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## Identification of a micro RNAs triad for monitoring ketogenic diet program

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In this pilot trial, we evaluated the effect of a 6-weeks biphasic ketogenic diet (KD) program on biochemical parameters, body composition and plasma microRNAs (miRs) profile in obese subjects. The biphasic KD program for a six weeks' period ameliorate both biochemical and anthropometric parameters in obese and overweight subjects (36, 18 females and 18 males, same age segment), re-collocating them into stage 0 from stage 1 of Edmonton obesity staging system (EOSS) parameters which consider both, blood biochemical and anthropometric data. We point out a significant decrease of insulin (more than one subject, about 1/3, not knowing before, was insulin resistant), triglyceride levels as well as weight and BMI. Either waistline, hip circumference (express in centimeters) decreased by 8-10 inches that is a great result even not significant in p-value. Systemic integrity parameters such as (ALT, AST and eGFR), the most hormonal axis (i.e. thyroid) is unaffected TSH only slightly, and not statistically significant, decrease. Additionally, we recorded no give up subjects, due to a support on food specifically designed but on a high personalization of the diet. Besides that, the screening of miRnome (799 miRs directly detected) point out a triad of miRs that are strongly affected by the diet and are proposed as biomolecular/biochemical tools to monitor very low carbohydrate nutritional regimens. Among all the miRs screened, we identified a triad of miRs, namely hsa-let-7b-5p, hsa-miR-143-3p and hsa-miR-504-5p that have strong validation targets, already known to be used to monitor this nutritional intervention in order to have a tool that reflects, indirectly the regulatory biochemical mechanisms and either cell signaling to the orchestration of metabolic and signaling pathways. The overall outcome of miRNAs show an improvement on the overall health status (improving fat and glucose metabolism, improving immune system, improving bone health.

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