These findings extend the current knowledge of how physical activity readjusts the catabolic-anabolic balance in CHF. The prevention of muscle atrophy may be an important factor explaining the prognostic benefits of training in CHF.

P3392 Effect of physical training on intrinsic electrophysiological stability of ventricular myocardium

L. Such-Miquel, A. Cebria, B. Diaz, L. Lopez, I. Trapero, F. Pelechano, G. Parra, A. Alberola, L. Such, F.J. Chorro. *University of Valencia, Physiotherapy, Valencia, Spain*

It has been reported that physical training could protect against cardiac sudden death and it has been proposed as an antiarrhythmic intervention. However, the underlying exact mechanisms implicated in these protecting effects are not completely understood. On the other hand, it has also been reported that the spatial distribution of excitation frequencies during ventricular fibrillation (VF) is important for understanding the mechanism of this arrhythmia and it has been proposed that the mentioned distribution reveal the dispersion of refractoriness, which is a key in the initiation and maintenance of fibrillation. We hypothesized that training could also operate by increasing of electrical stability of myocardium. To test this hypothesis we have used the analysis of the heterogeneity of the spatial distribution of local frequencies of excitation during VF and its change with time, as an index of electrical stability in isolated and perfused heart from trained and non-trained rabbits. Eight NZW rabbits were submitted to a six-week endurance exercise training program, and eight controls were not trained. When the exercise program was finished, rabbits were anaesthetized (ketamine, 10 mg/kg i.v.), killed and the hearts excised, isolated and perfused in a Langendorff system. A pacing electrode and a plaque with 256 recording electrodes were positioned on the left ventricle. VF was induced at increasing frequencies. The dominant frequency (DF) of VF was obtained by a spectral analysis, and its standard deviation was determined in each experiment in order to calculate the variation coefficient (VC), as an index of myocardial heterogeneity. VC was analysed: immediately,30,45 seconds and 1,2,3,4 and 5 minutes after the onset of VF in the two experimental groups. An ANOVA test with repeated measures was applied. Results are shown in the table.

VC of DF evolution after onset of VF

	0"	30"	45"	1 min	2 min	3 min	4 min	5 min
Control (8)	8.5 ± 4^{b}	10.9 ± 6^{ab}	11.4 ± 5^{a}	10.5 ± 4^{a}	10.2 ± 4^{a}	8.9 ± 3^{a}	8.2 ± 3^{bc}	7.2 ± 3^{c}
Trained (8)	7±2	8.5±5	9.1±4	8.4±2	9.2±4	8.1±3	8±3	7.4±2

Mean SD of VC values. Values of VC are given in percentage. Number of experiments in parentheses. a>b>c; $p<0.05$. CV values were not different in the trained group.

In conclusion, the intrinsic electrophysiological stability of ventricular myocardium could increase by regular physical exercise

P3393 Effects of androgenic anabolic steroids use on left ventricular anatomy and function in strength-trained athletes

E. Kouidi, M. Anifanti, A. Kaltsatou, A. Deligiannis. *Lab. of Sports Medicine, A.U.Th., Thessaloniki, Greece*

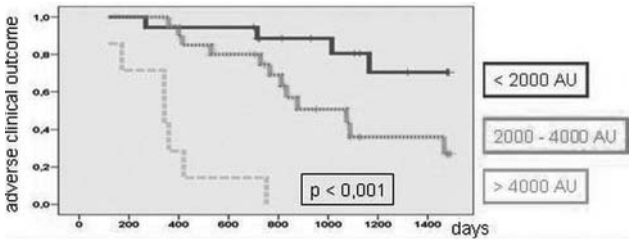
Anabolic androgenic steroids (AAS) use is unfortunately common among strength-trained athletes mainly due to their ability to increase muscle mass and strength. Anabolic steroid abuse has been associated with concentric left ventricular (LV) hypertrophy and other cardiovascular disorders. However, the effects of AAS on LV function are equivocal yet. Thus, the aim of the present study was to examine the effects of long-term AAS abuse on LV anatomical and functional indices. Seventeen strength-trained athletes using AAS for at least 3 years (group A, aged 24.5±5.7 years), 17 strength-trained athletes non-users (group B, aged 23.4±4.1 years), and 17 age-matched sedentary controls were examined by standard echocardiography and cardiac tissue Doppler imaging (TDI). Athletes of group A showed increased relative wall thickness (RWT) by 8.9% ($p<0.05$) and LV mass index (LVMI) by 12% ($p<0.05$) compared with group B and by 14.8% ($p<0.05$) and 23% ($p<0.05$) with C, respectively, while group B showed increased RWT by 6.4% ($p<0.05$) and LVMI by 12.3% ($p<0.05$) compared with group C. However, no difference was found in LV end-diastolic diameter and volume, as well as LV ejection fraction between the groups. Additionally, the ratio of peak transmitral blood flow velocities during early diastolic filling and atrial contraction did not differ between groups. Athletes of group A showed increased Deceleration Time by 10.1% ($p<0.05$) compared to group B and by 6.1% ($p<0.05$) to C. TDI measurements indicated that AAS-using athletes had smaller peak E(m) in basal interventricular septum (IVS) by 21% ($p<0.05$) compared to group B and by 22% ($p<0.05$) to C. The E/E(m) ratio, an index of LV filling pressures, was not affected either by training or by AAS use. The peak E(m) was found to be negatively correlated with age ($r = -0.69$, $p<0.05$), years of training experience ($r = -0.63$, $p<0.05$) and years of AAS intake ($r=-0.60$, $p<0.05$). Our results indicate that long-term AAS use may accelerate LV diastolic dysfunction, which is found to be dependent on the years of intake and may be early identified with the use of TDI. Moreover, AAS seem to enhance the LV hypertrophy observed in the strength-trained athletes as cardiac adaptation to training.

MODERATED POSTERS 2
WHY DO VALVES GO WRONG? – BASIC MECHANISMS

P3395 Valvular calcification in asymptomatic aortic stenosis: progression of this strong and independent risk factor is not delayed by atorvastatin therapy

W. Dichtl, H.F. Alber, G.M. Feuchtner, K. Etsadashvili, W. Grander, M. Reinthaler, H. Ulmer, T. Bartel, O. Pachinger, S. Mueller. *Medical University Innsbruck, Clinical Department of Cardiology, Innsbruck, Austria*

Purpose: We aimed to characterize the natural history, risk factors and their possible modulation by new-onset atorvastatin treatment (20 mg daily versus placebo) in patients with asymptomatic calcified aortic stenosis in a prospective, randomized, placebo-controlled trial.
Methods and Results: 47 patients without previous lipid-lowering therapy or an indication for it according to guidelines at study entry were randomized to atorvastatin treatment or placebo and prospectively followed for a mean study period of 2.3 (± 1.2) years. Patient prognosis was worse than expected, as 23 (48%) suffered from a major adverse clinical event (new onset of symptoms followed by aortic valve replacement in most cases). Mean systolic pressure gradient and an increased NT-proBNP plasma level allowed prediction of clinical outcome, which was not influenced by concomitant coronary calcification, age or initiation of atorvastatin treatment. The strongest independent risk factor, however, turned out to be aortic valvular calcification (AVC), as assessed by multidetector computed tomography. As shown in a subgroup of 35 patients (19 randomly assigned to atorvastatin and 16 to placebo), annular progression in AVC was similar in both treatment groups. Within 24 months, AVC raised from 2142 (± 1231) arbitrary units (AU) to 2816 (±1655) AU in the placebo group, and from 2396 (± 1163) AU to 3206 (±1138) AU in the atorvastatin group.



Kaplan-Meier Stratified to AVC/tertiles.

Conclusion: This study supports the concept that the natural history in patients with asymptomatic aortic stenosis is worse than previously considered. New-onset standard-dosed lipid-lowering therapy with atorvastatin could not halt progression of valvular calcification, the strongest risk factor for adverse clinical outcome in multivariate regression analysis.

P3396 Regression of aortic valve stenosis by ApoA-I mimetic peptide infusions in rabbits

D. Busseuil, Y. Shi, M. Mecteau, G. Brand, A.-E. Kernaleguen, E. Thorin, J.-G. Latour, E. Rheaume, J.-C. Tardif. *Montreal Heart Institute /U.de Montreal, Montreal, Canada*

Purpose: Aortic valve stenosis is the most common valvular heart disease, and standard curative therapy remains open-heart surgical valve replacement. The aim of our experimental study was to determine if ApoA-I mimetic peptide infusions could induce regression of aortic valve stenosis.
Methods: Fifteen New-Zealand White male rabbits received a cholesterol-enriched diet and vitamin D2 until significant aortic valve stenosis was detected by echocardiography. The enriched diet was then stopped to mimic cholesterol-lowering therapy and animals were randomized to receive saline (control group, n=8) or an ApoA-I mimetic peptide (treated group, n=7), 3 times per week for 2 weeks. Serial echocardiograms and post mortem valve histology were performed.
Results: Aortic valve area improved significantly in the treated group compared to controls after 7 days (21.9 ± 3.6 mm^2 vs. 19.6 ± 1.8 mm^2, P=0.019) (corresponding to increases of 14.2% and 3.9%), 10 days (23.0 ± 4.1 mm^2 vs. 20.3 ± 2.4 mm^2, P=0.006) (19.8% vs. 7.6%), and 14 days of treatment (23.8 ± 3.1 mm^2 vs. 21.3 ± 2.4 mm^2, P=0.012) (24.6% vs. 12.9%). Likewise, aortic valve thickness decreased by 21% within 14 days of treatment in the treated group (0.094 ± 0.034 cm at baseline vs. 0.075 ± 0.033 cm at follow-up) whereas it was unchanged in controls (P=0.0006). Histological analysis revealed that lesion extent at the base of valve leaflets and sinuses of Valsalva was smaller in the treated compared to control group (52.8±12.5% vs. 66.7±9.9%, P=0.032). The treatment also lead to a reduction in aortic valve calcifications as revealed by the loss of the positive relationship observed in the control group (r=0.87, P=0.004) between calcifications area and aortic valve thickness.
Conclusions: Infusions of ApoA-I mimetic peptide lead to regression of experimental aortic valve stenosis. These positive results justify the further testing of HDL-based therapies in patients with valvular aortic stenosis. Regression of aortic stenosis, if achieved safely, could transform our clinical approach of this disease.