Finally, everyday activities contain a wealth of perceptual information that grossly exceeds the capacity of working memory. Thus, working memory must be updated at various points in the movie as one watches an activity unfold. The points at which working memory is updated during movie viewing affect how well the activity is later remembered (Bailey et al., 2013; Kurby & Zacks, 2011; Sargent et al., 2013; Zacks et al., 2006). Activity is better

In addition to *APOE*, we also examined *brain-derived neurotrophic factor (BDNF)* and *KIBRA* as genetic predictors of episodic and everyday memory. The methionine (*Met*) allele

the basic actions performed in each movie, using criteria described by Schwartz (1991,

ACTCTGGAGAGCGTGAAT-3’and R: 5’-ATACTGTCACACACGCTC-3’. The PCR

***Effect of the APOE ε4* allele on laboratory episodic memory and everyday memory—**Young and older adults' performance on the laboratory episodic and everyday memory tasks is reported in Table 3. Composite scores were created because the laboratory episodic memory variables correlated positively with one another, as did the everyday memory variables (Table 4). The laboratory episodic memory composite was the average of the z-scores for the Selective Reminding test, Verbal Paired Associates, and Word List Recall. Cronbach's alpha was .70 across the three episodic memory tasks. The everyday memory composite was the average of the movie recall z-scores for all three movies. [The measures of recognition and order memory for the activity in the movies showed relatively poor item-level reliability. Cronbach's alpha across the three movies was .47 for recognition and .50 for order memory, whereas it was .79 for the movie recall test.]

We conducted a linear regression with age, *APOE* status, and their interaction predicting episodic memory performance. Together these variables predicted a significant amount of variance in episodic memory performance, $R^2 = .183$, p

better than did *non-Met* carriers on word list recall, mean for *Met* carriers = 19.44; mean for non-carriers = 16.97; $t(182) = 2.63$, $p = .005$, $d = 0.48$. For *KIBRA*, carriers of the *T* allele performed marginally better than did those without the *T* allele on the laboratory episodic memory composite variable – however, this was only true of older adults aged 50-79, mean for *T* carriers = −0.04; mean for non-carriers = −0.31; $t(90) = 1.58$, $p = .06$, $d = 0.34$. Previous studies have shown mixed results regarding the effects of *KIBRA* on memory (Need et al., 2008), but in a large scale meta-analysis Milnik et al. (2012) demonstrated *T* carriers outperform *C* carriers on measures of episodic memory. Further, our results are consistent with Muse et al. (2014) who found that effect of *T* carriers on episodic memory performance was stronger in older adults. No other comparisons approached significance.

Summary—

symptoms of AD is the accumulation of amyloid β protein (e.g.,

is used to arrive at an etiological diagnosis. Diagnosis and staging of AD is conducted

Again, each individual MTL region accounted for a large percentage of the variance shared between *APOE ε4* carrier status and episodic memory performance (Table 8). *APOE ε4* carrier status accounted for 13.6% of the variance in episodic memory, but it only accounted for 1.7% after controlling for entorhinal volume (88% reduction), 3.2% after controlling for hippocampal volume (76% reduction), and 7.1% after controlling for parahippocampal volume (48% reduction).

***BNDF* and *KIBRA*—**No effects of *BDNF* or *KIBRA* genotypes approached significance.

Summary—In sum, *APOE* predicted memory for everyday activities, which replicated the findings from Study 1 in a different sample of older adults. We also replicated the standard finding that *APOE* genotype predicts episodic memory performance in a sample of non-demented and mildly demented older adults. Further, differences in MTL volume mediated the relationship between *APOE**4***

reminding, verbal paired associates, and list learning for diagnosing AD) takes approximately 55-75 minutes (Buschke, 1984; Small et al., 1999; Weschler & Stone, 1973).

Additionally, we found that the effect of *APOE* genotype was strongest in older adults. Older adult *ε4* non-carriers outperformed *ε4* carriers on the episodic and everyday memory

neurophysiological link between being an *APOE* ε

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Figure 2.
Everyday memory performance for *APOE ε4* carriers or non-carriers across the lifespan

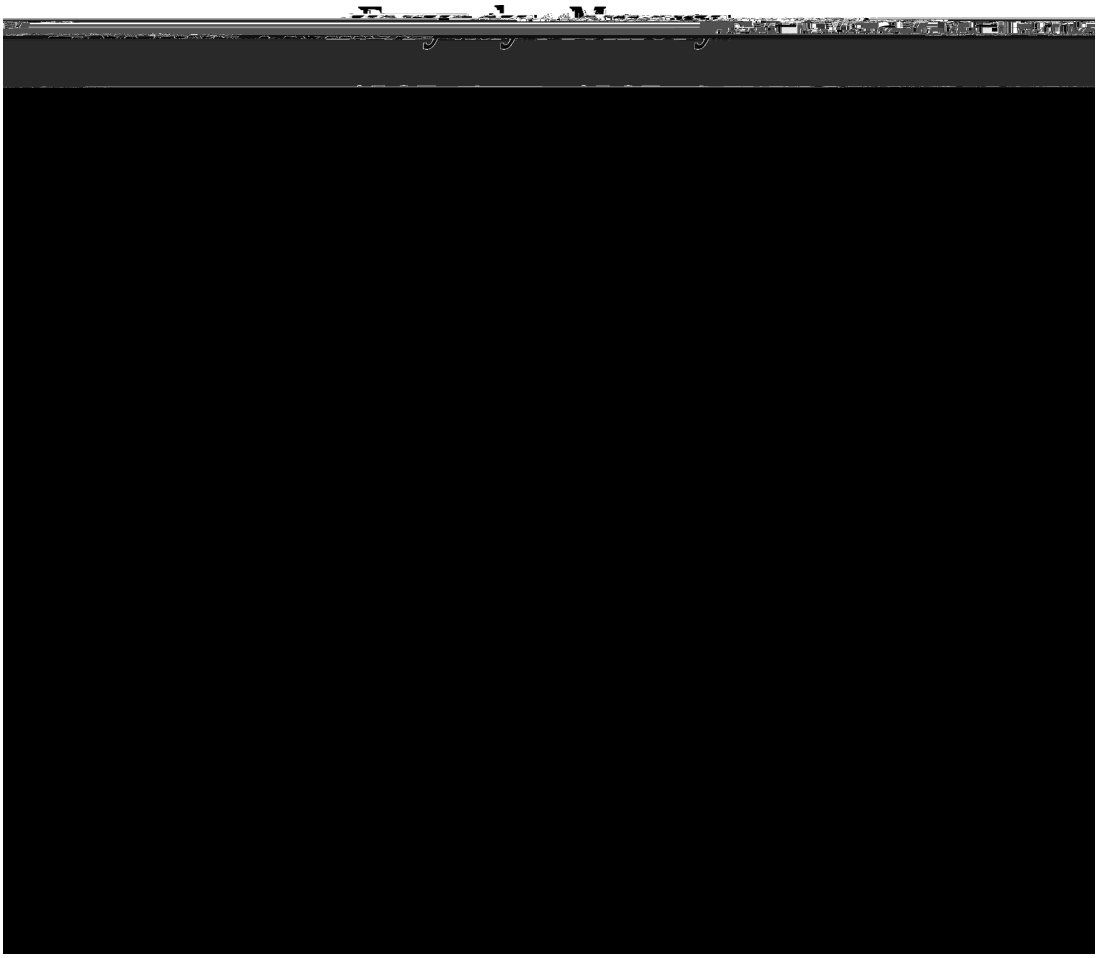

Figure 4.
Everyday memory performance for the different CDR groups who are either *APOE ε4* carriers or non-carriers (Study 2). Error bars represent ±1 standard error of the mean.

Table 2

Demographics for participants in Study 1 and Study 2 for each of the APOE genotypes

Sample	***APOE ε4*-carriers**		***APOE ε4* non-carriers**	
Variable	**Young**	**Older**	**Young**	**Older**

Table 6

Descriptive statistics for individual everyday memory and episodic memory tasks for Study 2.

	CDR 0				CDR 0.5				CDR 1			
	M	**Median**	**Range**	***d* (0 vs. 0.5)**	**M**	**Median**	**Range**	***d* (0.5 vs. 1)**	**M**	**Median**	**Range**	***d* (0 vs. 1)**
Age	74.65	75.00	65-86	−0.57	77.97	78.50	66-86	0.06	77.61			