Table S1. Proportions of different types of germline stem cells in female or male mosaic genotypes $G_{ij}^a = \{F_{ij}^a, M_{ij}^a\}$, derived from zygotes of type $i/j = W/W, W/D, W/R$ with parental nuclease from a mother, father or both, $a = 10, 01,$ or 11.

Genotype	Germline stem cells					
	W/W	W/D	W/R	D/D	D/R	R/R
G_{WW}^a	$(1 - \delta_e^a)^2$	0	$2(1 - \delta_e^a)\delta_e^a$	0	0	$(\delta_e^a)^2$
G_{WD}^a	0	$1 - e_e^a - \delta_e^a$	0	e_e^a	δ_e^a	0
G_{WR}^a	0	0	$1 - e_e^a - \delta_e^a$	0	0	$e_e^a + \delta_e^a$

Table S2. The proportion of each type of gamete (eggs or sperm) produced by the 14 adult types (6 zygotic genotypes, differentiated according to parental effect) and the female fitnesses (male fitnesses are assumed to be one). For parameters e_m^G and δ_m^G, the superscript $G = F$ for females and M for males.

Genotype ‡	Female fitness	Gametes produced				
		W	R	W*	D*	R *
W/W	1	1	0	0	0	0
W/W (10)	w^{10}	$1-\delta_e^{10}$	δ_e^{10}	0	0	0
W/W (01)	w^{01}	$1-\delta_e^{01}$	δ_e^{01}	0	0	0
W/W (11)	w^{11}	$1-\delta_e^{11}$	δ_e^{11}	0	0	0
W/D (10)	w^{10}	0	0	$(1-e_m^G-\delta_m^G)(1-e_e^{10}-\delta_e^{10})/2$	$e_e^{10}+\delta_e^{10}/2+(1+e_m^G)(1-e_e^{10}-\delta_e^{10})/2$	$\delta_m^G(1-e_e^{10}-\delta_e^{10})/2+\delta_e^{10}/2$
W/D (01)	w^{01}	0	0	$(1-e_m^G-\delta_m^G)(1-e_e^{01}-\delta_e^{01})/2$	$e_e^{01}+\delta_e^{01}/2+(1+e_m^G)(1-e_e^{01}-\delta_e^{01})/2$	$\delta_m^G(1-e_e^{01}-\delta_e^{01})/2+\delta_e^{01}/2$
W/D (11)	w^{11}	0	0	$(1-e_m^G-\delta_m^G)(1-e_e^{11}-\delta_e^{11})/2$	$e_e^{11}+\delta_e^{11}/2+(1+e_m^G)(1-e_e^{11}-\delta_e^{11})/2$	$\delta_m^G(1-e_e^{11}-\delta_e^{11})/2+\delta_e^{11}/2$
W/R	1	1/2	1/2	0	0	0
W/R (10)	w^{10}	$(1-e_e^{10}-\delta_e^{10})/2$	$(1+e_e^{10}+\delta_e^{10})/2$	0	0	0
W/R (01)	w^{01}	$(1-e_e^{01}-\delta_e^{01})/2$	$(1+e_e^{01}+\delta_e^{01})/2$	0	0	0
W/R (11)	w^{11}	$(1-e_e^{11}-\delta_e^{11})/2$	$(1+e_e^{11}+\delta_e^{11})/2$	0	0	0
D/D	0	0	0	0	1	0
D/R	0	0	0	0	1/2	1/2
R/R	0	0	1	0	0	0

‡ (10), (01), or (11) denotes a mosaic type with effects of deposited parental nuclease from mother, father or both.

Table S3. Model parameters and baseline values.

Symbol	Parameter	Baseline value
$e_\mathrm{m}^F, e_\mathrm{m}^M$	Meiotic rate of HR in females and males	0.90
$\delta_\mathrm{m}^F, \delta_\mathrm{m}^M$	Meiotic rate of EJ repair in females and males	0.05
$e_\mathrm{e}^{10}, e_\mathrm{e}^{01}, e_\mathrm{e}^{11}$	Embryonic rate of HR with parental effect from mother, father, or both parents	0
$\delta_\mathrm{e}^{10}, \delta_\mathrm{e}^{01}, \delta_\mathrm{e}^{11}$	Embryonic rate of EJ with parental effect from mother, father, or both parents	0
w^{10}, w^{01}, w^{11}	Female heterozygote fitness with parental effects from mother, father or both*	1
d_0	Initial frequency of transgenic W/D males in male population	0.01

*Fitness reductions due to parental deposition are assumed to affect W/W, W/D and W/R females, unless otherwise specified.