

1. Complex prosthodontic treatment in patient with gastroesophageal reflux disease.

Abstract.

Gastroesophageal reflux disease is defined as the pathological passage of gastric contents into the esophagus or in the mouth.

Dental erosion, ~~which is~~ ~~is~~ often the first sign of serious disease. ~~Dental erosion~~ is defined as the progressive loss of hard dental tissues without bacterial action. Exposure of the dentinal tubules results in dental hypersensitivity. The frontal teeth are damaged ~~predominantly~~, ~~which~~ ~~it~~ becomes a serious aesthetic problem.

A 62-year old female patient with serious gastroesophageal reflux disease came into dental praxis. She had had unaesthetic prosthodontic treatment in ~~the~~ upper and lower jaw with loss of intermaxillary dimension. Dental treatment had ~~consisted~~ ~~contented~~ of oral hygiene instruction, endodontic treatment, surgical extractions and final prosthodontic treatment. The new intermaxillary dimension had been reconstructed. The ceramic bridge in the lower jaw and hybrid denture in upper jaw had been ~~used~~.

Key words : dental erosion, gastroesophageal reflux disease, dental sensitivity

Introduction :

Gastroesophageal reflux disease is defined as the pathological passage of gastric contents into the esophagus or in the mouth. Any acid with a pH below the critical pH of dental enamel (5.5) can dissolve the hydroxyapatite crystals in enamel. Gastric refluxate has often a pH of less than 2.0

When the first signs of disease are ignored a serious general disease with many complications can progress.

Extra-esophageal manifestations of GERD are heartburn, noncardial chest pain, chronic cough, asthma, pulmonary fibrosis, dental erosion. Early recognition of erosion is important to successfully manage and prevent disease progression.

Dental erosion is defined as the progressive loss of hard dental tissues caused by a chemical process not involving bacterial action. Erosion begins as superficial demineralization of the enamel, which can cause dissolution and loss of hard dental tissues. Exposure of the dentinal tubules results in dental hypersensitivity. The complex restorative treatment is needed to protect teeth and to avoid dental sensitivity.

2. This

~~My doctor's~~ thesis investigates relationship between gastroesophageal reflux disease (-GERD) and oral health. Gastroesophageal reflux (GER) is defined as the passage of gastric contents into the esophagus or ~~in~~ ~~the~~ mouth. GERD has been classified into 2 types: physiologic and pathologic. The physiologic form occurs postprandially. If clearance mechanisms cannot return the refluxate back to the stomach and the condition becomes chronic, it is known as pathologic GERD.

Reflux can be demonstrated with several diagnostic tests, such as barium esophagography, endoscopic examination, esophageal acid perfusion, measurement of lower esophageal sphincter pressure, 24-hour monitoring of esophageal pH. For this test, a small tube (catheter) is passed through the nose and positioned in the ~~esophagus~~.

Extra-esophageal manifestations of GERD are common, ~~for example~~, ~~such as~~ : regurgitation, heartburn, nausea, inflammation or ulcer of esophagus; ~~and~~ erosion of hard dental ~~tissues~~.

Komentář [j1]: Word order? Adverb-verb. Also consider meaning and how it relates to rear teeth.

Komentář [j2]: Preview this case study by saying how it relates to your methodology.

Komentář [j3]: Praxis or practice?

Komentář [j4]: In this abstract you have background and procedure, but it doesn't identify this as a methodology, not does it connect it to outcome of results.

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Komentář [j5]: What does this enable or facilitate? This would add a „quality“ to the paragraph.

Komentář [j6]: Insert a sentence or clause that bridges the list with the following focus on erosion, prior to giving the definition.

Dental erosion is defined as the progressive loss of hard dental tissues caused by a chemical process not involving bacterial action. It is the main affection in the mouth. Lesions are usually hard, smooth, and dished out as opposed to caries. The main symptoms are translucency of the approximal surfaces of incisor teeth, concavities at the cervical region of the tooth on the labial side.

The lesions are usually wider than they are deep. Once dentin is exposed, the loss of dentin is faster than the loss of enamel. Exposure of the dentinal tubules results in hypersensitivity to hot, cold and sweet. Dental caries involves acid production by bacteria presents in plaque and presents with different characteristics. Erosion and caries do not characteristically coincide. Further complicating the diagnosis is the fact that enamel and dentin that have been etched by refluxed gastric acid are more sensitive to damage by the processes of attrition and abrasion.

Important by loss of tooth surface is also salivary production and buffering capacity..

Indications for restoration may include protection of remaining tooth structure, aesthetic considerations, prevention of dentinal sensitivity with topical fluoride.

Tooth surfaces that have been suffered can be restored with tooth-colored glass ionomer or composite resin. More severely affected individual teeth may require restoration with porcelain crowns. Root canal therapy is applied if pulpal tissue has been compromised. Once the occlusion is stabilized, final restoration can proceed with either removable partial or overlay partial dentures or multiple crown restorations.

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Komentář [j7]: Consider paragraph structure

3.

Participants of the Spiritual Milieu: Religious Individualists with Spiritual Identity?

(summary of a conference paper)

This paper analyses key issues related to the definition of alternative or holistic spiritualities. It focuses on the common scholarly picture of a typical participant in the spiritual milieu and its questionable features, e.g.... More specifically, two issues are concerned. Firstly, the paper deals with the characterization of a participant in the spiritual milieu as a religious individualist or in other words, as a primary and autonomous author of his/her belief system. Secondly, the articulation of identities in the milieu, especially the question of the opposition between spiritual and religious identities, is explored. Theoretical discussion is based on data that were collected during a-field research in the Czech town of Mikulov ~~in the period~~ from November 2007 to April 2008. The research focused on Tai Chi practitioners and embraced a participant observation in a Tai Chi group and semi-structured interviews with eight participants.

Even though the religious individualism features were present in respondents' narratives, the informants showed a considerable level of conformity with the group teacher and other participants. Accordingly, the author proposes to refine understanding of various characteristics included in the category of religious individualism and to treat them as components of a specific language or discourse of the milieu rather than as a description of the actual behaviour of participants. She suggests to pay more attention to the socializing influence of networks, groups and external authorities on an individual seeker and to analyse the nature of groupings and authorities that emerge and prosper within the spiritual milieu as well as legitimizing factors that underpin them.

Furthermore, there was no clear conception of spirituality or a spiritual person in respondents' narratives and no clear identification of respondents with it. What is more, spirituality and spiritual identity were not always regarded as opposing religion and religious identity. In fact, there was no common attitude toward religion among informants.

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Komentář [j8]: Third person constructions are often better framed as „this research proposes“. It's a matter of style, but this style becomes complicated when it is integrated with literature review as it involves parallel use of personal pronouns, etc. That can refer to self and other within the same paragraph.

Komentář [j9]: It is suggested that

Consequently, the data does not support the thesis about negative attitude of participants of the spiritual milieu to religion. Moreover, as various meanings attributed to the concept of spirituality suggest, understanding of the term spirituality and identification with it by participants of the spiritual milieu in the Czech context can differ significantly from the situation in Western Europe and USA.

4. Individualized Religiosity: Interpretation of the Selected Data from the “Mikulov Project”

Abstract of a ~~master-master's~~ thesis

This thesis aims to explore various aspects of contemporary religious individualism in the so-called holistic milieu and to study its limits in relation to effects of the social environment on the individual. The authoress reflects on theoretical questions related to the topic (e.g. role of media in the genealogy of individualized religiosity, position and role of individualized religiosity in discussions about secularization, the question of its conceptualization and critique of the concept of „New Age“). It also ~~as well as~~ interprets data from the qualitative research which focused on the holistic scene in Mikulov. The authoress used the methods of participative observation (done at the Centre for Ecologic Education and in the group practising tai-chi in Mikulov) and qualitative interviews which were held predominantly with people connected with tai-chi.

During the analysis of data the authoress focused on the issue of features which could be attributed to religious individualism in Mikulov (e.g. epistemological individualism including relativization of “outer” authorities, concentration on the “authentic” or “higher” Self, emphasis on self-development and self-improvement) and she dealt with the issue of the most appropriate concept of individualism with regard to importance and meaning of the individual in the holistic milieu. She also paid attention to the effects of social environment and to the way how it influenced the individualized religious expression of her informants. She paid attention especially to the influence of the group as well as “outer” authorities on the so-called autonomous individual and to the process of socialization, which an individual underwent after he/she had entered a certain part of the holistic milieu.

The authoress comes to conclusion that the features attributed to individualized religiosity (which express freedom and autonomy of the individual during the creation of its symbolic system) are rather a question of discourse of the holistic milieu, to which the individual is gradually socialized. In spite of the existence of the idea of religious individualist and his own creating of his quest on the level of discourse, the social reality points to significant limitations for this individualism related to the spread of certain standardized ideas through the holistic milieu.

Key words: individualization of religion, New Age, secularization, reflexive modernization, individualism, socialization, religious authority

5. Temporary anchorage device - new possibilities in orthodontic treatment

Miniscrews, as an alternative method for absolute orthodontic anchorage, have been extensively used in the last few years. The major advantages compared with dental implants or microplates are small size, allowing placement in many intraoral areas; low cost; and easy implantation and removal.

The aim of this study was to provide an anatomical map to assist the clinician in miniscrew placement in a safe location between dental roots. 20 volumetric tomographic

Komentář [j10]: The work is based on a reflection of...

Komentář [j11]: I suggest a sentence break due to the length of the example in parentheses

Komentář [j12]: Participant observation was used: here the process is more important than the person

Komentář [j13]: This becomes repetitive and focuses too much on the individual rather than the research (see how many times you have used „she“ below)

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Komentář [j14]: Before this clause, say what miniscrews are.

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images of maxillae and mandibles were examined. The data were generated by a new type of digital volume tomography called SkyView 3D CBCT based on a cone beam technique. This scanner is based on a cone-shaped X-ray beam technique that uses the X-ray emissions very efficiently, thus reducing the absorbed dose to the patient. SkyView provides one-to-one images.

Acquisition data were transmitted to software DentalPlan®, there were done all measurements.

For each interradicular space, the mesiodistal and the buccolingual distances were measured at two, five, eight, and 11 mm from the alveolar crest.

In the maxilla, the greatest amount of mesiodistal bone was on the palatal side between the second premolar and the first molar. The least amount of bone was in the tuberosity. The greatest thickness of bone in the buccopalatal dimension was between the first and second molars, whereas the least was found in the tuberosity.

In the mandible, the greatest amount of mesiodistal dimension was between first and second premolar. The least amount of bone was between the first premolar and the canine. In the buccolingual dimension, the greatest thickness was between first and second molars. The least amount of bone was between first premolar and the canine.

Komentář [j15]: Consider paragraph structure here

6. Addressing infertility: analysis of couples' reaction and treatment experience (conference abstract)

Not only does infertility represent a disruption of individual biography, but also a serious threat to identity. Despite the demographic accounts of low fertility rates and increasing proportion of childless people in contemporary western societies, parenthood still represents the core of adult identity. To father a child means to confirm a masculine identity traditionally associated with potency and virility. Similarly, to fulfill a female role is difficult without becoming a mother, as is evident from numerous analyses of stigma associated with childlessness and infertility. Coping with infertility and undergoing infertility treatment involves being confronted with prevailing cultural and social norms and expectations concerning marriage, parenthood and gender roles.

Komentář [j16]: This appears abstract. Does it have a specific meaning in the subject? Or is it general in the sense of life and identity?

Komentář [j17]: References?

Infertility is not a single diagnosis. It can be characterized as a set of conditions that are passed rather than cured. The treatment is more than an application of an objective medical knowledge a negotiated and variable process that challenges our positivistic understanding of health and illness and the authority of scientific and objective medicine.

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Komentář [j18]: Interpret this with an extra clause

Komentář [j19]: This should be broken into two sentences

The aim of this paper is to present data from a long term study focused on the ways of addressing infertility by infertile amongst couples in the Czech Republic. Within the study the 30 in-depth interviews with patients of infertility clinics were conducted.

The analysis has revealed that patients, especially women, instead of being the passive subjects of medical expertise, take role of strategists, who actively seek the information and best solution to their-of their situation. The treatment process is administered in a way that instead of reshaping or challenging traditional definitions of parenthood or gender roles confirms the status quo. The involvement of men and potential fathers into the treatment process is reduced to providing genetic material on demand. The unequal burden of the treatment for men and women can not be explained solely in biological terms without investigating its social roots.

7. Infertility Services in the Czech Republic: Access, Attitudes, Patients' Experience

Reproductive medicine is one of the most progressive and the most publicized ~~medicine~~ branches ~~of medicine~~ in the Czech Republic. Its success and rapid development is limited neither by ~~legalaw~~ restrictions nor by religious regulations, as the Czech Republic ~~is one of belongs among~~ the most atheistic countries in the world.

It is estimated that 12 – 15 % of couples in the Czech Republic suffer from fertility complications and that 4 – 8 % of children born every year are born ~~as a result of thanks an~~ infertility treatment. Infertility is not only a diagnosis; it crosses the boundaries of medicine and challenges our traditional positivistic understanding of health and illness and the authority of scientific and objective medicine as well as the meaning of parenthood.

The aim of this paper is to present the results of a long term study „Involuntary Childlessness as a Sociological Problem,“ focusing on the ways of infertility treatment and experience of infertility patients in the Czech Republic. The presentation will consist of the following three parts:

- a) Analysis of the infertility services in the Czech Republic
- b) Analysis of attitudes towards assisted reproduction in the Czech Republic – based on quantitative survey (Marriage, Work and Family, 2005) carried out in 1500 Czech households.
- c) Patients’ experience based on qualitative research (2007) of 30 couples that went through infertility treatment.

The study has shown ~~ed~~ that family values are very important for Czech people, more for women than men and that ~~ij~~infertility is actually constructed as a medical problem requiring high technology medical treatment. However, ~~the~~ adoption would not be considered ~~as a choice of~~ last resort, ~~which in~~ contrasts with the ~~theoretical assumption~~ about stigmatization of non-biological parenthood.

~~MSlightly m~~ore women than men would consider individual solutions ~~to of~~ infertility, ~~as well as W~~women would ~~also be~~ more ~~likely to often~~ break the relationship in the case of difference of opinion on various solutions of infertility.

The research of patients’ experience with the infertility treatment has revealed its precarious nature – the diagnosis can vary ~~time to time~~ and clinic to clinic, as well as an offered service and its payment. The patients, especially women, instead of being the passive subjects of medical expertise, ~~take the~~ role of strategists, who actively seek the information and best solution of their situation. The treatment is more than applying of an objective medical knowledge a negotiated and variable process.

8. How to minimize misreporting?

Minimizing the effect. The existence of measurement error in dietary assessment can have serious consequences when interpreting dietary data. Underreporting of energy intake results in serious overestimates ~~of~~ nutrient inadequacies⁽⁵⁰⁾. Smith et al. (1994) have shown that the proportion of subjects with intakes less than Recommended Daily Allowance for iron, zinc, calcium and potassium decreases significantly when EI underreporters are excluded⁽⁵⁸⁾. The existence of measurement error attenuates correlations between nutrient intake and the outcome parameters, so that important associations between diet and disease may be obscured or confounded. This phenomenon is termed “attenuation bias”. There are ~~some studies~~ that investigated selective underreporting of specific foods and beverages, but it was beyond the scope of this study to focus on that. However, selective underreporting of certain foods may hamper the usefulness of dietary data for developing food-based dietary guidelines. Efforts to overcome this problem have led some investigators to exclude underreporters from the

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Předsazení: 0.49"

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Komentář [j20]: citation

Komentář [j21]: Citation

Komentář [j22]: Single occasions or across years?

Komentář [j23]: Citations

dataset. However, such an approach introduces a source of unknown bias into the dataset and is not recommended⁽⁵⁰⁾.

Another approach is to include all the respondents, but to control for energy intake by the use of statistical methods. Several methods for *energy adjustment* exist, and their choice and justification for their use is debated. Four models have been proposed for accounting for total EI when one is examining the effect of nutrients on disease outcomes: the standard multivariate model, the energy-partition model, the nutrient-density model and the residuals model⁽⁴⁰⁾. The most commonly used methods of energy adjustment are the nutrient-density method and the residuals method^(4, 8). The nutrient-density method is used as an absolute amount of nutrients divided by total energy intake. This method of adjustment is dependent on changes in energy intake, such that calorie-adjusted amounts of nutrients obtained by using this method are still correlated with energy intake. Therefore, using the nutrient-density method is not appropriate in studies looking for the diet-disease relationship. When using the residuals method, amounts of nutrients are independent from total energy intake⁽⁸⁾. A cross-sectional study on 901 young subjects in Iran⁽⁸⁾ determined the effect of underreporting of energy intake on the estimates of nutrient intakes. It was found that the absolute intakes of macro- and micronutrients (except for B12 in females and B6 and zinc in both genders) were lower in underreporters, but following residual method of energy adjustment, no significant differences were seen. Because underreporting of energy intake was found to affect the estimates of nutrient intake, they suggest making an adjustment for energy intake in studies aimed at determining the association between a certain chronic disease and nutrient intake.

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Komentář [j24]: A well written abstract

9.

To even boot a computer, it is necessary to proceed many transfers inside the hardware among its components. It is a basic function which must work, however there are several methods of how to achieve that. Especially the fast transfers are very important in computer science which results in higher overall throughput of the system itself and also in faster communication with other ones.

Komentář [j25]: Give a brief explanation of what this means

Komentář [j26]: Such as?

—As an answer to permanent higher requirements in the networking area, Liberouter project has been established as a project supported by Czech national research and education network CESNET and European project 6NET. The original intention was to develop a router for high traffic networks. After some time, this idea was augmented to other network usages such as network filtering and monitoring. All these functions run on COMBO6 family PCI cards.

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This thesis is based on one of many research projects that have already been already done under Liberouter – NetCOPE – which we describe in chapter 2.5. In short, it is a hardware platform trying to achieve universality along with speed and it is fully programmable. Software running on it can do fast transfers if it is instructed to. Drivers are usually used for this purpose. Despite some are ready yet, a new NetCOPE software was developed and it needs a new driver.

Komentář [j27]: Is this team written?

This thesis also describes the evolution process of such driver from its requirements, considering variants to be as fast as possible but still be compliant with hardware specification, especially direct memory access in combination with ring buffers.

After requirements settle down, we model the specification with help of UML and get towards final code implementation in C language (kernel part in GNU flavour). As much as possible code parts (all corner cases at best) need testing, we figure out which testing techniques might be applied on drivers and finally comparing with older drivers and card softwares will be done.

Komentář [j28]: As above

10.

The aim of my postgraduate study is to identify and describe development, operation and business models of modern Web services (Web 2.0) interconnected with modern mobile platforms in reflection of the classical Software Engineering Processes. The importance of the Internet and Rich Internet Applications is growing fast. Hence I would like to apply for the grant covering the ICT 2008 event -- to get in touch with leading visionaries from this field and attain the cutting edge of an important new ~~important~~ decade when the major transformation in ICT will be held. The Internet has already become a development platform. Web 2.0 is rather a change in the way how the Internet is used by both users and software developers. The paradigm, which served for last three decades, has been overcome. We should not consider the Internet to be simple client – server system that just delivers web pages. We should think about the Internet as a complex distributed services architecture with URLs serving as a first generation API (Application Programming Interface) for calling those services.

The main key factors are flexibility and simplicity, usability and accessibility, decentralization and openness. We are able to use all benefits from the Internet platform everywhere and always thanks to present development of the modern mobile platforms and the mobile connectivity to the Internet. Therefore, it is necessary to set new approaches combining these opportunities with orientation to end users representing motive power. The goal of my study is to prepare development processes for that platform. I believe that ICT 2008 will help me significantly to determine appropriate methodology requests. Hereupon, the models under the concern of my research will be perfectly applicable for on-coming European projects. Since I am a project manager specializing at web applications, I would like to get acquainted of future directions in that field as well.

Komentář [j29]: What was wrong with this paradigm?

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11. Advertising on online erotic contact sites: Motives for seeking an offline sexual partner

Abstract: The internet becomes a new place for acquisition of contacts, mediates dating for various purposes. The following qualitative study investigates motivation factors of seeking an offline sexual partner on the internet. 11 predominately heterosexual male and female informants participated in this survey. Interviews face to face were carried out and then analysed in accordance with the method of grounded theory. Data indicate that an interaction of spurs originating both from the user side and the internet may allow internet use for the purposes of finding an offline sexual partner. A virtual environment with specific aspects helped to span certain social norms and cultural habits (e.g. the norm of monogamy or performing sex in pairs). Thus, the internet mediates sexual contacts between individuals with not only similar attitudes towards sex, but also with a desire for real sexual experience.

The internet has become a standard communication medium, a source of information or entertainment. In given circumstances, it fulfils the function of satisfying needs of an instinctive character. It mediates information about sex, sexual arousal as well as sexual gratification (Boies, 2002, Divínová, 2005, Döring, 2000). Some individuals use the internet to seek out offline sex. Thus, they search for a partner to share intimate moments with in real life. This activity is a new type of interaction where meeting for sexual purposes online comes up.

This new form of activity raises the traditional question about reasons why people engage in such sexual activities mediated by the internet. The triple A engine model pertains to the

known concept explaining the attractiveness of obtaining sexual contacts through the internet. The triple A engine is an acronym of three words: Accessibility, Affordability, and Anonymity (Cooper, 1998). The anonymity interacting with accessibility and affordability may create the feeling of freedom and dis-inhibition that is manifested as rapid self-disclosure and a willingness to speak about sex and sexual fantasies. Later King (as cited in Daneback, 2006) extended this engine and added Acceptability: the internet is an acceptable way for dating and accessing explicit sexual materials. Tikkanen and Ross (2003) added a fifth A – Approximation (the ability to experiment with one's sexual identity and behaviour by approximating being gay, either through fictitious selves or cybersex). Now this concept is called quin A engine.

The quin A engine enlarges the meaning of the internet in a certain way. Approximation of specific sexual contacts begins in virtual environments and this might encourage the male or female user to meet online sexual partners in real life and to have real sex with him or her. Studies supporting this thought show that people with bisexual or homosexual orientation use the internet to seek out offline sexual partners (Rietmeijer et al., 2003; Bolding et al., 2006).

According to Brym and Lenton (2001), online dating sites play a remarkable role. These contact sites allow people to meet each other, people who would have never met each other in real life. They also offer not only privacy and discreetness but also a more comfortable way to meet new people. The advantages of online dating sites partly overlap with the quin A engine theory.

Many surveys highlight the positive relationship between cybersex and meeting offline sexual partners (Schneider, 2000; Daneback et al., 2005; Carvalheira & Gomes, 2003; Daneback et al., 2007). This means that some individuals engaging in cybersex might experience a transfer of online sexual contacts into the real world. According to Calvalheira and Gomes (2003), the priority for a majority of respondents is the opportunity to meet people with similar interests and to have sex in real life. Daneback et al. (2007) claim that cybersex fulfils the role of a certain practice ground or verification of sexual compatibility before meeting offline. It seems that cybersex might incite the transfer of sexual contacts formed online into real life.

A Swedish study investigating the search for offline sex partners through the internet found that 30% men and 40% women from 1458 respondents reported having sex with someone they met online (Daneback et al., 2007). Women aged 34-49 and 50-65 years, homo- and bisexual men and singles (single, divorced, widowed) are more likely to seek offline sexual partners through the Internet. Thus, this activity might also be a reaction to the absence of a partner.

A detailed analysis of reasons why men use the internet to find other men for sex in real life shows that anonymity, safety, excitement and experimentation of internet contact, avoidance of interpersonal contact, getting to know people better, control of visuals, and the environment all play a certain role (Ross et al., 2007). The internet has many advantages for shy people. Thanks to its special properties, it helps in overcoming barriers to approaching others in person. Respondents who preferred meeting online emphasized the possibility of choosing appropriate sexual partners, and individuals who preferred first meeting in real life reported similar reasons to those of respondents preferring online contact first. This concurrently highlighted the importance of reality and the possibility of building relationships. According to Ross et al. (2007), the internet creates a special type of sexual contacts existing between reality and virtual environments. These results are most perceivable for men looking same sex partners on the internet.

The following qualitative study focuses on an in-depth analysis of motivation factors related to searching offline sexual partners on the internet. The majority of participants considered themselves heterosexual.

11. Risk factors of osteoporosis - knowledge and practices among adolescent females

ANNOTATION:

Osteoporosis is a serious metabolic disease, occurring at later age, most frequently through osteoporotic fractures – which are the main morbidities and invalidities at the old age. Mostly women are suffering from it but it isn't rare among men as well. The most effective prevention of this disease is founded during childhood and adolescence when the organism creates the greatest reserves of calcium. The work uses questionnaire method to find out about the knowledge, attitudes and practices of adolescent females (age of 14–19) regarding the risk factors of osteoporosis, specifically the physical activity, smoking and nutrition. It also records the differences in knowledge in correlation to age and school type. In the nutrition area it determines the average intake of those nutrients that relate to the bone health (calcium, phosphorus, vitamin D, proteins and sodium). The future goal of this work is an intervention programme aimed at support of such behaviour that would be consistent with the healthy lifestyle, supporting the osteogenesis and the maintenance of muscles.

KEY WORDS:

adolescent females, osteoporosis, risk factors, knowledge, physical activity, calcium intake, smoking

INTRODUCTION:

Osteoporosis is a serious metabolic bone disease, from which more and more people in the world are suffering. The prevention of this disease is often aimed only at women after menopause, at the age when they already show the proclivity to this disease or the first signs of bone mass decrease. The most important prevention is the primary prevention, i.e. during childhood and adolescence when the prevention is actually the easiest. The body creates the greatest reserves of calcium till the age of 25-30. After that the bone mass is slowly destructed.

Among the main risk factors that can be influenced belong: the low intake of calcium in the diet, low physical activity and smoking. The main factor that influences the bone density is the calcium intake during the childhood, adolescence and early adulthood. People who created greater reserves of calcium during their youth have more bone mass to be destructed in the osteoporosis-endangered age (Sinkiewicz, 2003). The physical activity contributes greatly to the bone health. It works as the physiological stimulation of the osteoblastic activity and bone neo-production. The most suitable activities regarding osteoporosis prevention are rather weight-bearing activities or activities using some sports tools when there is created a burden upon the bones. They include especially the high impact activities, e.g. gymnastics, figure-skating, basketball, volleyball etc. They have a more favourable effect on bones than sports like swimming or biking which create only a minimal burden upon the bones (Geusens, 1998). More and more sedentary lifestyle of children and adolescents is also alarming. This trend is even more serious among adolescent females who live a sedentary lifestyle more often than boys (Vincent-Rodríguez, 2006).

One of the risk factors of osteoporosis and thus also easier occurrence of fractures is smoking. The explanation of the negative influence of smoking on the bones is not simple because the individual elements of the smoke interfere differently with the bone tissue metabolism (Kocián, 1998). Sinkiewicz (2003) mentions that the female smokers lose 5 to 10 % bone tissue more than female non-smokers by the time they reach menopause. Other lifestyle risk factors of osteoporosis are higher intake of alcohol, caffeine and cola beverages. Drinks like Coca Cola contain a lot of phosphorus which leads to hypocalcemia and osteoporosis (Kocián, 2002). The higher intake of these drinks is therefore undesirable, especially among

children and adolescents. The lack of vitamin D also contributes to osteoporosis. That can occur especially in people who spend most of the day indoors. Another factor that affects the bone mineral is the lack of proteins. That can occur in the vegan and macrobiotic diet because it lacks enough building material for the bone tissue. On the other hand the high animal protein diet causes acceleration of bone resorption probably through the increased acidification of organism that is caused by the oxidation of sulphur amino acids (Kocián, 1997). The higher protein intake usually coincides with a higher calcium intake. The calciuric effect of high protein intake can thus be minimized. The adequate protection of bones is probably provided by the proportion calcium:proteins $\geq 20:1$ (mg:g). The high intake of proteins therefore doesn't have to have harmful effects on bones provided that there is an adequate calcium intake (Heaney, 1998).

The goal of the primary prevention of osteoporosis is to ensure the attainable peak bone mass during childhood and adolescence and maintenance of this bone mass in adulthood. That should be achieved through emphasising and ensuring of an appropriate intake of calcium and proteins in the diet, appropriate supply of vitamin C and D, reasonable physical activity and excluding of the toxic influence of the environment.

This work deals with the preventable risk factors, specifically the lifestyle factors, and investigates the level of adolescent females' knowledge in this area. The work focuses on adolescent females' attitudes and their real practices – i.e. the calcium intake in their diet, the level of physical activity and the occurrence of smoking.

12. Overamplification of centrosomes in human embryonic stem cells

Human embryonic stem cells (hESCs) are undifferentiated cells derived from human blastocyst-stage embryos that can be indefinitely propagated in culture and as being pluripotent they can be also induced to differentiate into all mature cell types with special function. These two abilities, to self-renew and to differentiate, make hESCs attractive tool for regenerative medicine, drug development, and toxicology. In spite of representing a major promise for cell replacement therapy of various human diseases, future therapeutical application of this unique cell type is limited by its tumorigenic potential after transplantation. Several studies have reported accumulation of various types of DNA alterations in hESCs that have been propagated in culture for prolonged periods of time. It has been repeatedly shown that centrosomal defects such as alteration of number, structure or function of centrosome, are relevant contributing factor for chromosome instability and aneuploidy in cancer cells lines.

As a primary microtubule organizing center of animal cells, the centrosome assures symmetry and bipolarity of the cell division, essential for accurate chromosome segregation. The presence of more than 2 centrosomes (centrosome overamplification) disrupts mitotic process due to formation of extra spindle poles. Multipolar mitosis leads to chromosome missorting and damage thus causing aneuploidy. Cell death is a common outcome of arising cells lacking essential genetic information. However, in rare cases, gains and losses of certain chromosomes may provide growth advantage for surviving daughter cells. Alternatively, some cells adapt to multiple centrosomes by clustering them at spindle poles (pseudo-bipolar mitosis). In spite of resembling normal bipolar division cells with clustered centrosomes are still at risk of chromosome segregation errors.

Cultured hESCs also develop abnormalities such as supernumerary centrosomes developing multipolar or pseudo-bipolar mitotic spindle (by centrosome clustering) and defective kinetochore capturing with chromosome fragments left behind during mitosis. Examining 13 hESC lines cultured in two independent laboratories we have found that undifferentiated hESC are typical by unusually high frequency of mitoses with the number of centrosomes

exceeding two. During differentiation process and prolonged in-vitro propagation this feature is being suppressed. We propose that long term cultured cells acquire mutations that suppress centrosome amplification by reducing their requirements to certain signals, eliminating abnormal stimulation or both.

We have also found that culture conditions, mainly ability of hESCs to appropriately adhere to the culture substratum, influence the overamplification of centrosomes as we clearly demonstrated that suitable culture surface is effective to reduce frequency of multicentrosomal mitoses in hESCs. So that we declare that centrosome hyperamplification is extensively influenced by cell attachment signaling network.

In order to address possible molecular mechanisms responsible for centrosome overamplification in hESC we focused on key regulators of centrosome metabolism, CDK2 and Aurora A. CDK2 is highly active in undifferentiated cells and its chemical inhibition reduces the percentage of multicentrosomal mitoses in hESC. Likewise, Aurora A protein is overabundant in hESC. This centrosomally localized mitotic kinase is known to be implicated in centrosome amplification and causative for defective spindle assembly in various cell types.

We conclude that both deregulation of molecules normally controlling centrosome replication, CDK2 and Aurora A, and inefficient signaling from adhesion mediating proteins contribute to development of centrosomal abnormalities in cultured hESCs.

13. Summary

The Analysis of the Effect of Chemical Cyclin-Dependent Kinase Inhibition on the Differentiation of Human Embryonic Stem Cells Cyclin-dependent kinases (CDK), cyclins and inhibitors of CDKs belong to the group of molecules, that primarily function in the regulation of cell cycle progression. However, it is becoming clear, that they also participate in the process of differentiation.

Human embryonic stem cells (hESC) represent pluripotent cell lines with the ability to self-renew and capacity to differentiate into almost all somatic cell types. Due to these characteristics, they have created a new opportunities both in basic and applied research as well as for therapeutic applications.

Mechanisms, which drive cells into differentiation are, however not yet well understood. One of the differences between embryonic and somatic cells is represented by the regulation and duration of the cell cycle. Cell cycle progression of hESC is much faster due to shortened G1 phase and Rb protein is present mostly in the hyperphosphorylated form. This might mean that restriction point in the G1/S transition is not functional and cells are therefore insensitive to mitogenic signals. Inhibition of the cell cycle at this point might prolong the time period, throughout which cells can respond to differentiation stimuli and thus induce (or at least facilitate) differentiation.

The aim of this study was to analyze the effect of chemical inhibition of CDKs with synthetic inhibitors (synthesized in the laboratory of Growth Regulators at Palacky University in Olomouc) on the differentiation of hESC. Results show, that at least one inhibitor, Olomoucine II, induced/facilitated the differentiation changes in the ES cells different from those of spontaneously differentiating cells. Analysis of the cell cycle showed that cells accumulate not only at the G1 but also at G2/M transition point. Kinase assays confirmed, that Olomoucine II inhibits not only CDK 2, but also CDK 1 and potentially may be inhibiting also CDK 9 and/or 7. However, after prolonged cultivation of hESC with Olomoucine II in standard culture media, cells differentiated into at least one specific cell type (neural cells) and show neuro-specific markers Sox1, Neuro D1 and Nestin. In conclusion, differentiation of hESC can be induced by inhibition of cyclin dependent kinases, however in our case, the

mechanism of differentiation can not be associated exclusively with the elongation of the G1 phase of the cell cycle.

14. Biological tests of β -alloys for implantology

Introduction: Beta alloys find, due to their relatively easy workability and good mechanical and physical properties (Young's modulus of elasticity), ample application in both contemporary and future dental implantology. In the near future, a marked rise of application of β -alloys may be expected in current clinical practice. Within the framework of a long-term project realised by staff of Research Centre of Stomatology, β -alloys were chosen for the testing of biocompatibility. The main objective was to assess the influence of admixtures in alloys on corrosion resistance and biocompatibility. A further aim was to suggest suitable β -alloys with satisfactory mechanical and physical properties to comply with the requirements of corrosion resistance in the biological environment. Biocompatibility was assessed basing on the results obtained in tests. One of them was test of adherence of cells to the tested material.

Aim of study: For a period of 12 months, in the Research Centre of Stomatology, we had been studying adhesion of cells to alloys of Ti Ta, Ti Al Fe, Ti Al V, Ti Nb, and Ti Mo in laboratory conditions.

Material and methods: In each sample, adhesion to both quickly and slowly cooled alloys was compared by means of an electron microscope. SEM: treatment of cellular material on tested samples from Ti alloys. Samples on discs of 3x8 mm are cleaned and sterilised in an autoclave, then put into culture dishes under sterile conditions. Test cells: HeLa cell lines, culture medium: MEM + 5% NCS with the addition of L-glutamine and antibiotics with antimycotics.

Conclusion: In the alloys of Ti Ta, Ti Al Fe, and Ti Al V studied, both adhesion and biocompatibility were comparable with the control group and the method of alloy cooling proved to be insignificant. The use of these new alloys in implantology seems to be very promising in future, and therefore further research appears desirable.

15. ACUTE EFFECTS OF SIGMA RECEPTOR LIGAND HALOPERIDOL ON ISOLATED GUINEA PIG HEART

Sigma receptor ligand haloperidol is a psychotropic drug used in treatment of various psychiatric disorders and agitation. Its life-threatening cardiovascular side effects (cardiac arrhythmias such as torsade de pointes, ventricular fibrillation or even cardiac arrest) are often triggered by QT-interval prolongation. Therefore we examined the effects of haloperidol on 3-D electrogram of isolated guinea pig hearts with respect to repolarisation phase of electrogram. Moreover, mean coronary flow was followed.

Twelve adult male guinea pigs were sacrificed under deep ether anesthesia. The hearts were perfused according to Langendorf with Krebs-Henseleit solution (K-H) at constant pressure (80mmHg) and 37°C (CaCl₂, 1.2 mM). After 30min control period, 10nM haloperidol in K-H was administered for 30min. After successive 30min wash-out period, the putative down-regulation of sigma receptors was examined by the second 30min administration of 10nM haloperidol. Fifteen successive QT intervals were measured and averaged in the 30thmin of each period and incidence of arrhythmias was monitored.

No significant occurrence of arrhythmias was observed, except of sporadic ventricular extrasystole or bigeminy during the first haloperidol period. The QT-intervals were prolonged in the first haloperidol period (168, 3 vs. 184, 7ms; NS). This effect was irreversible (average

QT-interval in wash-out was 185ms). In the second haloperidol administration additional QT-interval prolongation was not found. Minimum of arrhythmias in our study is due to a lower haloperidol concentration than usual therapeutic plasma level (micromolar range). Since nanomolar concentration is close to binding constant of sigma receptors, we can conclude that these effects are mediated by binding of the drug to cardiac sigma receptor and not by direct effect on membrane ionic channels.

16. Space and time resolved optical emission spectroscopy of diffuse surface coplanar barrier discharge in nitrogen

Keywords: coplanar barrier discharge, space and time resolution, optical emission spectroscopy, temperature

During last decades the plasma technology based applications gain an important role in industrial processing of materials [1] especially in case of surface modification. For real industry in-line processing of materials there is a great demand on generation of highly nonequilibrium homogeneous plasma with as high as possible power density. The promising candidate for such utilization is the diffuse coplanar surface barrier discharge.

The diffuse coplanar surface barrier discharge (DCSBD) has unique properties such as the generation of thin diffuse layers of macroscopically stable and uniform non-equilibrium plasma at atmospheric pressure and with high power densities (up to 100W/cm³) [3]. When compared with other atmospheric pressure barrier discharge systems, the advantages of DCSBD systems stand in their simplicity, robustness and capability to process in a wide range of working gases. [4]

There are numerous parameters that can affect the properties of the DCSBD. In this work the influences of electrode temperature and applied voltage amplitude on plasma parameters of DCSBD were studied. The electrodes of DCSBD were cooled/heated by means of Peltier cells. The discharge spectra were taken by means of quartz optical system that enables scanning (profiling) of plasma layer in axis perpendicular to electrode orientation.

Using space-resolved optical emission spectroscopy the spatial profiles of vibrational as well as rotational temperature of second positive system of nitrogen were obtained. In addition to these measurements the effects of electrode temperature and applied voltage amplitude on spatial and temporal distribution of DCSBD plasma were investigated. The intensity timespace maps of second positive system of nitrogen and first negative system of nitrogen were integrated from the spectra.

It was found out that the applied voltage amplitude and electrode temperature have observable effects on the vibrational/rotational temperature spatial profiles as well as timespace plasma distribution. The rotational temperature varies across the profile from 300K up to 550 K. The vibrational temperature varies across profile from 1900K up to 3100K. The variation of discharge structure with variations of applied voltage amplitude, i.e. the prolongation and different regimes of plasma across the profile can be distinguished from temperature profiles as well as intensity time-space maps.

17. Psychomotor therapy at Faculty of Sports Studies, Masaryk University, Czech republic

Nowadays different factors cause a row of mental disorders. Among those factors which cause serious health problems in a biopsychosocial model belong civilizing disorders and stress. Majority of afflicted people do not seek for help. This is usually caused by lack of information about those disorders; in early stage those disorders are not fatal and people usually do not talk about them.

Physical exercise is an indicator of body and mind status. Physical exercise is product of muscle activity and brings information of processes in body. State of body and mind can be assumed according to physical activity.

Psychomotor therapy is a part of kinezioteraphy and is used as a supportive treatment for patients with mental disorder. Also, if stress is perceived only subjectively and disease does not bring any psychosomatic problems, psychomotor therapy can be used. During psychometric therapy we are working with body but also influencing mind and social relations.

In 2007 with help of development project of Ministry of Education, Youth and Sports Czech Republic and Counselling centre of Masaryk University Faculty of Sports Studies opened psychomotor therapy for students and employees of Masaryk University. Since autumn 2007 the therapy was well frequented by clients (ordinary attendance 21 clients per lesson). Practical lessons of psychomotor therapy take place in gymnasium of Faculty of Education Masaryk University. Lessons are attended also by students of University of the Third Age. Psychomotor therapy lessons could help to overcome hard life situations, stress and everyday problems. By this therapy we help keeping our clients healthy and increase their quality of live.

18. The function of the will in the coping of life situations

The research on the will and the motivation is one of the main problems in psychology and psychotherapy. It is very important to answer question: Can I work consciously my behaviour or are my deeds being determined with automatism on which I have little influence? Can I make decisions as free act (have I got the free will), or am I under the thumb of internal impulses and behavioural variable? There have been three most respected answers to this question: Sigmund Freud, his psychoanalysis and deep psychology, says that most of our behaviour is being determined with internal unconscious impulses that we can integrate only partly into our consciousness and subsequently also into our behaviour. Second great approach, which has arisen in the USA, is behaviourism. His key thesis is that we are influenced by external conditions such as education, cultural and social standards. The most of people's behaviour is, in view of behaviourism, learned and is automatic. Third approach, which replies critically to approaches mentioned above, is humanistic psychology, whose founders are A. Maslow, C.R. Rogers and V.E. Frankl. These psychologists say that everybody has got his dignity and has got free will too. He can decide good despite of ominous internal and external factors.

In view of will and motivation American scientists tend to reductionism. They are focusing often on limited numbers of aspects and they are insensitive to a variety of many possible variables. If we believed in their conclusions, it should mean that we are similar to machines that are automatically regulated and have not got the possibility of alternation (if anybody does not help them and does not supply them with proper software). It look almost like these researches were conducted by a psychological lobby that wish to persuade people that without psychologist and his support it is impossible to live dignified and valuable life. Contrariwise are these researches challenge to a reaction that people have got very uniqueness and wisdom and to production such researches that evidence a importance of the free decision making and oft the subject „will“.

