		Polysensitized			Monosensitized				
		n total	n/median	%/ interquartile range	n total	n/ median	%/Interquartile range	*P* -value	
Sex	women	45	17	38%	45	30	67%	0.006	1
	men		28	62%		15	33%		
Age Allergy family background		45	21	(15.50; 40.50)	45	42	(32.50; 52.50)	0.000	2
	No	45	34	76%	45	30	67%	0.352	1
	Yes		11	24%		15	33%		
Prick test (millimeters)		44	7	(5.00; 9.00)	45	8	(7.00; 9.50)	0.015	2
IG E nCup A1 (KU/L)		45	30.5	(9.18; 79.05)	45	26.4	(9.22; 52.10)	0.272	2
Personal history of Asthma	No	45	21	47%	45	43	96%	0.000	1
	Yes		24	53%		2	4%		
Pollen initial sensitization	Cupressus	45	2	4%					
	Grass		33	73%					
	Concurrent		10	22%					

1. Chi square.
2. U de Mann-Whitney.

1369 | Characterization of Der p 1 carrying particles: Ground dust mite and spent culture

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Background: Allergen exposure chambers offer environments for research in allergy, asthma and immunology in which subjects are exposed to controlled levels of allergen. It is important to understand the physical morphology and aerodynamic characteristics of specific allergen carrying particles for use in such chambers. Here we investigate the relationships between aerosolised particle count, allergen concentration and particle size distribution for two different source materials carrying Der p 1: coarsely ground mite bodies and ball-milled spent mite culture, with some indication of consistency of allergen concentration across the samples' particle diameter range.

Method: A small-scale aerosolization chamber (0.53 x 0.38 x 0.30 m) was designed to aerosolize small quantities of particulate and measure allergen and particle concentrations. Each source material was loaded into the chamber at varying quantities (45, 60 and 75 mg) and aerosolized with filtered air from a handheld blower for 40 min. The blower cycled on and off for 1 and 2 minutes, respectively. Air samples were collected for 20 and 40 minutes at 5 L/min using portable air sampling pumps (Gillian 5000); the allergen deposited on glass fiber filters (Millipore, 1 μm pore size) was quantified with ELISA. Particle counts were measured every minute using two laser particle counters (Lighthouse Worldwide Solutions; models 5102 and 3016). The average allergen mass per particle was estimated from the quotient of average Der p 1 air concentration (ng/m^3) and average particle concentration (particles/m^3).

Results: Particle and allergen concentrations were positively correlated for both the spent culture and mite bodies. The allergen potency of the spent mite particulate was greater than that of the mite bodies (3048 vs 1094 μg/g raw material) and despite having smaller average particle size, spent culture particles (>10 μm) had on average 20% higher levels of Der p 1 (79.4 vs 64.7 pg Der p 1/particle).

Conclusion: Allergen exposure chambers often rely on instantaneous measurement of particle counts in order to rapidly adjust and control the concentration of aerosolized allergen. The relationships established from this study provide the means to estimate allergen delivery for given particle concentrations. The results also characterise the allergen potency, particle sizes, morphologies and aerodynamic characteristics of two different source carriers of Der p 1.