bei den skandinavischen Funden lassen sich im mitteleuropäischen Raum weniger Inschriften als eindeutig magisch oder als Zauber-formeln deuten. Es handelt sich meist um eher profane private Vermerke, Liebesbezeugungen oder Schenkungswidmungen. Der zahlreich auftauchenden «Futhark» Einritzungen auf Schmuck und Waffen werden meist als Glücksfetisch gedeutet.

Die ältesten bekannten Runendenkmäler stammen aus der zweiten Hälfte des zweiten vorchristlichen Jahrhunderts (Spange von Himlingøe bei Kopenhagen, Speerspitze von Øvre Stabu) [3]. Etwa aus dem Jahr 200 stammt das Goldene Horn von Gallehus. Seit dem Ausgang des vierten Jahrhunderts begann man in Skandinavien damit, Runen auch in Stein zu hauen. Deutsche Runeninschriften finden sich vom fünften bis siebten Jahrhunderts nur auf losen Gegenständen.

Zwischen 900 und 1025 erreichte die Runenkunst in Dänemark, später in Schweden einen Höhepunkt. Bekannt sind mehr als 2000 Denkmäler. In diese sind die Runen meist in ein kunstvolles Schlangenornament eingehauen.

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УДК 54-148=111

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HYDROGELS

Hydrogels used for mammalian cell culture are synthesized from natural and synthetic materials. Bioactive hydrogel constructs are extensively being used to repair, regenerate, or engineer tissues by being able to promote cell adhesion, migration, proliferation. Recent advances in the application of novel hydrogels for regenerative medicine areas such as their use in peripheral nerve regeneration, tooth regeneration, and 3-D printed.

Physically cross-linked hydrogels.

Physically cross-linked gels, also known as reversible gels, are networks that are held together by attractive noncovalent forces between the polymer chains. These hydrogels have a tendency of going through a transition from a three-dimensional stable state to eventually degrade and dissolve as a polymer solution. These forces that hold these polymer networks together to form a hydrogel, which includes hydrophobic interactions, hydrogen bonding, or ionic interactions.

Chemically cross-linked hydrogels.

Chemically cross-linked hydrogels, also known as "permanent" gels, were cross-linked networks formed due to covalent bonds. These gels are usually more stable than the physically cross-linked hydrogels and have a permanent structure. Physically cross-linked hydrogels have found their use as matrices for cells/drug encapsulation and release, as scaffolds for cell growth, proliferation, and adhesion. Another class of hydrogels is the stimuli-responsive hydrogels. These hydrogels can show significant changes in their swelling behavior owing to subtle changes in the pH, temperature, electric–magnetic field, and light

Application of hedrogels in regenerative field.

Field of regenerative medicine works with a common goal of repairing and regenerating damaged tissues and organs. The regenerative process encompasses isolating living cells from patients, expanding them *in vitro* using polymeric scaffolds, and then to re-implanting the tissue-like constructs into the patient. Because of their versatile properties, hydrogels have found several applications in the field of regenerative medicine as scaffolds for cell culture and delivery vehicles for cells and genes. These hydrogels can be made biocompatible with tunable mechanical and degradation properties. They can be equipped with biological cues to guide adhesion, migration, and proliferation of cells and binding sites for growth factors, peptides, or cytokines. This allows for the formation of biomimetic hydrogels that can mimic the extracellular matrix (ECM) environment.

Hydrogels for peripheral nerve regeneration.

Peripheral nervous system (PNS) can repair itself after an injury, but this process has its limitations beyond the critical size gap. Nerve grafts are an alternative to repairing severe peripheral nerve injuries.

Nerve autograft and allografts are often used for nerve injuries that cannot be repaired by direct coaptation. However, nerve autografts have several limitations including donor site morbidity, limited availability of the donor tissue, and limited functional recovery. On the other hand, allografts require the use of immunosuppressants for over 18 months and hence, have a significant drawback in their applicability. Nerve guidance tubes (NGTs) fabricated from natural or synthetic biomaterials, for this reason, have become an attractive alternative to repairing critical size nerve defects. NGTs act as a connecting bridge between the proximal and distal ends of the severed nerve, where the nerve stumps are inserted into the ends of the tube and sutured together. A protein-rich fluid containing growth-promoting substances is released into the NGTs. Within days, a fibrin cable is formed that supports the migration of Schwann cells (SCs) and facilitates axonal regeneration from the proximal to the distal stump

Hydrogels as conduit material: Collagen is an important extracellular matrix (ECM) component that has been studied quite extensively in peripheral nerve regeneration. Collagen hydrogels have been used successfully for the in-vitro culture of many neuronal cell types.

Hydrogels as luminal fillers**:** The empty lumen of a nerve conduit lacks the necessary support structure for the ingrowth and migration of SCs and axons. Hydrogels give necessary support structure to cells

Hydrogels for tooth regeneration.

Hydrogels have shown their potential in regenerating dentin-pulp tissue. Researchers have demonstrated the successful use of hydrogel scaffolds for dentin-pulp matrix regeneration. However, hydrogels have a limitation when it comes to regenerating the whole tooth organ. Not much research has been done in the field of using hydrogel scaffolds for regenerating the whole tooth structure.Tooth regeneration similar to the construction of other tissues also requires an appropriate cell source, a biodegradable scaffold that can mimic the natural extracellular matrix (ECM) and bioactive molecules. Tooth organ is composed of enamel, dentin, cementum, and dental pulp. Cells such as ameloblasts form the enamel, odontoblasts form the dentin, cementoblasts form the cementum, and mesenchymal, fibroblastic, vascular, and neural cells form the dental pulp. Scaffold materials play a critical role in determining how cells proliferate and differentiate. Those that mimic the characteristics of natural ECM can best promote appropriate cell and tissue maturation.

The tooth scaffolds should be such that they provide chemical and mechanical integrity, are biocompatible, are able to restore the normal functioning of the tooth, and are able to integrate with the surrounding tissues. For dentin-pulp tissue engineering, in particular, hydrogels come across as a favorable choice because they are injectable and have a 3D morphology that helps in the encapsulation of cells and growth factors. Hydrogel scaffolds made from natural biopolymers such as collagen, chitosan, hyaluronic acid, gelatin, fibrin, and alginate have been used quite extensively since they are readily cross-linkable and can be easily combined with various bioactive molecules. Kim et al. loaded collagen gels with a series of growth factors and injected them into pulp chambers and root canals of endodontically treated human teeth. They found that on *in vivo* implantation of endodontically treated human teeth in mouse dorsum for the tested 3 or 6 weeks, there was a recellularized and revascularized connective tissue that integrated to the native dentinal wall in root canals.

3d printing.

Hydrogels for 3D printing should be printable, biocompatible, have desired mechanical properties, shape, and structure. Collagen has been extensively used for 3D printing where in one case, sodium hydrogen carbonate ($NaHCO_3$) vapor was applied to gel the printed collagen layer and in another instance, $NaHCO_3$ was mixed with collagen and cells and then printed using laser-assisted bioprinting. Several researchers have utilized the temperature-responsive hydrogels, particularly pluronic F127 that gels in the temperature range of 10 to 40^oC. Pluronics have been combined with collagen and cross-linked gelatin methacrylate (GelMa) to form bioinks. Kolesky et al. printed pluronic F127 as a sacrificial vascular network embedded in GelMa matrix that mimic natural fine capillaries.

Recent developments in 3D printing of hydrogels offer a potential to produce constructs with the higher structural organization, fine-tuned mechanical and chemical properties to control cell behavior and an environment that mimics *in vivo* tissue. 3D printing of hydrogels is promising and requires further development such that the hydrogels are easy and inexpensive to print, are favorable toward promoting cell viability, differentiation, migration, and cell–cell interactions, and are functionally versatile. However, hydrogels are soft, and their use for 3D printing largely depends on their viscosity, their structural integrity, and their ability to be cross-linked in a way such that the cells can be encapsulated.

Hydrogels have found extensive applicability in various fields of tissue engineering and regenerative medicine due to their underlying similarity to the native ECM. The role of hydrogels in regenerative medicine has progressed remarkably with their widespread use in peripheral nerve regeneration, tooth regeneration, and more recently in 3D printing. Long nerve gap repair, dentin-pulp complex reconstruction, and 3D printing of organs are few of the areas in regenerative medicine that are at the forefront. Understanding and development of functionally bioactive smart hydrogels could help tremendously in these regenerative therapies.

УДК 330.163

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LAS NECESIDADES ACTUALES DE LA GENTE DE LAS EDADES DIFERENTES. LO DIFERENTE Y LO COMÚN

Cualquiera actividad de la persona además de la conducta eficaz y del impulso empieza de sus necesidades. La necesidad es algo concreto, necesario para el mantenimiento de la vida, para la actividad de persona, para el desarollo de su personalidad y de la sociedad en común. Esose manifiesta como el estado insatisfación que siente la persona y del cual trata de salir o como el estado de satisfación que desea a prolongar.

Si las necesidades son satisfechos o están satisfechando, la persona estáfeliz. La felicidad es el estado de integridad, que está acompañado con alegría, paz, pacificación. Al sentirlo la persona comprende sus posibilidadesilimitados en la creación y en las acciónes en el tiempo y lugar determinados.

Las necesidades reflejadas en la conciencia forman los interéses equivalentes. El enterés que está refuerzado por las condiciónes favorables y los estimulos para su realización induce a la persona a las acciónes concretas. En existencia del dinero el interés para alguna necesidad concreta se transforma en la demanda de compra. Las necesidades son dinámicas y se cambian gracias al progreso cientifico de la sociedad. De acuerdo con la ley de la elevación de las necesidades aparece un crecimiento constante y cualitativo. Primeramente cualquiera necesidad de lapersona representa la escaséz de los entreganamientos de los procesos biológicos, fisiológicos y psicológicos. Existen numerosas clasificaciones de las necesidades.