

Wichtiges aus der Literatur:

Boxen

Belastung und Asthma

Neue EKG - Beurteilungskriterien

Amateur Boxing in the Last 59 Years

Impact of Rules Changes on the Type of Verdicts Recorded and Implications on Boxers' Health

Massimiliano Bianco, Mike Loosemore, Gianlorenzo Daniele, Vincenzo Palmieri, Marcello Faina, Paolo Zeppilli Br J Sports Med. 2013;47(7):452-457.

Abstract

Background/aim Several changes have occurred in Olympic boxing (OB) in the last few decades, influencing the results in official competitions. The aim of this study was to assess how the evolution of rules changed the rate of the results that can influence boxers' health.

Methods From a web-research, the results of OB tournaments from 1952 to 2011 were reviewed (29 357 bouts). For each event, rate of knockout (KO), referee-stop contest (RSC), RSC-Head (RSCH), RSC-Injury (RSCI), RSC-Outclassed (RSCO), abandon, disqualification and points decisions were recorded. In our analysis we investigated the changes that occurred after the introduction of the standing-count rule (1964), mandatory head guard (1984), computerised scoring system (1992), RSCO (2000–2009) and modification of bout formula 3×3 min rounds (3×3, until 1997, 5×2 min rounds (5×2) until 1999, 4×2 min rounds (4×2) until 2008, 3×3 from 2009). **Results** The most important results were: (1) an RSCI rate increase (0.72–2.42%, $p<0.03$) after the standing-count rule; (2) a lower RSCI (0.60%, $p<0.001$) and higher RSCH (1.31–4.92%, $p<0.001$) and RSC (9.71–13.05%, $p<0.03$) rate with mandatory head guard; (3) a KO rate reduction (6.44–2.09%, $p<0.001$) with the computerised scoring system; (4) an RSC (13.15–5.91%, $p<0.05$) and RSCH (4.23–1.41%, $p<0.001$) rate reduction comparing 5×2–4×2 bouts.

Conclusions In the last six decades, along with rule changes in OB, a clear reduction of health challenging results was observed. In the near future, older rules will be adopted (no head guard and a manual scoring system). Continued medical surveillance is important to ensure that new rule changes do not result in poor medical outcomes for the boxers.

Safety of Sports for Athletes With Implantable Cardioverter-Defibrillators

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Background—The risks of sports participation for implantable cardioverter-defibrillator (ICD) patients are unknown.

Methods and Results—Athletes with ICDs (age, 10–60 years) participating in organized ($n=328$) or high-risk ($n=44$) sports were recruited. Sports-related and clinical data were obtained by phone interview and medical records. Follow-up occurred every 6 months. ICD shock data and clinical outcomes were adjudicated by 2 electrophysiologists. Median age was 33 years (89 subjects <20 years of age); 33% were female. Sixty were competitive athletes (varsity/junior varsity/traveling team). A pre-ICD history of ventricular arrhythmia was present in 42%. Running, basketball, and soccer were the most common sports. Over a median 31-month (interquartile range, 21–46 months) follow-up, there were no occurrences of either primary end point—death or resuscitated arrest or arrhythmia- or shock-related injury—during sports. There were 49 shocks in 37 participants (10% of study population) during competition/practice, 39 shocks in 29 participants (8%) during other physical activity, and 33 shocks in 24 participants (6%) at rest. In 8 ventricular arrhythmia episodes

(device defined), multiple shocks were received: 1 at rest, 4 during competition/practice, and 3 during other physical activity. Ultimately, the ICD terminated all episodes. Freedom from lead malfunction was 97% at 5 years (from implantation) and 90% at 10 years.

Conclusions—Many athletes with ICDs can engage in vigorous and competitive sports without physical injury or failure to terminate the arrhythmia despite the occurrence of both inappropriate and appropriate shocks. These data provide a basis for more informed physician and patient decision making in terms of sports participation for athletes with ICDs.

B elastungs-induzierte Bronchokonstriktion (Belastungs-Asthma)

New Exercise-Induced Bronchoconstriction Guidelines

Laurie Barclay, MD

New practice guidelines from the American Thoracic Society on exercise-induced bronchoconstriction (EIB), or acute airway narrowing resulting from exercise [appear](#) in the May 1 issue of the *American Journal of Respiratory and Critical Care Medicine*.

A multidisciplinary panel of stakeholders has reviewed the pathogenesis of EIB and developed the new evidence-based recommendations, which address diagnosis, management, environmental triggers, and special considerations in elite athletes.

"While a large proportion of asthma patients experience exercise-induced respiratory symptoms, EIB also occurs frequently in subjects without asthma," guidelines committee chair Jonathan Parsons, MD, associate professor of internal medicine and associate director of the Ohio State University Asthma Center in Columbus, said in a news release.

"Given the high prevalence of EIB, evidence-based guidelines for its management are of critical importance," he added.

Although the prevalence of EIB in patients with asthma is still unknown, estimated prevalence may reach 20% in those without diagnosed asthma. For Olympic and elite athletes, the prevalence estimates are even higher, between 30% and 70%.

Cold air, dry air, ambient ozone, and airborne particulate matter are known environmental triggers for EIB, which may help explain the increased prevalence of EIB among competitive ice skaters, skiers, swimmers, and distance runners.

The Grading of Recommendations, Assessment, Development, and Evaluation approach showed a variable quality of evidence for EIB.

- Exercise-induced changes in lung function, and not symptoms, allow the diagnosis of EIB. Serial measurement of FEV1 after a specific exercise or hyperpnea challenge is preferable to measurement of peak expiratory flow rate. A fall in forced expiratory volume in 1 second of at least 10% defines EIB.
- The guidelines strongly recommend that all patients with EIB use an inhaled short-acting beta-agonist about 15 minutes before exercise.
- For those who still have symptoms or who use short-acting beta-agonist therapy daily or more frequently, the guidelines strongly recommend a daily inhaled corticosteroid, a daily leukotriene receptor antagonist, or a mast cell-stabilizing agent before exercise.
- However, the guidelines note that beta-agonists and some other drugs used to treat EIB are considered performance-enhancing and are therefore banned or restricted in athletic competitions. Clinicians therefore should tailor treatment to the guidelines of the governing

bodies of these sports.

- It may take 2 to 4 weeks after starting daily inhaled corticosteroids to see maximal improvement. The guidelines strongly recommend against administering inhaled corticosteroids only before exercise.
- Because of the potential for serious adverse effects, the guidelines strongly recommend against daily use of an inhaled long-acting beta-agonist as single therapy.
- All patients with EIB should do interval or combination warm-up exercises before planned exercise.

"While EIB is common, there are effective treatments and preventive measures, both pharmacological and non-pharmacological," Dr. Parsons said in the news release. "The recommendations in these guidelines synthesize the latest clinical evidence and will help guide the management of EIB in patients with or without asthma and in athletes at all levels of competition."

The guidelines authors anticipate a future revision and update based on new clinical research data.

The guidelines authors do not report any financial disclosures.

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Effect of Warm-up Exercise on Exercise-induced Bronchoconstriction

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Med Sci Sports Exerc. 2012;44(3):383-391. Abstract

Purpose: Exercise-induced bronchoconstriction (EIB) occurs when vigorous exercise induces bronchoconstriction. Preexercise warm-up routines are frequently used to elicit a refractory period and thus reduce or prevent EIB. This study aimed to conduct a systematic review to evaluate the effectiveness of preexercise routines to attenuate EIB.

Methods: A comprehensive literature search was performed, with steps taken to avoid publication and selection bias. Preexercise warm-up routines were classified into four groups: interval high intensity, continuous low intensity, continuous high intensity, and variable intensity (i.e., a combination of low intensity up to very high intensity). The EIB response was measured by the percent fall in the forced expiratory volume in 1 s (FEV₁) after exercise, and the mean differences (MDs) and 95% confidence intervals (CI) are reported.

Results: Seven randomized studies met the inclusion criteria. The pooled results showed that high intensity (MD = -10.6%, 95% CI = -14.7% to -6.5%) and variable intensity (MD = -10.9%, 95% CI = -14.37% to -7.5%) exercise warm-up attenuated the fall in FEV₁. However, continuous low-intensity warm-up (MD = -12.6%, 95% CI = -26.7% to 1.5%) and continuous high-intensity warm-up (MD = -9.8%, 95% CI = -26.0% to 6.4%) failed to result in a statistically significant reduction in bronchoconstriction.

Conclusions: The most consistent and effective attenuation of EIB was observed with high-intensity interval and variable intensity preexercise warm-ups. These findings indicate that an appropriate warm-up strategy that includes at least some high-intensity exercise may be a short-term nonpharmacological strategy to reducing EIB.

Swimming in Indoor Pools Linked to Asthma Risk *Occup Environ Med.* 2003;60:385-394

Swimming in indoor pools is associated with increasing risk of asthma, according to the results of a study published in the June issue of *Occupational and Environmental Medicine*.

"Regular attendance at chlorinated pools by young children is associated with an exposure dependent increase in lung epithelium permeability and increase in the risk of developing asthma, especially in association with other risk factors," write Alfred Bernard, from the Catholic University of Louvain in Brussels, Belgium, and colleagues.

The trigger seems to be trichloramine, or nitrogen trichloride, a highly concentrated volatile by-product of chlorination, which is readily inhaled and generated during contact between chlorine and urine, sweat, or other organic matter.

In a three-part study, the investigators first measured levels of lung proteins (serum alveolar surfactant-associated proteins A and B [SP-A and SP-B], 16 kDa Clara cell protein [CC16]) and IgE in sera of 226 healthy primary school children from rural and urban schools. Since early childhood, these children had swum regularly at indoor chlorinated pools weekly or every other week.

To evaluate the immediate effects of trichloramine, Dr. Bernard's group also analyzed sera from 16 children, aged 5 to 14 years, and 13 adults, aged 26 to 47 years, before and after swimming in an indoor pool. The group also assessed the prevalence of childhood asthma, using data from a survey done between 1996 and 1999 of 1,881 children aged 7 to 14 years.

The best predictor of lung epithelium permeability was cumulated pool attendance, which correlated with serum SP-A and SP-B. Although serum IgE was unrelated to pool attendance, it was positively correlated with lung hyperpermeability as measured by serum SP-B.

In children and adults attending an indoor pool, serum SP-A and SP-B increased significantly after one hour at poolside without swimming. Cumulated pool attendance significantly correlated with exercise-induced bronchoconstriction test and total asthma prevalence. For children who swam the most frequently, lung damage was equivalent to that found in regular smokers.

"We therefore postulate that the increasing exposure of children to chlorination products in indoor pools might be an important cause of the rising incidence of childhood asthma and allergic diseases in industrialised countries," the authors write, while recommending further epidemiological studies. "The question needs to be raised as to whether it would not be prudent in the future to move towards non-chlorine based disinfectants, or at least to reinforce water and air quality control in indoor pools in order to minimise exposure to these reactive chemicals."

New Insights Into Pathogenesis of Exercise-induced Bronchoconstriction

Teal S. Hallstrand Curr Opin Allergy Clin Immunol. 2012;12(1):42-48.

Purpose of review Exercise-induced bronchoconstriction (EIB) refers to acute airflow obstruction that is triggered by a period of physical exertion. Here we review recent findings about the epidemiology of EIB, immunopathology leading to EIB, and the latest understanding of the pathogenesis of EIB.

Recent findings Longitudinal studies demonstrated that airway hyper-responsiveness to exercise or cold air at an early age are among the strongest predictors of persistent asthma. Patients that are susceptible to EIB have epithelial disruption and increased levels of inflammatory eicosanoids such as cysteinyl leukotrienes (CysLT)s. The leukocytes implicated in production of eicosanoids in the airways include both a unique mast cell population as well as eosinophils. A secreted phospholipase A₂ (sPLA₂) enzyme that serves as a regulator of CysLT formation is present in increased quantities in asthma. Transglutaminase 2 (TGM2) is expressed at increased levels in asthma and serves as a regulator of secreted phospholipase A₂ group X (sPLA₂-X). Further, sPLA₂-X acts on target cells such as eosinophils to initiate cellular eicosanoid synthesis.

Summary Recent studies have advanced our understanding of EIB as a syndrome that is caused by the increased production of inflammatory eicosanoids. The airway epithelium may be an important regulator of the production of inflammatory eicosanoids by leukocytes.