Chute Middle School Physical Education
POLAR Heart Rate Monitors

How do you determine how hard my son/daughter should be working?

There are two universal themes that we teach our students in PE about proper levels of intensity in a workout.

First, is an appropriate target heart rate. Your target heart rate isn't one rate but a range of rates (beats per minute, or bpm), expressed as percentages of your maximum heart rate, that are safe for you to reach during exercise. For most healthy people, the American Heart Association recommends an exercise target heart rate ranging from 50% to 80% of your maximum heart rate, which is normally calculated as the number 220 minus your age. So for our classes we begin with the formula 220 minus your age to equal maximum exercise heart rate. We then calculate our workouts based on what we want to accomplish. Target zones are set based on a child or adolescent's max heart rate is 200 bpm +/- 7bpm. Zones for physical education can be used based on the length of activity time, and the goal. Students should spend time in all three zones to experience the benefits of each. If students are restricted by a short class period, more intense exercise is needed to increase their performance capacity.

TRAINING ZONES

Healthy Heart Zone (Warm up) --- 50 - 60% of maximum heart rate: The easiest zone and probably the best zone for people just starting a fitness program. It can also be used as a warm-up for more serious walkers. This zone has been shown to help decrease body fat, blood pressure and cholesterol. It also decreases the risk of degenerative diseases and has a low risk of injury. 85% of calories burned in this zone are fats! Must increase the time of exercise with the lower intensity.

Fitness Zone (Fat Burning) --- 60 - 70% of maximum heart rate: This zone provides the same benefits as the healthy heart zone, but is more intense and burns more total calories. The percent of fat calories is still 85%. Must increase the time of exercise with the lower intensity and this is difficult to do within a 30 minute class..

Aerobic Zone (Endurance Training) --- 70 - 80% of maximum heart rate: The aerobic zone will improve your cardiovascular and respiratory system AND increase the size and strength of your heart. This is the preferred zone if you are training for an endurance event. More calories are burned with 50% from fat.
Due to the time we are in our exercise zone within a PE class this is the most prevalent zone in our training regimen.

Anaerobic Zone (Performance Training) --- 80 - 90% of maximum heart rate: Benefits of this zone include an improved VO2 maximum (the highest amount of oxygen one can consume during exercise) and thus an improved cardiorespiratory system, and a higher lactate tolerance ability which means your endurance will improve and you'll be able to fight fatigue better. This is a high intensity zone burning more calories, 15 % from fat.

Red Line (Maximum Effort) --- 90 - 100% of maximum heart rate: Although this zone burns the highest number of calories, it is very intense. Most people can only stay in this zone for short periods.

FITT Principle

Think of The FITT principle as a set of rules that must be adhered to in order to benefit from any form of fitness training program. These rules relate to the Frequency, Intensity, Type and Time (FITT) of exercise. These four principles of fitness training are applicable to individuals exercising at moderate training levels and may be used to establish guidelines for both cardiorespiratory and resistance training. With any target zone above the principal of FITT may change the levels of intensity, time and type in regards to the desired zone. For example you can't exercise at 90-100% of MHR for as long as the fat burning zone.

HRM grading is not fair for students that are out of shape as it is not equal?

Actually this is contrary to the very purpose of heart rate monitors and the basics of calculating a target heart rate. Our heart rate monitors are set at a level that is consistent with the recommendations of the American Heart Association which for most students and aerobic workouts will be 140-160 beats per minute. This is equivalent to 70% to 80% of the maximum heart rate. A student that is less in shape cardiovascularly will actually enter the zone at a faster rate than a student that is in shape. Polar heart rate monitors show your students the effect of any exercise on their body. This means you can objectively assess students of all abilities while safely motivating them with instant feedback on their activity.

HRM grading is not fair for students that are in good shape as it is not equal?

Think of the FITT principle as a set of rules that must be adhered to in order to benefit from any form of fitness training program. These rules relate to the Frequency, Intensity, Type and Time (FITT) of exercise. These four principles of fitness training are applicable to individuals exercising at moderate training levels and may be used to establish guidelines for both cardiorespiratory and resistance training. As a department we acknowledge that an elite cross country athlete may have to work harder to get into their zone than a out of shape student, however, 160 bpm for the elite athlete and the less fit student will feel the same. What we hope is that over the course of the year these requirements will even out. The American Heart association does not differentiate between body types in determining exercise levels.

When students walk into a physical education teaching station they should be met with individualized physical programming and information to enhance their knowledge of their own wellness. If they are pushed beyond their limits, to "make a grade", or not challenged enough because they are already "fit" - they lose. Likewise, in math, to get the best benefit, students need to be challenged according to, not regardless of, their math ability. That type of individualized instruction is harder to accomplish in math, than physical education. With heart rate monitors students are motivated, accountable and safe during their classes. The heart rate monitors provide a goal for students to reach. The goal will ensure they are benefiting from class, thus leveling the playing field. Just as the students are held accountable, so are the teachers. The teachers must provide modifications for all activities to ensure the kids have an environment where it is possible to reach their goals. The student's heart rates will act as a tachometer giving consistent feedback on how taxing a particular task is to their body.

Students participating in exercise sessions with heart rate monitors may notice very quickly that not every student is asked to do the same workload, e.g., laps around a track. The goal is to avoid over and under training of each individual. The teacher will educate the students on individual differences and work load vs. working within an individual's capacity. Students may accomplish varying workloads, e.g., laps, reps, etc., but we will keep the body's effort consistent. Student growth is the goal, and monitoring heart rate gives an objective measure of that growth.

How do heart rate monitors help students know they are exercising in the right heart rate zone?

The Polar Heart Rate Monitor

- Helps teachers educate the students to exercise in different heart rate zones which all give different benefits
- Gives students accurate real-time feedback on their exercise intensity
- Allows students to follow their fitness improvement

While heart rate monitors help your students find their personal exercise intensity, they also tell them what zone they should be exercising in for optimum results. Target heart rates and heart rate zones are calculated as percentages of the maximum heart rate (HRmax) and are displayed on screen to keep your students on the right track. Polar heart rate monitors show your students the effect of any exercise on their body. This means you can objectively assess students of all abilities while safely motivating them with instant feedback on their activity.

Can I buy my own strap or transmitter?

No you must use the one that is issued by the school. Although there are many different versions of strap and transmitter and several companies that are making heart rate monitors, the product that we have has been created to fit our product use for Chute.

The HRM are not an accurate measure of my student's effort in class.

In our experience we have found the transmitters to be an accurate measure of a student's heart rate while exercising. This is not to say that there is never a malfunction but usually through: proper fit, moisture on the strap, and attachment of the transmitter we can attain a proper reading. All physically healthy students are capable of achieving a specific zone for the duration of our PE classes. The American Heart Association recommends at least 60 minutes moderate to vigorous (70%-100% of Maximum Heart Rate) everyday or most days of the week in order to gain or maintain a healthy heart fitness level.

The technology is temperamental and is constantly experiencing technical difficulties?

We have not experienced inaccuracies in using POLAR technology with our students. We feel the transmitters accurately display a snapshot of a student's effort in class. In the past our students were graded in the cardio-lab solely on effort as viewed by the teacher. Although our teachers input is still very important the data received from the heart rate monitors is extremely valuable. We have spent the last few years working on professional development for POLAR to become more adept at using the technology. Our heart rate monitors are set at a level that is consistent with the recommendations of the American Heart Association. We believe the system that we use is fair and accurately measures a student's output during class.