INSTITUTE OF OSTEOPATHIC MEDICINE

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Special aspects of osteopathy in research protocols

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Interest of the study

- One of the key conditions and guarantees of teaching and research quality is its conformity to the existing education standards. Thus, writing a diploma research paper is an important part in training a qualified osteopathic specialist.
- At the final stage of the training it helps students to structure the acquired knowledge and skills, to get a better understanding of cause-and-effect relationship in functional processes of both healthy and diseased human body and, eventually, to develop osteopathic thinking.

Organizing the research work

- Students guided by experienced trainers choose topics for their diploma research paper according to the research work program.
- Then the topic should be approved by the Institute education board (for its targets, research tasks and research subject) and organizing process for the research work starts.
- This process involves choosing appropriate research methods for the set tasks as well as choosing place and setting timeframe for the research.

General requirements

1. The research should be of interest and have scientific and practical significance.

2. As a rule, the research methods make it possible to evaluate the patient's general condition (history taking, evaluating the patient's subjective state and individual psychological characteristic through psychophysiological testing), as well as the condition of the body organs and systems (using magnetic resonance tomography, electroneuromyography, ultrasonic scanning, ultrasonic Doppler examination of blood vessels in brain and neck including duplex or triplex scanning, spirometry, computerized stabilometrics, laboratory diagnostics methods, etc).

General requirements

3. One important requirement for the diploma research paper is to justify the efficiency of the osteopathic treatment in terms of evidence-based medicine. It means that all the research results should be scientifically justified. No clinical or experimental medical research aimed at evaluating the efficiency of the treatment method used can be considered scientifically grounded unless the changes in the appropriate medical indicators have been statistically evaluated. Therefore, a lot of attention is paid to conducting statistical research (planning, data collection and grouping, calculating the representativeness error rate, confidence estimation, etc.).

Body functional status

In our health and disease concept, the individual's osteopathic status is seen as one of the components of the body functional state.

By the body functional state we mean the combination of actual characteristics of the human body organs and systems that determine his/her health, life quality and working capacity.

It should be noted that osteopathic status is a key element of the body functional state, for it reflects the structural and functional integrity of all body systems.

Areas of investigating the body functional status

Research area	Methods and indicators analyzed
Medical history taking, evaluating health status and behaviour characteristics	Risk factors that may lead to developing somatic dysfunctions, complaints about health, and behaviour characteristics (missing school lessons)
Functional state of the cardio-respiratory system	Heart rate, arterial blood pressure, ventricular ejection, breathing rate
Evaluating mental state	Lüscher color test
Osteopathic status	Usual osteopathic examination techniques
CNS functional status: functional status of the motion analyzer CNS functional status	Tapping test Simple sensomotor reaction Balance of principal nervous processes in the cerebral cortex Lability of principal nervous processes
Evaluating the effectiveness of osteopathic treatment	Comparative analysis of osteopathic status indicators before and after the treatment

Research areas and activities

Research area	Methods and indicators analyzed
Analyzing risk factors that may lead to somatic dysfunctions	Socio-biological Burdened obstetric history Extragenital diseases in mother Pregnancy failure Birth defects Fetus state
Evaluating the body functional status	Subjective state (parents' complaints) Somatic status Musculoskeletal system Cardiovascular system Neurological status
Osteopathic status	Usual osteopathic examination techniques
Correlation analysis, as well as factorial (by main components) and cluster analyses.	Evaluating interconnection between indicators and harmonization of osteopathic status indicators in infants with different health status.

Description of research methods

Examined system	Indicators
Risk factors that may lead to somatic dysfunctions	Medical history data
Somatic status	Body weight and length, head circumference
Musculoskeletal system	Untimed or untypical dental eruption, skull deformation, thoracic cage deformation, postural disorder, lower limb deformation, etc.
Cardiovascular system	Breathing rate, heart rate, occurrence rate of functional systolic murmur, occurrence rate of dysrhythmia in electrocardiogram
Neurological status	Syndromes: pyramidal insufficiency, muscular dystonia, miatonic, hypertension, changes in neuro-reflex excitability tongue hyperkinesia, or deviation, perioral muscles tension
Osteopathic status	Displacement or rotation of C2-C3; C3-C4, SBS motility, intraosseous lesions of occipital bone and sacrum

Evaluating osteopathic status

The following aspects of evaluating the osteopathic state should be considered:

- choosing osteopathic signs to be evaluated;
- evaluating and interpreting the osteopathic signs;
- connecting the osteopathic signs to other indicators of the body functional state;
- evolution of the values of osteopathic status indicators and other body systems in the course of treatment.

Evaluating osteopathic status

A broad range of osteopathic signs can be measured through osteopathic diagnostics. A student should be able to identify the leading ones, which are typical for the dysfunction studied.

It is important that as early as at the planning stage, prior to osteopathic diagnostics and treatment, the leading osteopathic signs to be registered, should be mentioned in the research protocol.

Evaluating the effectiveness of the treatment

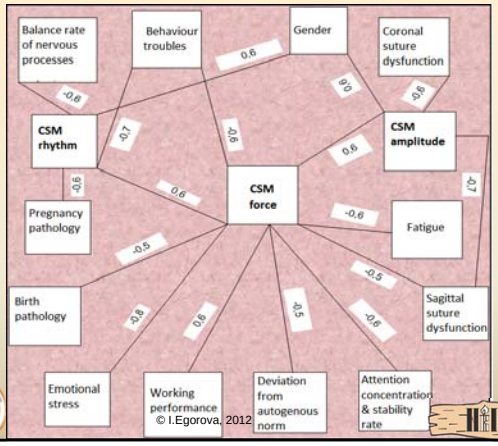
When evaluating and comparing the body functional state in apparently healthy individuals and ill patients, we try to analyze the indicators of the main body organs and systems, usually 4 or 5 (including subjective state, psychoemotional domain, nervous system, cardiorespiratory system, central nervous system and others) using wide range of criteria.

As a result, we get over 100 indicators to be evaluated, including both quantitative and qualitative ones.

Evaluating the effectiveness of the treatment

In terms of the research work tasks, osteopathic indicators are of greatest importance. Their interconnections have to be evaluated. To do it, we use multivariate statistics methods: multiple correlation analysis, cluster analysis, as well as factorial (by main components) and discriminant analyses.

Multiple correlation analysis plays a great role here, as it is designed specially for evaluating interconnections between osteopathic indicators and other functional status indicators.



Evaluating the effectiveness of the treatment

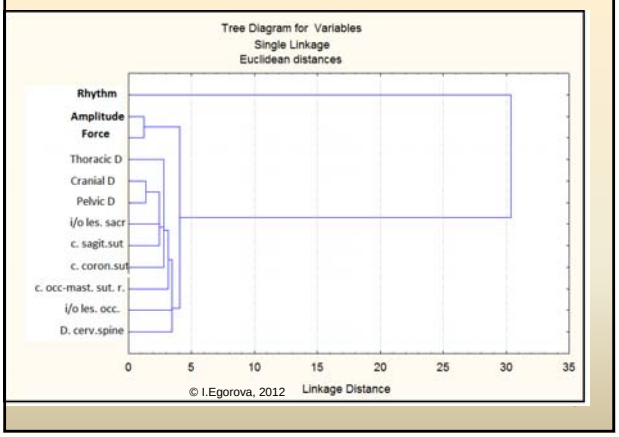
In order to structure the obtained data and identify the most significant (in both quantitative and qualitative ways) interconnections between the indicators of the body functional state, primarily the connections of the osteopathic status to other organs and systems, we use factorial analysis by main components.

Proportion (impact) of internal structure factors in school-age infants' functional status

Indicators (factors)	Proportion, %
CSM rhythm, amplitude and force, mental state	24.3
Dysfunctions of three diaphragms	13.9
Liability of principal nervous processes in the cerebral cortex	12.3
Functional status of motion analyzer in the cerebral cortex	10.6
Balance of principal nervous processes in the cerebral cortex	9.2

Evaluating the effectiveness of the treatment

By defining the groups of interconnected indicators, the cluster analysis helps to concentrate on their functional interconnection that reflects the structural and functional integrity of the body.



Finally, it should be noted that osteopathic aspects of diagnostics and treatment are considered in connection with osteopathic training practice.

The proposed algorithms for solving scientific and practical problems have been designed to increase the students' understanding of osteopathy and to enable them to do a diploma research work.

It should also be stressed again that everything described here is meant primarily for providing group diagnostics. Selecting patients for the research group is a separate issue, but, in theory, the group should consist of 25 - 30 patients, which is quite suitable for medical statistic research goals.

Thanks for your attention!