Ride with Abandon

Practical Ideas to Include Mountain Biking in Physical Education

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No bikes? No mountains? No problem. This article removes all obstacles to a mountain biking course.

Bicycling is among the most popular fitness activities in the United States, comparable to lifting weights, walking, and running (SGMA International, 1998). A reported 85 million people in the Untied States ride bicycles for recreational and/or commuting purposes (Bicycle Helmet Safety Institute, 2005a). The National Association for Sport and Physical Education (NASPE) suggests that a goal of physical education programs is to promote lifelong activity (NASPE, 2004). It is therefore necessary to offer popular recreational activities, including mountain biking, to students in middle and high schools.

As physical education programs continue to transition toward lifetime activities such as climbing, skiing, and biking, and away from a focus on sport, teachers face the challenge of funding new, often very expensive, equipment such as climbing walls, skis, and bicycles. Although Physical Education for Progress (PEP) and other grants have funded equipment for many of these activities nationwide, teachers, schools, and districts struggle to maintain and replace equipment once grant funding ends. Additionally, children in schools whose teachers have not received grant funds are left behind without adequate equipment available.

Although challenges such as liability and purchasing and maintaining bicycles exist, it is quite feasible to include mountain biking in physical education. This article briefly addresses liability concerns, offers strategies for adding and maintaining mountain biking in a physical education program, and gives some teaching and curriculum ideas.

Liability

Nontraditional activities, such as rappelling, rock climbing, or even biking, are often not offered in physical education because of perceived liability issues (Siedentop, 2004). One could argue there are more safety concerns with students participating in wrestling, tumbling, golf, or even tag games compared with mountain biking. Siedentop (2004) identifies the fact that liability risks involved with certain activities, such as biking, are more perceived than real. Bane McCracken (2001) addresses such concerns appropriately in his text, *It's Not Just Gym Anymore*:

> The liability issue is no greater for teaching mountain biking than it is for any other vigorous activity as long as proper procedures are followed. Make sure to use recommended safety equipment, check for the condition of equipment, provide a safe environment, monitor student activity closely, and follow step-by-step developmentally appropriate teaching procedures. (p. 153)

With proper planning and preparation, the use of effective teaching practices, and a developmentally appropriate curriculum, mountain biking is no more dangerous than any other activity frequently included in physical education.

Obtaining Bicycles

Once the decision is made to prepare a safe and appropriate mountain bike unit of instruction, a common obstacle is how to obtain bicycles. One method that has proven successful in the acquisition of bicycles is to "scavenge" them. For some reason, many abandoned bicycles are left chained to racks at schools and universities, apartment complexes, and elsewhere around towns. These abandoned bicycles provide an opportunity to acquire mountain bikes for physical education classes. Note that I am not suggesting cutting the locks yourself, because that is, of course, illegal!

Campus or city police will tag abandoned bicycles, and then remove them within 7 to 30 days. These bicycles often end up at university surplus, city police departments, or even the dump. Contact campus police at colleges and universities to find out where bicycles are taken and stored, as well as whom to speak with about having bicycles donated or released for little money. Most university campuses have a surplus store where bicycles that are abandoned and not claimed are sold to the public. Inquire about discounts for school uses.

Another approach is to contact managers from apartment complexes around your town and ask about abandoned bicycles. One may find enough bicycles for an entire school with very few phone calls. Be prepared to write letters describing the intended use of the bicycles.

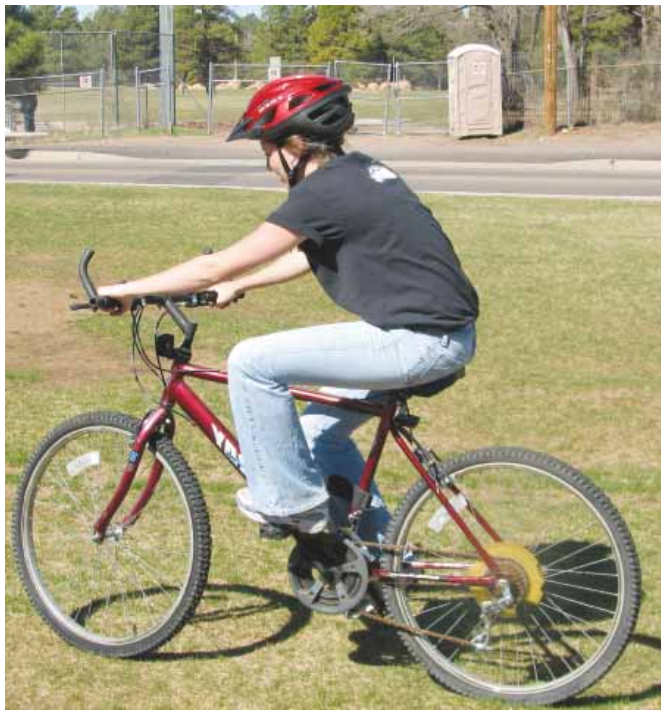
Quality mountain bikes may be found periodically at Goodwill and Salvation Army stores. These are often more costly than the abandoned bicycles found at apartment complexes and around college campuses, but they may be in better condition. If purchasing bicycles, however, make sure to buy higher-quality bicycles, rather than cheap bikes that require more work to maintain.

Finally, it never hurts to send notes home to parents or guardians of students at your school. Many people have a bicycle collecting dust in their garage and are looking for a good cause to get rid of it. Coworkers may have bicycles that their children have outgrown, or that are not used anymore. In addition, students may have bicycles with which they are willing to part. A few phone calls can lead to a large stockpile of bicycles that people are willing to donate if provided a good cause. Be aware of bicycle racks around campuses and towns to locate bicycles that seem to have not moved in a long time, and contact campus or city police to mark the bicycles.

One other important consideration with mountain bikes is whether they have suspension systems. Bicycles with both a rear and front shock are considered "full suspension" mountain bikes. Bikes with only a front shock are called "hard tails," and bikes without a front shock are nonsuspension bikes. Just because a bike has a shock does not mean it is worth your time and money. Avoid full suspension bicycles and stick with hard tails or bicycles with no suspension, because these are easier to maintain and repair. Otherwise, you will find that bicycles will fall into one of three categories: the Wal-Mart/Target Special, Beginner Budget Bicycles, and Golden Bikes.

The Wal-Mart/Target Special. These are the affordable bicycles sold at Wal-Mart and Target stores, and they typically make up a majority of bicycles found or donated. These bicycles have brand names such as Next, Roadmaster, and Jeep and cost up to $250. Although they work, such bicycles are not the best equipment to use in the long term. The parts are more difficult to work with or replace and are often the quickest to break. Remember that it is best to have a bicycle for every student rather than let students stand around and wait their turn. These are the first bicycles that should be phased out once better equipment is acquired.

Beginner Budget Bicycles. These are purchased at specialty cycling stores for between $250 and $500. The parts on these bicycles are most likely made by Shimano, although they are the lower-end versions of Shimano parts. Manufacturers of Beginner Budget Bicycles include Trek, Raleigh, Specialized, and Kona among others. These may initially be



Steve Palmer

Acquiring bicycles—the first challenge in teaching a mountain biking unit—can be accomplished in part through diligent, legal "scavenging."

Steve Palmer

Teaching students to repair their bicycles removes one of the main barriers to continuing participation in mountain biking.

difficult to identify as budget bicycles, because the frames will look identical to very expensive bicycles. You will need to look at the rear derailleur, where the part is often most clearly labeled. Look for parts found on these bicycles labeled Shimano Alivio and Altus. The more of these bicycles you can find, whether rideable or not, the better. The frames are superior to the Wal-Mart/Target Specials, and the parts are worth saving and using to fix other bicycles.

Golden Bicycles. These bicycles are worth their weight in gold when you find them. Bicycles in this category originally cost anywhere from $350 to $10,000 to purchase new. The components are of higher quality and lighter weight, and the frames are generally better. As you look at derailleurs and brakes, keep anything when you see Shimano Deore (good), XT (better) and XTR (best). These components will be the lightest weight and best functioning of what you will commonly find on mountain bikes. Although more rare, particularly XT and XTR parts, these are the components you want to have most frequently on bicycles in your fleet. Other parts worth keeping include SRAM. It will take a lot more time and effort to find bicycles with these higher quality components, but these parts are easier to maintain and are more durable than parts found on the cheaper bicycles. Higher quality parts are harder to find because they are not often abandoned.

When using the scavenger method for bicycle acquisition, plan on securing more bicycles than you think will be needed. As you locate and acquire more bicycles, begin to refine your fleet to include as many Golden Bicycles as possible. As you take on mountain biking in your school, you will want to consider the following:

If It Rolls, Take It. Bicycles that require minimal repair are initially the best choice for your program. Find those that will require only a little oil, some wheel truing (straightening), air in tires, maybe a new tube or tire, or a seat. These are the bicycles to start with. You can get your entire class riding a bicycle with such equipment.

Refine Your Fleet. Once you have more bicycles than students, it is time to refine and upgrade your fleet. Start by removing any good seats and seat posts, tires, wheels, and tubes from the Wal-Mart/Target Specials and get rid of the rest of the bicycle (recycle please). You can then use the scavenged parts to replace broken or missing wheels, tires, and tubes on Beginner Budget or Golden Bikes. As you refine your bike fleet, working bikes that are being replaced by newer and better equipment can be raffled off to fund necessary replacement parts, or given to youngsters to remove barriers to activity.

Stockpiling Parts

The most common repairs will be flat tires, bent rims, and missing seats. For this reason, even if the bicycles you find are not worth repairing, you can still salvage parts from them. The parts you will need most often include:

- *Tires.* You will find both 24-inch and, more commonly, 26-inch tires. If there are no cracks in the tire, and the bead (inside edge of the tire) is in good shape, keep the tires. Stack them in a pile in the back of your equipment room.
- *Seats and seat posts.* These are frequently stolen off of abandoned bicycles, so save the seat and post so that you can put them on a bicycle that needs one or the other, or both.
- *Brakes.* If you see anything with Shimano on it, keep it. Some of your more mechanically inclined students may be able to scavenge parts from these items to fix bicycles and other bicycle parts. As you remove a part, clearly label it and put it and all related pieces in a Ziploc bag. You may even find good brake pads (the rubber part that rubs the rim to stop) to swap to bicycles that need them.
- *Brake levers and shifters.* These often are one piece, although you may find brake levers separate from shifters. By loosening a screw or Allen bolt, these parts will slide off the end of the handlebars. It will be necessary to cut the handlebar grips off to remove the shifters and brake levers.
- *Pedals.* If the pedals are metal, keep them. One side will thread backwards to remove.
- *Derailleur.* These are the parts that move the chain to different sprockets, or chain rings. Bicycles will have one above the pedals/crank set and another on the right side of the rear wheel. You will need to remove the chain to get these parts off.
- *Chains.* Using a chain tool, the chain can be removed and often salvaged. Soak the chain in a biodegradable degreaser for a day to potentially save it for later use. To determine whether the chain is worth keeping, hold a 12-inch ruler next to the chain with the chain lying straight and flat on the ground. The beginning and end of the ruler should fall on the same relative spot on a chain link. If it does not, throw the chain out.
- *Wheels and rims.* If the wheel has a quick-release skewer

(a lever that is used to tighten the wheel onto the bicycle instead of requiring a wrench for a nut or bolt), keep the wheel. These are much better to use in classes because changing tires or fixing flats will not require a wrench. Always replace a wheel that requires a wrench to install with a quick-release wheel whenever possible.

Building a Workshop

Once parts are scavenged and stockpiled (your students can help with this), all you need are tools and students to get started. You will need a lot of tools so your students will have equipment to use to fix the bicycles. You will want to take the same approach with tools as you do with bicycles. Try to find used tools at yard sales and Goodwill and Salvation Army stores. Get to know people at bicycle shops who may donate older tools. Similarly, ask for donations from parents or guardians, youths, and coworkers. Many businesses that are reluctant to provide cash to programs may be glad to donate tools and other materials when asked. Refer to table 1 for a list of necessary and recommended tools and equipment.

As you find tools, also look for boxes to store the tools. Tackle boxes or lunch pails make great tool boxes. The author of this article stores tools in a cabinet that was donated from a dentist's office. Ideally, a full set of tools in a box should be assembled for each group of two to four students. One other tool box is necessary to store tools that are not used as frequently, such as a crank puller or headset wrench. To keep track of tools, place a laminated list in each tool box, or have students check them out and in as needed.

Securing enough equipment may seem overwhelming at first. Once you get started, however, you will most likely find that many people are more than glad to donate good equipment and tools or offer significant discounts in the name of quality physical education. You may even find volunteers from local bicycle shops to help with repairs and with teaching repairs and maintenance. Community programs can help provide helmets, as well as teach riding safety.

Mountain Biking Curriculum

Just as important as equipment is a well-rounded mountain biking curriculum that keeps in view the goal of providing youngsters the tools necessary to be active throughout life. Developing and implementing a mountain bike unit is obviously a large project to undertake. The key to making mountain biking work in your program is effective and appropriate unit outcomes and expectations corresponding with national or state standards. These should include skills to remove barriers, reduce risk of injury, increase self-efficacy, and identify opportunities to mountain bike.

Removing Barriers: Bicycle Evaluation and Maintenance

Teachers may feel overwhelmed with the tasks of obtaining and repairing bicycles. Herein lies the critical piece of the project: instead of providing students with perfect working bicycles, teach them to make the necessary repairs. Research reveals that one of the most consistent correlates of physical activity among adolescents is perceived barriers to activity (Sallis, Prochaska, & Taylor, 2000; Trost, Kerr, Ward, & Pate, 2001). The curriculum, therefore, must address the need to help youths remove barriers to engage in mountain biking outside of school. If students are given working bicycles to use during physical education, they may perceive an opportunity to ride only when they have a bicycle in good repair. This does not teach them to remove barriers to participation on their own outside of school. Students should acquire the skills necessary to fix a bicycle, whether it is changing a tire or lubing a chain, so that they know they have the ability to

Table 1. Necessary and Recommended Tools and Parts

Necessary

- Air pump
- Allen wrenches—get long ones for longer reach and leverage.
- Biodegradable degreaser, rags, and buckets for cleaning bicycles
- Cables and housing—for safety, if the cables on a bicycle are rusted or frayed, or if the housing (plastic/rubber sheath the cable runs through) is cracked, replace them both. There are specific cables and housing for both brakes and derailleur's that are not interchangeable. Purchase in bulk.
- Chain tool—for repairing or replacing parts of the drive train.
- Grease and chain oil
- Helmets
- Screwdrivers
- Spoke wrenches (need 3 sizes)
- Tire levers—helps remove tire from rim
- Tubes—one replacement part you will likely need to purchase. Purchase 24-inch and 26-inch tubes.
- Wire/Cable cutters
- Wrench sets—open and box-end wrench sets, metric and standard (SAE), as well as adjustable-end wrenches.

Recommended

- Bench top vise
- Bicycle gloves
- Bicycle stand
- Crank puller
- Hand cleaner
- Headset wrenches
- Pedal wrench
- Shop aprons
- Utility knife
- Wheel truing stand
- Wire brush

Table 2. Sample Mountain-Biking Unit

Lesson	Topic
1	Biking introduction, bicycle assignment to kids, parts of a bicycle (use figures 1 and 2).
2	Tire and tube maintenance and repair—changing tires, fixing flats, removing and replacing wheels (front and rear). Straightening wheels—use brake pads on a good bicycle for minor adjustments.
3	Project Bicycles—assign students to bicycles with specific major needs. For example, wheel truing on truing stand, derailleur replacement, seat and post replacement, chain removal and replacement, brake cable replacement and adjustment, brake pad replacement and adjustment, derailleur cable and housing replacement and adjustment, shifter adjustment, other. Make repairs.
4	Repair presentation—each group presents the repairs they made to the rest of the class, sharing specific things learned and tips for success.
5	General bicycle maintenance, bicycle fitting, pre- and post-ride inspections, finish minor repairs. Helmet fitting.
6	Pre-ride inspection (conduct every day). Starting and stopping, falling, riding on flat ground, and spinning.
7	Review start/stop and spinning, shifting on flat ground, turning
8	Rules of the road—riding safely on streets
9	High- and low-speed turns, starting and stopping on hills
10	Riding on loose and firm ground, techniques for climbing and descending
11	Obstacles—riding and hopping over obstacles on flat ground, skill obstacle course
12	Single-track riding—etiquette and techniques
13	Single-track riding—trail ride on a trail you make on campus (use marking paint, chalk, cones). Add obstacles, and find hills whenever possible.
14	Internet day—locate local bicycle trails, identify trail difficulty, and get directions to find those trails.
15	Final exam—written test and skill ride. Include simple bicycle maintenance procedures.

fix a broken bicycle and create an opportunity for activity.

A sample three-week unit, which can be adapted to individual student and school needs, appears in table 2. The first segment of teaching mountain biking is bicycle evaluation and maintenance. Each student should have his or her own bicycle, or should share a bicycle with one other classmate. Begin with teaching students to identify specific parts of a bicycle by using a diagram (figure 1) and to evaluate its condition by using an evaluation checklist (figure 2). Once repair needs are identified, groups of students may make the repairs. Afterward, have each group take turns describing for the class the repairs that were made. Encourage them to offer any tips they learned to make the job easier for others who might need to make similar repairs in the future.

Reducing Risk: Safety and Etiquette

Once the bicycles are safe to ride, and the students know how to carry out an inspection to ensure that the bicycles function properly, it is necessary to teach safety and etiquette. There is no piece of equipment more necessary for safety than a helmet. Encourage students to bring their own helmet to wear, but the responsibility will fall on the teacher's shoulders to make sure that the helmets are safe. According to the Bicycle Helmet Safety Institute (BHSI), helmets sold in

the United States must at a minimum meet U.S. Consumer Product Safety Commission (CPSC) standards. To identify whether helmets meet minimal standards, look for a sticker on the inside of the helmet. Acceptable standards include CPSC, American Society for Testing and Materials (ASTM), or Snell's B-95 and N-94 standards. Do not use helmets with a ANSI Z90.4 sticker, as this standard is obsolete (Bicycle Helmet Safety Institute, 2005b).

Once you have identified that the helmets meet safety standards, the next most critical step is to ensure a good fit for your students. According to BHSI, the helmet should comfortably touch the head all the way around and be secured tightly enough to withstand violent shaking. A rule of thumb for determining how tight the strap should be is that one finger should fit underneath the strap, but not two. Bicycle shops, supportive parents, and community members often will help purchase helmets for your students. Many communities have programs to provide helmets for as little as $5 each, but finding helmets may very well be the most expensive part of offering mountain biking.

Safety extends beyond equipment to techniques for riding on streets and trails. Begin by teaching the rules for proper road riding. Make sure students can demonstrate how to signal, where to ride, and what laws apply to bicycle riders. Essentially, if the bicycle is ridden, one must follow the same laws as cars. If the bicycle is walked, one must abide by pedestrian laws. Using cones, chalk, and field-marking paint, teachers can create a miniature street system on a large grassy field or empty parking lot, where students can practice riding and walking their bicycles and following the rules of the road. Trail rules and etiquette—such as minimal impact, riding in groups, and the proper distance from other riders on single-track trails—should be addressed following instruction and practice riding on the street.

Increasing Self-Efficacy: Bicycle Riding Skills

The next element of a mountain bike unit is to teach bicycle riding skills. One key concept when teaching mountain biking is that it is unnecessary to take classes out on single-track rides. All skills can be taught using fields and parking lots available at most schools. This means that all students remain within view of the teacher at all times, an important liability consideration. Cones, hockey sticks, hoops, and other physical education equipment can be used to create obstacle courses. Many sports fields have small hills around them for spectators; take advantage of these or any other hills for teaching climbing and descending, as well as starting and stopping on hills. Other surfaces that are helpful in teaching biking include loose dirt, sand, and rocky areas, which all require different techniques and skills.

Starting and stopping are the first riding skills for students to master. For example, specific instructions for braking might include using three fingers on the rear break and two fingers on the front brake to avoid flipping over the handlebars. Once students safely start and stop, progress to skills such as falling, spinning, slow and fast turns, climbing and descending, and rolling and hopping over obstacles. End the unit with single-track rides and specific etiquette for riding in groups and on single-track trails. Students' mountain-biking skills can improve quite quickly with a little bit of instruction and a lot of riding.

Figure 1. Labeled Mountain Bike

Identifying Opportunities: Biking Outside of Physical Education

The third part of the biking curriculum should address how to obtain a bicycle and locate mountain bike trails. The Internet is a tremendous resource for finding physical activity information, and mountain bike trails are no exception. For example, free web sites such as CompassMonkey.com and DirtWorld.com offer trail descriptions, including difficulty ratings and directions to the trails. Pay sites also exist, such as Trails.com, which provides descriptions of trails in all 50 states. Other web sites within your specific geographic area will undoubtedly exist, often offered through city parks and recreation departments and the National Forest Service. See table 3 for a list of recommended resources. Assignments for students could include locating a trail and creating a plan for getting to it. If the trail is too far away to ride to it, have students describe a bus route they might take, or identify responsible parents or guardians that would take them. McCracken (2001) provides several other examples of mountain biking assignments.

Adding mountain biking to your physical education curriculum is not easy, but the gains are well worth the effort and cost. By taking an approach that guides students to learn to remove barriers and identify opportunities as well as learn motor skills, teachers can help them add another activity—mountain biking—to the repertoire of skills they can use to be active on their own outside of physical education.

References

Bicycle Helmet Safety Institute. (2005a). *Bicycle helmet statistics*. Retrieved December 21, 2005, from http://www.bhsi.org/stats.htm.

Figure 2. Mountain Bike Evaluation Checklist

Mountain Bike Evaluation Checklist

Student Name: Bike Name/Description:

For your assigned bike, check each of the following parts/components and identify whether the condition is "-", which means it should be replaced or is missing, "OK" which means it will work, but will need replacement eventually, or a "+", which means the component is in good shape. Write any other comments next to the list item.

Part/Component	**Condition**	
Frame: (Circle) Aluminum Chromoloy Steel Carbon Fiber	- OK +	
	Rear	Front
Tires	- OK +	- OK +
Tubes	- OK +	- OK +
Rim Strips	- OK +	- OK +
Wheel – Spokes	- OK +	- OK +
Wheel – True	- OK +	- OK +
Quick release Skewers	- OK +	- OK +
Brakes	- OK +	- OK +
Brake Pads	- OK +	- OK +
Brake Cable	- OK +	- OK +
Brake Cable Housing	- OK +	- OK +
Brake Lever	- OK +	- OK +
Derailleur	- OK +	- OK +
Derailleur cable	- OK +	- OK +
Derailleur cable housing	- OK +	- OK +
Shifters	- OK +	- OK +
Headset (circle) Threaded Threadless	- OK +	
Handlebars	- OK +	
Grips	- OK +	
Cranks - Need middle sprocket for specialized bike	- OK +	
Pedals	- OK +	
Bottom Bracket	- OK +	
Cassette/Free Wheel	- OK +	
Stem	- OK +	
Seatpost (Circle Size) 27.0 27.2 Other_____	- OK +	
Seat	- OK +	
Seatpost Collar	- OK +	
Chain (circle) 9 speed 6-8 speed	- OK +	
Front Fork Shock Rigid	- OK +	
Other:		

Bicycle Helmet Safety Institute. (2005b). *A consumer's guide to bicycle helmets: The six minute guide*. Retrieved December 21, 2005, from http://www.bhsi.org.

SGMA International. (1998). *Over past ten years, free weights and treadmills gain popularity to become favorite workouts*. Retrieved December 21, 2005, from http://www.sgma.com/press/1998/press987166935-11250.html.

McCracken, B. (2001). *It's not just gym anymore*. Champaign, IL: Human Kinetics.

National Association for Sport and Physical Education. (2004). *Moving*

Table 3. Recommended Resources

Repair and Maintenance

Allwood, M. (2004). *Mountain Bike Maintenance: The Illustrated Manual*. Tonawanda, NY: Firefly.	Repairing and maintaining mountain bikes, many illustrations and step-by-step directions to help even beginners have success repairing bicycles.
Zinn, L. (2005). *Zinn and the Art of Mountain Bike Maintenance* (4th ed.). Boulder, CO: Velo Press.	Repairing and maintaining mountain bikes, many illustrations and step-by-step directions to help even beginners have success repairing bicycles.

Curriculum and Planning Resources

Hastie, P. (2003). *Teaching for lifetime physical activity through quality high school physical education*. San Francisco: Benjamin Cummings.	Pages 212 to 214 present curricular ideas for teaching mountain biking.
McCracken, B. (2001). *It's not just gym anymore*. Champaign, IL: Human Kinetics.	Pages 153 to 170 present excellent teaching ideas, worksheets, and materials immediately applicable to a mountain biking unit.
Schmottlach, N., & McManama, J. (1997). *The physical education handbook* (9th ed.). Boston: Allyn and Bacon.	See pages 117 to 125. This is more relevant to road cycling, but has good information on basic riding skills such as cadence (spinning), gearing, and mounting/dismounting.
Harnish, C. (2003). Bicycling. In D. P. Mood, F. F. Musker & J. E. Rink (Eds.), *Sports and recreational activities* (13th ed., pp. 98-110). Boston: McGraw-Hill.	Complete general cycling information, including skills, maintenance, and trail-riding rules.
Coello, D., & Chauner, E. (1992). *Mountain bike techniques: An illustrated guide.* New York: Lyons & Burford.	An excellent resource for riding technique and skills, this book is easy to read and presents information in straightforward manner.

Trail Maps & Guides

CompassMonkey.com. (2005). *Your guide to the outdoors*. Retrieved December 21, 2005, from www.compassmonkey.com.	Maps for locating trail riding opportunities.
DirtWorld.com. (2005). *Mountain bike trails, bike parts, mountain biking events and stories.* Retrieved December 21, 2005, from www.dirtworld.com.	Maps for locating trail riding opportunities.
Trails.com. (2005). *Trails, topo maps, hiking, biking, and more.* www.trails.com.	Maps for locating trail riding opportunities. This is a pay site.

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Sallis, J. F., Prochaska, J. J., & Taylor, W. C. (2000). A review of correlates of physical activity of children and adolescents. *Medicine & Science in Sports & Exercise, 32*(5), 963-975.

Siedentop, D. (2004). *Introduction to physical education, fitness, and sport* (5th ed.). New York: McGraw-Hill.

Trost, S. G., Kerr, L. M., Ward, D. S., & Pate, R. R. (2001). Physical activity and determinants of physical activity in obese and non-obese children. *International Journal of Obesity Related Metabolic Disorders, 25*(6), 822-829.

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