



Still using a bicycle to test your firefighters?

Did you know that exercise bicycle testing was removed from NFPA 1582 over 16 years ago?

In ANNEX C, page 1582-63 of NFPA 1582 2013 edition, it states....

*After continued evaluation and research by the IAFF/IAFC Wellness-Fitness Initiative's technical experts, it was determined that **significant errors were occurring** when past protocols were applied to a population that has different characteristics from those for which the evaluation was developed. For this reason,the YMCA **Stationary Bike Test Protocol was also removed** since it consistently and grossly underestimated VO2 for above average body size (i.e., most members)*

It further states that there are only two submaximal protocols that should be used to predict aerobic capacity in firefighters, the WFI Treadmill Protocol and the WFI Stepmill Protocol. Both were developed and validated to evaluate the sub-maximal aerobic capacity of members (firefighters).

Why has NFPA 1582 2013 ed. made these changes and why did they remove the bicycle from their testing protocols so long ago?

1. The bicycle method of testing is full of false positives.

This means the test shows heart issues when there are none. False positives result in useless stress and anxiety for your firefighters. It also means time away from work for unnecessary and expensive testing.

2. The bicycle method of testing is inaccurate.

As currently done by other companies that perform firefighter exams, it has less than a 50% chance of identifying heart disease in individuals with known heart disease. That means that firefighters who have heart disease are not identified, giving them a false sense of security that they are clear of disease when they are not. It is made worse when cheaper bicycles are used that have a manual knob to adjust the tension instead of doing it electronically. Did the tech really turn the knob precisely 1/4 turn each time? Even slight discrepancies can have large impacts on results.

3. A bicycle is not the preferred method of testing for actual cardiologists, cardiology clinics and hospitals.

When is the last time you have seen a bicycle used for stress testing at a hospital or by a cardiologist for evaluating heart disease? You haven't, because it is not the standard of care in this country.



4. A bicycle in no way mimics the activity of a firefighter.

When a call comes in do you hop on your bike and only use your legs to pedal and ride to the fire? No, you walk or run and physical demand increases, often in a rapid manner. Just like the WFI Treadmill Test as outlined in NFPA 1582.

We understand why other companies may continue to use an exercise bicycle even if it does not meet NFPA 1582 standards:

- **Price** – Exercise bicycles are cheap compared to treadmills that meet the NFPA standard for speed and incline. For the price of one treadmill, you can purchase 9-10 inexpensive bicycles instead.
- **Portability** – Exercise bicycles are lightweight, usually 60-80 lbs or less, and are easier to carry on-site. A good quality treadmill that meets the NFPA standard can weight upwards of 300lbs and take up a much bigger footprint than an exercise bicycle. They are heavy and cumbersome, and quite frankly a pain to transport and move around compared to an exercise bicycle.
- **Maintenance Costs** – It is usually cheaper to replace an inexpensive exercise bicycle than get it fixed. Repairs for a good quality treadmill can cost \$500-800 for electronics, belt or deck.

At the end of the day, an exercise bicycle is just the wrong tool for job when it comes to NFPA 1582 testing. Companies providing the bicycle test usually do this because that is the way they have always done it, and it is a cheaper alternative compared to treadmill testing. This may have been acceptable in the 1980s, but technology has advanced tremendously over the last 30 years and there are better ways to screen firefighters for fitness and heart disease.

Ideally, companies providing NPFA exams should keep up to date by updating their medical programs each time a new version of NFPA 1582 is introduced. In the 2013 edition, this included updating the treadmill and stepmill protocols , expanding on the vaccination requirements, guidance on pregnant firefighters, recommendations for advanced cardiac screenings in high risk firefighters and many more items.

Which test is right for your department?

Call today and ask a SiteMed Doctor how to use modern screening techniques to protect your firefighters.

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