

# Atalah's curve evaluation of adequacy of gestational weight gain in a new population. Is there need for reassessment?

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## Abstract

A prospective study was performed, with 654 charts of women, at secondary level hospital, with the purpose of describing the gestational weight gain and evaluate the percentile of a new gestational weight gain curve in Brazilian women. A total of 4613 measures were collected. The data collected was compared with the Atalah's curve, used currently by the Ministry of Health as guideline.

*Key words: pregnancy, weight gain, prenatal care.*

## Introduction

Gestational weight gain is a clinical parameter that has to be monitored carefully by the pregnant woman and the doctor. Excessive or inadequate weight gain during pregnancy may be associated with perinatal outcomes and with comorbidities along the woman's life. In Brazil, the guidelines of the Ministry of Health are based on the weight gain curve proposed by Atalah, but this curve has been criticized for being created in the 90s, based on Chilean women, besides it presents, in recent studies, low predictive value.

## Results and Discussion

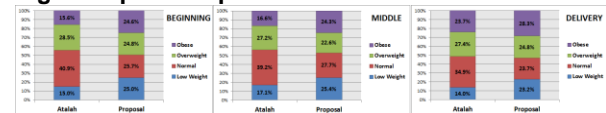
The information about height, weight and gestational age were collected in each medical visit during the pregnancy. The body mass index was calculated for each gestational age and the percentiles were divided in 25%, 50% and 75%. Using these values as a cutoff, we've classified the women in low weight, normal, overweight and obese in the beginning of prenatal care, in the middle (around 20 weeks) and in the delivery. The women also were classified using Atalah's curve.

**Table 1. Correlation of Atalah curve and the new parameters for gestational weight gain.**

Atalah / Proposal	Beginning		Middle		Delivery	
	n	%	n	%	n	%
<b>Concordant</b>						
Low Weight	80	15,0%	93	17,6%	75	14,2%
Normal	136	25,5%	144	27,2%	119	22,5%
Overweight	103	19,3%	101	19,1%	115	21,7%
Obese	83	15,6%	84	15,9%	122	23,0%
<b>TOTAL</b>	<b>402</b>	<b>75,4%</b>	<b>422</b>	<b>79,8%</b>	<b>431</b>	<b>81,3%</b>
<b>Discordant</b>						
Normal / Low Weight	53	9,9%	45	8,5%	50	9,4%
Overweight / Normal	1	0,2%	0	0,0%	4	0,8%
Obese / Overweight	0	0,0%	0	0,0%	2	0,4%
Low Weight / Normal	0	0,0%	0	0,0%	2	0,4%
Normal / Overweight	29	5,4%	19	3,6%	15	2,8%
Overweight / Obese	48	9,0%	43	8,1%	26	4,9%
<b>TOTAL</b>	<b>131</b>	<b>24,6%</b>	<b>107</b>	<b>20,2%</b>	<b>99</b>	<b>18,7%</b>
Valor-p McNemar	< 0.0001		< 0.0001		< 0.0001	
kappa	0,79		0,83		0,82	

In the studied population, there was a concordance in almost 80% of the methods in all weight ranges and gestational periods (Tab.1). However, Atalah's curve tends to classify differently around 20% of pregnant women, especially those located at the edges of the weight ranges. 9.9% of the underweight were classified as appropriate weight at the beginning of the pregnancy, 8.5% in the middle and 9.4% in the end. 5.4% of the overweight as normal weight at the beginning of pregnancy, 3.6% in the middle, and 2.8% at the end. Finally, 9.0% of the obese were only classified as overweight in the beginning, 8.1% in the half and 4.9% at the delivery (Fig.1).

**Fig1. Graphical representation of data correlation.**



## Conclusions

The Atalah's curve tends to classify differently around 20% of women at the beginning and in the middle of the pregnancy. Most of the cases were underestimated. Although the data have not been used in a probabilistic model but empirical to the formation of the new parameters, the update of the curve values and the national parameter appears necessary.

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