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Healthy lifestyle and personal hygiene. Psychohygiene. Physical culture and bases of tempering

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Healthy life-style and personal hygiene :

According to the official definition of the WHO *"Health"* is a state of complete physical, mental and social welfare, not only absence of diseases or physical handicaps". From hygienic point of view *"Health"* is the state of total biological, physical, psycho-physiological, social welfare when functions of all organs and systems of the human organism are balanced with environment, any diseases, pathological states and physical handicaps are absent". It is a state of the organism when it realizes fully its biological and social functions - domestic, labour, social (interaction with other people and whole society).

“Health” **is the interval, within quantitative fluctuations of which, psychological and physiological processes are able to maintain the living system at the level of functional optimum, with self-regulation mechanisms functioning without physiological stress and failure".**

Healthy lifestyle of the person **is a big complex of methods and means of life, biologically and socially directed and expedient, which correspond to the human requirements and abilities. The person has to follow them to provide formation, preservation and strengthening of the health, reproductive ability and active longevity.**

Healthy lifestyle of the population **is a lifestyle, which provides integration of complete biological and social adaptation of each individual with maximum possible self-expression of people, nation, class, social group in specific conditions of life, and causes and provides further social development. Methods and means of healthy lifestyle maintenance include subjective and objective conditions and factors, which depend on health of individual and society as a whole.**

Subjective methods and means include:

- adherence to personal hygiene rules - correct conditions of labour and rest, sleep and activity, eating patterns;
- regular maintenance of clean body;
- regular physical training, usage of methods and means for the organism tempering;
- absence of harmful habits - drugs, toxical substances, alcohol, smoke abuse;
- standard of personal culture.

Objective methods and means include:

- endowment of a person resulted from level of education, profession, presence and type of work, level of salary; presence of family and number of family members, living conditions;
- cold and hot water-supply in the residential premises; for some professions in industry, public eating establishments - bath-houses, saunas, pools;
- psychological and hygienic microclimate during interaction with society, work collective, family etc.;
- full-value, sufficient, balanced, varied nutrition;
- correspondence to hygienic requirements of domestic and occupational clothes, footwear, personal protective equipment in industry;
- correspondence to hygienic standards of work hardness, intensity, complexity, factors of occupational environment.

PERSONAL HABITS

The term personal hygiene includes all the personal factors which influence the health and well-being of an individual. It consists of such activities like care of the body regarding bathing, care of clothing and washing, care of teeth, care of feet and nails, care of hair, care of posture, good habits of eating, exercise, sleep and right attitudes towards life. Any deviation from these acts and activities may impair health. Personal hygiene is mainly and largely an individual business. Cleanliness is the worst enemy of diseases and hence clean people are generally healthy and fit and welcomed everywhere. As such everyone-poor or rich can afford to be clean and healthy as it is just a matter of developing good habits.

Eating and drinking:

Food must be served only when the true appetite is felt. It must be taken at regular intervals and at fixed hours of the day. One must eat slightly less than to his capacity. Overeating is bad for health. Food must be taken according to age and health condition. Food should not be taken hurriedly and the dining place must be hygienic - neat and clean. It is not advisable to drink more water while dining. For a better digestion, it is advised not to drink water half-an-hour before and after meals. But, in general, one must drink as much water as one can. About 20 well known diseases can be cured just by taking sufficient quantity of potable water. Drinking water 2 to 3 times the actual requirement also is not harmful. Thorough cleaning of hands and mouth before and after meals is always good and advised. "After supper sit a while, after dinner walk a mile". It is advised not to sleep immediately after meals.

Sleeping:

Man regains the lost calories during his sleep. For a sound sleep the bed room must be well ventilated and free from bed bugs and mosquitoes. Children and the sick sleep for 12 to 18 hours a day while for others 6 to 8 hours of sleep is sufficient. Midday sleep is not bad for health. As such it is often refreshing and invigorating.

Diet and Exercise:

Avoid taking food in all kinds of places. Drink only filtered boiled water or bottled mineral water. Do not eat raw vegetables. Buy meat only from reputed sellers and cook it well. The more fat you have on your body, the more is the risk of straining your health and developing diabetes. Any amount of exercise is not as good as reducing intake of food rich in calories. If you spend more calories in work than what you take from food, you will lose weight. If you take more calories than what you spend, you will gain weig

Clothing: Cloths are meant for protection of a body from heat and cold but not for personal decoration! Dirt deposited on clothes harbors germs and sweat deposited gives bad smell. Clothes must be thoroughly washed or dry-cleaned before use. Sense of dressing may not be that important for children but for others it is very important and essential.

Heart disease and diabetes:

The following are the risk factors that could lead to heart disease: smoking, obesity, sedentary life, diabetes and high blood pressure. Remember that High blood pressure is a slow, silent and sure killer. It means that unless you get blood pressure checked periodically, you may never know that you have high blood pressure. High blood pressure, to start with, will not produce any symptoms.

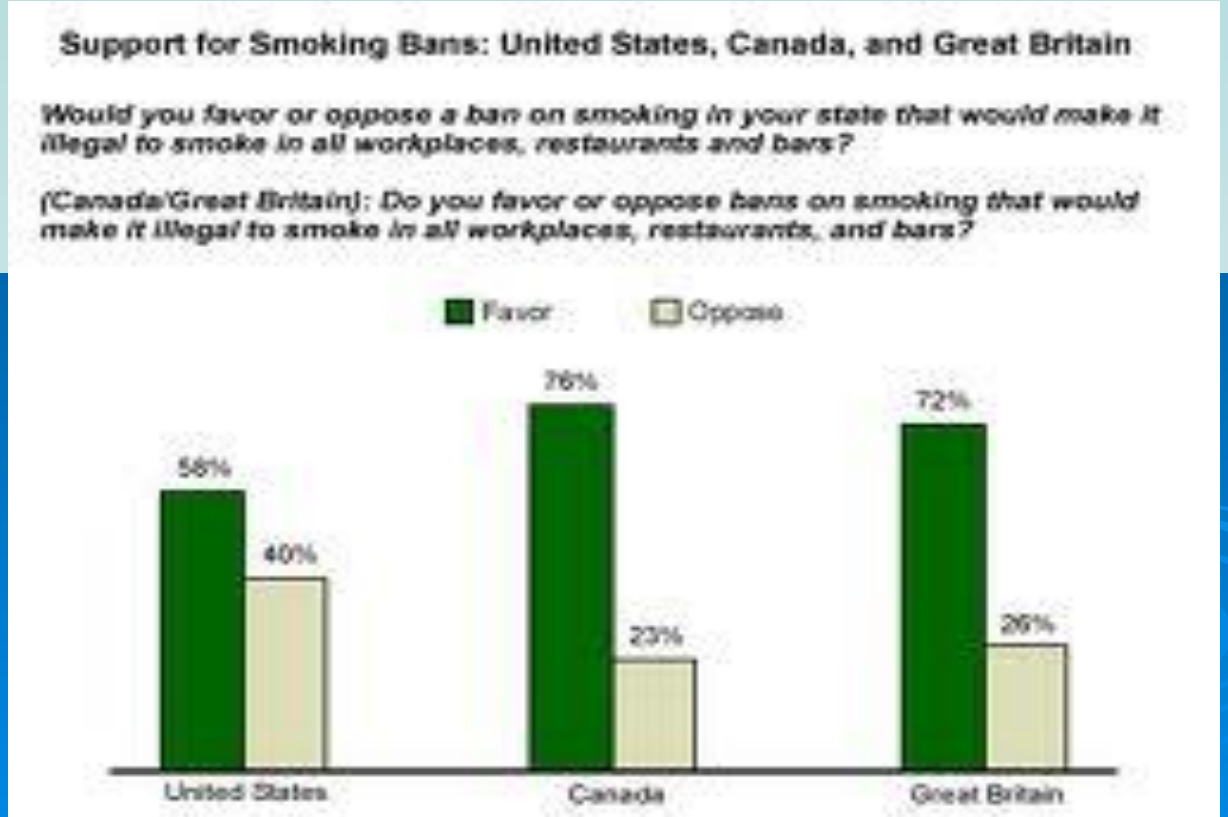
PERSONALITY DEVELOPMENT

Health is a state of well being, bodily, mentally, socially, environmentally and spiritually. It is not just the absence of a disease. State of health of any individual is the outcome of the interplay of several factors within him and around him. There is no shortcut to good health. Five groups of factors may be considered to analyze the health status of an individual, as shown below.

Happiness is a state of mind. It is also the conscious goal of man. Happiness is largely governed by the attitudes of the individual on what is happening around him.

Harmful habits

1. Drug abuse (or narcomania)
2. *Toxicomania*
3. *Alcohol abuse* (Alcoholism)
4. *Tobacco abuse* (Smoking)



Drug abuse (or narcomania)

from Greek *narka* - stupor, numbness; *mania* –madness - is persistent and morbid propensity of the person to drugs (opium, morphine, cocaine etc.) usage of them to feel excited, intoxication, which lead to disorders of mentality, deep personality changes and functions of internals. Drugs may cause pleasant psychological state even after single use, and psychological and physical dependence after multiple use.

Toxicomania

(from Greek *toxicon* - poison, *mania* - madness) is a disease resulted from abuse of any substance which causes short-time subjective attractive psychological state. Essence of toxicomania is a poisoning and need for further poisoning. Substances with different chemical structure and pharmacological activity are used create general psychological and physical effect - euphoria, personality changes, behavioral disorders and social degradation. This term encloses all forms of pharmaceutical and non-pharmaceutical substances abuse.

Alcohol abuse (Alcoholism)

is a disease connected with systematic abuse of alcohol drinks which lead to psychological or physical disorders. As a result of alcohol abuse the alcohol intoxication is developed which is accompanied with emotional, motor, speech excitement, disappearance of self-control and critical assessment of situation. Frequent, excess alcohol abuse to receive euphoria effect may result in pathological passion accompanied by psychological and neurological disorders.

Alcohol

- Each year over 55 000 young Europeans die from the effects of alcohol abuse: one in four deaths in European men aged 15-29 years is related to alcohol. In addition, between 40% and 60% of all deaths from injuries are attributable to alcohol. Alcohol consumption, and particularly acute alcohol intoxication, seems to explain a considerable portion of the differences in young adult mortality observed between the west and east of the Region and between males and females. The welfare, health service, insurance, enforcement and penal costs associated with drinking, and the costs resulting from loss of production, accrue to a total societal cost of 1-3% of GDP.

The European School Survey Project on Alcohol and Other Drugs (ESPAD) shows that there are clear increases in the proportion of students who use alcohol in the central and eastern parts of Europe, especially in Lithuania, Poland, Slovakia and Slovenia. However, the use of alcohol among students is most common in the Czech Republic, Denmark, Ireland, Malta and the United Kingdom. Of the four top countries for intoxication rates in 1995, the rates in Denmark and Ireland increased even further while those in Finland and the United Kingdom remained largely unchanged. Regionally, some trends emerge. The Nordic countries show stable levels of alcohol consumption, except Sweden, which is experiencing a decrease. Consumption is increasing in Latvia and Lithuania, while Estonia shows a slight decrease.

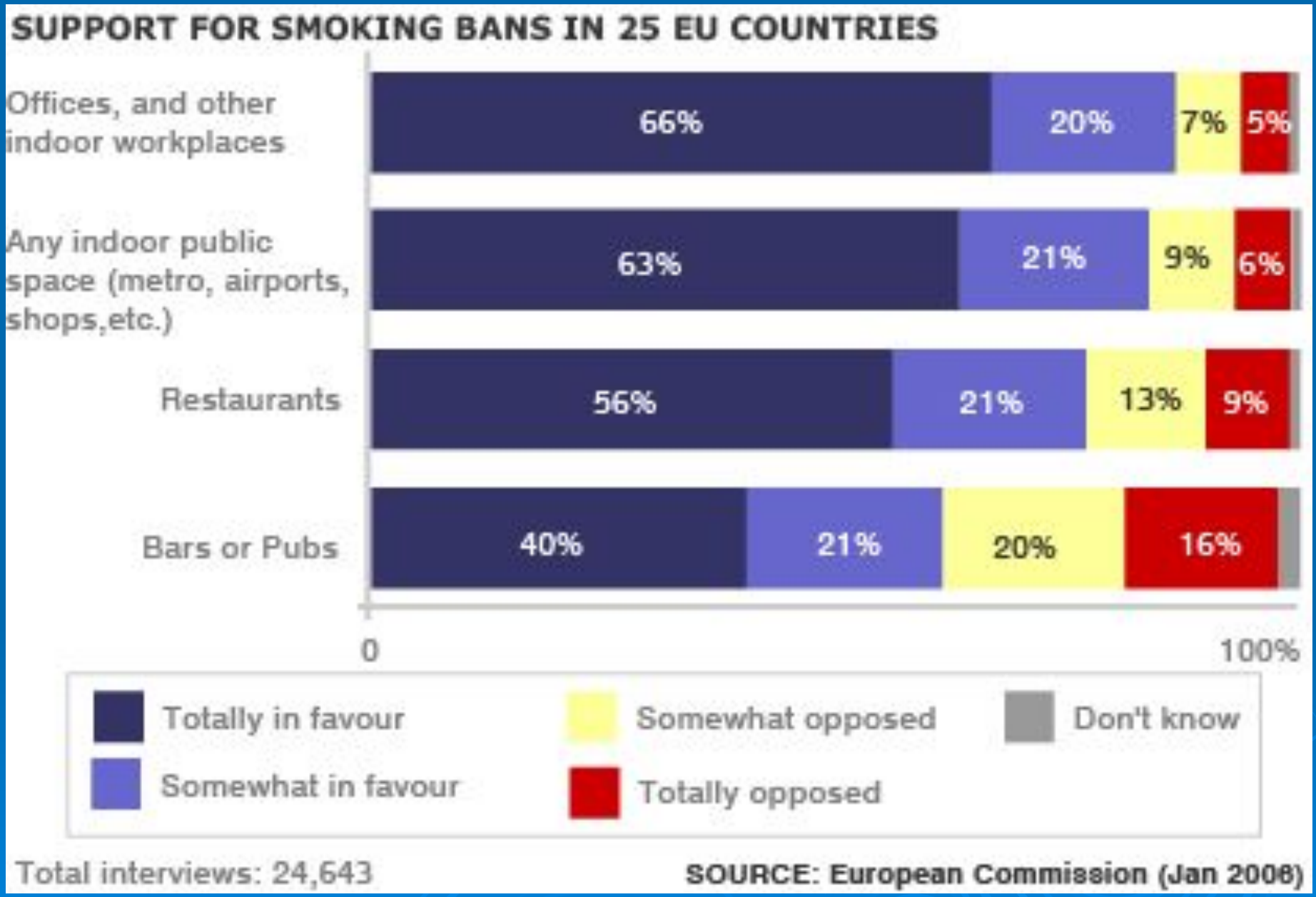
The European Alcohol Action Plan, endorsed by the WHO Regional Committee for Europe on two occasions over the last ten years, plus the documentation produced by the Regional Office in support of two ministerial conferences on alcohol, provide a good basis for policy and programme development.

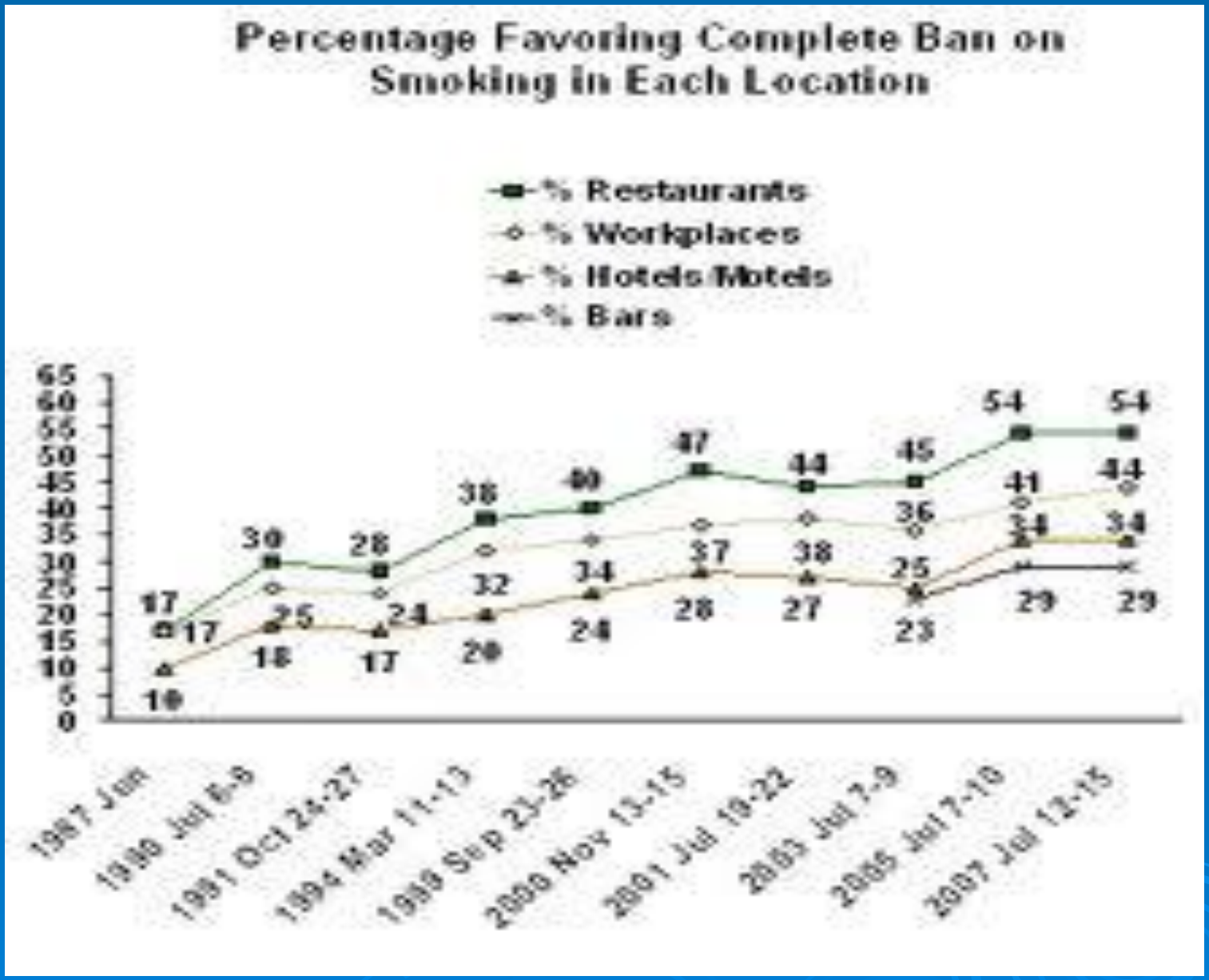
Tobacco abuse (Smoking)

- **is a inhalation of substances with fume which causes both pleasant psychological state and the organism intoxication. Dry tobacco distillation takes place during smoking and some new substances are formed. Tobacco smoke consists of nearly 1 200 different substances, half of them have poison effect. There are such substances as nicotine and its derivatives, ammonia, carbon monoxide, prussic, acetic and formic acids, phenols, formaldehydes, hydrogen sulfide, carcinogenic matters, soot. The most poisoning substance of tobacco smoke is nicotine, its content depends on type and dryness of the tobacco.**

Tobacco

- About 215 million Europeans smoke, of whom 130 million are male. The annual number of deaths attributable to the consumption of tobacco products is estimated at 1.2 million (14% of all deaths). Of these, 700 000 occur in the CCEE and N1S. According to data from 25 countries, covering 60% of the population of the Region, average smoking prevalence in the male population is around 34% for western European countries and *47%* for eastern European countries. In the female population the prevalence is some 25% for western European countries and 20% for eastern European countries. The smoking prevalence in males is above 50% in 11 countries and below 30% in 5 countries. For females, the prevalence is above 30% in 5 countries and below 10% in 3 countries.


SUPPORT FOR SMOKING BANS IN 25 EU COUNTRIES
Offices, and other indoor workplaces
66%
20%
7%
5%
Any indoor public space (metro, airports, shops,etc.)
63%
21%
9%
6%
Restaurants
56%
21%
13%
9%
Bars or Pubs
40%
21%
20%
16%
0
100%
Totally in favour
Somewhat in favour
Somewhat opposed
Totally opposed
Don't know
Total interviews: 24,643
SOURCE: European Commission (Jan 2006)


Percentage Favoring Complete Ban on Smoking in Each Location
% Restaurants
% Workplaces
% Hotels/Motels
% Bars
65
60
55
50
45
40
35
30
25
20
15
10
5
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28
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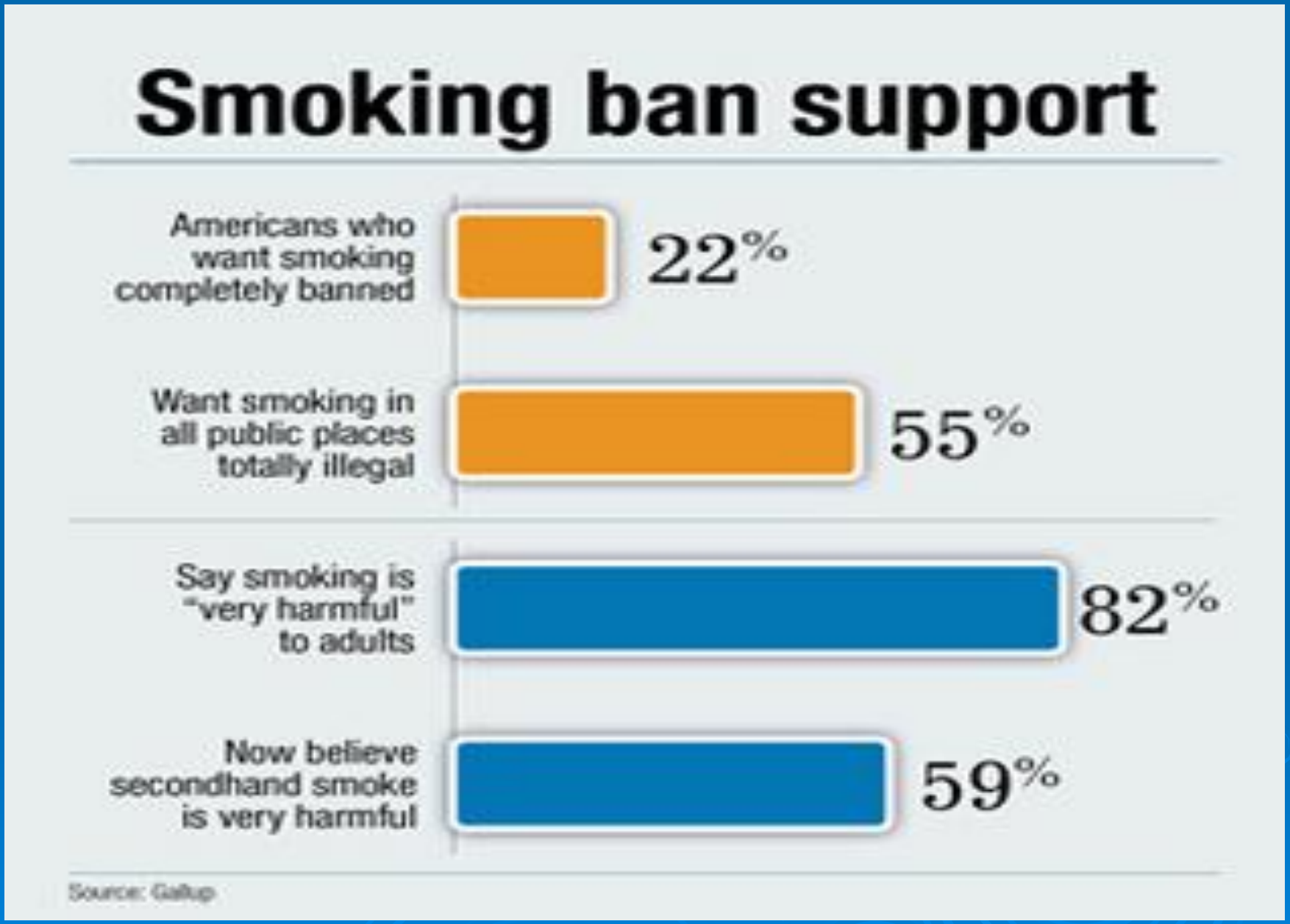
29
1987 Jun
1988 Jul 6-8
1991 Oct 24-27
1994 Mar 11-13
1999 Sep 23-26
2000 Nov 13-15
2001 Jul 19-22
2003 Jul 7-9
2005 Jul 7-10
2007 Jul 12-15

Area	No smoking in home %	Smoke-free policies in work areas %	No smoking in restaurants %	No smoking in schools %	No smoking in day care centers %	No smoking in indoor work areas %
Alaska	78.2	75.0	62.4	97.0	98.5	78.9
Colorado	79.0	72.9	60.7	93.9	96.4	79.3
Delaware	71.3	80.7	57.2	92.8	97.0	78.4
District of Columbia	72.0	77.2	58.3	94.6	97.4	83.8
Indiana	65.3	63.7	52.1	94.2	96.7	69.3
Louisiana	72.0	66.8	57.5	94.2	97.1	77.9
Mississippi	68.8	61.4	59.0	93.3	96.4	79.6
Missouri	65.3	69.2	49.4	93.4	95.8	67.0
Montana	77.0	83.9	63.6	96.3	97.4	80.5
Nebraska	76.6	78.8	59.9	95.3	97.3	79.0
New Jersey	76.8	82.2	62.1	94.8	96.9	77.5
North Carolina	66.8	76.4	44.3	88.0	94.3	70.2
Ohio	66.3	69.3	48.2	93.4	96.1	67.4
Oklahoma	69.6	73.3	51.6	95.5	97.1	71.5
South Carolina	70.9	65.4	55.8	92.9	95.0	73.1
Texas	76.8	70.0	61.4	94.2	97.5	78.8
Virginia	71.6	70.6	58.4	93.0	96.4	77.0
West Virginia	60.8	73.8	48.4	90.8	92.6	69.4
Wisconsin	72.1	63.7	53.1	93.9	96.3	66.4
Wyoming	72.4	72.7	53.2	94.2	97.3	72.3


Smoking ban support
Americans who want smoking completely banned
22%
Want smoking in all public places totally illegal
55%
Say smoking is "very harmful" to adults
82%
Now believe secondhand smoke is very harmful
59%
Source: Gallup

Program of healthy lifestyle consists of:

- taking into account and usage of individual biorhythmus;
- increasing psychological and emotional resistance;
- optimal motor activity for the organism;
- rational food quality and eating patterns;
- complex regular tempering;
- hygienic behavior at home, during work;
- regular physiological functions;
- prevention, giving up harmful habits (drugs, alcohol and smoke abuse);
- usage of biologically active substances and geroprotectors;
- medical correction of different diseases (especially chronic diseases

Physical training:

- is of great importance for preserving and strengthening health of each person and for hypokynesia prevention. Physical training influences cortex of brain and subcortical centers, forms balanced nervous and psychological state, stimulates development of the organism muscles, cardio-vascular system. Physical training includes the following:
- morning exercises for restoration of physical activity and working capacity after sleep;
- physical pauses during workday for increasing the working capacity; physical training in person's free time.

Tempering:

Tempering means increasing of the organism resistance to influence of fluctuations of water and air temperature, air humidity, atmospheric pressure, solar radiation and other physical factors of environment.

Main principles of tempering:

- course - gradual increasing of intensity and duration of influence of tempering factor;
- systematic character - procedures have to be done regularly according to the present scheme;
- complex character - purposeful connection of all organs and systems of the organism and influence of some environment factors during tempering;
- individual regime and its correspondence to biological rhythmus of the organism.

Significance of tempering is in the following:

1. increases adaptation abilities of the organism to the unfavourable factors' influence;

2. decreases sensitivity to respiratory and other infectious diseases;

3.increases working capacity;

4. forms positive physiological reactions.

Water as a tempering factor

- Water procedures result in construction and dilatation of blood vessels that increase the organism resistance to fluctuations of environment temperature and lead to reflex influence on activity of organism organs and systems. Bathing, shower, dousing with water, rub-down, bathes for lower extremities and other water procedures are used for this purpose. There are such types of bathes according to the temperature as:
- cold - les than 20 C;
- fresh - 20-33°C;
- indifferent - 34-36°C;
- warm-36-39°C;
- hot — more than 40°C.

Solaria are specially equipped grounds/lawns outdoors for taking sun and air bathes

- **Solaria are equipped at the flat place protected from wind with green plantation or shields, near the water reservoir, in the park or forest. The following parameters are Used for equipment of this ground: sand, grass or wood covering, orientation on South, South-East, sufficient distance form sources of the air pollution and noise. There are trestle-beds of 40-60 cm height on the ground; shading area, meteorological post, broadcasting center to talk about doses of sun and air bathes, shower, medical post, check-rooms, post for issue of linen and beach equipment - near this ground.**

Radiation has to be even, taking into account individual sensitivity of the skin. UV radiation from artificial sources is carried out in photaria. People are irradiated with UV rays during certain period of time, in minutes. Photaria can be equipped differently. There are cabin, connecting or labyrinth types of photaria and photaria of beacon type. As sources of UV radiation erythemal (LE-30) or direct mercury-quartz (DMQ) lamps may be used.

Physical activity

- Physically inactive middle-aged and elderly people run a substantially higher risk of contracting several noncommunicable diseases compared to moderately and highly active people. It has been estimated that eliminating physical inactivity would result in 15-39% less coronary heart disease, 33% less stroke, 12% less hypertension, 12-35% less diabetes, 22-33% less colon cancer, 5-12% less breast cancer and 18% less osteoporotic fractures. A Finnish estimate of the impact of physical activity on the use of hospital services showed that most active men spent 36% and most active women 23% fewer days in hospital than the least active people.

Several European countries assess population physical activity levels, but only a few conduct regular monitoring. The National Public Health Institute of Finland has done this since 1978. The level of leisure-time physical activity (at least twice a week, 30 minutes each time with slight sweating) has increased steadily in 20 years, from about 40% to 60% among both men and women, with an apparent levelling off in the latter part of the 1990s. During the same period, however, walking and cycling to and from work decreased steadily, suggesting that people exercise more but are less physically active.

While none of the outcome measures was designed specifically for HEPA assessment, the results provide comparable activity patterns across these countries. Using at least 3.5 hours per week leisure-time physical activity as the cut-off point, on average 41% of the populations were insufficiently active to benefit health, although the percentages varied widely from 14 (Finland) to 70 (Portugal). In the pooled European data, women were found to participate less and for shorter periods than men. The proportion of older people participating for more than 3.5 hours decreased with age, while people with higher levels of education were more active than those with lower levels.

The European Network for the Promotion of Health-Enhancing Physical Activity, established in 1996, is one of the seven EU health promotion networks. Its main focus is to facilitate national HEPA policy and strategy development. In addition to the 15 EU member states, the Network covers Estonia, Iceland, Israel, Norway, Slovenia and Switzerland. The Network has published guidelines for HEPA promotion (1996), for the promotion of health-enhancing physical activity (2000) and for the promotion of walking and cycling as a means of transport (2000). Major national HEPA promotion initiatives, strategies or programmes have been developed and are being implemented in many European countries, including Belgium, Denmark, Finland, the Netherlands, Norway, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Concept about psychohygiene

- ***Psychohygiene*** is the branch of hygiene and studies the personality nervous and psychological health state, its dynamic due to natural, industrial and social factors influence on the organism and on the basis of it works out scientific measures of active influence on the human organism and its environment to create the most acceptable conditions for preserving and strengthening of psychological and somatic health.

There are following main tasks of psychohygiene:

- nervous and psychological population health analysis;
- work out age standards of psycho-physiological functions development and their personal peculiarities;
- studying of environment factors influence on the human organism and their standardization taking into account mobility of neuropsychological and psychophysiological organism indices.

Mental human health **is characterized by the absence of marked nervous and psychological disorders, strength reserve, which allows to overcome accidental stresses or difficulties, and steady balance between organism and environment. Thus main features of mental health are not only the psychological disorders absence, but nervous and psychological development according to age, and acceptable organism and central nervous system functioning.**

Due to this the most important psychical health assessment criteria are following:

- **absence or presence of marked mental diseases and boundary nervous and psychological disturbances;**
- **harmonicity of psychical development and its age correspondence, level of development of leading, social and professional significant, psychological and physiological functions (nervous processes attributes, attention, memory, temperament and character, intellectual efficiency etc.) which cause effective fulfillment of various kinds of training, occupational or living tasks in daily life.**

The ***temperament attributes*** occupy the leading place in the human personality peculiarities. They belong to initial forms of different psychological qualities unification and they are aggregate of needs which are aimed to stabilization function fulfillment. Personality characteristic temperament attributes differ from others because both of their connection with morphological, biochemical and physiological organism peculiarities, and they enter the higher integrative systems tissue.

Temperament is relative permanent state of personality emotional experience, individual reactions stereotype characteristic resulted from environmental and social factors influence, way of emotional reactivity and human activity dynamic. The main indices of different temperament feature expression are strength of compel or impulsivity, speed characteristics of motor activity and stability of motion manifestations. To determine the temperament attributes personal question-naires by H. Izek, CD. Spielberg, V.M. Ruslanov are used.

High level of mental and physical working ability is determined by the complex of factors which characterize the professional activity peculiarities, and individual and typological organism peculiarities.

Motivation direction **is significant here. High positive motive provides a personality with ability to perform tasks in a short time period and very efficiently. So called settling period is defined in some researches of analysis of dynamic working ability movement. This period is connected with the process of motive settings formations and acceptable solicitation level setting.**

Mental state

- Mental state of the organism is the general picture of high nervous system activity during the limited time period. It's understanding is based on self-concept processes. Adequate, permanent and harmonious self-concept assists activity efficiency. Thus studying of psychological and physiological self-concept correlations on the basis of the factorial grouping of their leading characteristics allows to perform complex analysis of mental personal state.

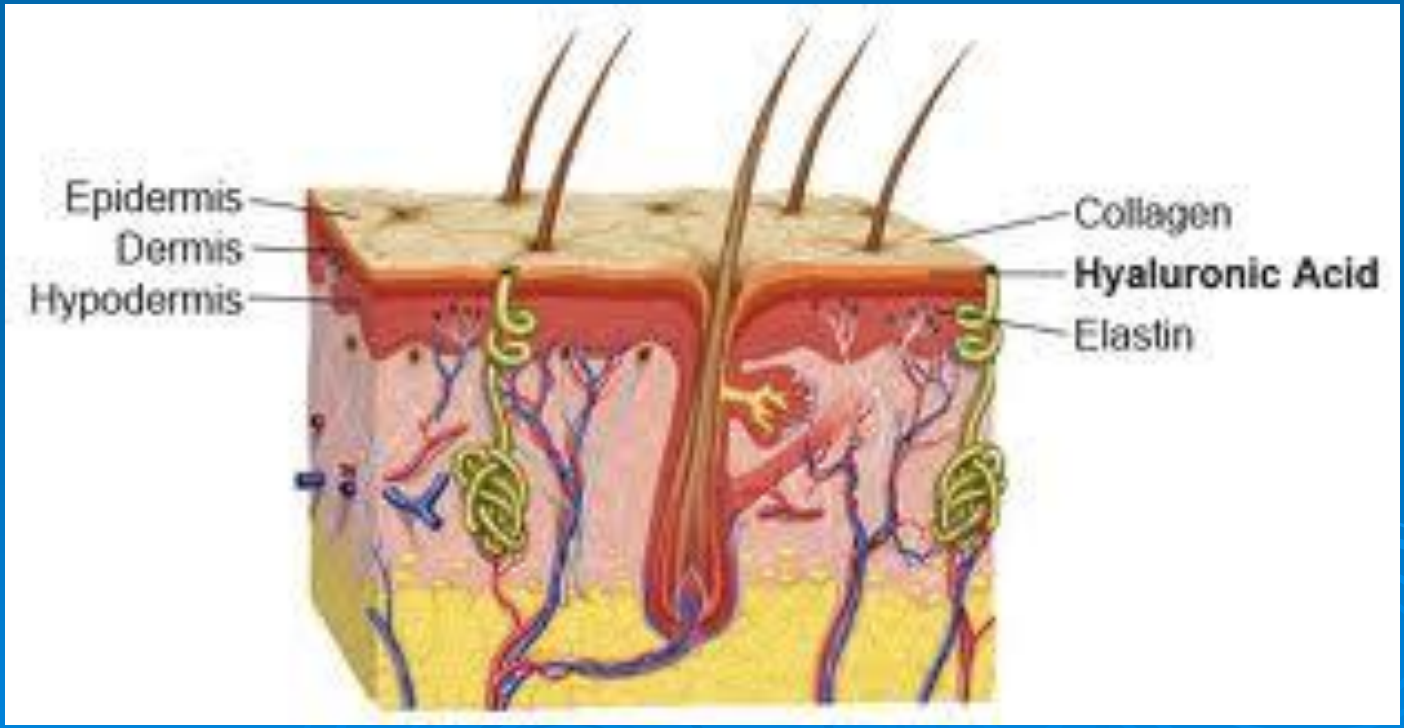
Leading psychohygienic principles of lifestyle optimization are following:

- carrying out hygienic regulation of professional (training) activity;
- determination of factors, which cause adaptation mechanism disorder and taking into account crisis periods during person's life. They include changing of structural personal organization, psychological and physiological, and behavioral disorders, changes of psycho-social orientation;

-rational organization of extracurricular or extra working personal activity which supposes studying of peculiarities of individual temperament, character, motivation direction, nervous and psychic states, taking into account their age changes patterns, using of active methods of psychological and physiological influence on the processes of criteria personal indices formation;
-substantiation and differential implementation of measures of psycho-hygienic correction and rehabilitation.

The physiological skin functions

- The protective skin function from mechanical factors' action and injuries is substantiated by its high elasticity, epidermal stretching and subcutaneous fat resiliency.



The physiological skin functions

- Skin also protects the body from the physical factors' influence: because of low heat conduction - from the heating action of some heat radiation levels to the cooling at some low temperature levels. Owing to melanin skin protects the body from the harmful action of ultraviolet and visible part of solar radiation. Owing to the keratoid layer skin is protected from drying and electric current within the limits of IMOm.

Normal keratoid skin layer is rather resistant to the harmful chemical substances effect, except the liposoluble compounds and strong acids. Especially great importance is attributed to the barrier skin function in relation to microorganisms - bacteria, viruses, fungi. This function is substantiated by the mechanical barrier of keratoid epidermis, acid medium (pH = 5-6), sebum, sweat and proper skin hygiene. The heat regulatory skin function: 82% of total heat irradiation occurs through skin - heat radiation, heat conduction, moisture evaporation (sweat) from the skin surface: in case of hot microclimate the skin vessels widen, the sweat is evaporated (the heat is selected for the hidden heat vaporization).

The secretory skin function is fulfilled by its sebaceous and sweat glands; thanks to them water-fat emulsion which increases the protective skin functions is formed. Sebaceous glands also fulfill the excretory function: many toxic substances, lipids transformation products, drugs etc. are excreted with sebum. Many waste products - NaCl, KCl, sulfates, phosphates, urea, uric acid, ammonium, amino acids, creatine and others are excreted with sweat. Apocrine inguinal and foot sweat glands excrete stinking substances of unpleasant smell, connected with the endocrinal sex glands.

The receptor skin function is fulfilled by means of thick neuroreceptors net. Skin fulfills the tactile function (sensation of touching and pressure), the temperature function (sensation of heat and cold) and pain sensitivity one. D-vitamin forming skin function is substantiated by the fact that on the skin surface resulting from the solar and artificial UV radiation effect vitamin D3 is synthesized from 7-dehydrocholesterol, which constitutes the sebum. This vitamin is absorbed into blood, carried throughout the body; it fulfills the important function in metabolism, firstly in phosphorus-calcium metabolism.

Methods and means of skin cleanliness maintaining

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Skin dirtying results from the accumulation of metabolic products, which are excreted with sebum, sweat and peeling of necrotized epidermis, from the deposition of clothes fibers, dust, microorganisms spreading and from the pollutants of everyday and occupational medium, where the person lives or works. It's necessary to wash off the dirt periodically for the normal skin functioning. According to human experience the normal skin functioning is possible in case of its washing weekly. In case of work with intensive external dirtying it's necessary to wash skin daily. The main means for washing the skin is water.

But because of sebum, everyday and technical oils insolubility in the water, skin cleansing can be effective only by means of soap and other washing means - washing agents use. Hard soaps - are sodium salts of higher fatty acids triglycerides, liquid soaps -are potassium salts of higher fatty acids triglycerides.

Washings facilities and their hygiene description

The synthetic washing agents contain

-surface activity substances (SAS): alkylsulfates, alkylsulfonates, alkylarylsulfonates and others;
-additions which contribute to the foaming (alkylolamide), to the • fabrics softening and to the static electric charges taking away, to the prevention of the removed dirt deposition on the fabrics (carboxymethylcellulose - CMC), to the washing power of SAS (sodium tripolyphosphate and other phosphates), to the water softening (soda ash, tripolyphosphate, sodium bicarbonate and others), to supplying the washing solution with a pleasant smell, different bleachers (sodium perborate or optical bleaching agents). Some SWA contain disinfectants. The main constituent for the SWA manufacturing is SAS, obtained from oil processing products.

SAS - are polar compounds which consist of hydrophobic (contributing to the division of molecules in oils) and hydrophilic (contributing to the division of molecules in water) molecules groups. The hydrophilic group includes: carbonyl (COO-), sulfate (-OSO_3-), sulfonate (SO_3-) groups, also the hydrophilic residues $(CH_2)_4$-0, and with the nitrogen content. The hydrophobic group contains mainly paraffin chain (10-8 carbon atoms -aliphatic radicals) of benzene or naphthalene ring with alkyl radicals.

The synthetic SAS are divided into:

- 1.anionic (forming negative anions in water);
- 2.cationic (forming positive cations);
- 3.ampholytic (positive or negative depending on water pH);
- 4.nonionic (not forming ions but having strong bonds with water).

- The anionic SAS - are the salts of sulfuric ethers (primary, secondary), alkylsulfates, fatty acids sulfates, alkyl benzene sulfonates, alkyl naphthalene sulfonates "and others which have high foaming property, are less than cationic toxic property, are poorly absorbed by the skin and mucosa, are highly soluble on the sewerage system biological cleaning plant. But in the concentrated solutions (10-20%) the anionic SAS can result in skin irritation and allergic reactions (sulfonol НП-1, synthanol ДС-10, alkamon ОС-2), because of their permeability through the karotid epidermis.

The nonionic SAS (polyethylene glycol esters of fatty acids, fatty spirits, fatty amines, mercaptans, polypropylene glycols, alkylphenols) have higher washing power than anionic SAS. They can kill even tuberculosis mycobacterium. The sensitizing properties in high concentrations (10-20%) are typical for nonionic preparation ОП-7. In the concentration to 1% these properties are not manifested.

The nonionic SAS can be co-carcinogenic and allergenic; they can increase skin permeability for different substances. For example, the mean for sanitary engineering cleaning "Cillit Magic" contains up to 5% of nonionic solvents, dyes and aromatizers.

Hygienic requirements to the SD:

- The degree of biological microorganism decomposition of ponds, where the sewage falls into, should reach 80%. So, the quickest and the most complete decomposition in water is typical for alkyksulfates and ether sulfates; sulphonol НП and sulphonol НП-3 are splitted slower (38% and 76%, respectively). Phosphates are better decomposited by microorganisms, but they contribute to the algae growth. Therefore, maximum allowable concentration (MAC) of SAS in ponds water shouldn't exceed 0,5% mg/1 for anionic and - 0,05-0,1%) mg/1 for nonionic ones.

- SWA shouldn't cause dermal-irritating reaction, toxic and allergenic effect on the body; they shouldn't have any mutagenic, teratogenic, embryotoxic and carcinogenic properties; they shouldn't have neither material nor functional accumulation in the body, should be easily washable off the human dermal surface, clothes, shoes, dishes and domestic objects; they should have high washing power and water solubility, without any unpleasant smell. Besides that, SD shouldn't cause intensive skin degreasing, active reaction of their solution can't exceed pH = 9.

- Some SWA have definite requirements in terms of their bactericidal and disinfecting properties. Some other contain enzymes of proteolytic, amylolyticor or other activity, which provides more effective removal of protein, lipid or carbohydrate dirt.

- SWA shouldn't decrease the physical and chemical properties of the clothes and shoes material (air permeability, humidity ratio, vapour permeability, vaporability); they shouldn't absorb in the tissues.

- SWA for the washing up and washing of special equipment at catering enterprises, food, milk enterprises, meat and milk farming, meat-packing plants shouldn't cause any steel constructions corrosion, and vice versa, should be easily washed off without any rubbing (only with water).

These SWA include polyethylene glycol ethers, polypropylene glycols and disinfecting SWA (salts of quaternary ammonium compound chloramines B). According to their physical structure SWA are manufactured in the form of powders, liquids, pastes and granules.

There are many synthetic washing powders of both domestic and foreign manufacturing. Among them the most widespread are: "Lotos" («Лотос»), administered for the washing of cotton fabric. It is composed of: sulfonol, alkylsuphates, alkylsulfonates - 20-22%, sodium polyphosphate - 25%, sodium sulphate - 10%, sodium silicate - 10-13%, alkylolamides - 2%, optical breaching agent - 0,1-1,15%.

"Donbas" («Донбас»), which except the compounds that compose "Lotos", includes soda ash - 10-20%. "Era" («Epa»), which also includes sodium perborate - 8% and others.

Water hardness isn't important for SWA: they don't combine into insoluble compounds with calcium and magnesium salts; therefore they don't loose their washing power even in cold water. At the same time the soaps in hard water combine into the compounds which impregnate clothes and linen fabric, decrease their ventilating capacity and other physical and chemical properties, and dye the linen into yellowish colour with an unpleasant smell.

The hydrophobic protective ointments and pastes are applied to protect the hands skin from water solutions of aggressive and irritating substances. The pastes and ointments contain water-repellent compounds, insoluble in water (greases, nondrying oils, insoluble soaps). Silicone cream protects from solutions of acids, alkali, aggressive salts. Zinc stearate pastes protect from burns, artificial UV and intensive solar radiation. They include starch, glycerin, gelatin, porcelain clay, zinc oxide, graphite, talc, alum, tannin, colophony and others.

To wash dirty hands covered by paints, tars, bitumens and other organic compounds at painting, insulating and so on works, one should use washing pastes and ointments including abrasives (kaolin), porcelain clay, sand, soda ash, glycerin, vaseline, kerosene etc. Bearing in mind the hygienic requirements, these means should correspond to the abovementioned conditions for SWA, first of all they shouldn't cause any irritating or allergenic effect.

Thanks for attention.