



## INVESTMENTS IN EDUCATION DEVELOPMENT

during trauma very gently junction between bridging veins and sinuses is gently and fragile area - venorhexis, development of hydrocephalus - influence on production and resorption of cerebrospinal fluid - hyporesoptional (influence of arachothel with combine of venous system) or hypersecretional type - the production from plexus choririoides, problem with local brain ischemia - arterial and venous type (imbibition of tissue), the problem during surgery procedures (e.g. tempobasal areas) in train of venous connection - the influence of level brain retraction on flow rate, external compression venous wall, pseudotumor cerebri - small brain ventricles, papilloedema, on CT brain oedema, any organic pathology, our premise: impairment of brain outflow - none venous trombose or sinuses trombose - none venous brain attack, more verisimilitude effect of angiosynizesis. Self-excited oscilation. The problem nonpulsing flow at artificial pump in blood circulation, which do not form pulses, participation on development angiosynizesis, the cavitation effect into adventitia and into blood flow, the effect on collagen - piezoelectric, magneostiction etc. - electromagnetic continuum. The conclusions: very small exchange of length (ca. 1%) about bridging brain veins can go to angiosynizesis, vibration of vessel wall during physiological state, facility beginning of angiosynizesis by propagation pulsing pressure wave, structural stability of bridging veins can be restore by adequate rise in pressure in given moment. The function of flow in thin wall venous system of brain is combination of angiosynizesis and pulsing venous pump of cavernous sinus, which follow into venous system pulsing flow. Angiosynizesis - the vessel's collapses, the spontaneous shut-off valve of vessel cross-section. The condition: pulsing flow into system minimalized to zero (prefentially in venous system), types: temporary and permanently. The time to a inception of effect is given by biomechanic vessel wall characters a flow fluid characters - rate pulsing, angiosynizesis has effect on hemodynamic and liquorodynamic system of brain and influence on brain microcirculation, angiosynizesis has effect on any pathology of brain (e.g. subdural haematoma and traction of veins - interhemispherhal hematoma in the first place, the cause of idiopathic benign intracranial hypertension) and biomechanical quality of bridging veins together with biomechanical quality of connection between bridging veins and venous brain sinuses are area of injury. Self-excited oscilation - the effect of commencement of double layer border. The formation at pulsing flow too, a phenomenon on layer border, is able to form on border solid elastic, viscoelastic unit and fluid (continuum), on border layer of fluid etc.

### **The effect of velocity and slope of the ground on the lower limbs and pelvis movement during Nordic and regular walking**

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Nordic walking is often considered as physical activity with many positive effects, however comprehensive assessment during various conditions is missing. The aim of this study was to



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analyze the effect of Nordic walking and its velocity on the movement of the lower limbs and pelvis during level and uphill walking. Fifteen males with mean age 22.9 years walked on a treadmill with and without poles, in self-selected and increased (110 % and 120 %) velocities in level ground and slope 8 %. Kinematic data was observed by Vicon system. Statistical comparison was performed by three-way ANOVA and LSD Fisher's post hoc test. The results indicate that the effect of poles was small. During uphill walking hip flexion increased and maximal knee extension decreased in comparison with level walking. Increased walking velocity resulted in mainly increase of hip range of movement sagittal plane and pelvis rotation in transversal plane.

### **The possibilities of quantitative description of nonlinear loaded characteristics of soft tissue of locomotor apparatus of man in vivo**

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The goal of this study was to find out an appropriate mathematical description of nonlinear loaded characteristics of soft tissue of locomotoric apparatus in man by help of chosen deformation tests in vivo, in situ. We wanted to easy interpretate the results that we obtain from myotonometry testing. We have found out that this mathematical description of hysteresis curves may be used in clinical trials as well as in laboratory testing.

### **Evaluation of muscle activity during Nordic walking in different conditions**

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The purpose of this study was to determine the influence of slope of the ground on muscles of lower extremities during regular walking (RW) and Nordic walking (NW). Ten healthy men (mean age  $22.9 \pm 1.04$  years) walked at self-selected speed on a treadmill at different slopes of the ground (0% and 8%) without poles and with poles. We investigated electromyographic activities of the tibialis anterior (TA), gastrocnemius lateralis (GL), biceps femoris (BF), gluteus medius (GM), vastus medialis (VM), and rectus femoris (RF). Increased slope of the ground led to increase in activity of GL, BF, and GM during both NW and RW and RF only during NW. In comparison of RW and NW, the activity of some muscles enhanced on flat