

# MEDICINE BUZZ: BETA BLOCKERS & PERFORMANCE ANXIETY

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## What is Performance Anxiety?

Performance anxiety, or ***stage fright***, is a common human experience that begins when the body's fight-or-flight response is triggered to recognize danger. During this time, the brain sends signals via epinephrine and norepinephrine to prepare the body to react by binding these chemicals to specific *beta* and *alpha*

receptors. 1

Breathing and heart rate increase; blood vessels constrict, fat and sugar are mobilized to muscles for energy, and the brain activity is heightened. The acute anxiety at first makes it easier to hear, see, smell and make quick decisions. At this point emotions of excitement predominate. If the process accelerates to rapid then the information becomes muddled and the negative emotions of anxiety, fear and panic take over.

**In a survey of students at a university music school, 16% of respondents indicated that their musical performance was impaired by anxiety. 5**

***Stage fright*** is not one fear on its own, but a combination of several fears, including *social anxiety*, *a specific phobias*, *panic* and *general anxiety*. Determining which mix is the root cause of a person's stage fright is an important first step in dealing with it.



**4 cognitive distortions that underlie performance anxiety:**

- overestimating a threat,
- underestimating one's own ability,
- selective attention to one's own arousal or to negative responses and negative,
- pessimistic self-talk. 2

### How do I control Performance Anxiety?

- **Good emotional hygiene** is recommended for mild performance anxiety including but not limited to: good preparation, focusing on the elements of the performance you are confident about, positive audience responses, and the support of loved ones.
- **A healthy diet** that emphasizes complex carbohydrates, vegetables and fruits over fats, meats and in the case of stage fright can go a long way.
- **Moderate exercise** can significantly affect the body in positive ways.
- For moderate to severe *stage fright*, it is best to seek **professional assistance** from a counselor or psychologist trained in treating anxiety disorders. They may recommend a combination of medicine and therapy.

This table gives some medication options. It is recommended to take the prescribed medication at least one hour before performance so the medication can start working.\* 2

| Beta Blockers | Typical Dosage | Common Side Effects<br>(shared by all)  |
|---------------|----------------|---|
| Propranolol   | 10 to 40 mg    | Nausea, Fatigue, Dizziness,<br>Wheezing, Sexual Dysfunction,<br>Loss of Libido, Anhedonia,<br>Insomnia, Nightmares,<br>Depression |
| Nadolol       | 20 to 120 mg   |   |
| Atenolol      | 50 to 100 mg   |   |

In one study, the effects of Beta Blockers were tested on patients with **performance anxiety** to test acute anxiety on the technical-motor performance of string players. 3 Heart rate was lower for the performers who were taking the beta blocker than those taking the placebo. The Beta Blocker group had slightly higher technical-motor performance as well. **The use of a beta blocker did not influence stage fright measured *before* performing, but reduced it during the concert, making the drug at least partially effective in treating performance anxiety.**



Another study, evaluated stage fright symptoms in two tests with 29 subjects in total.4 The musical performance quality was evaluated by experienced music critics. The results suggested that Beta Blockers eliminated both physical hindrance to performance and dry mouth caused by stage fright.4

1. Beta blockers. What you need to know about these blood pressure drugs. (2012). Harvard Health Letter / From Harvard Medical School, 37(8), 7.

2. Kelly, V., & Saveanu, R. (2005). Performance anxiety: How to ease stage fright. *Current Psychiatry*, 4(6).

\* It is important to note that these medications can be quite dangerous to people with heart failure, asthma, bradycardia (very slow, irregular pulse) or other heart rhythm issues. They should never be combined with other blood pressure or heart rhythm medications without the direct supervision of a prescriber.

3. Neffel, K. A., Adler, R. H., Käppeli, L., Rossi, M., Dolder, M., Käser, H. E., & ... Vorkauf, H. (1982). Stage fright in musicians: a model illustrating the effect of beta blockers. *Psychosomatic Medicine*, 44(5), 461-469.

4. Brantigan, C. O., Brantigan, T. A., & Joseph, N. (1982). Effect of beta blockade and beta stimulation on stage fright. *The American Journal Of Medicine*, 72(1), 88-94.

5. Wesner RB, Noyes Jr, R, Davis TL. The occurrence of performance anxiety among musicians. (1990) *Journal of Affective Disorders*, 18(3), 177-18.