

With no contribution from tap water, male daily Mg intake is 10.62 mmol (88.5% RNI). Including tap water: reservoir water contributes little Mg (total Mg intake 88.9% RNI); Mean aquifer water Mg raises total intake to 11.85 mmol (96.5% RNI); a very hard aquifer water (North Downs Chalk) raises total intake to 50.3 mmol (419% RNI).

A beneficial role for Mg in drinking water is plausible. Mg concentrations should be reported for public water supplies. There is a need for new studies of human Mg nutrition in order to clarify its dietary significance, especially the contribution from water.

R A McCance and Elsie M Widdowson. (2002). The Composition of Foods (p. 537). The Royal Society of Chemistry.

11.15 – 11.30

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CHEMICAL COMPOSITION OF GROUNDWATER AND RELATIVE MORTALITY FOR CARDIOVASCULAR DISEASES, SLOVAL REPUBLIC

The study deals with the analysis of relationship between chemical composition of groundwater as the major source of drinking water (for about 90% of Slovak inhabitants) and relative mortality for cardiovascular diseases (REI) in the Slovak Republic. Primary data consist of Slovak national database of groundwater analyses (20,339 chemical analyses, 34 chemicals) and data on REI collected for the 10 years period (1994-2003). The chemical and health data were unified in the same form and expressed as the mean values for each of 2883 municipalities within the Slovak Republic for further analysis. Artificial neural network was used as mathematic method for model data analysis. The most significant chemical parameters having influence on REI were identified together with the limit values (maximal acceptable, minimal necessary and optimal). Based on the results of calculations made through neural networks following ten chemical parameters in the groundwater were defined as the most significant for REI: Ca+Mg (water hardness), Ca, Mg, TDS, Cl⁻, HCO₃⁻, SO₄²⁻, NO₃⁻, SiO₂ and PO₄³⁻. The obtained results document the highest relationship between REI and groundwater contents of Ca+Mg, Ca and Mg. Following limit values were set for the most significant groundwater chemicals: Ca+Mg 2.9 – 9.1 mmol.l⁻¹, Ca > 89.4 mg.l⁻¹ and Mg 24.3-95.8 mg.l⁻¹. At these concentration ranges REI in the Slovak Republic reaches the lowest levels. These limit values are about twice higher than current Slovak guideline values for drinking water.

This research has been performed within the project LIFE10 ENV/SK/000086 financially supported by the EU's LIFE+ programme.

11.30 – 11.45

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ENVIRONMENTAL ASSESSMENT OF SEGHILL LANDFILL: AN APPROACH FOR MONITORING LEACHATE CONTAMINATION OF GROUND AND SURFACE WATER

Landfill as a means of waste disposal is widely considered reliable