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sore throat (68%), irritation in eyes (24%), difference in taste (78%), dizziness (24%) and feeling of satisfaction (51%). In addition, there was a statistically significant: a) increase in HR (from  $75 \pm 10$  to  $92 \pm 17$ ,  $p < 0.001$ ), b) increase in eCO (from  $13 \pm 12$  to  $15 \pm 9$ ,  $p = 0.03$ ), and c) a decrease in SpO<sub>2</sub> (from  $97.46 \pm 2$  to  $96.76 \pm 1$ ,  $p = 0.012$ ) after smoking.

We conclude that after smoking a single e-cigarette for 10 minutes there was a change in symptoms, vital signs and indices of airway inflammation in a statistically significant manner. Further studies are needed to establish the immediate and long-term effects of e-cigarette smoking.

#### P4051

##### Occurrence, health impact and motivation to quit smoking among young people and effectiveness of tobacco control programs

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**Introduction:** Global Adult Tobacco Survey identified high levels of smoking in Russia and was followed by the young people smoking study in Saratov region in 2011 to improve Tobacco Control effectiveness.

**Aim:** The assessment of smoking, its health impacts and motivation to quit was conducted among college (FE) and university (HE) students.

**Methods:** Anonymous standardized Respiratory Health Assessment and COPD Differential Diagnosis Questionnaires were used in 3 groups: FE, 15-18 years (216 respondents) and HE, 19-24 years, studying medicine (120) and management (108); 54%-male, 46%-female. CO testing of breath (1ppm resolution) was used (10% respondents did not reveal their smoking). Respiratory disease risk assessment was based on respiratory symptom scores; spirometry was performed in line with ERS/ATS standard.

**Results:** The prevalence of smoking among students: FE-31%, medics-5.1%, managers-35.2%. With the same starting age (12.6-male and 13.9-female) in all groups, the respiratory problems (all symptoms: cough, sputum, dyspnoea, etc) occurred in: FE- 18%, medics-27%, managers-39%, and FEV1 decreased 10.2%, 26%, and 45% correspondingly. Unlike HE students, FEs do not realise health risks and will not seek a support to quit. There was a difference in major motivations to quit: female-fertility impact, appearance; male-erectile & sperm impact, sport; medics-pulmonary health, impact on intellect; managers-cost of cigarettes and waste of working time.

**Conclusion:** Tobacco Control among young people can be more effectively promoted through personalised messages to a particular target group, e.g. addressing specific motivations via Social Media.

#### P4052

##### Knowledge about smoking and its harm among high school students

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**Introduction:** Harmful effects of tobacco for human health are widely known, nevertheless, the prevalence of smoking is still increasing among adolescents.

**Objectives:** To evaluate the behavior as well as the knowledge of high school students in Botucatu, São Paulo, Brazil.

**Methods:** This work was developed with authorization of the Board of Education of the city Botucatu, in public secondary school. The students of the high school were invited to answer a questionnaire about smoking and its harms. Descriptive analysis of the data was done.

**Results:** We obtained 292 (41.7%) valid questionnaires (age:  $15.9 \pm 1.4$  years, 54.8% female). About smoking habits, 33.2% tried cigarettes at least once and 64.9% were female, 5% smoke more than 15 days/month, and 89.0% reported don't smoke. Most students (68.5%) do not have parents or relatives who smoke indoor. 91.1% know that cigarettes cause health problems and 81.8% said that nicotine is the substance responsible for addiction. Besides of that, 62.7% are not sure about the amount of toxic substances present in the cigarette. About the use of nicotine in young people, 7.9% believe that it acts more lenient, while 19.5% believe that it acts in a powerful way, making the addiction more difficult to overcome, 24.3% say the nicotine activity is the same as in adults, and 43.2% are unsure (5.1% did not answer). About the possibility of smoking, 79.5% said that they will not smoke in the next five years and 73.3% would refuse a cigarette if their best friend offered one. 51% affirmed that they received information about the harm of smoking from teachers.

**Conclusion:** This study noticed that, despite of all media information, young people show little knowledge about smoking and its harms.

## 410. Tobacco and shisha exposure in children and adolescents

#### P4050

##### Acute impact of a single e-cigarette smoking on symptoms, vital signs and airway inflammatory response

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E-cigarette is a battery powered electronic nicotine delivery device. Many smokers use it, because it is marketed as a safer alternative to smoking.

The aim of our study was to evaluate the acute effect of smoking a single e-cigarette for 10 minutes on symptoms, vital signs, exhaled CO, exhaled NO and airway temperature in never smokers and in smokers with and without chronic airway obstruction.

We studied 37 consecutive subjects (17 male), aged:  $42 \pm 14$  yr (mean  $\pm$  SD). Nine were never smokers, 15 were smokers with normal spirometry and 13 smokers with chronic airway obstruction (7 asthmatics, 6 with COPD). All subjects answered a questionnaire about symptoms (cough, sore throat, eye irritation, dizziness and feeling of satisfaction) immediately after smoking a single e-cigarette for 10 minutes. We also measured oxygen saturation (SpO<sub>2</sub>), heart rate (HR), exhaled CO, exhaled NO and airways temperature pre and post smoking.

After smoking a single e-cigarette for 10 minutes, our group reported cough (65%),

**P4053****Tobacco smoking prevalence and patterns in Croatian pupils in year 2011 – Results of Croatian national Global Youth Tobacco Survey (GYTS)**

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**Introduction:** Important changes have occurred in the prevalence and patterns of cigarette smoking by young people. Given the known consequences of smoking for morbidity and mortality and the nature of smoking habits established during adolescence, changes in smoking behaviors carry extraordinary implications for the health of these youngsters throughout their lives.

**Aims and objectives:** To investigate the prevalence and pattern of cigarette smoking among Croatian pupils.

**Methods:** The Croatia GYTS (Global Youth Tobacco Survey) was a school-based survey of pupils in 7th and 8th grade primary, and 1st grade secondary school conducted in year 2011. A two-stage cluster sample design was used to produce representative data for all of Croatia. A total of 3,551 students aged 13-15 participated in study.

**Results:** The overall response rate was 90.1%. Any form of tobacco is currently used by 28.6% pupils (boys = 28.6%, girls = 27.9%); 66.5% of pupils had ever smoked cigarettes (boys = 66.6%, girls = 65.9%). More than one-quarter (27.2%) currently smoke cigarettes (boys = 26.7%, girls = 27.0%); 12.0% smoke daily manufactured cigarettes (boys = 12.1%, girls = 11.2%); 14.9% currently smoke cigars (boys = 15.2%, girls = 14.1%). Almost one quarter of ever smokers initiated smoking before age ten (boys = 30.4%, girls = 16.3%). Of never smokers, even 22.1% are likely to initiate smoking next year.

**Conclusions:** The results of Croatian GYTS 2011 indicate significant tobacco use and exposure to tobacco among pupils in Croatia. There is an urgent need to prevent tobacco smoke prevalence among these individuals and reduce morbidity and mortality throughout their lives.

**P4054****Influence of family's smoking on their children in high school**

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**Background:** Smoking is important as one of the aggravation factors of respiratory diseases, including bronchial asthma. The smoking rate in Japan is maintaining the still high value. Although it is presumed that the start of smoking is before 20 years old, the actual condition is not necessarily clear. To grasp the actual condition of smoking in high school students is important for this age is the points to be the time for remission or adult asthma.

**Aim:** The aim of this study is to clarify the reality of the smoking in high school students from the view point of the influence of family smoking.

**Subjects and methods:** In 2009, four high schools in Japan were asked to complete a questionnaire to students. Questionnaire is anonymous and, as information about individuals, was asked to fill in only the age and gender. 1815(827 male, 988 female) were obtained from a valid answerer.

**Results:** 1. Who currently has asthma symptoms, history of asthma was decreased in the order of the person who has smoking mother, father, others.

2. Children had a higher prevalence of smoking and from younger age when father and mother is smoker, especially father had been smoking.

3. When mother has been smoking children at the time of the first buy at a convenience store.

4. Current smoking rate of children is high when the parents have been smoking.

5. If mother has been smoking, children of high school students do not intend to try to stop smoking.

6. If there are smokers in the family, 15% of children obtain the cigarettes from their families.

**Conclusion:** The influence of family smokers is not only the deleterious effects on health but also making their children to be smokers. The parents should stop the smoking for their children.

**P4055****Behavior, knowledge and attitude of Iranian professional athletes towards smoking**

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**Purpose:** This study aimed to assess the rate of tobacco consumption among professional athletes in Iran and assessing their knowledge and attitude in this regard.

**Materials and methods:** A total of 738 athletes from 10 different types of sports were evaluated. Athletes were all members of the priority leagues. After obtaining consent from the Physical Education Organization and coordination with the related federations, athletes were asked to fill out the standard questionnaire.

**Findings:** All understudy subjects were males. The mean age was 28.4±2.7 yrs. A total of 46.7% had high school diploma. In general, 293 subjects (39.7%) were

playing individual and 445 (60.3%) were playing team sports. The mean age of initiation of sport in these subjects was reported to be 12.3±4.01 yrs.. Sixty four subjects (9%) were current smokers. Twenty one cases (44.7%) were smoking less than 10 cigarettes a day. A total of 26 (66.7%) current smokers stated that smoking helps them in sport competitions. A total of 40 sportsmen from individual sports were current smokers, this rate was 24 (5.5%) among team players (P=0.00). The mean score of knowledge about hazards of smoking was 7.8±0.62 and the mean score of attitude was 26.4±4.1

**Conclusion:** Rate of smoking among professional athletes is lower than general population average. So participation in organized sports may be a protective factor against tobacco use in people. Percentage of smoker athletes was significantly higher in individual sports compared to team sports. Athletes had good knowledge about hazards of smoking and had a positive attitude in this respect. Further studies are needed to evaluate reasons of cigarette and hookah smoking among athletes.

**P4056****Tobacco false attributions in smokers and not smokers teenagers**

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**Introduction:** The tobacco is now a widespread habit among the teenagers where they begin early to smoke. The false attribution have an important role to push the adolescents to take the decision to begin early to smoke i.e. to think that they are more attractive, modern, adult and more independent.

**Methods:** A representative sample of teenagers of our community offering a questionnaire that include the false attributions with two answers: true or not true. The sample was of 350 students, 180 girls and 170 boys between 12-18 years. The values of the correct answers is between 0 and 10 points analyzing the results with Kruskal Wallis test.

**Results:** 193 students (55.14%) smoke and 157 (44.86%) not smoke. We found significant differences of false attributions between smokers and not smokers. The smokers have most of false attributions about smoke habit having less scoring in the questionnaire (H: 6.45, gl: 1, p: 0.011).

Table 1

Scoring	Smokers (n=193)	Not smokers (n=157)
0-4	4.67	4.46
5-7	46.63	35.67
8-10	47.7	59.87

**Conclusions:** The smoke teenagers have more false attributions than not smokers.

**P4057****Does parental smoking influence the adoption of this habit among their children?**

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**Hypothesis/Background:** Parental smoking is likely to influence adoption of the habit by their children. There is a positive correlation between parents smoking and their children developing this habit.

**Objective:** To find out if there is a correlation between parental smoking and their children adopting this habit.

**Methods:** Primary and secondary researches were undertaken. Primary research comprised of a questionnaire, filled by 256 participants aged between 16 to 25 years from different private schools and colleges all over Pakistan. Interviews of 30 people were also conducted for further collection of information as a part of secondary research.

**Results:** Literature review supported our hypothesis. Children were 5 percent less likely to smoke if parents did not smoke; children both whose parents smoked were 2.69 times more likely to smoke by 12th grade compared to those whose parents did not smoke. Primary research showed that indigenous data also corresponds to the hypothesis. The chi-squared test of association,  $X^2 > X^2(0.05, 1, 1)$ , shows there is association between parental smoking and children smoking.

**Conclusions:** The effect of parental smoking cannot be ignored, however since smoking habit is caused by a variety of factors, only a correlation can be developed. Prevention from and negative attitudes of parents are the most effective way of preventing or at least reducing smoking habits among children.

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**P4058****Prospective inquiry studying of tobacco smoking among high-school students in Plovdiv, Bulgaria (2004-2010)**

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**Introduction:** Tobacco smoking is world major cause for premature death and serious health problems. The efforts should be directed towards prevention of smoking, which most often is even in childhood.

**Aims:** To investigate in dynamics certain aspects of smoking among adolescents.

**Methods:** It was organized a study in sections method, using a direct anonymous group survey among students from 16 to 18 years in Plovdiv schools. There were interviewed 800 students in 2004 and 460 in 2010. The questionnaire is from translated and adapted version by GYTS, WHO's program form. The statistical processing of data is completed by descriptive statistics and Student's t-test. It was used the program pack SPSS v.18.0.

**Results:** For the six year period, we reported a statistically significant decrease in the number of students who have tried to smoke cigarettes and of those who smoke regularly. In 2004, 84.875% of the adolescents have tried a cigarette, as well as in 2010- 72.39% (t=5.12, p<0.001). At the age of 14-15 those who have started to smoke were 28.375% in 2004 and 23.04% in 2010 (t=2.11, p<0.05). The percentage of the students who smoke every day reduces from 25.375% to 19.565% (t=2.42, p<0.05). There is a statistically significant increase in the percentage of students who disagree with the smoking in common places from 57.75% to 68.48% (t=3.86, p<0.001). The ability to easily buy cigarettes from young people remains alarming- 46.625% in 2004 and 68.48% in 2010 (t=7.69, p<0.001).

**Conclusions:** There is a significant decrease in the number of adolescents who smoke and in the same time there is more to be done in preventing tobacco smoking by children.

**P4059****Estimation of prevalence and features of smoking status in young people**

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**The purpose:** To study the prevalence and features of tobacco smoking in young people (students) of Samara region, for revealing the most informative, sensitive and specific tests at the given category.

**Methods:** 158 young people aged of 17-27 years (20,6±2,1), 66 male and 88 female were surveyed by means of BMI, PEF, FEV1, FVC, FEV1/FVC, the experience and intensity of smoking, smoking index.

**Results:** 59% men were smokers and 41% non-smokers. 15% women were smokers and 85% non-smokers. The greatest number smoking was at the age of 22 years of both sexes.

The most informative parameters by standard canonical coefficient (SCC) were: PEF (SCC=4,7), the factor of smoking (SKK=1,4), the intensity of smoking (SCC=1,3), the age (SCC=0,7).

The ROC-analysis has shown the greatest sensitivity and specificity, at a confidential interval of 95%, for: PEF (AUROC=0,9), smoking index (AUROC=0,7), smoking duration (AUROC=0,7), smoking intensity (AUROC=0,7).

**Conclusion:** Thus, the group of high risk was young people aged 22 years of both sexes. The most informative, sensitive and specific tests at the given category of patients were PEF, [PI]CB, smoking index, duration and intensity.

**P4060****The attitude of the teachers working in Manisa City Center toward the practice of the law on prevention of hazards of tobacco products numbered 5727 and the rate of smoking cessation among teachers**

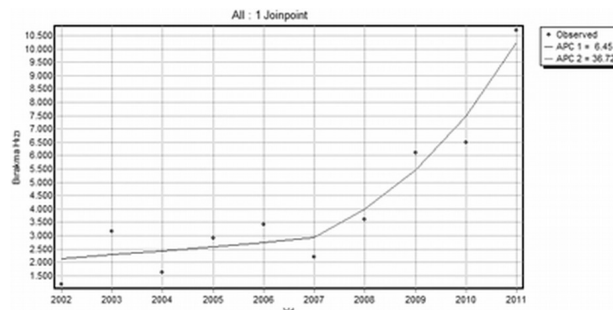
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This study is aimed to investigate the attitude of the teachers in Manisa toward the law numbered 5727 came into force on 19 July 2009 and the smoking cessation rate before and after application of this law.

The study was conducted in 727 teachers working in primary and secondary schools in Manisa between May 2011 and June 2011. 588 teachers (80,8%) participated to the study filed out the questionnaire.

47,8% of them was male. Rate of ex-smokers and current smokers were 30% and 36,1% in male and 16,7% and 26,4% in female respectively. 97,3% of nonsmokers,

94,5% of ex-smokers, 100% of occasionally smokers, and 75,5% of current smokers supported the law (p<0,001). In current smokers, annual smoking cessation rates between 2001-2002, 2006-2007 years were between 1,17% and 3,41%. Smoking cessation rates in 2007-2008, 2008-2009, and 2009-2010 years were 3,61%, 6,10%, and 6,50% respectively. Between August 2010 when the law came into force and June 2011, it was 10,69%. With joinpoint trend analysis, there was no statistically significant change in annual smoking cessation rate between 2001-2001 and 2006-2007 years (p=0,5); but it was found statistically significant between 2007-2008 and 2010-2011 years (p=0,02).



Teachers have a positive attitude about the law. Smoking cessation rate in current smoker teachers was significantly increased after July 2007.

**P4061****What do the adolescents think about smoking and ban strategies in Turkey?**

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Preventing youth from initiating tobacco use is a key aspect of all tobacco prevention efforts. Most smokers become tobacco dependent before age 18 years. The purpose of the present study was to investigate thoughts of high school children about smoking behaviours and antismoking policies in Turkey. 731 students volunteered (336 male, 395 female, mean age 16,20±1,15) to participate in the study from 7 different high schools. After taking written consent from their parents all the students filled the 16 item questionnaire developed by the researchers. 72.7% of the students thought that their teachers were not good models for not smoking. 10.9% believed that smoking is a sign of growing up and 45.7% the students believed that they can quit whenever they wanted if smoked. 85% of the students totally or partially agreed with the prohibition of cigarette advertising and 95.4% of the students agreed with the prohibition of smoking in public places but 42.8% of the students believed that smoking on the streets is not a stimulating behavior. 30.6% did not think that increasing the cigarette prices would not have positive effect on decreasing smoking rates. 10% and 12% of the students thought that water pipe and light cigarettes are less harmful than the normal cigarettes respectively. A clear opportunity for intervening with youth lies in the school setting, and so besides the ban policies, comprehensive tobacco control and education programs including the parents should be initiated.

**P4062****Prospective analysis among medical school of University of São Paulo: GHPSS (2008/2011)**

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**Introduction:** Knowledge acquired in tobacco-related diseases and treatment are fundamental for future physicians who will have to manage with this pandemic disease.

**Objectives:** To determine the prevalence of smokers, Shisha use, passive smoking; knowledge about tobacco-related diseases, smoking cessation techniques and treatment on medical students.

**Methods:** Cross-sectional survey randomly sample of 211 medical students from 3rd year of 2008 and 6th year of 2011. The questionnaire used was the self-administered Global Health Professional Students Survey (GHPSS) after translation and validation to Portuguese. The GHPSS was supplemented with questions about knowledge acquired.

**Results:** Responded 101 x 110 students 3rd/6th. Low prevalence of smokers among the male population with a fall in the 6th year (7.9 x 4.6%, p=0.266), no female smoker. Current/past use of Shisha were higher in 3rd/6th (47.5% x 46.4%, p=0.522). The students have a Knowledge of Smoke Free Places in college, buildings and clinics, (45.4% x 91.8%, p<0.001). Curriculum and Training analyses about smoking showed a significant gain of knowledge on smoking cessation (9.9% x 98.1%, p<0.001); importance of educational materials to cessation (29% x 72.7%, p<0.001) and Non-nicotine treatment (46.5% x 99.1%, p<0.001). Diseases associated to smoking are well known, except tuberculosis (42.6% x 38.3%, p=0.523).



**Conclusions:** Low prevalence of smoking, calling attention to the Shisha. Students increased knowledge about the curriculum, training, and smoking-related diseases in medical education. As based on the analysis of these data we conclude that these future physicians have tools to act in the smoking pandemic.

#### P4063

##### **Tobacco smoking: Still an important lifestyle component for adolescents and adults**

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Tobacco use remains still, unfortunately, an important component of lifestyle for all ages Romanian people. The aim of this study was to highlight features of tobacco from different generations, adolescents and adults. Study groups: A-student smokers aged 14-18 years, B-smoking adults aged over 19. All subjects completed anonymous questionnaires about tobacco use. The prevalence of smoking was 21.8% for group A, 35.6% for group B. The prevalence of smoking was relatively similar for males and females for group A-23.6%/20.3%, while for group B was more prevalent for males increased (52.4%/19.6%). Smoking prevalence was also similar for rural/urban areas for group A; for group B slightly increased in rural areas-62.3%. We obtained a low nicotine dependence in 70.2% of adolescents and high dependence in only 6.0% of them; in adults the medium dependence prevailed 49.1%, and high dependence occurred in 34.9% of cases. The mean age at which they start smoking was 13.8 years for group A and 15.2 for group B. In both groups we found a significant percentage of cases having at least one other smoker in their family-33.3% for adolescents and 20.8% for adults. In this study we found that the new generation is better informed about health risks of smoking (79.8%), but ignore that information, knowingly exposing themselves to risks. Although groups of study subjects were included only smokers in the two categories, it is worth mentioning that the percentage of ex-smokers was a significant (12.5%, respectively 23.8%). It should therefore promote a healthy lifestyle, without tobacco consumption, both adolescents and adults, in order to increase quality of life by preventing multiple pathology caused by tobacco.

#### P4064

##### **Evaluation of cell spectrum in induced sputum of young cigarette smokers**

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It is of great importance to be able to diagnose early inflammatory changes that can lead to COPD in airways of young cigarette smokers.

**Aim:** The aim of this study was to analyze the cell spectrum of induced sputum in young cigarette smokers, with emphasis on T-regulatory cells.

**Method:** 20 healthy non-allergic smokers (Mean Age - 22±0.84; regular usage - 2.60±1.18 pack-years), and 20 non-smokers gave informed consent to participate in the study. Lung function measurements, sputum induction (IS) and sputum cell analyses were performed.

**Results:** Demographic data for both study groups did not differ significantly. Both non-smokers and smokers had normal lung function indices. Induced sputum of smokers contained higher ( $p = 0.021$ ) absolute amount of neutrophils [29.70 (20.96 – 42.09), cells $\times 10^4$ /mL], compared with non-smokers [16.51 (11.65 – 23.39) cells $\times 10^4$ /mL]. FOXP3-positive T reg cells in sputum of young smokers showed a trend towards statistically significant increase [11.10 (7.75 – 15.88) cells $\times 10^4$ /mL], compared with non-smokers [6.79 (4.75 – 9.72) cells $\times 10^4$ /mL,  $p = 0.057$ ]. Regression analysis showed significant dependency of FOXP3-positive T reg cells ( $r^2 = 0.103$ ;  $p = 0.044$ ), neutrophils ( $r^2 = 0.179$ ;  $p = 0.007$ ) and macrophages of induced sputum ( $r^2 = 0.118$ ;  $p = 0.030$ ) from the number of smoked pack-years.

**Conclusion:** This study demonstrates that young smokers have early inflammatory changes in their airways, which not only initiate non-specific mechanisms recruiting neutrophils, but also involve specific immune mechanisms with recruitment of T reg lymphocytes. The lymphocyte response is probably adaptive.

#### P4065

##### **Effects of aerobic exercise training in cytokines levels on muscle of mice exposed to cigarette smoke**

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Smoking has been shown to increase inflammatory biomarkers and exercise can influence this response. The purpose of our study was to evaluate the effects of physical training on cytokines levels on muscle of mice exposure to cigarette smoke.

**Methods:** C57Bl6 mice were divided into 4 groups: Control, Smoke, Exercise and Smoke/Exercise. Smoke groups were exposed to cigarette smoke for 30min/day (twice), 5days/week for 4 weeks. Exercise groups were trained at moderate intensity for 60min/day, 5days/week for 4 weeks. TNF $\alpha$ , IL-6 and IL-10 levels were measured on muscle by ELISA.

**Results:** IL6 and IL-10 increased after 4 weeks in Exercise and Smoke/Exercise groups ( $p < 0.001$ , compared to smoke and control group). TNF $\alpha$  increased on Smoke group and exercise training inhibit this response ( $p < 0.05$ ).

**Conclusion:** Our results suggest that AE training at moderate intensity have beneficial effects on inflammatory biomarkers in mice exposed to cigarette smoke.

#### P4066

##### **The rate of shisha experimenter's continues to increase among Parisian students after the smoking ban**

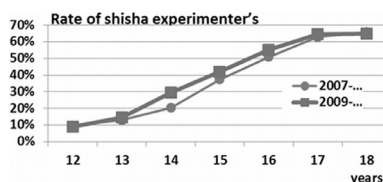
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As first cigarettes are irritants and unpleasant, tobacco industry try to charmed adolescent with supposed "sweet and soft tobacco product" as water pipes (Shisha) before initiation to cigarettes use. However, this sweetness is only apparent. This product, unknown to French teenagers 10 years ago, has become very popular.

We analyzed on Parisian schoolchildren how the smoking ban, including the closure of shisha bars in 2008, modified shisha experimentation in teenagers.

**Methods:** Since 2007, a question about the experience of shisha was introduced in the Parisian annual PST survey. This self-administered anonymously questionnaire is assigned at random by class towards 2% of schoolchildren population, in colleges and in high schools of Paris Academy.

**Results:** 10% of 12 years old children had experimented shisha. The rate of shisha experimenter increases progressively until 2/3 of 17 years old students. This experiment has not been decrease at any age by the ban. After the ban (2009-2011) the experimentation of shisha increased from 20% to 30% for 14 year-old schoolchildren compared to 2007-2008 survey.



**Conclusion:** Total ban don't decrease initiation of tobacco smoke with shisha in Parisian teenagers. Preventive campaigns are needed to inform adolescents that shisha is harmful and may be a gate for initiation of tobacco use, but, unfortunately, all budgets for this prevention has been cut down for 5 years in France.

#### P4067

##### **Knowledge attitude and practice of shisha (water pipe) use in doctors**

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**Background:** Tobacco use in the form of shisha has adverse effects similar to cigarette smoking.

**Objectives:** To assess the knowledge, attitude and practice of doctors about shisha (water Pipe) use and its hazards as doctors serve as role model of a society and can play a very important role in educating public.

**Methodology:** A self administered questionnaire was distributed to house physicians, postgraduate, medical officers and consultants in different teaching hospitals of Karachi.

**Results:** 343 doctors from different teaching hospitals of Karachi filled the questionnaire of which 170 were females. Approximately 29.5% doctors have used shisha some time in their life. Of total survey population 56.5% house officer, 73.9% postgraduates, 65.9% medical officers and 91.3% of consultants agreed that shisha contains tobacco ( $p$  value 0.001) and 58% house officers, 77% postgraduates 68.3% medical officers and 91.3% consultants believed that it is harmful to health ( $p$  value  $< 0.001$ ). Knowledge about hazards of passive shisha use was found to be very poor. Only 25.2% house officers, 40.5% post graduates, 34.1% medical officers and 69.6% consultants were confident that neonatal deaths are associated with passive shisha exposure ( $p$  value  $< 0.001$ ) while 51.9% house officers, 64.2% postgraduates, 53.7% medical officers and 87% of consultants believed that shisha exposure during pregnancy can lead to Sudden Infant Death Syndrome ( $p$  value 0.001).

**Conclusions:** Our study indicates that there is lack of knowledge among doctors especially house officers regarding contents used in shisha and its hazardous effects on health. Steps should be taken to educate doctors especially juniors about different methods of tobacco use and its hazards.

#### P4068

##### **Prevalence of hookah consumption in Tehran**

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**Background and objective:** Not much information is available in the literature

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regarding the prevalence and pattern of hookah consumption in eastern Mediterranean region especially in Iran. But studies conducted in a few Arabic countries in the region indicated the increasing trend of hookah smoking.

This present study evaluated the pattern of hookah consumption among males and females residing in Tehran.

**Materials and methods:** This study was performed during summer of 2011. A total of 1,500 subjects were randomly questioned in 20 main squares of Tehran using a standard questionnaire for hookah consumption.

Knowledge of people about the hazards of hookah smoking, hookah consumption by close friends and cigarette smoking were among the questions asked.

**Results:** Of the understudy subjects, 446 (29.7%) reported hookah smoking and 1,052 (70.1%) did not. The mean age of subjects who mentioned hookah smoking was  $25.54 \pm 7.9$  yrs. Places of hookah consumption were reported to be in ethnic restaurants by 196 (43.9%), home by 126 (28.3%), and parks by 122 (27.4%). In case of prohibition of hookah consumption in public places, 217 (48.7%) stated that they are going to do it at home, 166 (37.2%) said that they would no longer do it. In general, 238 (53.4%) subjects stated that they would decrease their consumption in case of placing a ban on hookah smoking in public places. Pleasure was reported as the reason for hookah smoking by 348 (78%) individuals. The mean monthly expense for hookah consumption was 18 dollars.

**Conclusion:** Despite the present ban on tobacco consumption in public places, highest rate of hookah smoking still occurs in ethnic restaurants which clearly shows lack of law enforcement.

#### P4069

##### Comparison of end tidal carbon monoxide (eCO) levels in shisha (water pipe) and cigarette smokers

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**Background:** 100 million people smoke shisha, its use was more prevalent among Arabs but now getting endemic in other parts of World. Measuring eCO concentration is an easy method to correlate intensity of tobacco smoke and different kinds of smoking techniques.

**Objective:** The aim of this study was to evaluate and compare the increase in end tidal carbon monoxide levels in exhaled breath of passive smokers and healthy smokers after cigarette and shisha smoking.

**Methodology:** In a cross sectional study eCO levels were measured in 70 subjects (24 healthy cigarette smokers, 20 healthy shisha smoker, 26 passive smokers) by portable device, Micro Plus Smokerlyzer. Smokers were asked to smoke shisha for 30 mins in shisha bar or to smoke 5 cigarettes in 30 mins in simple restaurant. A group of people exposed to smoke for 1 hour was also recruited. eCo levels were measured at baseline and at 5 mins, 30 mins and 60 mins.

**Result:** The mean age was  $23.22 \pm 1.91$  years. One way ANOVA and paired t test were run through SPSS. The baseline mean eCO in cigarette smokers was  $3.50 \pm 0.65$  ppm (part per million), passive cigarette smoker  $3.71 \pm 1.06$  ppm, shisha smokers  $27.70 \pm 4.92$  ppm and passive shisha smokers  $18.33 \pm 8.41$  ppm and this difference was due to close environment and poor ventilation of shisha bars. The mean increase in eCO from baseline after 60 min in healthy smoker was  $9.4 \pm 4.67$  ( $p < 0.005$ ) in passive cigarette smoker  $3.57 \pm 2.53$  ( $p < 0.05$ ), healthy shisha smoker  $57.9 \pm 27.4$  ( $p < 0.005$ ) and passive shisha smokers  $13.33 \pm 4.69$  ( $p = 0.03$ ).

**Conclusion:** One session of shisha smoking is 6 times more toxic than cigarette smoking and sitting in shisha bar itself cause significant increase in eCO levels.