Regulation of the pentose cycle

As already stated above, the pentose cycle is regulated at the level of availability of the coenzyme $NADP^+$. If the result reduced form of NADPH is not pumped out and reoxidized in other metabolic processes, reactions that require the oxidized form of this coenzyme are inhibited. The reduction of $NADP^+$ to NADPH is catalyzed by *glucose-6-phosphate dehydrogenase* and *6-phosphogluconate dehydrogenase*. The synthesis of key enzymes is also induced by insulin. Prolactin does the same during lactation.

Clinical correlation:

Glucose-6-phosphate dehydrogenase deficiency is considered the most widespread enzymatic defect worldwide - the number of affected is estimated at 400 million people (mainly in Africa, the Mediterranean, the Middle East and Asia). One of its consequences is the development of **hemolytic anemia** (due to disruption of the antioxidant systems of erythrocytes). You can find more detailed information in the multimedia scripts Functions of cells and the human body, 3. LF UK. (http://fblt.cz/skripta/v-krev-a-organy-imunitniho-systemu/4-hemostaza/)

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Regulation of metabolic pathways at the cell level
Fontana J., Trnka J., Maďa P., Ivák P. et al.: Transformation of substances and energy in the cell. In: Functions of cells and the human body : Multimedia scripts.

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