

אנו שמחים לארח את

## Dr. Tali Leibovich

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### *From “sense of number” to “sense of magnitudes”*

Math abilities play a pivotal role in our lives, both in and outside of school. Therefore, an important question is how the brain understands basic concepts like size and numbers? The most common theory, suggest that we are born with a ‘sense of number’ enabling the approximate estimation of quantities using the ‘approximate number system’ (ANS). The ANS is also thought to predict math achievement. In my talk, I will present evidence from behavioural and neuroimaging studies challenging the ANS theory. I will also present an alternative theoretical model describing the development of the concept of number. According to this theory, we are born with a ‘sense of magnitude’ allowing us to discriminate only between non-numerical magnitudes like length, total area, density, etc. Non-numerical magnitudes usually correlate with number (e.g., more apples will take more space in the bowl than fewer apples). This correlation, however, has exceptions (e.g., 2 basketballs are bigger, yet fewer than 5 tennis balls). Therefore, the ability to inhibit non-numerical magnitudes, such as size, when they are irrelevant is necessary for understanding the concept of number. When a child is able to inhibit irrelevant non-numerical information when required, he or she is then able to grasp that a number is the quantity of items in a set that is often correlated with, but separate from, non-numerical magnitudes. Finally, I will discuss implications of the proposed developmental model for early math education.

ההרצאה תתקיים ביום א' ה- 14 בפברואר 2016, בשעה 14:00  
במעמק"ה, הבניין הרב תכליתי, אוניברסיטת חיפה.

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