

What to examine! Yearly Examination of the Climbing National Team and its Consequences

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Abstract

This article presents our approach for the yearly medical examination of all our athletes and presents the data from the examinations of all our athletes in the time frame of two years (2016 and 2017).

We follow the Olympic guidelines for echocardiography, spirometry and general blood, and clinical examination and add a detailed anamnestic evaluation. Furthermore, we perform an ultrasound examination of each finger for determining pathologies and evaluating the width of the growth plates in the adolescent team members.

Typical findings were proneness to infection, injuries such as tendinitis, headache in one case. There were also psychiatric or psychosomatic disorders.

The yearly team examination is a vital part each year and also presents the opportunity to get to know the athletes better and to establish a matter of trust, so that they may approach us with questions or concerns.

Résumé

Cet article montre comment nous abordons les examens médicaux annuels de tous nos athlètes sur un calendrier de deux années (2016 et 2017).

Nous suivons les directives olympiques pour l'échocardiographie, la spirométrie, les analyses générales de sang et d'urine, ainsi qu'un examen clinique. Nous effectuons aussi un bilan anamnétique détaillé. Nous faisons encore une échographie de chaque doigt afin de prévenir certaines pathologies et d'évaluer la largeur des plaques de croissance chez les adolescents membres de l'équipe. Nous avons constaté une prédisposition aux infections et à des lésions, telles que la tendinite et, dans un seul cas un mal de tête. On a remarqué aussi certains troubles psychiques et psychosomatiques.

L'examen de l'équipe doit impérativement être mené tous les ans. Il offre de grands avantages: nous connaissons mieux les athlètes, ils peuvent nous faire confiance et nous consulter quand ils ont des questions ou des problèmes.

Introduction

As climbing progresses to be an Olympic discipline, the training intensities and demands placed upon the athlete's body increase dramatically (Lutter, El-Sheikh, Schoffl, & Schoffl, 2017; V. Schöffl & Lutter, 2017). This development demands for a thorough yearly screening for overstrains and other medical conditions. The international standards for these team examinations are recommended through the International Sports Climbing Federation (IFSC) Medical Commission and include:

“Sportsmedical Examination (morphology climbing: including weight, height, BMI, plicometry (body fat), flexibility, lung and heart auscultation, skin examination)”

Standard Laboratory test (Blood Cell Count, as indicated by the clinical examination)

ECG (12 channels) standard and stress test (either step test or bicycle)

Spiroergometry (bicycle or step test)

Echocardiography (first visit of a new team member)

Orthopedical Examination (joints, posture, muscular dysbalance)

Further examinations (X-ray, MRI, Ultrasound) as medically necessary “ (by IFSC MedCom, Paris 2009)

Even though the IFSC MedCom recommends yearly examinations, they are not mandatory for World Cup Athletes in this form. The representing federations just need to certify that a medical examination has been performed at all. In Germany, we have been examining our National team athletes according to the above listed standards for the last 20 years every year. In addition every athletes fingers receive an ultrasound examination for injury in the adult athletes and for warning signs of growth plate fractures in the adolescents (Garcia, Jaramillo, & Rubesova, 2017; I. Schöffl & Schöffl, 2017). In this article, we describe our approach and present data from the examination of the last two years.

Methods

Data from the medical examination of all national team members for the years 2016 and 2017 were analyzed. Athletes who featured in the national team in both years (2016/2017) (n=29) were only recorded for the 2017 exam results in order to avoid an intra-individual bias. The focus lay on pathological findings and indications for further examinations.

Results

In the years 2016 and 2017 we performed team examinations in 40 individuals, 17 girls and 23 boys. The mean age was 17.5 years (18.3 years for the boys and 17.4 years for the girls). They had been climbing for 10.9 years (the boys for 11.3 and the girls for 10.3 years). They trained an average of 17.4 hours per week (the boys for 19.3 and the girls for 14.8 hours). 15 % of the athletes undertook alternative sports for regeneration or cardiovascular exercise. 36% of our athletes had to take a break from climbing due to injury or illness. Most of these breaks were due to infections (7 in total) which were mainly minor respiratory or gastrointestinal in nature with one severe pneumonia during a world cup event in Japan. The rest was due to finger injuries (2), foot injuries (2) and injuries to the shoulder and biceps (2). The boys had a mean BMI of 21 with a mean fat mass of

3.6%, whereas the girls had a mean BMI of 21.4 with a mean fat mass of 11.8%. Findings in the laboratory work up were iron deficiency, hypokalemia and leukocytopenia. Further investigations were needed due to secondary amenorrhea, hypokalemia, suspected immune deficiency in three cases, allergic reaction, biceps tendinitis, and shin splints. One athlete needed an in Patient work up for the evaluation of chronic head ache, another an inpatient surgery for CAM impingement of the hip. 15% of the National Team were not vaccinated according to the German standard vaccination program as proposed by the STIKO. Of these, one athlete had not ever been vaccinated anything.

Discussion

The yearly team examination is an important tool for prevention and early detection of orthopedic and, or medical conditions. The resting and stress ECG, and cardiac echography are standard sportsmedical examinations required once a year. They are essential for the detection of dangerous conditions such as long QT syndrome, myocardial hypertrophy, serious arrhythmias, myo- or pericarditis, and Brugada syndrome. The spiroergometry is a valuable tool for determining the cardiopulmonary exercise capacity as well as pathologies concerning the lung and the heart of each athlete and can assist in defining training schedules. We also focus specifically on the general and athletic history, physical examination and finger ultrasound. Especially in children and adolescents it may very well be that the team doctor is the first doctor these youngsters have come to see since their early childhood. It is important to check their vaccination schedule as travels overseas may very well require further immunizations, or their immunizations are incomplete as was the case in six athletes in our study. Interesting enough one athlete had never been vaccinated because the family was firmly set against vaccinations. This gives rise to the debate whether vaccinations should be mandatory for high level athletes competing in Olympic sports (Schoffl, Morrison, & Kupper). Certain vaccination as e.g. Hepatitis B are recommended internationally in all athletes (V. Schöffl, Morrison, & Kupper, 2010). In order to get a general idea about the medical as well as psychological problems the adolescents face we use the HEADDSS scheme (Home, Education, Activities, Drugs, Depression, Suicide, Sex) for questioning. The ultrasound examination is used to see whether any pathologies are already detectable but also for determining how far the growth plates have started to close.

In our team in the two investigated years there were no major psychological problems but mainly proneness to infection which we investigated further without any pathological findings. The reported injuries led to an operation in one case and physiotherapy in the others. We had no pathologies concerning the heart, and there were no issues regarding anorexia or other psychiatric or psychosomatic illnesses, although we have seen several of these over the years.

Conclusion

The yearly medical exam of adolescents and young adults in high professional sports is a crucial prophylactic factor to avoid long term negative consequences from the high load through professional sport. We were able to show that the exam reveals pathological findings in a considerable number of athletes. Some findings which may only show as minor pathological findings in the beginnings could become major health issues if neglected at an early stage.

Literature

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