Tips for Success on the PRT

Want to improve your PRT score? Want to help someone else do better? Here are a few useful tips for doing well, which should not only help you, but which you can share with your sailors or marines to help them improve when you hit the Fleet.

Year-Round: Consistent Fitness

There's no way to do well on the PRT without keeping at least a basic level of consistent fitness all year round. No matter how good you are at cramming for academic exams, if you sit around on your duff for the six months between PRTs, your results will suffer. Besides, there are lots of other benefits to keeping physically fit: looking and feeling good, prolonging the quality and quantity of one's life, setting the example for one's sailors or marines, and being able to deal better with the physical stresses of military life.

So, how do you get and keep this consistent fitness? Simply follow three steps: Training, nutrition, and rest.

1. Training

   There are basically two components of physical fitness: cardiovascular fitness (how well your body—especially heart and lungs—respond to stress over time) and strength (how much force and speed your muscles can produce). There are hundreds of ways of training for each: a wide variety of sports and other activities (including hiking, dancing, yoga, sailing, and gardening) all build some combination of cardiovascular fitness and strength. When the weather's bad, there are a number of indoor sports and workout machines that can substitute for outdoor activities. Most good cardiovascular workouts will involve your legs somehow and last at least 30 minutes.

   As for focusing on strength training, there are somewhat fewer options (such as plyometrics, calesthenics, and weight training). Perennial PT superstar MIDN Kent notes that especially women need to focus on strength training, particularly because some lack upper body strength: "Too often, you go to the gym and you see all the girls on the cardio machines and only guys lifting weights." She suggests that one low-pressure way to get into weight lifting is to take a class, so that there will be support as you learn what to do. Indeed, each of our campuses provide a variety of classes, intramural programs, and club sports that can help you keep a healthy, active lifestyle throughout the year—similarly, after you are commissioned, you'll find that most bases offer extensive Morale, Welfare and Recreation (MWR) programs that mirror those found on college campuses.

2. Nutrition

As the saying goes, "You are what you eat." Quite literally, the flesh and blood that makes up your body all comes, one way or another, from the food you ingest. Thus, no matter how good your workout program is, if you don't eat right, you won't have good health. Books can—and have—been written on nutrition, but the following is a quick summary of things you can do to eat better:

- *Consistency*. MIDN Kent notes that "if you wish to make long-term changes to upgrade an unhealthy diet, it is easiest to make small changes over a longer period of time than to make many major changes tomorrow." One extreme example of inconsistency is "crash" or "yo-yo" diets, in which one drastically changes one's diet, and then goes back to one's original diet. While a few of these programs work to effect short-term weight change, in the long run you end up worse than when you started—not to mention that it's extremely unhealthy.

  Similarly, unhealthy eating disorders trouble a number of people, both men and women—in fact, a recent study by CAPT Peggy McNulty at the San Diego Naval Medical Center showed that Navy men are more likely than either civilian men or women to show eating disorder symptoms. What kinds of symptoms? Vomiting and using laxatives or weight-control pills (for bulimia), eating very little (for anorexia), constant fatigue, feeling faint or dizzy, missed periods (for women, obviously…if you're a man and you miss a period, you're probably talking about punctuation), and obsession with food. If you think you may show signs of an eating disorder, it's best to get some professional help—or at the very least, talk to a trusted friend, midshipman, counselor, etc. Most of our campuses have good support for this, and in the Navy, most bases have a Fleet and Family Support Center that provides counseling. If you have a friend whom you suspect might be having problems with an eating disorder, be sure to focus on what you have physically observed and how it makes you feel (e.g. "I've noticed that you don't seem to be at the dining hall as much as you used to, and you look really thin…I'm worried about you.").

- *Keep a Record.* One key way to get ahold of your nutrition habits is to find out what you do now. Write down every single thing you eat over the day—including the portion size, as far as you can figure it out. Among other things, this will give you a good idea of how many calories you ingest, and what kinds of things you may be eating too much or little of.

  Note that if you'd like to gain or lose weight, you will have to ingest slightly more or less calories than your "normal" amount. The key word in that sentence is "slightly"—you shouldn't vary the number of daily calories by any more than 500. Remember that the calorie is a unit of energy, and thus there is a balance between the calories you take in and the amount that you "spend" on activities, like exercise. By writing down what you eat and what exercise you do, you can get a better feel for how much food and exercise your body needs. (MIDN Biolo also reminds us that, since the PRT exercises largely deal with moving your body weight, if you have less dead mass [i.e. fat] you have to do less work [in the simple dynamics F=ma sense]…yet another incentive to keep track of your nutritional habits. And to review simple dynamics.)

- *Exercise Moderation.* No food is inherently bad. (Well, except *nato*, Japanese fermented soybean paste. That stuff is evil!) Any food—even the "worst" junk food—can be part of a balanced diet, so long as you don't go overboard.

  Another aspect of moderation is portion size: one unfortunate aspect of American culture is the notion that you have to "clean your plate," weather or not you are full already. Start with smaller portions and take what you actually want to eat—not what you feel you "should" eat. It's also generally more healthy to have more, smaller meals as opposed to few, larger meals. This is one of many reasons why it's important to have breakfast.

- *Water*. Yes, you've heard it before, and we'll say it again: Water is the most important nutrient. Besides the standard pro-water facts (that keeping hydrated improves energy, and that the human body is about 60% water), did you know that often when you think you're hungry, you're actually just thirsty? Or that if you don't drink enough water, you won't be able to build muscle and break down fat? It's also important to drink lots of water the night before you do a strenuous workout. (Especially the night before the PRT!) How much is enough? One measure is by urine color…ideally yours should be clear. Yes, you may have to "use the head" more often, but that's a minor inconvenience for staying healthy, eh? [Note: Dr. Heinz Valtin at Dartmouth has recently questioned some of this advice…although one should keep in mind that his comments are directed mainly towards sedentary people, not those engaged in an active exercise program.]

- *Protein, Carbohydrates, and Fat.* Most people understand that these big three are the primary energy sources for your body. However, there's a lot of confusion about what proportion of each you should eat. Throughout the 90's, it seems that we got every possible answer. First fat was good, then it was bad, then good again. Or is it only *some* fats? Are carbohydrates good or bad? How much protein do you really need?

  Addressing these questions in detail is beyond the scope of this article, but here are a few basic tips:

  - Protein is especially important for building muscle—some people even recommend up to 1 gram per pound of body weight if you're trying to gain muscle mass—but too much protein puts a strain on the kidneys, among other things. This is one of many reasons why all-protein diets like the Atkins diet—while effective for short-term weight loss—are not recommended for long-term use.

  - One conventional rule of thumb is to gradually increase the amount of protein and decrease the amount of carbohydrates you eat with each meal throughout the day. For example, under this schema, breakfast would be mostly carbohydrates.

  - Not all fats are created alike. There are basically two kinds of fats: saturated fats (mostly from animal products, which are solid at room temperature) and unsaturated fats (mostly from vegetable products, which are liquid at room temperature). The general rule is that saturated fats are worse for you than unsaturated, although most nutritionists agree that the worst kinds of fats are *hydrogenated* unsaturated ones—

that is, where hydrogen is pumped in to make the fat more solid. Hydrogenated fats can usually be found in packaged products (look for phrases like "partially hydrogenated soybean oil" in the ingredients listings). The *best* fats are "monounsaturated" fats such as olive or canola oil, which are believed to raise "good" cholesterol while lowering "bad" cholesterol.

- *Sugar is the New Fat*. While the dieticians may disagree about the ideal balance of protein, carbs, and fat (likely it varies from individual to individual), they almost all agree that one of the worst elements in American diets is refined sugar. Look at the ingredient list of the next packaged drink or food product you buy—you'll likely see "high fructose corn syrup" somewhere high on the list. In quantity, these sugars reduce your long-term energy level, increase fat production, and have little nutritional value.

  In general, the less processed a carbohydrate is, the better…which is why wheat bread is better than white bread, for instance. The details have to do with glycemic indices and insulin response, which again is beyond the scope of this article, but check it out online if you're interested.

- *Fiber*. Dietary fiber is what people used to call "roughage"—stuff that your body actually can't digest. Why would you want to eat stuff your body can't digest? First, it clears out your arteries to remove cholesterol. Second, it makes you feel fuller, so you don't overeat. Third, it keeps you regular! You can find fiber in fruits, vegetables, and many of the aforementioned less-processed whole-grain carbohydrates (such as wheat flour, brown rice, and oats). Try oatmeal for breakfast (the plain stuff, not the flavored sugary junk)—I swear you'll get hooked!

- *Vitamins*. It's also important to get the right vitamins every day. Especially if you don't eat many fruits and vegetables, it's important to take a multi-vitamin. MIDN Kent notes that women should be sure to take 18 mg of iron a day, because "the majority of women are borderline anemic….To aid absorption in the body, consume with vitamin C, and avoid taking iron with foods high in calcium." That being said, it's also important to get enough calcium, especially for women; good sources include low/nonfat dairy products, dark green vegetables, figs, and calcium-enriched products like orange juice.

3. Rest

In some ways more important than either training or nutrition is getting enough rest. Without sleep, your body won't have a chance to recuperate from the last workout, and you'll just end up more exhausted the next time. Furthermore, getting enough sleep is essential to being alert for school—our main job as college students.

It's also important to allow days of rest between workouts. Particularly if you are working the same muscles in the same way, it's actually *less* effective to train every single day as opposed to taking a day or two off in between workouts. Too many people "overtrain," leading to frustration and injury. You can try "splitting" your workouts up (e.g. alternating

days between situps and pushups, as they train different muscles) but be sure to give yourself at least a couple days each week of good, old fashioned rest.

One last point: MIDN Obara notes that it's *especially* important to get rest just before the PRT. Trying to do a lot of strenuous workouts a couple days before will be counter-productive. Once again, this is one test you can't cram for!

The PRT Approaches: Specific Training

Okay, so you have achieved some basic level of fitness. Now you want to do well on the PRT itself. Once you are fit, the best way to get better at pushups, situps, and running is...guess what? Pushups, situps, and running! While you can use whatever sports and activities you like to stay in shape, about a month before the PRT, you should start training for the specific exercises. The goal of that month or so is to train your body so that it is used to the exercises—indeed, so that your body is used to *more* work than the actual PRT.

For example, a useful tool is the "interval": doing a certain number of exercises, resting a bit, and then repeating. For example, one could do a "set" of 10 pushups and 20 situps, rest, and then repeat the 10 pushups and 20 situps, rest…etc. for some number of sets. By repeating an exercise over and over again, you are conditioning your body to get used to the stress of doing a lot of that exercise, so that the PRT will seem easy afterwards!

Practice PRTs

A word on specificity: Sometimes people go overboard and only practice the *exact* format of the PRT. This probably isn't the best approach, as it won't train your body to do better—not to mention you'll bore yourself to tears. However, it *is* useful to do a practice PRT every few weeks or so, just to gauge where you're at.

Situps

For most people, situps are the easiest to improve on and do well in. (Just look at how many people "max out" on the situp compared to other events.) One thing to remember is that the faster you perform a situp, the easier it is. Thus, while you want to train the abdominal muscle for strength and endurance, you also want to train it for *speed*. Here are some techniques you can use:

- *Practice with added weight*. Try elevating your hips higher than your head and torso (e.g. on a "incline situp" in the gym) and/or use extra weight (say, a medicine ball). By practicing with more effective weight, "normal" level-ground no-extra-weight situps will seem easier and you can do them faster.

- *Hold the feet.* It is useful to train with your feet held so you can get used to what it feels like for the real PRT. (When your feet are held, you actually end up using different muscles in

your legs.) If you can't find someone to hold your feet, try to find some furniture that is of the right height and stability. Often desk drawers can be rigged to hold one's feet reasonably well.

- *Do timed intervals.* For example, do one minute of situps, rest 20 seconds, do another minute, etc. Over time, work to increase how many you can do in that minute.

- *Do regular intervals.* One can also do intervals based on numbers of situps. For example, a "pyramid" interval work out would be something like the following: do 30 situps, rest, then 40, rest, 50, rest, then back down to 40, rest, and finish with 30.

Pushups

As you know, the Navy and Marine Corps don't allow one to "shake oneself off" or throw one's butt in the air, as some of our lesser brethren services might. Thus, the pushup portion is more a test of endurance than strength. Like situps, faster pushups tend to be easier; unlike situps, most people get tired out and have to slow down (or stop) before the 2 minutes are up.

- *Use proper form.* Former "Iron Midshipman" Taiga Takahashi says that "the pushup is mostly about form." He suggested using two slightly different variants throughout the two minutes: Early on, when you are going for speed, have your hands closer to your torso, trying to find a sweet spot where you can "pump them out," so to speak. Later, slide your hands slightly farther away (without lifting them off the ground, of course!), to give yourself a broader base for the inevitably slower pushups near the end. Likewise, practice holding your body steady—if you practice with bad form, you'll do the same thing for "the real deal" and the observers won't count your pushups.

- *Try adding weight.* Just as adding weight to situps will make normal situps seem easy, you can add weight to your pushups by wearing a backpack with books (or something else heavy and flat) inside.

- *Try different kinds of pushups.* To vary your workout a bit, try doing situps with your hands close together (sometimes touching in a "diamond") or far apart (for "wide angle" situps) to stress your muscles more, and to experiment to find the most comfortable position.

- *Do intervals.* Timed intervals are perhaps less useful than with situps, but be aware of what pace you go at. As noted earlier, there is a distinct difference in the way your body moves for a fast pushup as opposed to a slow one.

Running

Most people who fail the PRT do so on the run; often, this is because they need to work on overall fitness—which, as noted earlier, can be trained using any number of sports or activities.

Doing well in running mostly relies on one's general cardiovascular fitness and leg muscle endurance; however, there are some techniques you might think about when running:

- *Set a good pace*. Too many people jog instead of running. How do you know if you're jogging? If you can talk to someone in a complete sentence. Perhaps the best way of keeping a good pace is running with someone else (especially someone slightly faster than you). If you're by yourself, try singing songs (or even jodies—i.e. cadences) in your head. Athletic Officer MIDN Bailey states it simply: "**always** push yourself." If you're in a "comfort zone" of jogging, you won't be getting any faster.

- *Run shorter distances faster*. Part of "running instead of jogging" is choosing the right distance. Too many people go on long, slow runs which build up cardiovascular endurance but which don't make you any faster. MIDN Biolo, who has improved his run score from "Good" to "Outstanding" over the past few years, notes that this seems counterintuitive: "Experience from pushups and situps would dictate that just doing more miles would mean being able to go faster," but in reality, long runs have limited effectiveness in increasing your speed. So, try running shorter distances, or try a longer run that has 1-2 minute periods of faster running (this is called doing a "fartlek," which is means "speed play" in Swedish).

- *Do intervals*. This is a specific way of implementing the previous tip. Just as intervals are useful for situps and pushups, they are great for improving one's running time. One example is the "Three Mile Workout" (from LT Smith's book; see the Resources section):

    - Jog 1 mile (~ 7 min)
    - Repeat twice: sprint one lap, jog one lap (~2 min)
    - Repeat four times: sprint half a lap, jog half a lap (~1 min)

- *Run softly*. This applies both to how you run and what you run on. First, you want to make as little noise as possible when you run; if your feet are smacking the ground, you're likely to hurt yourself. Second, the softer the ground you run on, the easier going it is on your tendons, muscles, and joints. Dirt is better than asphalt, which is better than concrete. Several miles on concrete means almost guaranteed shin splints! (Also, to guard against injuries, be sure to stretch thoroughly both before and after your run.)

- *Focus on "going forward."* This means you want to minimize your up-and-down movement. One way of doing this is by focusing on your arms: generally, what your arms do, your legs will follow. If your elbows are bent at an acute angle and/or moving up and down, you will lose your momentum. Another way of "going forward" more is opening up your stride, so that you cover more ground on each step.

- *Lean forward (slightly).* A number of people "sit back" when they run, thus losing a lot of momentum. If you try leaning forward slightly (especially when going uphill), you can regain this momentum. It's important not to go overboard and slouch over, though—then your momentum just goes into the ground! (Think about bending at your *waist* slightly, without bending your spine.)

- *Don't cramp up.* There are two main causes of (stomach) cramps:

    - Digestion – To avert digestive cramps, try to avoid eating foods that will upset your stomach before running. You may want to avoid eating altogether for an hour before running. It might also help to try burping a lot before you run. (This sounds silly, but it works!)

    - Breathing – These cramps are caused when your diaphragm has trouble controlling your breathing. You can "warm up" your diaphragm before running by breathing long breaths, blowing out through pursed lips (so the diaphragm has to work harder to push the air out). While running, try to control your breath so it is as slow as possible (particularly when you start out); it might be useful to breathe in some kind of rhythm. If you should get a cramp in the middle of running, often walking for a short bit and breathing slowly will alleviate the pain.

- *Avoid treadmills.* Yes, they are lower-impact than running itself, but they encourage you to bounce up and down, rather than focusing on "going forward." If you have to use a machine, the new "elliptical" machines mimic the flow of running much better.

Swimming

Since we are, after all, the Navy, one can opt to swim rather than run the PRT. [*Ed: Must refrain from making joke about Air Force people on the stationary bike…must refrain from making joke about Air Force people…*] Back in the day, the swim was scored much more leniently than the run, allowing even out-of-shape people to score "excellent" or higher. However, thanks to the newly normed standards, the swim is now about as difficult as the run. That being said, a number of people would do better swimming, because they enjoy swimming more, it suits their body type better, or because it is "low impact" compared to running. It's also a good idea that Navy and Marine Corps officers know how to swim fairly well, in case you should fall into "the drink"!

Some tips for improving one's swimming:

- *Learn good form.* Someone who swims with good form will be able to go much faster with much less effort than someone who is flailing around the pool. The exact mechanics of swimming are beyond the scope of this article, but all of our schools offer excellent PE swim courses, which can teach you the basics. Some of the most common mistakes to avoid are swimming flat (i.e. not rotating one's body in the water) and sticking one's head way out of the water (which causes the rest of you to sink!).

- *Don't be afraid to use different strokes.* One isn't required to use the crawl stroke, even though it's often the fastest. Backstroke or even breaststroke are entirely acceptable, and might be useful as a "break" for a lap or two. Sidestroke is especially effective, as it's relatively fast but not as tiring as the crawl stroke—in fact, the SEALs use a modified version as their "combat stroke" because it creates very few waves.

- *Think about pulling the water back.* Swimming is all about Newton's 3rd Law ("every action has an equal and opposite reaction"). Too many people flail their arms around, without actually pulling water past them. The more water you move, the longer and faster *you* move with each stroke. Often this means taking fewer, longer strokes—see how few strokes you can use to get across the pool.

- *Learn how to do a flip-turn*. You've seen the Olympians do it—a cool summersault at the end of the lane, which launches them quickly into the next lap. You can learn how to do it, too—it's not that hard! Practice doing a quick summersault in the water, blowing air out of our nose as you spin around (to keep the water out). As you spin around, try to form as tight a ball as possible. Then, practice swimming towards the wall, doing a summersault just as you approach it. The last step is just pushing off!

Resources

The following are some books, websites, and people whom you can consult for more information:

- A good book with great training plans is *The Complete Guide to Navy Seal Fitness*, by LT Stewart Smith. LT Smith was a SEAL in charge of preparing Naval Academy midshipmen for the rigors of BUD/S, and thus knows his stuff. While the guide is pitched toward those who want to be SEALs, most of his workouts are applicable to anyone who wants to improve pushups, situps, pull-ups, running, and swimming.

- Other good workouts designed by our very own Athletic Officer, MIDN Bailey, are linked online at http://www.stanford.edu/~lswartz/nrotc/athletics.html

- You can find lots of good nutrition tables, etc. on the web. One resource page is the Food & Nutrition Information Center's Food Composition Page at http://www.nal.usda.gov/fnic/etext/000020.html which includes links to, among other things, the "Nutritive Value of Foods" booklet at http://www.nal.usda.gov/fnic/foodcomp/Data/HG72/hg72.html and the CalorieKing food database at http://www.calorieking.com/foods/ (where you can look up the exact amount of sodium in an In-n-Out double-double, and so forth).

- For those who want to lose weight in a healthy way, MIDN Kent recommends *Change One: The Breakthrough 12-Week Eating Plan: Lose Weight Simply, Safely & Forever* by John Hastings.

- The official Navy weight control and nutrition page, which, while a bit dated, is still a useful source of information, can be found at http://www.mwr.navy.mil/mwrprgms/nutrition.htm

- Once again, classes and teams are a great resource. For example, UC Berkeley and Davis has a whole department dedicated to nutrition: see http://nutrition.berkeley.edu/ and

http://nutrition.ucdavis.edu/ for more information. Stanford's athletic department offers courses in everything from swimming to yoga. Every school offers a host of IM and club sports and activities. Student health centers are another great resource; for example, Stanford's health center has a great page on eating disorders at http://cowell.stanford.edu/resources/eating.html

- The Unit Staff are all in excellent shape, and are happy to share knowledge with you. Especially if you think you are in danger of failing the PRT, definitely talk to your advisor about getting on a PT plan; remember: your advisor is here to help you succeed in NROTC!

- For Stanford people, the Running Club goes on moderate to long runs 4-5 times a week, and their website at http://www.stanford.edu/group/runningclub/ shows a number of good runs in the Stanford area. There is a similar club at Davis whose website is http://www.aggierunningclub.com Berkeley midshipmen can check out http://www.me.berkeley.edu/megsco/survival/node74.html among other pages for ideas on good running trails.

- Get together with other midshipmen to work out…you can push each other to do better, and have more fun than you would working out on your own.

- Before you make any major changes to your diet or workout, be sure to consult a physician!