

Supplementary Table 2: Summary of Studies Demonstrating Improved Outcomes with RDN Participation in Pediatric Patients with Obesity

Author	Patient Population	Study Description	Findings
<i>Vital Signs</i>			
Falbe et al ^a	Latino families with a child age 5-12 years with overweight or obesity	<p>Compared changes in weight and BMI for patients receiving 5 2-hour group classes over 10 weeks led by RDN, physician, and community worker to controls on waiting list</p>	<p>BMI of intervention group decreased by 0.50 kg/m² compared to increase of 0.32kg/m² in control group.</p> <p>Intervention group maintained weight (+0.08 kg) while control group increased by 1.14 kg</p> <p>Intervention group showed relative improvements over controls in triglycerides compared to controls (-26.8 mg/dL; 95% CI -50.1, -3.6).</p>
Moschonis et al ^b	Pediatric patients with obesity in Greece	<p>Electronic decision support tool for pediatricians, pediatric endocrinologists, and RDNs</p> <p>Intervention group received care from all 3 providers (RDN set weight management goals and provided personalized meal plans)</p> <p>Control group was provided with general recommendations for diet and physical activity</p>	<p>Intervention group demonstrated a significant decrease in BMI/age z-score of 0.2 standard deviations over 3 months. BMI/age z-score of control group increased by 0.1 standard deviations. The difference between the two groups was not statistically significant.</p>

<p>Diaz et al^c</p>	<p>Patients age 9-17 years with BMI >95th percentile recruited from primary care</p>	<p>Compared outcomes of obesity management program provided by primary care provider alone to care provided with provider and RDN</p> <p>RDN group received 12 weekly 2 hour group classes and weekly RDN consults for 12 weeks, then monthly</p> <p>Both groups received monthly provider visits</p>	<p>After 12 months, the provider group gained 5.6 kg while RDN group lost 0.8 kg</p> <p>Statistically significant between group differences in weight (-6.4 kg) and BMI (-2.2 kg/m²) with RDN group showing improvements</p> <p>RDN group had significant between-group improvements in systolic and diastolic blood pressure at 6 months</p>
<p>Resnicow et al^d</p>	<p>42 practices from a pediatric research network</p>	<p>Practices randomly assigned to 1 of 3 groups:</p> <p>Group 1 received usual care</p> <p>Group 2 received motivational interviewing from primary care provider</p> <p>Group 3 received motivational interviewing from primary care provider and RDN</p>	<p>Mean changes in BMI percentile from baseline decrease 1.8, 3.8, and 4.9 percentiles across groups 1, 2, and 3, respectively</p> <p>The group 3 mean BMI percentile was significantly lower than group 1</p> <p>MI from a provider and RDN provided a statistically significant change in BMI percentile at 2 year follow-up</p>
<p>Kirk et al²⁰</p>	<p>Patients age 2-19 years with BMI/age \geq 85th percentile participating in a comprehensive weight management program</p>	<p>Retrospective review of 2 designs for comprehensive weight management program, both involving a RDN</p> <p>Design 1 was portion-controlled diet</p>	<p>Mean BMI change did not differ between the 2 groups</p> <p>With both designs, each additional RDN visit was associated with a 28% increased odds of success, defined as either</p>

		<p>Design 2 was reduced glycemic load diet</p>	<p>BMI stability or reduction in BMI</p> <p>The probability of success exceeded 78% with > 1 RDN visit/month versus 43% with minimal RDN exposure</p> <p>Frequency of RDN visits was associated with improved BMI outcomes in obese youth participating in a comprehensive weight management program regardless of dietary intervention implemented</p>
Rodriguez-Ventura et al ^e	Children aged 8–18 years old with BMI z-score ≥ 1	<p>Provided education to children and their parents aimed at reducing BMI</p> <p>Included 2 workshops, one on education and teaching healthy lifestyles and the second on nutrition within the realm of sociocultural context of children and their parents</p> <p>Workshops were run by a pediatric endocrinologist in group sessions with 3-5 families and then reinforced by the RDN at office visits every 3-4 months</p>	<p>72.7% of children demonstrated decreased BMI z-score at their third visit</p> <p>The BMI z-score of children decreased from from 2.13 +/- 0.57 to 1.91 +/- 0.58</p>

<p>Varagiannis et al^f</p>	<p>Children age 8-12 years with overweight or obesity and their parents</p>	<p>Compared three family based intervention styles to reduce BMI and improve behavior</p> <p>Group 1 received group intervention for the child and their parents as 12 bi-weekly 1 hour sessions with a RDN, psychologist, physical educator, and chef</p> <p>Group 2 received individualized intervention with the child and parent through 12 bi weekly 30 minute sessions with a RDN</p> <p>Group 3 received 20 minute bi weekly sessions from the RDN, psychologist, physical educator, and chef via a website.</p>	<p>Significant improvement in body weight, BMI z-score, physical activity, and screen time from baseline in all 3 groups</p> <p>Group 2 had the most effective results. BMI z-score and screen time changes were significantly larger in Group 2 than in the other two Groups</p>
<p>Appelhans et al^g</p>	<p>Systematic review of studies providing obesity interventions in the home setting</p>	<p>Two studies involved RDNs</p>	<p>One study compared patients receiving RDN intervention during 6 weeks inpatient treatment and 10.5 months outpatient treatment in home. Found significant 6-month weight losses compared to patients on waiting list (BMI z-score -0.36 +/- 34).</p> <p>Second study looked at 2 year family-based in home intervention by nutritionist and exercise</p>

			<p>trainer. Compared to patients receiving "usual care" (not defined), patients who received treatment had significant changes in BMI z-score (-0.12), waist girth, waist to height ratio, and body fat percentage (-0.6)</p>
<p>Kinnear et al^h</p>	<p>21 families with familial hypercholesterolaemia (FH) [either parent had FH with unaffected child, both parent and child had FH, or child had FH but parent did not]</p>	<p>10 families in the intervention group received an individual 1 hour in person session and 4 email or telephone sessions with a RDN providing motivational interviewing over 12 weeks</p> <p>11 families in the control group were on waitlist received a provider visit in lipid clinic</p> <p>All adults (but not children) in control group received previous education from a RDN but no further RDN advice during study</p>	<p>Intervention group had a mean group LDL-cholesterol decrease of 8% in children and 10% in adults</p>
<p><i>Diet Quality</i></p>			
<p>Moschonis et al^b</p>	<p>Pediatric patients with obesity in Greece</p>	<p>Electronic decision support tool for pediatricians, pediatric endocrinologists, and RDNs</p> <p>Intervention group received care from all 3</p>	<p>Intervention group demonstrated a significant increase in dietary fiber intake compared to control group.</p>

		<p>providers (RDN set weight management goals and provided personalized meal plans)</p> <p>Control group was provided with general recommendations for diet and physical activity</p>	
Varagiannis et al ^f	Children age 8-12 years with overweight or obesity and their parents	<p>Compared three family based intervention styles to reduce BMI and improve behavior</p> <p>Group 1 received group intervention for the child and their parents as 12 bi-weekly 1 hour sessions with a RDN, psychologist, physical educator, and chef</p> <p>Group 2 received individualized intervention with the child and parent through 12 bi weekly 30 minute sessions with a RDN</p> <p>Group 3 received 20 minute bi weekly sessions from the RDN, psychologist, physical educator, and chef via a website.</p>	<p>Children in Group 3 significantly decreased their total dietary energy intake</p> <p>Significant statistical increases in whole wheat cereals and grains, low-fat dairy, and decreases in sweets, fast food, and processed meat intakes in Group 2, and increases in fruit and low-fat dairy intakes in Group 3</p> <p>Fruit intake improved the most in Group 1, while Group 2 had the highest increase in low-fat dairy selection and the largest decrease in sweets and processed meat intakes</p> <p>More improvements were observed in Group 2 compared to other groups</p>
Kinnear et al ^h	21 families with familial hypercholesterolaemia (FH) [either parent had FH with unaffected child, both parent and child had	10 families in the intervention group received an individual 1 hour in person session and 4 email or telephone sessions with	Intervention group showed decreased intake of total fat, saturated fat and cholesterol, and

	FH, or child had FH but parent did not]	<p>a RDN providing motivational interviewing over 12 weeks</p> <p>11 families in the control group were on waitlist received a provider visit in lipid clinic</p> <p>All adults (but not children) in control group received previous education from a RDN but no further RDN advice during study</p>	increased intake of fiber, fruits and vegetables
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Prevention

Tucker et al ²¹	Patients identified as overweight or at risk of overweight from 4 pediatrician offices	Patients in intervention group received detailed counseling from pediatrician followed by 4 RDN visits over 6 months. Patients in control group received usual care from pediatrician with no RDN intervention.	<p>Overall improvements were noted in the intervention group over the control group in the physical activity score and screen time</p> <p>Parent feeding practices improved in intervention group</p> <p>BMI measures did not differ between the two groups.</p>
Campbell et al ⁶³	First time parents	The intervention group received six 2-hour sessions (quarterly) where a RDN provided anticipatory guidance on infant feeding, physical activity, and sedentary behavior	Compared to the control group, the intervention group had lower intake of noncore drinks and sweet snacks at 9 months of age

		Control group attended regular parent group sessions with nurse	At 20 months of age, the intervention group had lower intake of sweet snacks and lower television viewing time compared to the control group
Hammersley et al ¹	Children with overweight or at risk of overweight	<p>The Intervention group received electronic education via education modules over 11 weeks, set goals after each module, and the RDN provided advice on goals. They also participated in a closed facebook group where they could interact with the RDN and other participants.</p> <p>Control group received regular emails with links to a parenting website</p>	<p>No significant differences in BMI between control and intervention group at the end of the study</p> <p>Intervention group did have significant decreases in BMI at 3 and 6 months, with no significant change noted in the control group</p>
Hollar et al ⁶⁴	Elementary schools	<p>Intervention group schools received healthier school meals from a menu prepared by a RDN, nutrition education from a curricula created by a RDN and school fruit and vegetable gardens</p> <p>2 year study period</p>	<p>Overall BMI z-score and weight z-score decreased significantly for girls in the intervention group compared to controls. No significant change noted in boys, but BMI z-score for boys in intervention decreased slightly while it increased for boys in the control group</p> <p>Girls in intervention group had significant decrease in systolic blood</p>

			<p>pressure over the first year while girls in control group saw very slight rise in systolic blood pressure</p> <p>Significant decrease in diastolic blood pressure in girls in intervention group compared to control group</p>
Peccei et al ^j	Community prenatal health clinic	<p>RDN embedded in clinic and intervened with culturally appropriate nutrition intervention</p> <p>RDN met with patients in intervention group twice per month</p> <p>Control group received RDN intervention only at the start of the study</p>	Fewer LGA neonates born to women with obesity in intervention group compared to control group
Pari-Keener et al ^k	Systematic review of studies reporting on effects of medical nutrition therapy provided by RDN on maternal diet and infant health outcomes	<p>4 studies included overweight and obese women</p> <p>1 study focused on women with diabetes or gestational diabetes</p>	Among pregnant women with overweight or obesity, patients that received intervention by RDN had significantly fewer LGS infants and infants were less likely to be born >4 kg

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