

Current FIS/IOC Anti-Doping Requirements for the beta-2 agonists formoterol and terbutaline use in Asthma:

Due to historical data regarding a dramatic increase in the use of formoterol and terbutaline in Olympic athletes, the IOC Medical Commission established rules whereby all asthmatic athletes are required to submit detailed medical records and test results in support of objective evidence of asthma or EIA/EIB.

1. Detailed Medical Records

The TUE Application Form (TUE) needs accompanying Medical information and records, including:

- A precise diagnosis of the individual's condition requiring the use of formoterol and terbutaline.
- All relevant information regarding the individual concerned and his condition:
 - age of onset
 - symptoms suggesting airway obstruction following exercise, upper respiratory infection at rest and at night and/or during the pollen season
 - identified triggering factors
 - past history of atopic disorders and/or childhood asthma
 - past physical examinations
 - results of skin prick tests or RAST to document the presence of allergic hypersensitivity
- Any specific information concerning the individual's coughing during or postexercise, dyspnoea, shortness of breath, wheezing, chest tightness or excess sputum.
- Details of all consultations with physicians qualified in the treatment of asthma and details of any attendance in hospital emergency departments for treatment or admission to hospital for treatment of acute exacerbation of asthma.
- Details of the individual's currently prescribed medication and any other medication prescribed in the last 6 months. Details of medication in the 3 months prior to provocation tests (see below) must also be notified.

2. Provocation Test Results

In addition to the detailed medical records, athletes must also present a positive test result from one of the following four (4) recognised provocation tests:

A) Bronchodilator test: A positive test result shall be defined as:

- A 12 % or greater increase in FEV1 calculated as a percentage of the baseline FEV1 after the administration of an inhaled permitted beta-2 agonist. Submission of worksheets and graphic evidence (spirometry or flow volume tracings) is useful.

B) Bronchial provocation test: A Bronchial provocation test will take the form of an exercise challenge in the laboratory or an exercise test in the field or a eucapnic voluntary hyperpnoea test in the laboratory (EVH). A positive test result will be obtained if:

- Airway hyper-responsiveness (AHR) is confirmed with a fall of 10% or more in FEV1 within 30 minutes of finishing the challenge. Submission of worksheets and graphic evidence (spirometry or flow volume tracings) is useful.

C) Bronchial provocation test with inhaled methacholine: A positive test result will be obtained if AHR is confirmed with:

- When the athlete is **not** taking inhaled glucocorticosteroids:
 - a PC20 FEV1 equal to or less than 4 mg/ml **or**
 - a PD20 FEV1 equal to or less than a cumulative dose of 2 micromol or 400 micrograms or 40 breath units in steroid-naïve subjects.
- When the athlete is on daily inhaled corticosteroid treatment of more than 3 months duration:
 - a PC20 FEV1 equal to or less than 13.2 mg/ml **or**
 - a PD20 FEV1 equal to or less than a cumulative dose of 6.6 micromol, or equal to or less than 1320 micrograms or 130 breath units.

Details of medication in the 3 months prior to provocation tests (see below) must also be notified. It is mandatory that the physician provides exact calculated value of PC20 or PD20. Submission of worksheets and graphic evidence (spirometry or flow volume tracings) is useful.

D) Bronchoconstrictor test. A positive test result for a bronchoconstriction test is defined as:

- a fall of 15 % or more in FEV1 after the subject inhaling a hypertonic aerosol (4.5% saline commonly used). Submission of worksheets and graphic evidence (spirometry or flow volume tracings) is useful.

Note: Peak Expiratory Flow Rate (PEFR) measurements will not be accepted. Submission of bronchial provocation tests using pharmacological agents other than methacholine (e.g. carbachol, histamine or adenosine monophosphate) will not be accepted.

Recommendations prior to the challenge test

To provide the optimal test conditions to achieve a positive response, it is recommended that some medications be withheld for a period of 8-96 hours before the bronchial provocation test, as indicated below:

- No short-acting bronchodilators, sodium chromoglycate, nedocromil sodium, ipratropium bromide or oxitropium or tiotropium bromide for 8 hours.
- No long-acting bronchodilators or antihistamines for 48 hours.
- No leukotriene antagonists for 4 days.
- Inhaled steroids should not be administered on the day of the test.
- No caffeine should be taken on the morning of the test.
- No vigorous exercise to be undertaken for at least 4 hours prior to the test and preferably none on the day of test at all.

Well-controlled asthma with negative response to all the tests

In the exceptional case of an athlete with known, but well-controlled asthma, reporting “negative” results from the bronchial provocation tests, while applying for the use of inhaled formoterol and terbutaline, the following documentation must be enclosed, in addition to negative results obtained in the bronchial provocation tests: a complete report from personal physician on medical history, including reports on hospital emergency department attendance or admission for acute exacerbations of asthma and on previous treatment with different medications, including systemic corticosteroids, and any additional information that might be helpful for the diagnosis.

Abbreviations

FEV1 = Forced expired volume in one second.

PC20 FEV1 = the provocative concentration of methacholine causing a 20% fall in FEV1

PD20 FEV1 = the provocative dose of methacholine causing a 20% fall in FEV1

Care must be taken to ensure compliance with current anti-doping control measures in elite level skiers. Most asthma medications are banned and as such, appropriate procedures for documenting their use is required.