

# The Cognitive Cost of Catch-up Growth

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## Introduction

Recently, the level of compensatory growth following a period of poor nutrition was found to be associated with long-term negative consequences for cognitive function in zebra finches (1). In humans, postnatal catch-up growth has been related to diseases in later life.

## Objective

Our aim was to investigate if the association between catch-up growth and cognitive performance is also seen in humans in two independent samples.

## Methods

Catch-up growth was defined as the change in weight standard deviation scores during the first 2 years of life. Cognitive performance was assessed with psychometric IQ tests, administered at ages 12 (sample I and II) and 18 years (sample I). Data were collected in twin pairs and analyses were carried out within pairs. Therefore, intra-pair differences for catch-up growth and IQ were computed by randomly subtracting the scores of one individual of the twin pair from the other and vice versa. Pearson correlations were calculated between the intra-pair differences in catch-up growth or birth weight SDS and IQ.

## Results

Twins with the highest catch-up growth within a pair had lower IQ scores at ages 12 and 18 years (see Table).

## Table

	Sample	N	Correlation in all pairs	p
IQ age 12	I	109	-0.19	0.04
	II	130	-0.28	<0.01
IQ age 18	I	116	-0.22	0.02

Pearson correlations between intra-pair differences in catch-up growth and intra-pair differences in IQ scores.

## Conclusions

A larger gain in weight during the first 2 years of life is associated with a lower IQ. However, catch-up growth is correlated with birth weight and this correlation may explain part of the association.

## References

1. Fisher MO, Nager RG, Monaghan P (2006) Compensatory Growth Impairs Adult Cognitive Performance. PLoS Biol 4