experience mild tension, grab under your right thigh and pull your knee towards your chest.
3. Hold for 10 seconds, and then pull farther to slightly increase tension.
4. Hold this position for 10 seconds.
5. Repeat with other leg.

Knee to Chest-Leg Straight

Area affected: Glutes, Low Back, Hamstrings, Quadriceps

1. Lay flat on your back with your knees bent.
2. Grab under your right thigh and straighten right leg. Do not lock your knee.
3. Hold for 10 seconds, and then pull farther to slightly increase the stretch.
4. Hold this position for 10 seconds.
5. Repeat with other leg.

Leg Cross

Area affected: Piriformis, Glutes, Low Back

1. Lay flat on your back with your knees bent.
2. Place your right outer ankle on the top of your left thigh.
3. To experience a mild stretch, grab under your left thigh and pull your left knee towards your chest.
4. Hold this position for 10 seconds.

5. Repeat with other leg.

Side Quadriceps Stretch

Area affected: Quadriceps, Hip Flexors, Abdominals

1. Lay on your left side.
2. Grab your right shin, just above the right ankle.
3. Slowly pull right foot toward right buttock.
4. While pushing your right hip forward.
5. Hold for 10 seconds, and then pull farther to increase the stretch.
6. Hold this position for 10 seconds.
7. Repeat with the other leg.

Straddle Stretch

Area affected: Groin, Hamstring, Low Back

1. Sit upright with legs straight.
2. Separate your feet as far as you can to what is comfortable.
3. Keeping legs straight, but not locking your knees, bend forward at the waist.
4. Hold for 10 seconds then push down farther to experience slightly more stretch.
5. Hold this position for 10 more seconds.
6. Repeat sequence, this time; take your chest toward your left knee.
7. Return to the starting position and repeat sequence towards the right knee.

Calf Stretch

Area affected: Calves

1. Squat down on the ground with right foot slightly in front of the left foot.
2. Grasp your right shin and rock forward to feel a mild stretch.
3. Hold for 10 seconds, and then push slightly farther to increase the stretch.
4. Hold this position for 10 seconds.
5. Repeat sequence on the opposite leg.

Chest Stretch

Area affected: Chest, Shoulder, Biceps

1. Stand with your right shoulder against the wall.
2. Place your right palm on the wall.
3. To experience a mild stretch, slowly turn your body away from the wall.
4. Hold 10 seconds, and then twist lightly farther to increase the stretch.

5. Turn to the starting position and repeat the sequence with the left arm.

Triceps Stretch

Area affected: Triceps, Posterior Deltoids

1. Stand upright and extend your right arm over your head.
2. Grab your right elbow with the left hand and place right hand on your right shoulder blade.
3. To experience a mild stretch, slowly push your elbow backwards.
4. Hold for 10 seconds, and then push farther to increase the stretch.
5. Return to starting position and repeat sequence with the left arm.

Cardiovascular Training Program

Aerobic and speed training are two training programs listed within this guide. Both aerobic and speed training complement each other and improve aerobic and anaerobic fitness.

Aerobic Training

A cardiopulmonary endurance program should begin at a level that is considered “moderately difficult” but not “difficult.” Initial intensity levels should allow you to be able to speak during exercise. During the first four weeks of aerobic training, aerobic endurance will improve. You should warm-up with a slow jog and 5-10 minutes of light stretching and cool down. After the aerobic training, end with a walk or slow jog and 15-20 minutes of stretching. This program should be done 3 days a week. Off days should include cross training exercises such as biking, hiking, swimming or strength training.

Examples of aerobic training could be as simple as walking, a slow jog to a full jog. You want to be able to walk at a rate of speed that you can still talk. You should not be able to sing. If you can sing you need to pick up your pace of walking. If you have not been jogging, it is recommended that you start out by walking until you feel comfortable to jog.

Speed Training

Speed training involves a repeated series of exercise activities interspersed with rest periods. Speed training is an excellent exercise for improving both aerobic and anaerobic endurance. Running intervals are performed on a track or a marked course with intensity at a rate much higher than the aerobic phase. Once again, you should warm-up and cool down properly when exercising.

Examples of speed training can be as simple as walking/jogging on the track. Walking/jogging the straight-aways and jogging/sprinting on the curves of the track. Another great tool to utilize is stadium stairs at the local high school. You would start with walking or jogging up and down the stairs of the stadium and then you can add a set of 10 push-ups after you complete one set of stairs. On your next set add 20 crunches after you complete a set of stairs.

Over-Training

Over-training identifies the body's need for adequate rest and nutrition following exercise to recuperate before the next exercise session. If a recuperation period is not adequate, over-training will occur. Signs of over-training include increased injury rate, increased resting heart rate, muscle soreness that does not subside after 48 hours, apathy, insomnia, loss of appetite, lack of adaptation to exercise and loss of strength. Over-training must be avoided.

Muscular Strength/Endurance Exercises

Exercises without Weights

Although it is easier to improve muscular strength and endurance with weight equipment, it is also possible to accomplish muscular strength and endurance with some weight free simple exercises. These exercises require minimum equipment and can be done almost anywhere. You should perform these exercises in a circuit moving from one exercise to the next with minimal rest. Initially, exercise should be in the somewhat hard range. This range means do not exercise to failure but start by going through the circuit one time and then gradually progress until the circuit can be completed several times in a row with minimum rest.

Calisthenics Circuit Workout

Chair Squats

Areas affected: Glutes, Quadriceps, Hamstrings

1. Stand in front of a sturdy and stable chair with legs shoulder width apart and toes pointing slightly outward.
2. Hold your arms straight out in front.
3. Slowly lower the buttocks into the chair.
4. As soon as the slightest contact with the chair, slowly stand back up to the starting position.
5. The head should be kept in a neutral position.
6. Inhale while lowering and exhale while standing up.

Push Ups

Area affected: Pectorals, Deltoids, Triceps, Abdominals, Low Back

1. Place your hands on the ground shoulder width apart or slightly more. Keep your feet together and back straight throughout the exercise.
2. Lower the body until the upper arms is at least parallel to the ground.
3. Push up to the initial position by completely straightening arms.
4. Inhale while lowering and exhale while pushing.

Split-Squats

Areas affected: Glutes, Quadriceps, Hamstrings, Calves

1. With feet together, step backward with your right foot about 26 inches behind the left foot.
2. Keep back straight and arms down at side with head neutral, slowly lower your right knee straight down onto the floor.
3. Inhale while lowering and exhale while pushing back up into upright position.
4. Your forward leg should remain vertical throughout motion, with knee directly over ankle. If knee tends to move forward over the toes, adjust back foot further backward.
5. Repeat with other leg.

Bench Steps

Areas affected: Glutes, Quadriceps, Hamstrings, Calves

1. This requires good balance, so initially set the step next to a wall or use a partner for safety.
2. Use a step or bench 6 inches to 18 inches high (no higher than 18 inches).
3. Place your right foot flat on the bench; left foot flat on the floor.
4. Push down with the right foot and step up until both legs are straight.
5. Slowly lower back down to the starting position.
6. Exhale while pushing up and inhale while lowering down.
7. Repeat entire sequence with other leg.

Dips

Areas affected: Pectorals, Deltoids, Triceps

1. Place your hands behind on dip bar or chair with feet straight in front.
2. Bend your arms and lower body in a controlled manner until the upper arms are parallel with the floor.
3. Straighten the arms to return to the starting position.
4. Legs can be bent to keep feet from touching the floor.
5. If unable to perform 3 dips, use a stool or a partner to help up and then lower down slowly.
6. Inhale while lowering and exhale while pushing up.

Abdominal Curls

Areas affected: Abdominal Muscles

1. Sit on the ground with knees bent at 90 degrees.
2. Keeping feet flat on floor and hands at side, slowly curl torso so chin approaches chest.
3. Do not raise torso to more than a 45-degree angle off the floor.

4. Slowly return to slightly above your starting position, keeping abdominal muscles tight at all times.
5. Exhale while curling up and inhale while lowering torso back down.

Swimmers

Areas affected: Erector Spinae (Lower back), Glutes

1. Lie face down on the ground with feet together.
2. Place arms straight out in front.
3. Move the right arm and left leg up at the same time.
4. While the right arm and left leg move down, the left arm and right leg move up at the same time.
5. Continue alternating in a moderate cadence.

Injury Prevention

Some student officers will sustain injuries while testing for acceptance to or while participating in the Law Enforcement Officer Basic Course at the Montana Law Enforcement Academy.

One of the major causes of injury is that students who have not been physically active over a long period of time jump into a rigorous physical fitness routine too quickly. If you haven't run since high school and then start attending the Law Enforcement Officer Basic Course Rock Hard Fitness Challenge three days a week, you may end up with shin splints, IT band syndrome, or a host of other injuries. We find that the primary cause of injuries for runners is improper stride length and improper footwear, both topics to be discussed in more detail later. Keep in mind that foot and leg injuries are slow to heal due to your inability to isolate the affected body part from even minimal exertion.

The best way to reduce the chances of developing injuries is to start participation in a fitness program before testing and participation at the Montana Law Enforcement Academy. To start a physical fitness training regimen two distinct words come to mind, "GO SLOW". Take running for example. If you haven't been running regularly for some time, start out walking three times a week for thirty minutes. After several weeks, add some light jogging. Over time, do less walking and more jogging to the point where you're no longer walking, and your jogging is starting to resemble running. For some people, this process may take 2-3 months. The point is, whether it's running, doing calisthenics or lifting weights, most of us need to ease into a workout routine. Eventually, you can start pushing yourself harder. Just remember that you wouldn't race the engine on that new Ferrari until it was broken in.

Injuries are unfortunate yet in many instances preventable. If you are injured we recommend you seek the appropriate level of medical care. You need to visit with your physician about the various remedies available for the aches, stresses and strains that you may be subjected to as a result of your participation in a physical fitness routine. You should ask your physician about the appropriate use of ice on sore joints and muscles and the possible use of Ibuprofen, Tylenol, Aspirin or other over the counter medicines.

Running Shoes and Proper Stride

As we mentioned earlier, a major cause of injuries is going too hard too fast. The two major causes of injuries we see for runners are improper stride length and improper footwear.

The best stride allows the foot to come down on the ground directly under the runner. Most runners, especially tall or heavy runners, have too long of a stride. A good way to correct this is to time your stride. The perfect stride to pace ratio is 180 steps per minute. If you count your left footfalls for 30 seconds, it should strike 45 times. If it is less than that, you could develop foot, ankle or leg injuries. Practice your pace until you consistently run at 180 steps per minute.

Unfortunately, many students go out and spend over \$100 on a pair of running shoes prior to coming to the Montana Law Enforcement Academy, only to find out that the only thing about the shoe that fits is the length. All running shoe manufacturers have shoes for heavy, medium and light runners, runners with high arches, medium arches and flat feet, and runners who need motion control, stability or cushioning. The difficult part of selecting shoes, is knowing which of the various model of shoes is right for you. Wearing improper shoes for your type running can lead to foot or leg injuries. When you get a new pair of shoes take out the 25 cent insoles they came with and buy and insert a quality pair of aftermarket insoles. Aftermarket insoles can be purchased for approximately \$15 to \$30 and can make a big difference. If you ask any serious runner, they will tell you this is the first thing they do, because the insoles that come with the shoes are not capable of providing the maximum amount of cushioning that our feet require. We cannot stress enough the importance of proper running shoes. Bargain brand shoes, basketball shoes, or even cross-trainers do little to enhance, and, in most instances, inhibit peak performance in running.

Succeeding is all really up to you. Lieutenant Daniel Shell, retired, of the Maryland State Police said it best in his published article in the May 2005 FBI Law Enforcement Bulletin, titled "Physical Fitness – Tips for the Law Enforcement Executive"

"The goal of lifelong wellness is not to produce a "super" law enforcement officer who can push cars; jump over buildings, walls, or other obstacles; and run all day. Law enforcement agencies should implement programs that prepare officers within their own genetic potential to perform their jobs in good health for the length of their careers"

On behalf of the Montana Law Enforcement Academy we wish you well in your pursuit for physical fitness. If we can be of further assistance to you, please do not hesitate to telephone Mr. Jeff Douglass, graduate of the Cooper Institute or Mr. Jim Thomas, certified physical fitness trainer with the American Council on Exercise at (406) 444-9950.