

A NEW STUDY THAT PROVES THE GREAT EFFECTIVENESS OF A SPECIAL EXTRACT MADE FROM FIRST CLASS KOREAN GINSENG ROOTS

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Pharmacological test made with 450 mice in order to determine the swimming performance after treatment for 14, 21 and 28 days with low dose levels, representing approximately the human clinical dose and ten times the clinical dose.

Introduction

For these experiments two dose levels of the ginseng extract G115 Pharmaton were used, 3 mg/kg/day and 30 mg/kg/day (= 0.06 mg/20 g and 0.6 mg/20 g respectively). Each of these dose levels was administered to groups of mice for periods of 14, 21 or 28 days. At each time interval the swimming performance of the treated mice was compared to an untreated control group of mice.

Method

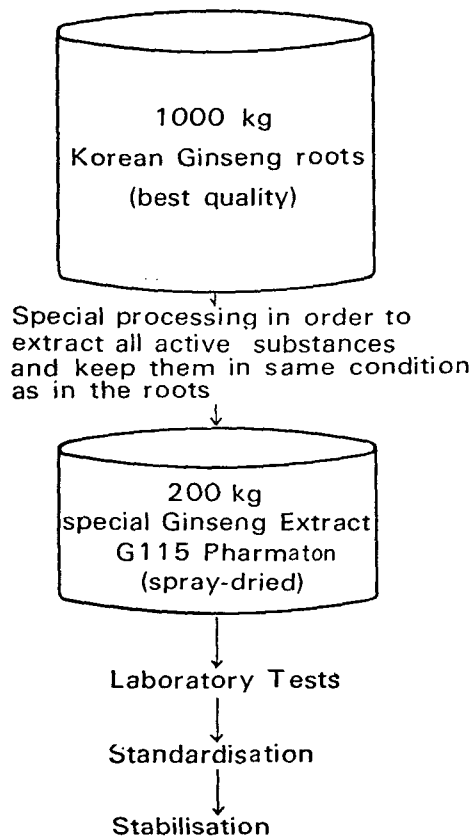
Animals

450 mice of Tylers Original Strain, weighing 20 ± 2 g at the start of the study, were used for these experiments. The animals were housed in polycarbonate solid floor cages and received a standard laboratory diet (41B — Dixons of Ware) and water ad libitum. The cages were kept under artificial lighting conditions with a 12 hour photoperiod and maintained at $22 \pm 2^\circ\text{C}$.

Preparation and Administration of test material

The test material is a water soluble brown powder. It was dissolved in distilled water at a concentration of 3 mg/ml and 0.3 mg/ml for the high and

Table 1. What is ginseng extract G115?



low dose groups respectively. The solutions were administered by gavage using a metal cannula.

Group and Dosage Schedule

The animals were divided into nine groups comprising 50 animals each (25 male and 25 female) and dosed according to the following schedule:

Group

1. 0.6 mg ginseng extract G115/20 g (30 mg/kg) daily for 14 days.
2. 0.06 mg ginseng extract G115/20 g (3 mg/kg) daily for 14 days.
3. Untreated Control Group — 14 days.
4. 0.6 mg ginseng extract G115/20 g (30 mg/kg) daily for 21 days.
5. 0.06 mg ginseng extract G115/20 g (3 mg/kg) daily for 21 days.
6. Untreated Control Group — 21 days.
7. 0.6 mg ginseng extract G115/20 g (30 mg/kg) daily for 28 days.
8. 0.06 mg ginseng extract G115/20 g (3 mg/kg) daily for 28 days.
9. Untreated Control Group — 28 days.

Exhaustion Test

The stress test was conducted 30 minutes after the last treatment for each group. For this test the mice were placed in a water bath at $18 \pm 1^\circ\text{C}$ and allowed to swim until completely exhausted. The swimming time of each mouse was determined by a stop watch and recorded. After this first test the mice were dried on paper tissue and then in a warm air stream. Each animal was then retested after a rest period of one hour.

On each occasion a group of untreated control mice were subjected to this test. Three different groups of control mice were used in these tests, in order that these mice should not have been subjected to this test before and be of a similar weight and

age as the test animals.

Results

Individual results are given in Tables 2 — 10. There was considerable variation in the swimming performance within each group, some animals being able to swim up to twice as long as others. In general the retest performance of each group after one hour was equal to or in many cases better than that of the first test.

Statistical comparison of each group with its respective untreated control group using the Student t test are summarised in Table 11–13.

With the exception of the low dose group in the 14 day experiment (Group 2), all test groups showed a significantly increased swimming performance when compared to their respective untreated Control

Table 2. Group 1: 0.6 mg Ginseng Extract G115/20 g—14 days Swim Times (secs)

Animal Number	Male		Animal Number	Female	
	First Test	Second Test		First Test	Second Test
1	520	560	26	620	625
2	462	690	27	605	535
3	647	675	28	652	635
4	620	650	29	725	673
5	490	612	30	500	560
6	480	590	31	465	495
7	440	625	32	550	715
8	454	657	33	784	812
9	596	785	34	642	630
10	540	525	35	846	830
11	557	632	36	535	575
12	612	602	37	475	695
13	375	465	38	520	430
14	630	710	39	600	692
15	604	552	40	610	510
16	487	332	41	630	775
17	515	447	42	505	375
18	536	582	43	455	400
19	590	529	44	620	485
20	544	495	45	650	622
21	645	795	46	535	542
22	520	670	47	525	397
23	715	847	48	772	635
24	794	688	49	583	727
25	592	732	50	720	703

First Test: Mean 581.78 st. dev. 99.86

Second Test: Mean 610.40 st. dev. 122.00

Table 3. Group 2: 0.06 mg Ginseng Extract G115/20 g—
14 days Swim Times (secs)

Animal Number	Male		Animal Number	Female	
	First Test	Second Test		First Test	Second Test
51	525	335	76	480	738
52	394	425	77	355	621
53	526	464	78	780	962
54	505	533	79	365	582
55	378	646	80	465	732
56	462	484	81	546	595
57	570	680	82	495	540
58	555	640	83	480	555
59	432	295	84	442	435
60	411	697	85	560	620
61	479	592	86	505	568
62	528	550	87	515	510
63	510	724	88	396	495
64	496	628	89	365	420
65	440	535	90	540	670
66	290	413	91	531	480
67	360	440	92	632	545
68	577	514	93	589	520
69	615	583	94	651	638
70	546	708	95	605	628
71	576	754	96	596	855
72	400	523	97	500	735
73	345	830	98	645	780
74	480	472	99	621	775
75	607	720	100	435	605

First Test: Mean 502.02 st. dev. 96.85

Second Test: Mean 594.18 st. dev. 133.50

Table 4. Group 3: Untreated Controls—14 days Swim Times (secs)

Animal Number	Male		Animal Number	Female	
	First Test	Second Test		First Test	Second Test
101	550	515	126	371	545
102	610	740	127	470	470
103	390	542	128	431	531
104	595	648	129	455	508
105	568	580	130	395	460
106	285	240	131	480	510
107	515	530	132	472	651
108	235	285	133	410	472
109	475	360	134	320	325
110	460	470	135	500	370
111	402	365	136	625	578
112	635	775	137	415	540
113	595	660	138	540	345
114	455	630	139	677	472
115	515	510	140	405	582
116	575	561	141	505	568
117	501	574	142	431	605

118	545	700	143	560	551
119	440	595	144	366	683
120	345	540	145	561	720
121	430	585	146	426	705
122	510	665	147	405	425
123	550	765	148	535	561
124	465	565	149	495	540
125	375	640	150	540	486

First Test: Mean 476.22 st. dev. 92.47

Second Test: Mean 544.86 st. dev. 120.93

Table 5. Group 4: 0.6 mg Ginseng Extract G 115/20 g—
21 days Swim Times (secs)

Animal Number	Male		Animal Number	Female	
	First Test	Second Test		First Test	Second SeTest
151	449	442	176	730	836
152	615	610	177	460	606
153	383	534	178	670	812
154	485	475	179	395	553
155	645	577	180	785	915
156	445	395	181	690	795
157	565	525	182	430	522
158	795	815	183	632	665
159	635	480	184	595	655
160	500	550	185	490	430
161	764	685	186	578	620
162	415	515	187	700	610
163	740	660	188	822	695
164	700	595	189	505	652
165	850	774	190	668	635
166	785	540	191	561	795
167	722	644	192	846	955
168	470	760	193	770	930
169	632	479	194	741	780
170	614	795	195	726	780
171	770	835	196	655	655
172	667	624	197	795	621
173	485	603	198	505	440
174	530	680	199	830	760
175	591	738	200	670	726

First Test: Mean 630.02 st. dev. 132.68

Second Test: Mean 644.66 st. dev. 137.03

Table 6. Group 5: 0.06 mg Ginseng Extract G 115/20 g—
21 days Swim Times (secs)

Animal Number	Male		Animal Number	Female	
	First Test	Second Test		First Test	Second Test
201	435	390	226	525	570
202	625	880	227	515	635
203	585	490	228	635	830
204	795	455	229	620	555
205	650	935	230	645	590

206	605	675	231	630	660
207	572	725	232	600	695
208	500	690	233	735	740
209	553	736	234	670	750
210	535	760	235	580	682
211	555	320	236	585	645
212	370	450	237	645	712
213	764	805	238	530	489
214	687	675	239	445	615
215	432	545	240	605	782
216	645	715	241	555	815
217	532	644	242	665	700
218	599	435	243	715	765
219	564	612	244	618	798
220	510	566	245	360	745
221	545	503	246	696	752
222	339	335	247	648	676
223	734	775	248	638	775
224	709	457	249	515	655
225	805	825	250	606	712

First Test: Mean 592.52 st. dev. 103.95

Second Test: Mean 654.82 st. dev. 140.35

Table 7. Group 6: Untreated Controls—21 days Swim Times (secs)

Animal Number	Male		Female		
	First Test	Second Test	Animal Number	First Test	Second Test
251	390	418	276	435	501
252	540	544	277	418	550
253	435	537	278	602	636
254	610	651	279	536	642
255	465	445	280	370	413
256	510	545	281	425	537
257	530	580	282	584	612
258	435	485	283	432	523
259	609	700	284	378	428
260	655	680	285	412	487
261	613	430	286	534	539
262	418	550	287	607	618
263	517	475	288	671	612
264	436	500	289	490	492
265	518	436	290	554	603
266	404	532	291	672	697
267	510	655	292	472	528
268	355	385	293	435	398
269	360	425	294	515	602
270	527	536	295	382	427
271	431	482	296	491	505
272	498	525	297	627	700
273	540	581	298	586	551
274	508	580	299	462	491
275	478	492	300	411	518

First Test: Mean 495.88 st. dev. 85.62

Second Test: Mean 536.38 st. dev. 82.93

Table 8. Group 7: 0.6 mg Ginseng Extract G 115/20 g—28 days Swim Times (secs)

Animal Number	Male		Female		
	First Test	Second Test	Animal Number	First Test	Second Test
301	602	790	326	695	795
302	740	860	327	450	493
303	555	575	328	734	665
304	670	885	329	480	475
305	730	870	330	585	645
306	588	605	331	789	785
307	485	525	332	565	772
308	682	775	333	650	685
309	465	620	334	615	566
310	815	940	335	710	704
311	680	805	336	694	525
312	853	825	337	640	760
313	770	795	338	585	725
314	665	545	339	515	575
315	795	855	340	715	830
316	590	710	341	870	790
317	455	570	342	815	850
318	675	665	343	735	590
319	570	725	344	655	690
310	705	925	345	459	470
321	940	793	346	850	920
322	905	815	347	765	760
323	885	758	348	425	705
324	355	425	349	714	855
325	875	750	350	650	810

First Test: Mean 668.40 st. dev. 138.84

Second Test: Mean 716.92 st. dev. 131.91

Table 9. Group 8: 0.06 mg Ginseng Extract G 115/20 g—28 days Swim Times (secs)

Animal Number	Male		Female		
	First Test	Second Test	Animal Number	First Test	Second Test
351	705	835	376	535	685
352	860	775	377	600	585
353	425	465	378	678	720
354	760	857	379	742	805
355	670	735	380	728	777
356	825	732	381	835	838
357	690	755	382	724	602
358	560	551	383	690	815
359	756	611	384	505	724
360	771	768	385	594	788
361	605	631	386	537	505
362	669	667	387	664	679
363	900	888	388	615	630
364	500	515	389	789	760
365	491	465	390	810	855
366	785	899	391	435	478

367	770	495	392	544	530
368	835	932	393	890	635
369	813	940	394	628	590
370	915	920	395	810	675
371	750	695	396	723	805
372	890	860	397	684	720
373	852	788	398	559	615
374	825	872	399	767	843
375	905	895	400	740	738

First Test: Mean 707.06 st. dev. 129.94
 Second Test: Mean 718.86 st. dev. 134.52

Table 10. Group 9: Untreated Controls—28 days Swim Times (secs)

Animal Number	Male		Female		
	First Test	Second Test	Animal Number	First Test	Second Test
401	445	587	426	280	462
402	549	603	427	502	635
403	498	487	428	345	408
404	395	355	429	408	444
405	563	530	430	620	480
406	604	560	431	574	624
407	570	510	432	545	688
408	365	434	433	350	350
409	370	418	434	375	438
410	417	520	435	452	615
411	598	642	436	541	472
412	494	544	437	392	598
413	376	522	438	505	625
414	455	483	439	532	420
415	425	414	440	582	692
416	525	670	441	403	400
417	335	391	442	453	493
418	479	535	443	482	582
419	510	498	444	433	528
420	555	563	445	566	636
421	360	405	446	504	440
422	402	507	447	430	430
423	416	466	448	475	690
424	380	358	449	445	548
425	470	664	450	530	534

First Test: Mean 465.60 st. dev. 81.97
 Second Test: Mean 517.96 st. dev. 95.64

Table 11. Comparison of Swimming Performance—14 day experiment

Treatment	Test	Mean Swim Time (secs)	% increase over control group	p.
Control—no treatment	First	476 ± 92		
	Second	545 ± 121		

0.06 mg Ginseng Extract G115/ 20g—14 days	First	502 ± 97	5.4%	N.S.
	Second	594 ± 133	9.0%	<0.05
0.6 mg Ginseng Extract G 115/ 20g—14 days	First	582 ± 100	22.0%	<0.001
	Second	610 ± 122	12.0%	<0.02

Table 12. Comparison of swimming performance—21 day experiment

Treatment	Test	Mean Swim Time (secs)	% increase over control group	p.
Control—no treatment	First	496 ± 86		
	Second	536 ± 83		
0.06 mg Ginseng Extract G 115/ 20 g—21 days	First	592 ± 104	19.5%	<0.001
	Second	654 ± 140	22.0%	<0.001
0.6 mg Ginseng Extract G 115/ 20 g—21 days	First	630 ± 133	27.0%	<0.001
	Second	645 ± 137	20.2%	<0.001

Table 13. Comparison of swimming performance—28 day experiment

Treatment	Test	Mean Swim Time (secs)	% increase over control group	p.
Control—no treatment	First	466 ± 82		
	Second	518 ± 96		
0.06 mg Ginseng Extract G 115 /20g—28 days	First	707 ± 130	51.8%	<0.001
	Second	719 ± 134	38.8%	<0.001
0.6 mg Ginseng Extract G 115/ 20 g—28 days	First	668 ± 139	47.9%	<0.001
	Second	717 ± 132	38.4%	<0.001

group. This increased performance was observed in both the first and second retest after one hour in all groups, and was significant to a level of $p = < 0.001$ in groups 1, 4, 5, 7 and 8.

Discussion

The swimming performance of those mice treated with the ginseng extract G115 improved as the period of administration was increased. This im-

provement could not be related to increase in body weight, since this effect was not observed in the untreated mice; statistical analysis of these control groups showed no significant difference between them.

After 14 days administration of ginseng extract G115 only the high dose group animals showed significantly increased swimming performance at both the first and second test. Those animals that were given the lower dose for this period showed only a slightly better performance than untreated animals; this was only statistically significant in the second exhaustion test.

After 21 days administration, the swimming performance of all animals treated with Ginseng extract G115 showed significantly increased swimming performance compared to that of the control group animals. In both the high and low dose groups this increase was greater than that seen at 14 days.

Differences measured in the performance of the two dose groups at this time were not statistically

Table 14. Dose 0.06/20 g swimming performance compared to control group

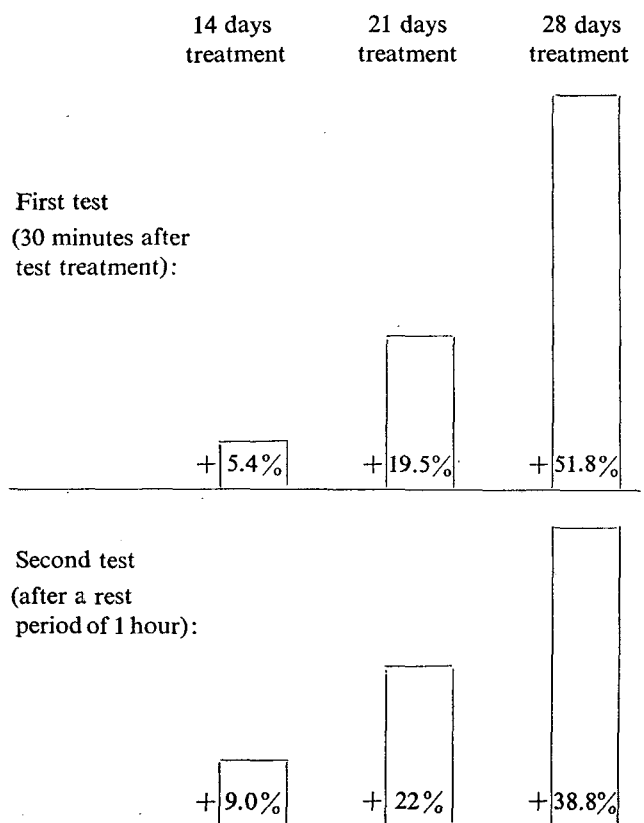
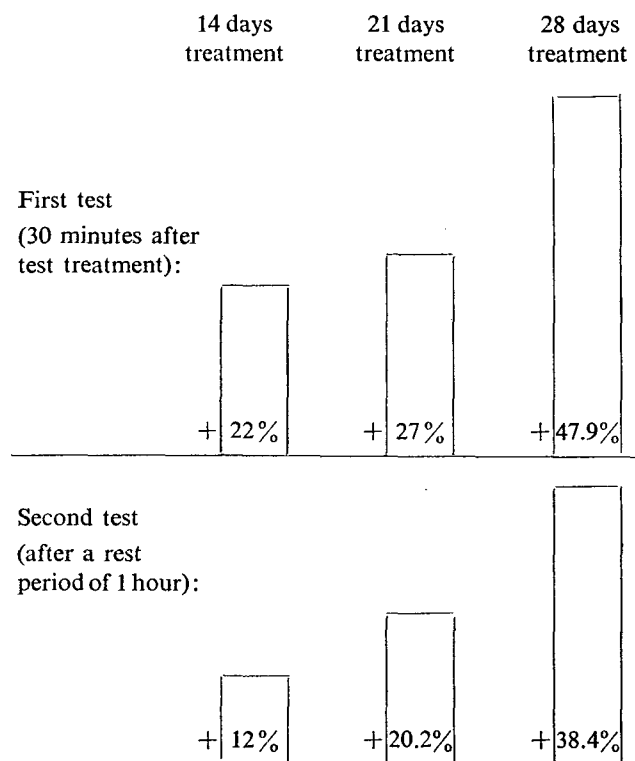


Table 15. Dose 0.6/20 g swimming performance compared to control group



significant. Administration of ginseng extract G115 for 28 days produced the greatest increase in swimming performance, in both the high and low dose groups at the first and second exhaustion tests.

Conclusion

Very low doses of the Ginseng Extract G115, made from first class Korean ginseng roots by means of a special manufacturing process, give high improvement of the swimming performance of mice. The low dose of 0.06 mg/20 g corresponds to the human clinical dose of ginseng, and with this low dose an improvement to such extent was not observed so far with other extracts.

If an immediate effect is wanted or for a short period of treatment it seems to be better to give some what higher doses (0.6 mg/20 g), however, for a longer course of treatment equal or even better results can be expected with the lower dose.