

nine patients during 10 days. Number of connections confirmed patient's interest for this educative support and functionality of game interface. Majority of children have crossed 80% of stages and 31 280 points and 12 trophies were collected in 4 days. All report having learned about diabetes. Educational sequences were found interesting by children (100%) and that seems to be an asset of the game (83%), even if few children have used it. **Conclusion:** The POC confirm the interest of this serious game development for therapeutic child education in diabetes and allow to consider improvement in contents of educational sequences and game interface. To confirm these results, pilot study and multicentric controlled randomized study are planned.

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Glucose and Insulin Response at Standard Oral Glucose Load and Followed Submaximal Treadmill Test in Obese Adolescents

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Background: Exercise performance is dependent on glucose supply as fuel to working muscles. **Objective and hypotheses:** We hypothesised that postprandial insulin secretion impacts exercise induced glucose and insulin response. **Method:** 27 sedentary obese adolescent males aged 15.31 ± 1.33 were examined. Standard 2 h oral glucose tolerance test (OGTT) with further calculation AUC for glucose and insulin for increments: 0–30 min ($AUC_{gl,0-30}$; $AUC_{ins,0-30}$), 30–60 min ($AUC_{gl,30-60}$; $AUC_{ins,30-60}$), 60–120 min ($AUC_{gl,60-120}$; $AUC_{ins,60-120}$). Multi stage treadmill test (Bruce protocol) followed by measurement of insulin and glucose level at the moment test termination with calculation the relevant curves ($AUC_{gl,ex}$, $AUC_{ins,ex}$). **Results:** Mean BMI z-score was 2.72 ± 0.54 . Impaired fasting glucose was established in 73%, impaired glucose tolerance in 26.6% participants. None of them was diabetic. Mean fasting glucose 5.29 ± 0.79 mmol/l, mean fasting insulin 38.06 ± 11.19 mIU/ml, mean Homa-IR 8.04 ± 4.09 . It was established progressive increasing of glycemic area $AUC_{gl,0-30} < AUC_{gl,30-60}$ ($P=0.002$) $< AUC_{gl,60-120}$ ($P=0.004$) as well as insulin one $AUC_{ins,0-30} < AUC_{ins,30-60}$ ($P=0.003$) $< AUC_{ins,60-120}$ ($P=0.03$). Glucose (4.49 ± 0.55 mmol/l) and insulin levels (47.40 ± 26.33 mIU/ml) were statistically decreased after the exercise test. $AUC_{gl,60-120} > AUC_{gl,ex}$ ($P<0.0001$); $AUC_{ins,60-120} > AUC_{ins,ex}$ ($P<0.0001$). We found two variants of insulin response at the exercise tolerance after the glucose load – with increased (29.6%) and decreased (70.4%) glucose and insulin secretion. AUCins. at all stages of OGTT lower at the first group ($P<0.002$) as well as Ins.120 ($P<0.001$). **Conclusion:** Metabolic response at the exercise is dependent on insulin secretion at the glucose load. Low postprandial AUCins. followed by Ins.120 < 30 mIU/ml are associated with plasma insulin levels rise to correct the glucose immediately after exercise exhaustion.

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Insulin Dynamics and Biochemical Markers for Predicting Impaired Glucose Tolerance in Thai Obese Youth

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Background: Subjects with impaired glucose tolerance (IGT) are at risk for type 2 diabetes mellitus (T2DM) and cardiovascular disease. The predictors of IGT in obese youth are not well described. **Objective and hypotheses:** We aim to evaluate insulin dynamics and biochemical markers for predicting IGT in Thai obese youth. **Method:** We studied 115 obese Thai children who underwent an oral glucose tolerance test (OGTT). Plasma glucose and insulin levels were calculated for assessment of β -cell function. Hemoglobin A1c (HbA1c), lipid profile, and clinical parameters were also used to determine predictors of IGT. **Results:** We found that three patients had T2DM and 30 subjects had IGT. IGT patients had significantly higher fasting glucose, 1 h postload glucose, 2 h postload insulin, and lower whole-body insulin sensitivity indices than in normal glucose tolerance subjects whereas other indices were comparable. By ROC curve analyses, 1 h postload glucose was the best predictor of IGT, but fasting glucose or HbA1c represented a poor diagnostic tool for prediabetes screening. Subjects with 1 h OGTT glucose > 155 mg/dl had significantly lower HDL levels, lower insulin sensitivity and more insulin resistance than those with 1-hr postload glucose of ≥ 155 mg/dl. **Conclusion:** Abnormal glucose tolerance is highly prevalent in obese Thai youth. Several fasting indices and HbA1c fail to predict IGT. A 1 h OGTT glucose of > 155 mg/dl appears to be more associated with adverse insulin dynamics and metabolic profile than 2 h postload glucose.

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Total-Body Irradiation is a Major Risk Factor for Young Adult Onset Diabetes Mellitus and Hyperlipidemia in Childhood Cancer Survivors after Hematopoietic Stem Cell Transplantation

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Background: Haematopoietic stem cell transplantation (HSCT) is a risk factor for young adult onset diabetes mellitus (DM) and hyperlipidaemia (HL) as late effects, especially the use of total-body irradiation (TBI). In order to investigate the clinical details, we retrospectively analysed the post-HSCT patients in our institution that required treatment for DM and/or HL. **Results:** From 1983 to 2012, 24 children received HSCT in our hospital